



FILED
12/20/19
10:38 AM

EW2/nd3 12/20/2019

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to
Consider Revisions to Electric Rule 20
and Related Matters.

Rulemaking 17-05-010

**ADMINISTRATIVE LAW JUDGE'S RULING
ENTERING THE AUDIT OF PACIFIC GAS AND ELECTRIC COMPANY
RULE 20A UNDERGROUNDING PROGRAM INTO THE RECORD**

This ruling serves to issue, and to enter into the record the attached public version of *Audit of PG&E Rule 20A Undergrounding Program*, dated October 15, 2019, prepared by AzP Consulting, LLC and submitted to the California Public Utilities Commission. It is anticipated a schedule for comment will be set by subsequent ruling.

IT IS SO RULED.

Dated December 20, 2019, at San Francisco, California.

/s/ ERIC WILDGRUBE
Eric Wildgrube
Administrative Law Judge

Attachment A
Audit of PG&E Rule 20A Undergrounding Program

ATTACHMENT A

*Audit of PG&E Rule 20A Undergrounding Program
Public Version*

AzP Consulting, LLC



Final Report

Audit of PG&E Rule 20A Undergrounding Program



CASE NO. A.15-09-001

**Submitted to the:
CALIFORNIA PUBLIC UTILITIES COMMISSION**



PUBLIC VERSION

OCTOBER 15, 2019

TABLE OF CONTENTS

Table of Contents	2
Table of Figures	4
I. Introduction and Background	7
I.1 PG&E Overview	7
I.2 Rule 20A Program Overview	9
I.3 Background of Audit	10
I.3.a. Decision 17-05-013	10
I.3.b. Decision 18-03-022	11
II. Executive Summary	12
II.1 Audit Methodology and Standards	12
II.2 Fundamental Terminology	12
II.2.a. Audit Period	13
II.2.b. PG&E Rule 20A Budget Amounts Versus Imputed Adopted Amounts	13
II.2.c. References to Unincorporated Areas of Counties	14
II.3 Primary Audit Findings	15
II.4 Summary of Recommendations	27
III. Technical Analysis	28
III.1 Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions	28
III.1.a. Subtask 1(a) – Budgeting	28
III.1.b. Subtask 1(b) – Spending	44
III.1.c. Subtask 1(c) – Ratemaking	56
III.1.d. Subtask 1(d) – Reprioritization	70
III.2 Task 2: Ensure that localities will receive the full benefit of rule 20A funds	78
III.2.a. Subtask 2(a) – Allocations to Governmental Agencies	78
III.2.b. Subtask 2(b) – Work Credit Usage by Governmental Agencies	95
III.2.c. Subtask 2(c) – Review of Projects Initiated, But Not Completed	108
III.2.d. Subtask 2(d) – Project Completion	118
III.3 Task 3: Assess progress in implementing steps PG&E has taken to increase its capability to perform Rule 20A conversions	126

III.4	Task 4: Assess PG&E processes to verify eligibility of Rule 20A projects.....	144
III.5	Task 5: Verify the Reliability of Rule 20A Project Cost Estimates	155
IV.	Glossary.....	177
IV.1	Acronyms and Definitions.....	177
V.	Exhibits.....	178
V.1	AzP Exhibit A	179
V.2	AzP Exhibit B.....	181
V.3	AzP Exhibit C.....	195
V.4	AzP Exhibit D-1	196
V.5	AzP Exhibit D-2	197
V.6	AzP Exhibit E.....	199
V.7	AzP Exhibit F	204
V.8	AzP Exhibit G	208
V.9	AzP Exhibit H	213
V.10	AzP Exhibit I.....	218
V.11	AzP Exhibit J	221
V.12	AzP Exhibit K.....	229
V.13	AzP Exhibit L.....	231
V.14	AzP Exhibit M	234
V.15	AzP Exhibit N	236
V.16	AzP Exhibit O	242
V.17	AzP Exhibit P.....	243
V.18	AzP Exhibit Q.....	245
V.19	AzP Exhibit R.....	250

TABLE OF FIGURES

Figure I.1.1: PG&E's Electric Service Territory Boundary	8
Figure II.3.1: Rule 20A Actual vs. Imputed Adopted Expenditures	16
Figure II.3.2: Percentage of PG&E Rule 20A Miles Converted During Audit Period	21
Figure II.3.3: EEI Study - Minimum and Maximum Cost per Mile: Converting Overhead to Underground Distribution Lines (Nominal and Real Dollars)	22
Figure II.3.4: PG&E Performance Compared to EEI Study - Minimum and Maximum Cost per Mile for Converting Overhead to Underground Distribution Lines (Real Dollars)	22
Figure II.3.5: Average Cost Per Mile of Conversion - by Year and Population Density - Urban Regions	23
Figure II.3.6: Average Cost Per Mile of Conversion - by Year and Population Density - Suburban Regions	23
Figure II.3.7: Average Cost Per Mile of Conversion - by Year and Population Density - Rural Regions.....	24
Figure II.3.8: Average Cost Per Mile of Conversion - by Year and Population Density - Unknown Regions	24
Figure II.3.9: PG&E Rule 20A Initiative Implementation Timeline	26
Figure II.3.10: PG&E Rule 20A Projects Completed During Years 2007 through 2016.....	27
Figure II.3.11: PG&E Rule 20A Actual Expenditures vs. Imputed-Adopted Expenditures During Years 2007 through 2016	27
Figure III.1.1: Identified Projects as Percentage of PG&E's Rule 20A GRC Forecasts	34
Figure III.1.2: Rule 20A Actual vs. Imputed Adopted Expenditures	35
Figure III.1.3: AzP Calculation of PG&E GRC Forecast Multiplier Calculation	38
Figure III.1.4: GRC Imputed Adopted Expenditures vs. Actual Expenditures - Central Coast.....	39
Figure III.1.5: Rule 20A SAP vs FERC Acct Actual Expenditures.....	47
Figure III.1.6: Rule 20A Actual vs. Imputed Adopted Expenditures	49
Figure III.1.7: PG&E GRC Rate Case Cycle Summary - 2007 GRC through 2017 GRC.....	59
Figure III.1.8: Rule 20A Expenditures - PG&E GRC Forecast vs. Adopted vs. Actual.....	63
Figure III.1.9: PG&E Rule 20A Balancing Accounting Entries	64
Figure III.1.10: Rule 20A Project Costs - Mapping of FERC to SEC Balance Sheet Line Items	66
Figure III.1.11: Imputed vs Actual Expenditures - Electric Capital MWCs.....	72
Figure III.2.1: PG&E Rule 20A Work Credit Allocation Methodology 2007 to 2010	79
Figure III.2.2: Total PG&E Rule 20A Work Credit Allocations.....	82
Figure III.2.3: Recipients of Largest and Smallest Work Credit Allocations 2007-2016.....	84
Figure III.2.4: WCA and Year-End Credit Balances by County 2007-2016 (Nominal Dollars)	85
Figure III.2.5: 2016 Year-End Work Credit Balance for Communities with 15 Smallest and Largest Balances as of December 31, 2016 (Nominal Dollars)	86
Figure III.2.6: PG&E's Work Credit Balance Communication Procedure	88
Figure III.2.7: PG&E's Work Credit Balance Accounting for Rule 20A Communities	95
Figure III.2.8: Total Remaining WCA Balance for All PG&E Rule 20A Communities	98
Figure III.2.9: Total Remaining WCA Balance of the 15 Communities with Largest Positive Balances	98
Figure III.2.10: Total Remaining WCA Balance by County - Counties of Communities with Positive Balances Only	100

Figure III.2.11: Total Remaining WCA Balance of the 15 Communities with Largest Negative Balances as of September 30, 2018.....	101
Figure III.2.12: Total Remaining WCA Balance by County - Counties of Communities with Negative Balances Only as of September 30, 2018.....	102
Figure III.2.13: Distribution of Communities with Insufficient Work Credits, by County as of September 30, 2018	103
Figure III.2.14: Communities with the Largest Number of Incomplete Rule 20A Projects.....	109
Figure III.2.15: Distribution of PG&E Rule 20A Projects by Decade Initiated but Remaining Incomplete as of September 30, 2018	110
Figure III.2.16: PG&E Rule 20A Project Life Cycle	110
Figure III.2.17: Status of PG&E's 126 Incomplete Rule 20A Projects as of September 30, 2019.....	111
Figure III.2.18: Status of PG&E Rule 20A Projects Relative to Originally Anticipated Schedule for Projects Remaining Incomplete as of September 30, 2018.....	112
Figure III.2.19: Parties PG&E cited as Responsible for Project Delays for	114
Figure III.2.20: PG&E Electric Operations Project Completion Management Process	119
Figure III.3.1: PG&E Rule 20A Initiative Implementation Timeline.....	127
Figure III.3.2: PG&E Rule 20A Metrics for Years 2007 through 2016: Projects Completed, Actual Expenditures, and Imputed-Adopted Expenditures	128
Figure III.3.3: Rule 20A Projects Delayed Due to PG&E Estimating Resource Issues During and After October 2013	131
Figure III.3.4: Rule 20A Workshop Participants and Cross-Training Summary	132
Figure III.3.5: PG&E Rule 20A Projects Completed During Years 2007 through 2016.....	139
Figure III.3.6: PG&E Rule 20A Actual Expenditures vs. Imputed-Adopted Expenditures	139
Figure III.4.1: Projects PG&E Deemed Ineligible for Conversion Under Rule 20A During the Period 2007 through 2016	149
Figure III.4.2: PG&E Rule 20A Projects Deemed Eligible and Later Deemed Ineligible Due to Project Costs Exceeding Available Work Credits During the Period 2007 through 2016	151
Figure III.5.1: PG&E Rule 20A Cost Estimation Process - 2007 through 2016	158
Figure III.5.2: Percentage Variance of Actual-Versus-Initial and Actual-Versus-Design Project Cost Estimates for Projects Initiated and Completed During the Audit Period, by Year Initiated*	159
Figure III.5.3: Percentage Variance of Actual-Versus-Initial and Actual-Versus-Design Project Cost Estimates for Projects Initiated and Completed During the Audit Period, by Year Initiated*,**	159
Figure III.5.4: PG&E's Rule 20A Estimate Classification System.....	161
Figure III.5.5: Rule 20A Project Estimate Variance Selection Testing	163
Figure III.5.6: PG&E Rule 20A Discrepancies Between Final Project Costs.....	166
Figure III.5.7: Percentage of PG&E Rule 20A Miles Converted During Audit Period by Population Density	169
Figure III.5.8: EEI Study - Minimum and Maximum Cost per Mile: Converting Overhead to Underground Distribution Lines (Nominal and Real Dollars)	170
Figure III.5.9: PG&E Performance Compared to EEI Study - Minimum and Maximum Cost per Mile for Converting Overhead to Underground Distribution Lines (Real Dollars)	170
Figure III.5.10: Average Cost Per Mile of Conversion - by Year and Population Density - Urban Regions	171

Figure III.5.11: Average Cost Per Mile of Conversion - by Year and Population Density - Suburban Regions 171

Figure III.5.12: Average Cost Per Mile of Conversion - by Year and Population Density - Rural Regions. 172

Figure III.5.13: Average Cost Per Mile of Conversion - by Year and Population Density - Unknown Regions 172

I. INTRODUCTION AND BACKGROUND

AzP was retained by the California Public Utilities Commission (Commission) to conduct the Audit of Pacific Gas and Electric (PG&E or the Company) Rule 20A Program regarding the replacement of overhead with underground electric facilities in accordance with Commission Decision 17-05-013¹ and Decision 18-03-022² in PG&E's 2017 Test Year General Rate Case.³ After a competitive solicitation process, which included review and scoring of all proposals received, as well as interviews of consulting firms selected as finalists, the California Public Utilities Commission (CPUC) Energy Division (ED) selected AzP to perform the audit in August 2018. AzP began work on the audit after the associated contract was executed in October 2018.

This section of the report provides:

- an overview of PG&E and the Rule 20A program,
- a narrative of the events that formed the basis for the investigation conducted in this audit,
- a description of audit methodology and certain key terminology,
- a summary of key audit findings and a listing of recommendations.

I.1 PG&E OVERVIEW

PG&E Corporation, incorporated in California in 1995, is a holding company whose primary operating subsidiary is PG&E,⁴ a public utility operating in northern and central California with a service area of approximately 70,000 miles.⁵ PG&E serves approximately 5.4 million electric customers and 4.3 million natural gas customers.⁶ Since this is a focused audit of the Rule 20A program—which is an electric capital program to replace overhead electric lines with underground electric lines—AzP's primary focus in this report is on the electric side of PG&E's business.

PG&E's electric distribution network consists of 106,681 circuit miles and 18,466 circuit miles of interconnected transmission lines.⁷ As shown in the following figure, PG&E covers the majority of California's geographic area in square miles of service territory.⁸ As of December 31, 2018, PG&E's electric distribution system was comprised of approximately 20% underground distribution lines and 80% overhead distribution lines.⁹ PG&E generated approximately \$12.7 billion¹⁰ in electrical operating revenue and approximately \$16.8 billion in total revenue for 2018.¹¹ PG&E's electric distribution rates, including

¹ D.17-05-013, Ordering Paragraph 8, p. 249

² D.18-03-022, Ordering Paragraph 1, p. 11

³ Application of Pacific Gas and Electric Company for Authority, Among Other Things, to Increase Rates and Charges for Electric and Gas Service Effective on January 1, 2017. Application 15-09-001 (Filed September 1, 2015)

⁴ PG&E 2018 Annual Report, p. 8

⁵ PG&E Company Profile page, obtained from: https://www.pge.com/en_US/about-pge/company-information/profile/profile.page

⁶ Id.

⁷ Id.

⁸ Service area map. Obtained from: https://www.pge.com/tariffs/tm2/pdf/ELEC_MAPS_Service_Area_Map.pdf

⁹ PG&E 2018 Annual Report, p. 17

¹⁰ PG&E 2018 Annual Report, p. 19

¹¹ 2018 Annual Report, p. 54

those used to recover costs related to the Rule 20A program, are determined in ratemaking proceedings overseen by the CPUC.

Figure I.1.1: PG&E's Electric Service Territory Boundary



Obtained from: https://www.pge.com/tariffs/tm2/pdf/ELEC_MAPS_Service_Area_Map.pdf

On January 29, 2019, PG&E and its corporate parent, PG&E Corporation, filed voluntary bankruptcy petitions under Chapter 11 in the bankruptcy court.¹² Subsequent to the bankruptcy filing, PG&E Corporation and PG&E continue to operate as “debtors in possession” under the jurisdiction of the bankruptcy court.¹³

PG&E’s major accounting levels are organized at the most granular level by cost element (such as materials, labor, overhead).¹⁴ Orders (such as specific Rule 20A projects) represent the next level of organizational accounting, followed by Planning Orders and/or MATs: Maintenance Activity Type designations (less relevant for Rule 20A as there is only one category or level), then by Major Work Category (MWC).¹⁵ The electric capital portion of PG&E’s business is comprised of approximately thirty MWCs, of which the Rule 20A program is designated MWC 30.¹⁶ MWCs are organized next by Program

¹² 2018 Annual Report, p. 55

¹³ Id.

¹⁴ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-002-002

¹⁵ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-006-024, Att. 1

¹⁶ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-002-002

(such as maintenance, vegetation, or in the case of Rule 20A, Work Requested by Others or WRO).¹⁷ Various PG&E Programs are organized within PG&E's LOBs or lines of business (such as Electric), all of which are accounted for under the total Company level.¹⁸

I.2 RULE 20A PROGRAM OVERVIEW

The investigation that ultimately resulted in the establishment of the Rule 20A program began on June 22, 1965 when a study was commissioned in Case Number 8209 to examine what additional rules and rates would be required to encourage undergrounding for aesthetic and economic purposes.¹⁹ The Commission's particular focus at this time on the aesthetic value related to this program is evident from the decision which established the Electric Tariff Rule 20, D.73078.²⁰ The following excerpt is from the *Nature of Proceeding* section of D.73078, from Case 8209 released on September 19, 1967:²¹

However useful and often necessary had been the seemingly total preoccupation with the engineering and commercial aspects of our utilities, the time had long passed when we could continue to ignore the need for more emphasis on aesthetic values in those new areas where natural beauty has remained relatively unspoiled or in established areas which have been victimized by man's handiwork.

The current form of the Rule 20A program is guided by PG&E's Electric Rule No. 20 Tariff (Replacement of Overhead with Underground Electric Facilities), which contains three types of undergrounding conversion opportunities for localities:²²²³

- Rule 20, Section A (Rule 20A): Undergrounding projects that are performed by PG&E with costs included in PG&E's rates. These projects must be performed within available work credit allocations (WCAs) made to localities and must meet certain eligibility criteria.
- Rule 20, Section B (Rule 20B): Undergrounding projects in which the locality funds a major portion of the cost.
- Rule 20, Section C (Rule 20C): Undergrounding projects in which the locality funds the entire cost.

This program is highly capital intensive, from 1968 to 2015 the undergrounding program for California electric utilities, including PG&E, amounted to approximately \$3.4 billion.²⁴

¹⁷ Id.

¹⁸ Id.

¹⁹ D.73078, p. 1

²⁰ Id.

²¹ Id.

²² GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-001-003, Att. 2

²³ In addition to these three sections, Rule 20D is applicable only to San Diego Gas & Electric. CPUC Staff Presentation titled *Overhead to Underground Conversion Programs*, slide 4, obtained from: <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442456943>

²⁴ CPUC Staff Presentation titled *Overhead to Underground Conversion Programs*, slide 4, obtained from: <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442456943>

As stated above, Rule 20A projects must be performed within a locality's available work credits.²⁵ Both the level of work credit allocations, as well as the methodology of how to allocate those work credit allocations amongst the different localities, is established by the Commission in PG&E's GRCs and has changed over the course of the Rule 20A program. As of the time of this audit, PG&E's total annual authorized level of work credit allocations set forth in Decision 17-05-013 is \$41.3 million. Pursuant to the Rule No. 20 Tariff, these work credit allocations are allocated to localities wherein fifty percent of the total authorized amount is allocated in the same ratio that the number of overhead meters in any city or unincorporated area of any county bears to the total system overhead meters; and fifty percent of the total authorized amount allocated in the same ratio that the total number of meters in any city or unincorporated area of any county bears to the total system meters.²⁶

PG&E's Rule 20A program is currently comprised primarily of a Program Manager, two Program Analysts, four Program Liaisons,²⁷ and Project Managers.²⁸ The PG&E Rule 20A Program Manager manages the overall Rule 20A portfolio and coordinates resource needs with department leads.²⁹ Analysts conduct the accounting functions of PG&E's Rule 20A program, such as those related to work credit allocations.³⁰ Rule 20A program Liaisons are the conduits to all PG&E service territory cities and counties³¹ and provide information to inform PG&E's prioritization of projects.³² Project Managers develops project schedules based on expected available resources for each project. If resource availability becomes an issue, Project Managers escalate concerns to management for potential solution.³³

I.3 BACKGROUND OF AUDIT

I.3.a. DECISION 17-05-013

During PG&E's 2017 GRC, the Commission identified several areas which it found concerning PG&E's management of its Rule 20A program. One primary area of concern was related to PG&E's spending of Rule 20A funds relative to budgeted amounts. In its decision for the 2017 GRC, the Commission referenced an exhibit³⁴ from the proceeding that illustrated there had been over \$150 million of unspent Rule 20A funds since the year 2000.³⁵ The decision noted that this program underspending was "greatly

²⁵ In the event that a locality is found to have insufficient work credits to continue as a Rule 20A project, the locality may take the form of a Rule 20A/B combination project. These occurrences are rare, and PG&E noted only project (project number 30616108, E 14th St San Leandro) during the 2007 to 2016 timeframe in which this occurred. GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-002-024

²⁶ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-001-069

²⁷ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-001-108

²⁸ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-001-002

²⁹ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-002-050

³⁰ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-002-066

³¹ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-001-071

³² GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-002-050

³³ Id.

³⁴ The Exhibit was filed by then Office of Ratepayer Advocates (ORA), now referred to as the California Public Advocates Office, or CalPA. Source: <https://www.publicadvocates.cpuc.ca.gov/default.aspx>

³⁵ D. 17-05-013, p. 72

concern[ing]” to the Commission.³⁶ Also concerning to the Commission was that PG&E provided no record during the 2017 GRC regarding the actual use of the unspent Rule 20A funds the utility had collected in rates.³⁷ A related concern was of the reprioritization of Rule 20A funds. In the Commission’s decision in PG&E’s 2017 GRC, the Commission referred to reprioritizations as instances that involve “management discretion” to reallocate “Commission-authorized GRC spending, after [PG&E] has been granted authority to spend specific designated amounts.”³⁸ The Commission also cited the accumulation of unredeemed work credits as a concern, noting that the aggregate amount of unredeemed work credits for all localities was nearly \$1 billion.³⁹ Ultimately, the Commission determined that “added scrutiny”⁴⁰ of the Rule 20A program was appropriate and ordered the establishment of a Rule 20A one-way balancing account, as well as an audit, “to ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts, and to ensure that localities will receive the full benefit of these funds.”⁴¹

I.3.b. DECISION 18-03-022

In Decision 17-05-013, the Commission ordered PG&E, the City of Hayward, and Commission staff to meet and confer on a joint proposal for the audit.⁴² In Decision 18-03-022, *Decision Resolving Compliance Issue Regarding Audit of Pacific Gas and Electric Company Rule 20A Undergrounding Program*, the Commission reviewed the joint proposal and provided additional specificity and guidance for the Rule 20A Audit. The Commission modified certain aspects of the joint proposal, such as expanding the list of objectives and clarifying that the CPUC Energy Division would have complete responsibility for overseeing the audit.⁴³ Ordering Paragraph 7 and Attachment A of Decision 18-03-022, stated that the scope of the audit should include five primary tasks listed below with 38 related audit objectives:^{44,45}

1. Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts.
2. Ensure that localities will receive the full benefit of these funds
3. Assess PG&E’s progress in implementing the steps it has taken to increase its capability to perform Rule 20A conversions.
4. Assess PG&E processes to verify the eligibility of Rule 20A projects.
5. Assess reliability of Rule 20A project cost estimates.

As noted in the *Audit Methodology and Standards* section below, AzP organized the audit report into sections based on these five primary task areas and categorized each finding and recommendation by the applicable audit objective.

³⁶ D.17-05-013, p. 71

³⁷ D.17-05-013, p. 74

³⁸ D.17-05-013, p. 182

³⁹ D.17-05-013, p. 77

⁴⁰ D.17-05-013, p. 78

⁴¹ D.17-05-013, p. 75

⁴² D.17-05-013, p. 76

⁴³ D.18-03-022, p. 5

⁴⁴ D.18-03-022, p. 4 and Attachment A

⁴⁵ In addition to these 5 primary task areas, the Commission listed 38 specific objectives to be completed.

II. EXECUTIVE SUMMARY

II.1 AUDIT METHODOLOGY AND STANDARDS

The PG&E Rule 20A audit was performed on behalf of the CPUC ED by AzP Consulting, whose founders are Certified Public Accountants and former financial statement auditors. This audit was performed consistent with guidance codified by the Auditing Standard Board of the American Institute of Certified Public Accountants (AICPA), the entity that promulgates Generally Accepted Auditing Standards (GAAS) in the United States. GAAS are applicable to many contexts of examination and serve as the primary authoritative guidance and the industry practice for the most formal and stringent audits, including SEC-required audits of financial statements. While the audit of PG&E's Rule 20A program is a focused regulatory audit (rather than a financial statement audit), AzP's approach is generally guided, in addition to the specific directives from the CPUC and the auditors' experience in the public utility industry, by direction provided by the AICPA for auditing standards. The results of this audit are expressed in the form of findings and recommendations for each task under audit, i.e., Scope Area (Budgeting, Spending, etc.). As demonstrated in the sections that follow, AzP has referenced findings and recommendations to the specific objectives enumerated in the Commission's order for ease of clarity and review in demonstrating how this audit's conclusions relate to the Commission's stated objectives. This presentation is consistent with the Commission's directive from D.18-03-022, which directs the auditor to develop "audit findings" and lists five audit tasks (i.e., "Final Scope"), and 38 sub-tasks (i.e., "Objectives"), for the auditor to address (such as, "Demonstrate how completed Rule 20A projects enter rate base").

This format and audit methodology are generally consistent with both Generally Accepted Government Auditing Standards (GAGAS) Standards related to Performance Audits (GAO-18-568G, Section 1.21, "Performance audits provide objective analysis, findings, and conclusions to assist management and those charged with governance and oversight with, among other things, improving program performance and operations, reducing costs, facilitating decision making by parties responsible for overseeing or initiating corrective action, and contributing to public accountability") and AICPA standards related to Consulting Services (AICPA CS Section 100.05.b, "the practitioner's function is to develop findings, conclusions, and recommendations for client consideration and decision making") where consultant advises client based on agreed-upon scope and objectives pertaining to operational reviews similar to the one that is the subject of this audit.

Where a finding or recommendation in this report pertains to or addresses multiple audit objectives, the finding or recommendation is listed under all relevant audit objectives.

II.2 FUNDAMENTAL TERMINOLOGY

For ease of reference, the acronyms utilized in this report are defined in the Glossary in Section IV of this report.

In this portion of the executive summary, AzP has provided an expanded definition of certain terms that are particularly germane to this report and in for which AzP believes an expanded definition beyond that found in the *Glossary of Terms* found in this report would benefit the reader.

II.2.a. AUDIT PERIOD

References to “audit period” within this report refer to the ten-year period of January 1, 2007 through December 31, 2016. In addition to the testing AzP performed on the ten-year historical period, when applicable, a review and description of the processes currently (as of the time of this audit) in place at PG&E are also provided. Consistent with the audit objectives set forth in D.18-03-022,⁴⁶ the technical analysis within this report seeks to provide a balance that allows for both a past and present-day perspective of PG&E’s management of the Rule 20A program.

II.2.b. PG&E RULE 20A BUDGET AMOUNTS VERSUS IMPUTED ADOPTED AMOUNTS

As noted in the *Background of Audit*, portion of this executive summary, the Commission referenced an exhibit during PG&E’s 2017 GRC that indicated PG&E had significantly underspent on the Rule 20A program for several years. It is critical, however, to recognize that the underspend noted in the exhibit referenced on page 72 of Decision 17-05-013 is similar, but not identical, to the underspend that is referenced in this audit report. To fully assess the adequacy of PG&E’s spending on the Rule 20A program during the audit period, it is essential to first define the relevant data points. The underspend referenced in Decision 17-05-013 does not directly relate to the Rule 20A program expenditures approved by the Commission and embedded in PG&E’s rates. The data utilized in that exhibit consisted of PG&E’s internal budgets for the Rule 20A program, rather than the forecasted expenditures amounts adopted by the Commission, for purposes of its comparison.⁴⁷ The timing of GRC decisions is not in sync with PG&E’s budget cycle and PG&E’s internal budgets are not approved or authorized by the Commission, nor are they embedded in PG&E’s rates.^{48,49} Therefore, PG&E’s internal budgets are not a relevant data point for assessing whether or not PG&E spent an amount consistent with the amounts embedded in PG&E rates. For these reasons, AzP utilized figures representing adopted Rule 20A forecasted expenditure amounts adopted for recovery in rates in PG&E’s GRCs, rather than PG&E’s internal budgets, for its AzP’s budget-versus-actual comparative analysis. In this report, in order to distinguish between the internal PG&E budget and the PG&E Rule 20A forecasts adopted by the Commission in PG&E’s GRCs, we refer to the amounts approved, either explicitly or implicitly by the Commission, as the “imputed adopted” figures.

To illustrate why PG&E’s internal budgets are largely irrelevant and should not be the primary data point when making a comparison to PG&E’s actual expenditures, and to provide a basis and additional context

⁴⁶ D.18-03-022, p. 4 and Attachment A

⁴⁷ D.17-05-013, p. 71, Column (B); GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-020, Att. 1 Rev, BOY Budget

⁴⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery ED-001-001

⁴⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-015

for AzP’s analysis discussed in the *Spending* section, consider the following hypothetical scenario for “Year 20XX”:

- 1) In PG&E’s GRC, PG&E files a forecast of \$50 million of Rule 20A expenditures for Year 20XX;
- 2) Based on the evidence provided, the Commission believes \$50 million of Rule 20A expenditures is too aggressive and, in its decision, the Commission adopts rates that reflect \$40 million of Rule 20A expenditures for Year 20XX;
- 3) Subsequent to the GRC decision, but before Year 20XX, PG&E develops its internal Rule 20A budget for Year 20XX and decides to budget only \$30 million in Year 20XX for Rule 20A expenditures;
- 4) PG&E’s actual Rule 20A expenditures for Year 20XX is \$31 million.

If, in the above example, PG&E’s actual expenditures were compared to its internal budget, it would appear that PG&E overspent on the Rule 20A program in Year 20XX by \$1 million (*i.e.*, \$31 million actual expenditures minus \$30 million internal budget = \$1 million overspend of actual expenditures compared to internal budget). However, the amount embedded in PG&E’s rates for the Rule 20A program is not the \$30 million figure from PG&E’s internal budget, but the \$40 million that the Commission adopted. In the above example, the relevant comparison utilized for purposes of AzP’s analysis are the following two data points: (1) The Commission-adopted amount that was embedded in PG&E’s rates (in the preceding example, the “\$40 million” figure) and (2) PG&E’s actual expenditures (in the preceding example, the “\$31 million” figure). Using these two data points for year 20XX reveals an *underspend* in this program by PG&E of \$9 million (*i.e.*, \$31 million actual expenditures minus \$40 million adopted by the Commission = \$9 million underspend).

II.2.c. REFERENCES TO UNINCORPORATED AREAS OF COUNTIES

Section A(2) of the Rule 20 tariff states that Rule 20A work credit allocations “shall be allocated to cities or the *unincorporated area of any county...*” [emphasis added]⁵⁰ As such, Rule 20A work credit allocations accrue to both cities within a county, as well as, when applicable, the county itself. References to the unincorporated areas of a county are noted by the word “Unincorporated” after the county name (e.g., “Placer County (Unincorporated)”).

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

⁵⁰ GRC 2017 Rule 20A Audit Case No. A.15.09.001, Response to Discovery AzP-001-069

II.3 PRIMARY AUDIT FINDINGS

II.3.a. THE REVIEW OF CONTROLS NECESSARY TO ENSURE EFFECTIVE OPERATION, REPORTING, AND COMPLIANCE WITH THE REGULATIONS IN PLACE RELATING TO PG&E'S RULE 20A PROGRAM REVEALED PROBLEMS IN DESIGN, IMPLEMENTATION, OPERATION, AND INTEGRATION OF RELEVANT CONTROLS.⁵¹

United States Government Accountability Office explains the following on assessment of relevant internal controls in performance audits.

*An internal control system is effective if the ... components of internal control are effectively designed, implemented, and operating, and are operating together in an integrated manner. The principles support the effective design, implementation, and operation of the associated components and represent requirements necessary to establish an effective internal control system. If a principle is not applied effectively, then the respective component cannot be effective. If a principle or component is not effective, or the components are not operating together in an integrated manner, then an internal control system cannot be effective.*⁵²

As discussed throughout this report, AzP's review of the PG&E Rule 20A program revealed lack of controls, evidence of inconsistent or failure in implementation of existing controls, operating ineffectiveness, and lack of proper integration of the system of controls necessary for proper function and management of the PG&E Rule 20A program. As discussed in detail in the context of the applicable scope areas in the technical analysis portion of this report, evidence of this finding included missing documentation,^{53,54,55} failure to perform reconciliations,⁵⁶ failure to timely identify and correct errors,^{57,58} inconsistent application of internal protocols,⁵⁹ ability to overwrite documented figures necessary to maintain for reporting and review.⁶⁰

⁵¹ The findings presented here pertain to AzP's assessment of only the controls reviewed in the context of and relevant to AzP's audit of PG&E's Rule 20A program; AzP's assessment in this context is not of PG&E's internal controls evaluated on the whole for the Company outside the scope of this audit.

⁵² United States Government Accountability Office, Government Auditing Standard, July 2018 Revision, Reporting Standards for Performance Audits, GAO-18-568G, p. 202, paragraph 9.33

⁵³ Refer to Finding No. 1 in the *Budgeting* section for additional details and example.

⁵⁴ Refer to Recommendation No. 30 in the *Review of Projects Initiated, But Not Completed* section for additional details and example.

⁵⁵ Refer to Recommendation No. 48 in the *Verify the Reliability of Rule 20A Project Cost Estimates* section for additional details and example.

⁵⁶ Refer to Finding 20 and Recommendation 15 in the *Reprioritization* section for additional details and example.

⁵⁷ Refer to Recommendation No. 19 in the *Allocations to Governmental Agencies* section for additional details and example.

⁵⁸ Refer to Finding No. 67 in the *Assess PG&E Processes to Verify Eligibility of Rule 20A Projects* section for additional details and example.

⁵⁹ Refer to Finding No. 76 and Recommendation No. 48 in the *Verify the Reliability of Rule 20A Project Cost Estimates* section for additional details and example.

⁶⁰ Refer to Finding No. 73 and Recommendation No. 48 in the *Verify the Reliability of Rule 20A Project Cost Estimates* section for additional details and example.

II.3.b. PG&E UNDERSPENT SIGNIFICANTLY ON THE RULE 20A PROGRAM COMPARED TO THE EXPENDITURES EMBEDDED IN PG&E RATES

As originally noted in Decision 17-05-013, and confirmed through this audit, PG&E has consistently and significantly underspent on the Rule 20A program. In the aggregate for the audit period, the underspending level amounted to approximately \$123 million. This equates to an underspending variance of 22.2%.

Figure II.3.1: Rule 20A Actual vs. Imputed Adopted Expenditures

Year	Imputed Adopted Expenditures	Actual Expenditures	\$ Variance	% Variance
2007	\$56,722	\$45,385	(\$11,337)	-20.0%
2008	\$47,017	\$39,916	(\$7,101)	-15.1%
2009	\$49,070	\$41,142	(\$7,927)	-16.2%
2010	\$49,580	\$36,610	(\$12,970)	-26.2%
2011	\$69,401	\$33,628	(\$35,773)	-51.5%
2012	\$69,401	\$52,426	(\$16,975)	-24.5%
2013	\$69,401	\$69,378	(\$23)	0.0%
2014*	\$53,475	\$41,117	(\$12,358)	-23.1%
2015	\$46,159	\$41,885	(\$4,274)	-9.3%
2016	\$45,551	\$31,123	(\$14,428)	-31.7%
Total	\$555,776	\$432,610	(\$123,166)	-22.2%

(Dollar figures in thousands)

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-020, Rev01, Att. 1

*The actual expenditures for 2014 includes \$24.4 million PG&E wrote off for financial accounting and ratemaking purposes.

While the underspending variance is clearly substantial, as previously noted, the evidence that PG&E had underspent on the Rule 20A program had already been established in Decision 17-05-013, and, in fact, was a key driver for this audit being ordered. As such, AzP's auditing efforts in this area were primarily focused on *why* the underspending occurred, as well as *how* such underspending impacted the program's performance. These topics are the subjects of the next several audit findings.

II.3.c. LACK OF SPENDING ON THE RULE 20A PROGRAM WAS DUE TO REPRIORITIZATION OF FUNDS TO OTHER PG&E PROGRAMS

As noted in Figure II.3.1, PG&E underspent on the Rule 20A program by over \$123 million during the audit period. Just as critical as the quantification of the underspending variance is the nature of the variance—or, more directly, a determination of the behavior of the utility that led to such underspending variance. Spending less on a particular program relative to imputed adopted amounts would, in certain circumstances, represent utility management identifying areas of efficiency and cost reduction that benefit both the ratepayer and the utility. The CPUC advocated this principle in D.85-03-042 stating that

the Commission, “will continue our practice of adopting sound, informed estimates with the hope that utility management accepts the challenge and can somehow ‘do it for less.’”⁶¹ The underspending variance on the Rule 20A program during the audit period, however, is not a demonstration of PG&E’s ability to “do it for less.” The underspending variance does not represent efficiencies, but rather a reprioritization of funds and resources away from the Rule 20A program. In fact, the program commonly sees inefficiencies in the project cost estimation process. When the final costs of projects completed during the audit period are compared to the initial estimates of these projects, the final cost exceeds the initial estimates by 35%.⁶²

One of the main concerns the Commission noted in Decision 17-05-013 was that the difference between the funds approved and adopted for the Rule 20A program (i.e., the amounts related to the Rule 20A program embedded in PG&E’s rates) was not tracked. That is, PG&E collected the funds embedded in rates that were not spent on Rule 20A. However, since dollars are fungible and PG&E did not retain documentation of reprioritization from the Rule 20A program,⁶³ it is impossible to determine with precision where the funds were spent.⁶⁴ It is possible, however, to assess how spending on the Rule 20A program was treated relative to other PG&E programs. AzP performed this analysis in this audit and found that the reprioritization of Rule 20A program funding during the audit period was highly atypical when compared to other PG&E electric capital Major Work Categories (MWCs). AzP calculated the annual spending variances for PG&E’s 30 electric distribution capital MWCs and found that the Rule 20A program was the only one of 30 electric distribution capital MWCs at PG&E that had a negative (i.e., underspending) variance relative to its imputed adopted expenditures every year during the ten-year audit period. This analysis is included as AzP Exhibit C.

PG&E’s continuous underfunding of the Rule 20A program was also inconsistent with the stated prioritization policy PG&E provided in its GRCs. In discovery responses, PG&E stated that reprioritization of Rule 20A funding occurred in some instances due to internal resources being diverted to “higher priority work.”⁶⁵ When asked to provide details regarding PG&E’s prioritization process, PG&E referenced discussions of PG&E’s prioritization models submitted in its GRC filings during the period.⁶⁶ Based on review of these filings, PG&E appears to have applied its model inconsistently in at least some of the years during the audit period regarding the Rule 20A program. Specifically, in PG&E’s 2011 GRC filing, which was used to set PG&E’s revenue requirement for the years 2011 through 2013, PG&E stated that gas and electric distribution work could generally be classified into the following three major categories:

- (1) Safety and Compliance;
- (2) Customer Connection, Demand Growth and Franchise Obligations; and

⁶¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-002-018

⁶² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-092 Att. 01

⁶³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-020

⁶⁴ D.17-05-013, p. 74

⁶⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-058

⁶⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-060

(3) Maintain and Improve System Performance and Support.

PG&E classified the Rule 20A program (MWC 30) classified in category 2 listed above, *Customer Connection, Demand Growth and Franchise Obligations*. PG&E described this category as having “limited flexibility over the quantity and timing of work that the Company must perform.”⁶⁷ PG&E continued by discussing the relative priority of other categories, stating that, “...PG&E has more flexibility regarding the amount of work it undertakes in the near term in the third category—maintain and improve system performance and support.”⁶⁸ Given PG&E’s stated prioritization model, it would be expected that the Rule 20A program (as a higher priority item) be funded during this period at a level that met or exceeded the amounts embedded in its rates before PG&E would direct additional funding to the lower-priority category, *Maintain and Improve System Performance & Support*. However, a review of the historical spending data from this period reveals the opposite. During the time period for which the 2011 GRC was used to set rates (i.e., 2011 through 2013), Rule 20A program expenditures were \$52.769 million *less* than the Commission-adopted amounts, whereas the aggregate variance of the MWCs included in the *Maintain and Improve System Performance & Support* category showed an overspending variance of \$297.807 million relative to its Commission-adopted amounts.⁶⁹ Stated another way, when compared to the amounts embedded in PG&E rates, PG&E overfunded a lower-priority category of work by nearly \$300 million, while, during the same period, underfunding a self-described higher priority item, the Rule 20A program, by almost \$53 million.

Additionally, while PG&E was unable to provide formal documentation of Rule 20A re-prioritization of funds for the audit period, review of the personnel evaluations of key Rule 20A program decision makers at PG&E during the audit period indicates that **[BEGIN CONFIDENTIAL]**

[END CONFIDENTIAL] The focus of PG&E management on recovery of its Rule 20A program in 2012 is particularly noteworthy given that in the previous year (2011) PG&E’s expenditures in the program were approximately \$36 million, or 51.5%, *less* than the Commission-adopted amount.⁷¹ PG&E spent less than one-half the amount embedded in customer rates in the Rule 20A program in 2011, and, thus, recovered far more in rates than it spent on this program. Given this context, it would seem reasonable that in 2012 PG&E management would seek to bridge this gap by devoting more, rather than fewer, funds to the Rule 20A program. As evidenced by

⁶⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-060, specifically, page 1-15 from GRC2011-Ph-I_Test_PGE_20091221-Exh003, obtained from external link noted in discovery response

⁶⁸ Id.

⁶⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016 Att. 01, calculated by AzP as described above, consistent with the figures presented in AzP Exhibit L.

⁷⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-002-062, Att. 4

⁷¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016 Att. 01, calculated by AzP as the difference between imputed adopted among of \$69.401 million minus \$33.628 million actual expenditures.

the evaluation comments noted, this was not PG&E's focus, and the results for 2012 appear consistent with PG&E's management directive, as PG&E's actual expenditures in the program were approximately \$17 million, or 24.5% less than the imputed adopted amount approved for rate recovery by the Commission.⁷² **[BEGIN CONFIDENTIAL]**

[END CONFIDENTIAL]

The reprioritization of resources away from Rule 20A projects was not merely a case of PG&E deferring costs into the future. Rather, as discussed in the next finding, the reprioritization of funds away from the Rule 20A program had tangible operational impacts—namely, redirecting operational resources such as estimating personnel—which caused delays and additional funds to be expended for the work that was performed. Stated another way, PG&E ratepayers not only paid more in rates than PG&E spent on the Rule 20A program, the project activity that was performed was done so in a manner that was inefficient and costlier than necessary.

II.3.d. PG&E'S REPRIORITIZATION OF FUNDS AND RESOURCES LED TO DELAYS AND INCREASED COSTS WHICH WERE NOT TRACKED BY THE COMPANY AND IS LIKELY A CONTRIBUTING FACTOR TO THE RELATIVELY HIGH OVERALL CONVERSION COSTS PER MILE THAT PG&E DEMONSTRATED DURING THE AUDIT PERIOD

Review of PG&E documents for the projects with variances outside engineering standards revealed that PG&E often deemed the resources or schedule for these Rule 20A projects as "most flexible"⁷⁴ and at the same time failed to track the incremental costs incurred for Rule 20A projects due to delays.⁷⁵ In examining the documented reasons that most often contributed to variances in PG&E's Rule 20A estimated-versus-actual costs, AzP reviewed documentation of factors including flexibility matrices, SWOT analyses, and issues and risks identified by PG&E personnel in Rule 20A project funding gate documents as well as documented reasons for cost reauthorizations. PG&E often characterized Rule 20A resources or schedules as "most flexible,"⁷⁶ with some employees acknowledging that limitations on resources necessary to complete the project, would "...impact the city's schedule."⁷⁷ At the same time, PG&E would also often document anticipated dollar impact associated with a potential delay, of zero dollars.⁷⁸ When AzP asked PG&E in discovery how the Company tracked project costs incurred due to delays in completion, PG&E responded that the Company "does not track delay costs for Rule 20A projects."⁷⁹

⁷² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016 Att. 01, calculated by AzP as the difference between imputed adopted amount of \$69.401 million minus \$52.426 million actual expenditures.

⁷³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-002-062, Att. 4

⁷⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B

⁷⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-026

⁷⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B

⁷⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, Selection 8

⁷⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, see Selections 8 and 11 for examples.

⁷⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-026

Project delays invariably result in increased costs, and while in several instances some semblance of acknowledgement or quantifiable measure existed in PG&E documents, PG&E records on the whole, and overall practices do not adequately account for the financial impact of delays on Rule 20A projects individually or on the Program as a whole. When projects remain stagnant, allowance for funds used under construction (AFUDC) continues to be accrued;⁸⁰ materials, labor, and overhead costs rise over time,⁸¹ and changes in Company accounting (increase in costs allocated)⁸² impact the costs incurred on Rule 20A projects. In one report, PG&E personnel noted, "...the length of time this project has taken in construction has resulted in much higher AFUDC costs than were estimated."⁸³ In another document PG&E noted "...the project has been in a holding pattern from Spring of 2005 to today. Therefore, AFUDC charges continue to accrue and will soon overrun the original AA [advanced authorization] amount if not reauthorized... If the project were to be closed, then all costs to date would be expensed."⁸⁴ Another form reviewed acknowledged that additional overhead dollars continue to accumulate in the event of delays which PG&E noted if occurred, "construction start [would] be delayed" and "Additional overhead dollars [would] continue to accumulate."⁸⁵

Others noted that "[r]esources and funding availability could impact efficient construction scheduling which could adversely affect the project financially,"⁸⁶ or identified as a potential weakness to overcome, "[m]aintaining consistent labor force" as "PG&E crews frequently are pulled off R20A project onto higher priority work causing an increase in costs to the job."⁸⁷ Another noted issues and risks to the project included "[c]rew re-deployment due to higher priority work."⁸⁸ In one reauthorization document, PG&E noted "This project is fully funded in 2011 from Major Work Category 30 – WRO-Rule 20A. The additional funding will come from deferring other Rule 20A projects."⁸⁹

II.3.e. CONVERSION COSTS PER MILE OF RULE 20A PROJECTS DEMONSTRATES THAT THE COSTS TO RATEPAYERS OF PG&E'S RULE 20A PROGRAM WERE HIGH RELATIVE TO INDUSTRY STANDARDS, AND WERE INCREASING OVER THE AUDIT PERIOD

Benchmarking of actual per mile conversion costs during the audit period for PG&E Rule 20A projects demonstrates that, when PG&E's Rule 20A undergrounding conversion costs per mile are separated by population density (urban, suburban, rural) and compared to an industry study of underground conversion costs, PG&E's costs per converted mile were higher than the "maximum" conversion cost for two out of the three population densities. AzP asked PG&E to provide benchmarking studies the Company

⁸⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 10

⁸¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1, specifically project number 30762469

⁸² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 06

⁸³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 41

⁸⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 10

⁸⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, Selection 16

⁸⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, several responses noted. See for example, selection 37.

⁸⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, Selection 01

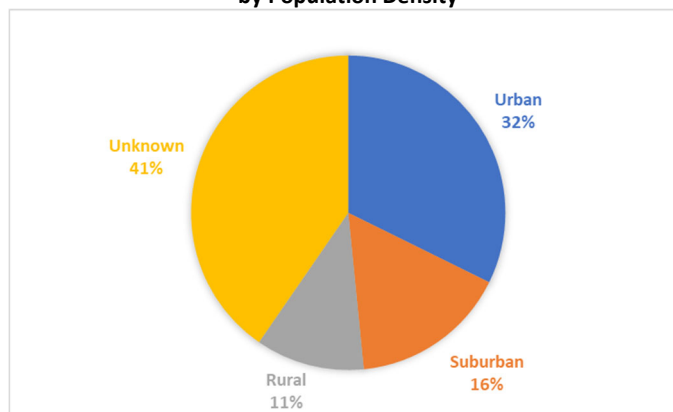
⁸⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, Selection 07

⁸⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 06

performed during the audit period to identify best cost estimation practices for the Rule 20A program.⁹⁰ PG&E stated that it did not perform any benchmarking studies pertaining to the Rule 20A program from 2014 to the present, and was “not aware” of any such studies being performed from 2007 through 2013.⁹¹

While PG&E did not perform any benchmarking studies, in order to provide additional context in which to assess the Company’s performance in the Rule 20A program during the audit period, AzP utilized the 2012 Edison Electric Institute (EEI) study on undergrounding as a means of comparison for PG&E’s performance.⁹² The study titled *Out of Sight, Out of Mind 2012 – An Updated Study on the Undergrounding of Overhead Power Lines*, presented a minimum and maximum range of costs per mile for converting overhead electric distribution lines to underground distribution lines for three population densities—urban, suburban, and rural.⁹³ The data was collected on customer density defined as: Urban with 150+ customers per square mile; Suburban with 51 to 149 customers per square mile; Rural with 50 or fewer customers per square mile.⁹⁴ PG&E had conversion projects in each of these population densities, as well as conversion projects in areas where the population density was unknown to PG&E. A list of the nominal costs and miles converted of each project completed during the audit period is provided as AzP Exhibit Q. A breakdown of each of these categories for PG&E’s Rule 20A conversion projects, as a percentage of miles converted, is provided in the Figure II.3.2.

Figure II.3.2: Percentage of PG&E Rule 20A Miles Converted During Audit Period
by Population Density



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1 and Response to Master Data Request in the Rule 20 OIR, R.17-05-010, “Detailed Project Information” tab

Since the EEI study was prepared in 2012, and since this audit is conducted over the ten-year period 2007 through 2016, AzP converted the EEI figures to inflation-adjusted (real) dollars using 2016 as the base year.⁹⁵ This calculation is summarized in the figure that follows.

⁹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-140 and AzP-001-143

⁹¹ Id.

⁹² PG&E references this study on its website, noting: “A report prepared by the Edison Electric Institute...found that burying above-ground electric distribution systems can cost up to \$5 million a mile in urban areas.” Obtained from: <http://www.pgecurrents.com/2017/10/31/facts-about-undergrounding-electric-lines/>

⁹³ Edison Electric Institute. *Out of Sight, Out of Mind 2012*. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, p. 31

⁹⁴ Edison Electric Institute. *Out of Sight, Out of Mind 2012*. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, p. 29

⁹⁵ CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Figure II.3.3: EEI Study - Minimum and Maximum Cost per Mile: Converting Overhead to Underground Distribution Lines (Nominal and Real Dollars)

(In Nominal \$s)			
Min/Max	Urban	Suburban	Rural
Minimum	\$1,000,000	\$313,600	\$158,100
Maximum	\$5,000,000	\$2,420,000	\$1,960,000
Inflation Adjustment Factor (to convert 2012 \$s to 2016 \$s)			
Inflation Adjustment Factor			1.05
(In Real \$s)			
Min/Max	Urban	Suburban	Rural
Minimum	\$1,050,000	\$329,280	\$166,005
Maximum	\$5,250,000	\$2,541,000	\$2,058,000

Sources: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012; CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

AzP then performed similar calculations for each year of the audit period for the costs related to PG&E's Rule 20A conversion program. Details of these calculations are provided in AzP Exhibit R, and a summary demonstrating the cost per conversion mile for each population density in inflation-adjusted figures for the period 2007 through 2016 is provided in the figure that follows.

Figure II.3.4: PG&E Performance Compared to EEI Study - Minimum and Maximum Cost per Mile for Converting Overhead to Underground Distribution Lines (Real Dollars)

Per EEI Report (Converted to Real \$s)				
Min/Max	Urban	Suburban	Rural	Unknown
Minimum	\$1,050,000	\$329,280	\$166,005	N/A
Maximum	\$5,250,000	\$2,541,000	\$2,058,000	N/A
PG&E Performance - 2007 through 2016 (Converted to Real \$s)				
	Urban	Suburban	Rural	Unknown
	\$3,505,113	\$4,790,559	\$2,540,321	\$3,765,621
PG&E Performance Relative to Min/Max	Urban	Suburban	Rural	Unknown
% of Minimum	334%	1455%	1530%	N/A
% of Maximum	67%	189%	123%	N/A
Costs Above Max?	No	Yes	Yes	N/A

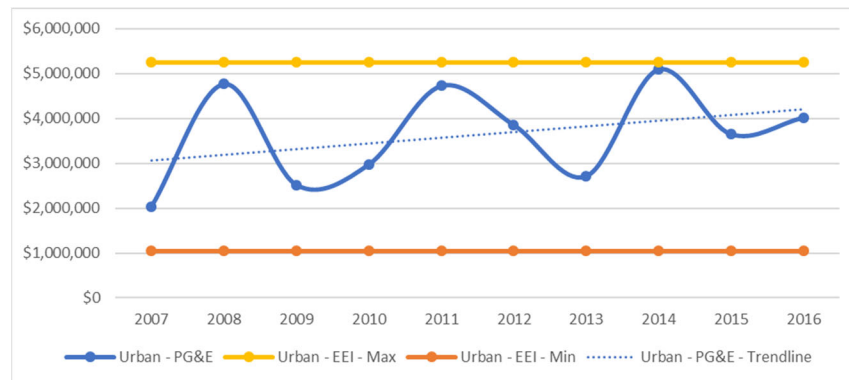
Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

As noted in the preceding table, while PG&E's conversion costs in urban areas appeared to be within the EEI range, two of the three population densities, suburban and rural, had costs per mile of conversion at PG&E that exceeded the EEI maximums.

The following series of line graphs illustrate for each population density category: (1) EEI's minimum and maximum conversion cost per mile in real dollars to provide visual context for PG&E's performance during

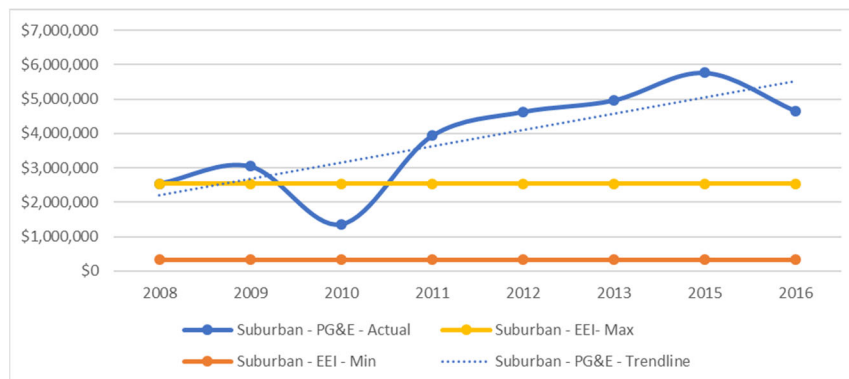
the year, (2) PG&E's conversion cost per mile in real dollars for each of the 10 years of the audit period, and (3) a trendline based on PG&E's annual conversion cost data. The years in which the associated population density had no activity were excluded from the chart below (e.g., the Suburban population density in 2007 was excluded from the figures below).

Figure II.3.5: Average Cost Per Mile of Conversion - by Year and Population Density - Urban Regions



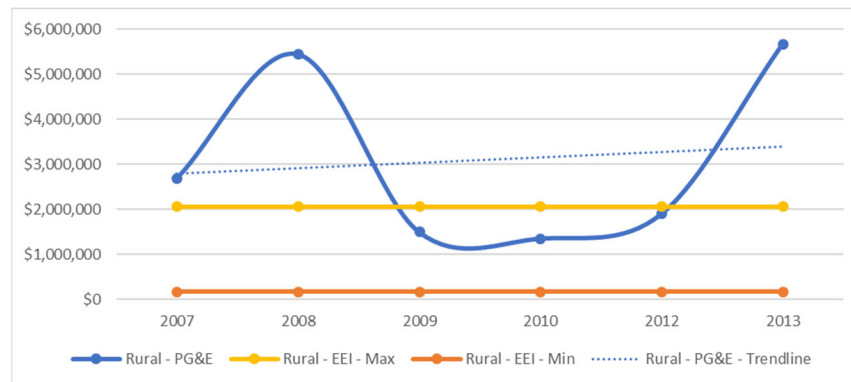
Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Figure II.3.6: Average Cost Per Mile of Conversion - by Year and Population Density - Suburban Regions



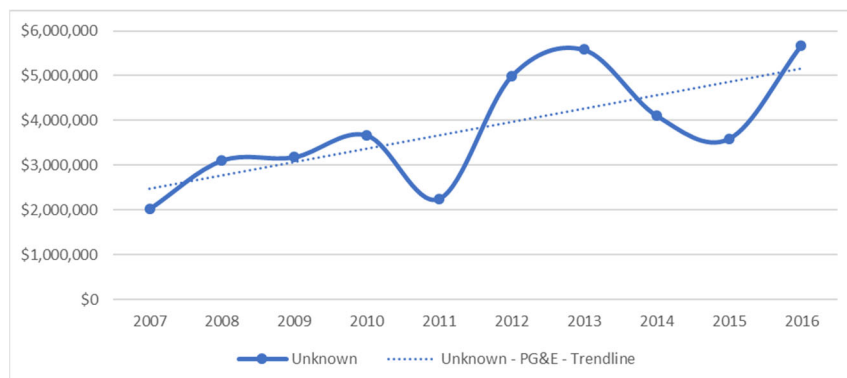
Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Figure II.3.7: Average Cost Per Mile of Conversion - by Year and Population Density - Rural Regions



Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, “Detailed Project Information” tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Figure II.3.8: Average Cost Per Mile of Conversion - by Year and Population Density - Unknown Regions



Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, “Detailed Project Information” tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Viewed graphically on a year-by-year basis, PG&E’s Rule 20A conversion cost per mile, even after adjusting for inflation, trended upward for each of the population density categories.

II.3.f. PERFORMANCE OF THE RULE 20A PROGRAM DURING THE AUDIT PERIOD DECLINED, AND
PURPORTED PROCESS IMPROVEMENT INITIATIVES BY PG&E HAVE NOT INCREASED PROGRAM
PERFORMANCE

In the Commission’s 2017 decision in PG&E’s GRC, in which the CPUC ordered this audit,⁹⁶ the Commission noted many concerns with PG&E’s management of the Rule 20A program. Nevertheless, the Commission concluded its review of the PG&E Rule 20A program by stating that there was “reason to remain optimistic”⁹⁷ about the future of the program due, in part, to the “steps PG&E has taken to increase its capability to perform Rule 20A conversions.”⁹⁸ The steps the Commission referred to in that decision were based on Exhibit PG&E-23 of the GRC in which PG&E noted five specific initiatives that it asserted represented actions the Company had taken to increase its capability to perform Rule 20A conversions.⁹⁹ In discovery, PG&E stated that these process initiatives were implemented due to situations that arose concerning the following: PG&E’s relationship with communities, confusion over responsibilities of involved parties (such as phone and cable companies), and PG&E’s estimating and construction resource limitations.¹⁰⁰

The steps PG&E stated it has taken to increase its capability to perform Rule 20A conversions in that proceeding and in discovery in the current proceeding are listed in Figure II.3.9 below in chronological order by date of initiation.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

⁹⁶ D.17-05-013, p. 244

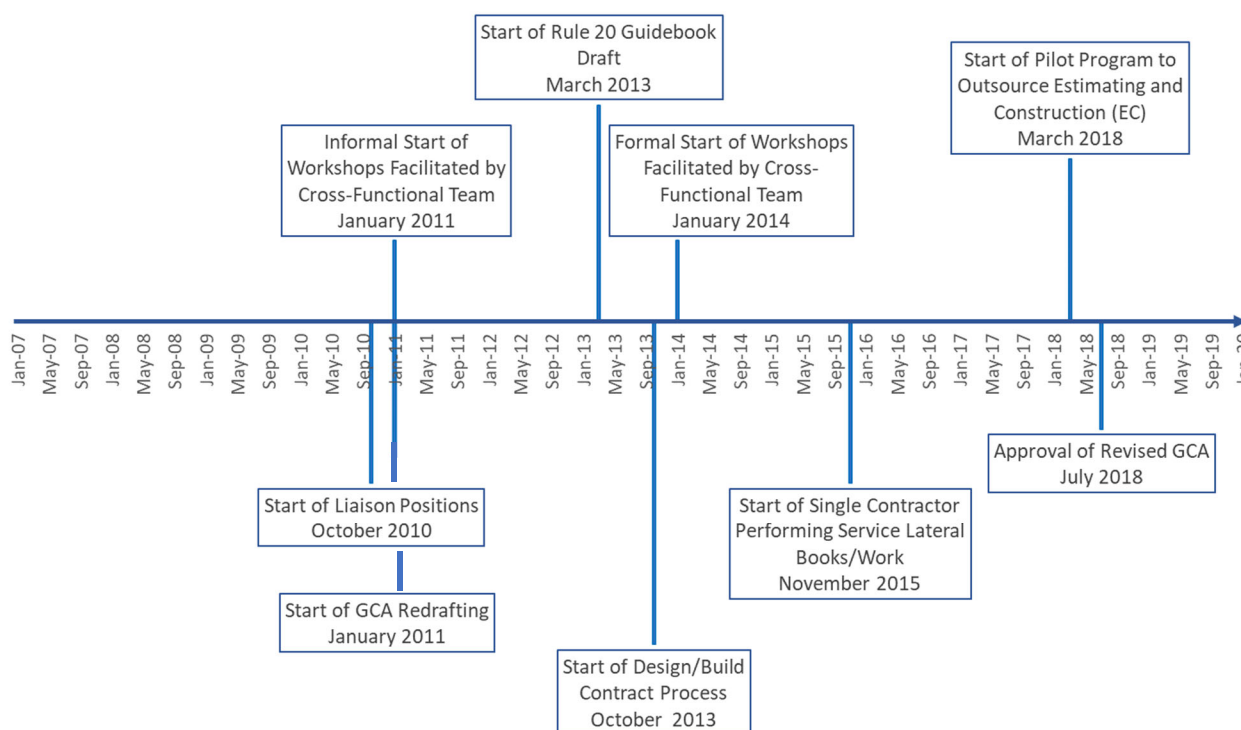
⁹⁷ D.17-05-013, p. 78

⁹⁸ Id.

⁹⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Exhibit PG&E-23, p. 18-5

¹⁰⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109

Figure II.3.9: PG&E Rule 20A Initiative Implementation Timeline



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109, AzP-005-024, AzP-005-025, AzP-005-035; dates PG&E provided within the responses noted conflicted in several instances; in the figure above AzP has listed the earliest date of implementation stated by PG&E for each initiative in responses to discovery.

As noted in Section III.4 of this report, while PG&E asserts that these measures have increased the ability of PG&E to carry out Rule 20A projects,¹⁰¹ PG&E was unable to support this assertion as the Company did not rely on data to make this assertion, but rather its assertion was based on the subjective opinions of its personnel.¹⁰² Since PG&E did not track or maintain data to assess the impact of these measures, AzP sought to assess the Rule 20A program's performance over the audit period in terms of its annual performance of two metrics so as to examine whether quantitative changes were observed in relation to the timing of PG&E's implementation of its Rule 20A initiatives and to assess the potential impact of the initiatives on PG&E's performance of Rule 20A conversions. The two metrics AzP examined in this context are: (1) completed Rule 20A projects, and (2) actual expenditures relative to imputed-adopted expenditures. Figure II.3.10 below, illustrates the levels of these two metrics over the audit period.

Since the start of PG&E's implementation of steps the Company claimed to increase PG&E capacity to perform Rule 20A conversions, the average number of Rule 20A projects PG&E completed has declined and the gap between imputed-adopted versus actual spending in the program has widened. In the years

¹⁰¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-108

¹⁰² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035 subparts A, B, C, Q, R, and X

following the steps PG&E initiated to increase Rule 20A conversion capacity, the average number of Rule 20A projects completed each year has *declined* from approximately 31.0 to 19.2 projects per year.

Figure II.3.10: PG&E Rule 20A Projects Completed During Years 2007 through 2016

Year	Prior to Start of Rule 20A Initiatives				After Start of Rule 20A Initiatives					
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Projects Completed	31	32	23	38	7	30	21	15	21	21
Average Annual Projects Completed	31.0				19.2					

Source: Average projects calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1 and AzP-001-020, Att.1.

As illustrated in Figure II.3.3 below, since PG&E started implementing steps the Company claimed would increase its capability to perform Rule 20A conversions, PG&E's underspend on the program has increased from an average of approximately \$9.8 million underspend per year in years 2007 through 2010 to an average underspend of approximately \$14.0 million per year.

Figure II.3.11: PG&E Rule 20A Actual Expenditures vs. Imputed-Adopted Expenditures During Years 2007 through 2016

Year	Prior to Start of Rule 20A Initiatives				After Start of Rule 20A Initiatives					
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Actual Expenditures (in \$mm)	\$ 45.4	\$ 39.9	\$ 41.1	\$ 36.6	\$ 33.6	\$ 52.4	\$ 69.4	\$ 41.1	\$ 41.9	\$ 31.1
Imputed-Adopted Expenditures (in \$mm)	\$ 56.7	\$ 47.0	\$ 49.1	\$ 49.6	\$ 69.4	\$ 69.4	\$ 69.4	\$ 53.5	\$ 46.2	\$ 45.6
Difference (in \$mm)	\$ 11.34	\$ 7.10	\$ 7.93	\$ 12.97	\$ 35.77	\$ 16.98	\$ 0.02	\$ 12.36	\$ 4.27	\$ 14.43
Average Annual Underspend on Rule 20A Program (in \$mm)	9.8				14.0					

Source: Average figures calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1 and AzP-001-020, Att.1.

AzP's assessment of these metrics suggest that the steps PG&E claims to have increased its capacity to perform Rule 20A conversions are not consistent with data on the Company's actual performance and are particularly relevant given that PG&E has not collected or analyzed objective quantifiable metrics to demonstrate otherwise.

II.4 SUMMARY OF RECOMMENDATIONS

The audit findings and conclusions discussed in the preceding section led to 50 audit recommendations listed in AzP Exhibit A. These recommendations include several recommendations to increase the level of documentation maintained for the Rule 20A program. Improving documentation procedures will provide PG&E the ability to better assess its performance, as well as allow for enhanced communication and transparency with localities. Also included are recommendations to help ensure that the reprioritization that occurred during the audit period ceases and is replaced by an enhanced focus by PG&E on improving its management of the Rule 20A program to increase both operational efficiency and ratepayer satisfaction. Finally, there are also recommendations that relate to certain areas outside of PG&E's control, such as modifications to the tariff language. For these items, AzP has directed the recommendation toward the Commission for its consideration.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

III. TECHNICAL ANALYSIS

III.1 TASK 1: ENSURE THAT PG&E HAS FULLY ACCOUNTED FOR ANNUAL RULE 20A BUDGETED AMOUNTS BY DOCUMENTING THAT PG&E HAS PROPERLY ALLOCATED THE ENTIRE BUDGETED AMOUNT APPROVED IN ITS GENERAL RATE CASE (GRC) DECISIONS.

III.1.a. SUBTASK 1(A) – BUDGETING

III.1.a.1 Introduction and Background

In the Commission’s expanded discussion of the PG&E Rule 20A audit, in the 2017 GRC decision, the CPUC described its intent was “to provide more specific language to ensure that the auditor thoroughly documents PG&E’s historical budgeting... for the Rule 20A program.”¹⁰³ The Commission further explained that while in PG&E’s GRC, the CPUC, “approved the settled-upon budgets ... for the program,” it also “determined that an audit of the program [was] necessary to ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts...”¹⁰⁴

Thus, as one of the primary examinations for addressing the Commission’s objectives for this section of the audit, AzP sought to understand and explain PG&E’s budgeting processes in place for each year under audit.

III.1.a.2 Audit Objectives

In Decision 18-03-022, the Commission ordered the following objectives for the *Budgeting* examination of this audit:¹⁰⁵

- i. For each year covered by the audit, demonstrate PG&E’s budgeting process for developing the Rule 20A budgets that are subsequently submitted to, and adopted by, the Commission in each GRC.
 - i. Document the assumptions and workpapers that support the budgeted amounts.
- ii. For each year covered by the audit, list the Rule 20A budget amounts adopted in each GRC.

¹⁰³ D.18-03-022, p. 5

¹⁰⁴ D.18-03-022, p. 2

¹⁰⁵ *Final Scope and Objectives* for this audit ordered in D.18-03-022, Att. A

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

III.1.a.3 Findings

1. OBJECTIVE 1 – *For each year covered by the audit, demonstrate PG&E’s budgeting process for developing the Rule 20A budgets that are subsequently submitted to, and adopted by, the Commission in each GRC. (a) Document the assumptions and workpapers that support the budgeted amounts.*

During the audit period, PG&E’s forecasting process for the Rule 20A program was the same as that utilized for other MWCs by the Company according to PG&E’s responses to discovery. However, per review of the forecasting processes described in PG&E’s GRC application, the forecasting procedures discussed in the GRCs were often either applied inconsistently or not at all for the Rule 20A program. In its initial set of data requests to PG&E, AzP requested process flowcharts of PG&E’s accounting for the Rule 20A budgeting process for each year under audit.¹⁰⁶ PG&E indicated it did not have process flowcharts and directed AzP to the *Planning and Budgeting Processes* discussions provided in its GRC applications between 2007 and 2016.

The following is a summary of pertinent elements of PG&E’s budgeting process in place during the audit period and AzP’s audit findings related to PG&E’s Rule 20A program.

2007 GRC - Application 05-12-002

- PG&E stated that its annual budgeting process and consequently, its proposed GRC revenue requirement, were functions of a “bottom-up” forecasting effort utilized by PG&E to manage expenditures.¹⁰⁷
- PG&E explained that for its budgeting decisions, PG&E management makes determinations regarding the work required and associated spending to achieve safe, reliable and responsive service on factors such as performance metrics and benchmarks.¹⁰⁸
 - When asked in discovery for benchmarking analyses performed or relied upon by PG&E for the Rule 20A program, PG&E stated that it had not performed and/or was not aware of benchmarking studies pertaining to the Rule 20A Program.¹⁰⁹
- PG&E explained that the annual budget represented a “snapshot in time”¹¹⁰ and the process for developing the annual budget began with program managers developing charge-back rates for shared services.¹¹¹ These approved rates and other general planning guidelines such as those related to payroll taxes and benefits were then provided to all

¹⁰⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004

¹⁰⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 2, p. 3-1

¹⁰⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 2, p. 3-2

¹⁰⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-140 and AzP-001-143

¹¹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 2, p. 3-4

¹¹¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 2, p. 3-5

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

program managers to utilize in planning their budgets. Program managers would then develop detailed budgetary forecasts for their respective programs' expense and capital expenditure forecasts.¹¹²

- While in its GRC application PG&E stated that the Company developed *detailed* program plans for capital expenditures, PG&E's 2007 GRC workpapers underlying the forecasts for the Rule 20A program provided an inadequate level of detail for assessing PG&E's actual spending relative to its forecast expenditures. For example, the workpapers for PG&E's 2007 GRC contained no project identification numbers.¹¹³
- PG&E provided a *Budget Categorization Model*,¹¹⁴ which was divided into four main categories. The categorization model comprised several areas within each category of: *Maintain Basic Safety, Compliance, System Operations, Customer Service, and Business Functions in the Current Year*, which encompassed "Mandated work at a basic level, required legally or contractually" including those "to meet regulatory...requirements," the category that appears to most closely fit the Rule 20A Program from a spend-necessity perspective. This item appears in category 1 of 4 (highest priority).
 - Review of PG&E's prioritization model testimony in this GRC demonstrates that PG&E placed Rule 20A related work in both this category and category 2, *Maintain Current Level of Operating Performance in the Current and Future years; Improve Service or Revenues in Specifically Targeted Areas*.¹¹⁵ The inconsistent application of PG&E's prioritization model with regard to the reprioritization of Rule 20A funds is further discussed in the *Reprioritization* section of this report.
- PG&E explained that program managers review cost variances relative to the approved budget on a monthly basis and utilize that information to manage the activities of the program. The Company also stated that its monthly program cost variance reviews are presented to the CFO and PG&E's Management Committee each month and utilized to "reallocate resources to respond to changing conditions."¹¹⁶
 - However, PG&E has no documentation during the audit period providing support for its decisions to reprioritize funds away from the Rule 20A program.¹¹⁷ As such, although the GRC application presented the "monthly program cost variance reviews" as a type of control which would be utilized by PG&E to "reallocate resources," these monthly reviews, to the extent they occurred, were not documented or maintained in sufficient detail to provide any value to support the

¹¹² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 2, p. 3-6 and 3-13 (Figure 3-3)

¹¹³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-002

¹¹⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 2, Figure 3-3

¹¹⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-060, specifically, p. 1-42 and 1-49 from Exhibit PG&E-4 Chapter 1 of the 2007 GRC, obtained from external link noted in discovery response

¹¹⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 2, p. 3-4

¹¹⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery AzP-001-058 and AzP-004-020

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Company's spending decisions and thus re-assessment of budgeting decisions related to the Rule 20A program.

2011 GRC – Application 09-12-020

- PG&E stated that its vision was “to become the leading utility in the United States, focusing on customer service and operational excellence, while at the same time energizing employees and delivering for ... shareholders.”¹¹⁸ It continued by stating that the objective of the budgeting and operational planning process was to translate this vision into PG&E's 3-year operating plan to, “ensure that appropriate diligence and rigor are applied to planning and spending decisions.”¹¹⁹
 - As referenced in the discussion of the 2007 GRC above, as well as in the *Reprioritization* section of this report, PG&E provided no support for its decisions to reprioritize funds away from the Rule 20 program.¹²⁰ As such, PG&E's claim that it conducted its spending decisions with “diligence and rigor” is unsupported, at least for Rule 20A program spending decisions during the audit period.
- PG&E stated that the Company spent over \$50 million more in 2007 and over \$170 million more in 2008 than PG&E included in its calculation of capital expenditures in the 2007 GRC settlement agreement. PG&E continued by claiming that such spending demonstrates that PG&E senior management, “exercises its discretion to provide appropriate funding in excess of amounts included in the Commission-approved settlement for necessary work.”¹²¹
 - As discussed in the *Reprioritization* section of this report, PG&E also clearly utilized its discretion to direct Rule 20A funding away from the Rule 20A program. During 2007 and 2008, for example, PG&E's actual expenditures were \$11.337 million and \$7.101 million less than imputed adopted amounts.¹²²
- PG&E stated that the Company develops future budgets in a flexible manner that allows it to respond to circumstances as they arise. It then provides an example for 2008 in which it reprioritized over \$160 million of operating expense budget to the Distribution line of business.¹²³ PG&E concluded, “[t]his reprioritization, while necessary in the short term,

¹¹⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 3, p. 14-1

¹¹⁹ Id.

¹²⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery AzP-001-058 and AzP-004-020

¹²¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 3, p. 14-3

¹²² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-020, Att. 1 Rev

¹²³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-004; Att. 3, p. 14-4

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

cannot be sustained in the long run without negatively impacting the Company's ability to provide quality service to its customers."¹²⁴

- AzP agrees with the principle espoused by PG&E's witness that reprioritizations over the long run cannot occur without "negatively impacting the Company's ability provide quality service to its customers"¹²⁵ and we believe PG&E's consistent and significant reprioritization of funds away from the Rule 20A program (discussed in detail and quantified in both the *Spending* and *Reprioritization* sections of this report) was a contributing factor to the low quality of service and value PG&E customers received from this program during the audit period.
- PG&E proposed a balancing account be implemented into the forecasting and budget process for rate years 2011 through 2013.¹²⁶ PG&E testified that the intention of the proposed balancing account was to ensure budgeted funding of \$50 million and work down funding of \$30 million were spent and any unspent funds would be returned to ratepayers.¹²⁷ According to PG&E's GRC filing the "work down" component referenced was intended to address "accumulated Rule 20A projects awaiting completion."¹²⁸ PG&E stated that the proposed balancing account would allow for the dedication of resources to reduce accumulated allocations and meet commitments for approved undergrounding projects.¹²⁹
 - This balancing account was rejected in the settlement the Commission ultimately adopted. The structure of the balancing account PG&E proposed in PG&E's 2011 GRC differs from the one ordered by the Commission in PG&E's 2017 GRC. Specifically, the balancing account ordered in PG&E's 2017 GRC was comprised entirely of Rule 20A funds¹³⁰ whereas the balancing account PG&E proposed in its 2011 GRC was a balancing account which combined new business and work requested by others forecasts with the Rule 20A program.¹³¹

2014 GRC – Application 12-11-009

- PG&E noted that it was transitioning from a 3-year to a 5-year planning horizon. It also noted, in similar language that it used in the 2011 GRC, that one of the goals of the

¹²⁴ Id.

¹²⁵ Id.

¹²⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-012; Att. 2, p. 7-11

¹²⁷ Id.

¹²⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-012; Att. 2, p. 7-2

¹²⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-012; Att. 2, p. 7-11

¹³⁰ D.17-05-013, p. 2

¹³¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-012, Att. 2, p. 7-11

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

planning and budgeting process was to “ensure that appropriate diligence and rigor are applied to planning and spending decisions.”¹³²

- PG&E referenced that its forecasts for spending for 2012 and 2013 exceeded PG&E’s authorized revenue for those years.¹³³ PG&E concluded that it, “does not have the ability to spend more than its authorized revenue over extended periods of time”¹³⁴ and that “[f]inancial prudence dictates that, for the 2014 GRC period, PG&E should return to a situation where its spending matches its authorized revenue.”¹³⁵
 - While PG&E showed great concern in these statements regarding spending that exceeded its authorized revenues, it did not demonstrate the same concern with underspending on the Rule 20A program. As with PG&E’s claim that it conducted its spending decisions with “diligence and rigor,” the results of the Company’s actual spending relative to its GRC forecasts is another example of a value that PG&E promoted in its GRC application that it did not apply to the Rule 20A program during the audit period. PG&E’s stated belief that it is financially prudent to match its spending did not prevent it from *over-collecting* in rates on the Rule 20A program every year during the ten-year audit period (as discussed in greater detail in the *Spending* section of this report).
- 2. OBJECTIVE 1 – *For each year covered by the audit, demonstrate PG&E’s budgeting process for developing the Rule 20A budgets that are subsequently submitted to, and adopted by, the Commission in each GRC. (a) Document the assumptions and workpapers that support the budgeted amounts.*

During the audit period, PG&E trended toward providing less project-level detail in its Rule 20A GRC forecasts. However, PG&E’s forecasts proved imprecise even in the years in which specific projects were identified. During all three of the GRCs used to set rates during the audit period, the 2007 GRC, the 2011 GRC, and the 2014 GRC, the Rule 20A forecasts provided by PG&E to the Commission were a combination of identified project forecasts and an amount comprising other project work that was not yet identified. However, as illustrated in the table that follows, the percentage of the total forecasts that were comprised of identified projects changed substantially during the audit period—specifically, identified project work was a much smaller percentage in the 2014 GRC compared to the 2007 and 2011 GRCs. During the 2007 GRC and the 2011 GRC, PG&E’s Rule 20A forecasts were developed based on 76.0% and 78.2% of identified projects, respectively. During the 2014 GRC, this figure dropped to 38.3%, and 0% for 2016. In other words,

¹³² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-004, Att. 4, p. 10-1

¹³³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-004, Att. 4, p. 10-5

¹³⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-004, Att. 4, p. 10-6

¹³⁵ *Id.*

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

61.7% of the Rule 20A forecast amounts provided to the Commission in the 2014 GRC, and 100% of the forecast for calendar year 2016, had no associated project-level support.

Figure III.1.1: Identified Projects as Percentage of PG&E's Rule 20A GRC Forecasts

GRC Filing	Year	Identified Projects Forecasted	Total GRC Forecasts	Unidentified Projects	Identified Projects as % of Total
2007 GRC	2007	\$55,000	\$55,000	\$0	100.0%
	2008	\$55,000	\$55,000	\$0	100.0%
	2009	\$15,350	\$55,000	\$39,650	27.9%
	2010	Not Applicable*			
	Total	\$125,350	\$165,000	\$39,650	76.0%
2011 GRC	2011	\$80,001	\$80,000	(\$1)	100.0%
	2012	\$80,001	\$80,000	(\$1)	100.0%
	2013	\$27,738	\$80,000	\$52,262	34.7%
	Total	\$187,740	\$240,000	\$52,260	78.2%
2014 GRC	2014	\$86,001	\$88,222	\$2,221	97.5%
	2015	\$15,337	\$88,107	\$72,770	17.4%
	2016	\$0	\$88,394	\$88,394	0.0%
	Total	\$101,338	\$264,723	\$163,385	38.3%

(Dollar figures in thousands)

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-004-002 Att. 01 (for "Identified Projects Forecasted" column); AzP-001-012 Att. 01, Att. 02 and Att. 03 (for "Total GRC Forecasts" column; "Unidentified Projects" column and "Unidentified Projects as % of Total" are calculated figures.)

*Forecasts for 2010 were not filed in the 2007 GRC.

As noted above, PG&E employed the highest possible range of identified projects over the audit period. In some years, such as 2007, identified projects comprised the entirety of PG&E's forecasts. In other years, such as 2009, it was far less, and in 2016 it was 0%. This seems implausible given the average number of years to complete Rule 20A projects is five to seven years¹³⁶ because PG&E's assumption would be based on no projects having been begun in the, on average, five to seven years prior to the year for which the estimates expenditures were developed. As noted in the following figure, even in years in which PG&E utilized a high percentage of identified project work, its forecasts were highly inaccurate. For example, PG&E's

¹³⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-005-037, Att. 10, p. 6

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

forecasts for 2011 were comprised of 100% of identified projects, but the variance for 2011 from imputed adopted figures was the highest of any year during the audit period.

Figure III.1.2: Rule 20A Actual vs. Imputed Adopted Expenditures

Year	Imputed Adopted Expenditures	Actual Expenditures	\$ Variance	% Variance
2007	\$56,722	\$45,385	(\$11,337)	-20.0%
2008	\$47,017	\$39,916	(\$7,101)	-15.1%
2009	\$49,070	\$41,142	(\$7,927)	-16.2%
2010	\$49,580	\$36,610	(\$12,970)	-26.2%
2011	\$69,401	\$33,628	(\$35,773)	-51.5%
2012	\$69,401	\$52,426	(\$16,975)	-24.5%
2013	\$69,401	\$69,378	(\$23)	0.0%
2014*	\$53,475	\$41,117	(\$12,358)	-23.1%
2015	\$46,159	\$41,885	(\$4,274)	-9.3%
2016	\$45,551	\$31,123	(\$14,428)	-31.7%
Total	\$555,776	\$432,610	(\$123,166)	-22.2%

(Dollar figures in thousands)

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-020, Rev01, Att. 1

*The actual expenditures for 2014 includes \$24.4 million PG&E wrote off for financial accounting and ratemaking purposes. These expenditures were related to 16 projects that were completed at a cost in excess of the localities' available work credits (i.e., Rule 20A allocations plus 5-years' borrowing). PG&E recommended that these costs be borne by PG&E shareholders in Advice Letter 4553-E and Resolution E-4731.¹³⁷

The large variances noted in years with a high percentage of identified projects demonstrate that project-level estimates are not a sufficient condition for PG&E to make reliable estimates. One apparent reason for the variances in the years with specific projects identified is that PG&E utilized all projects in its project-level forecasts in the same manner. The Company did not distinguish projects by project phase, and thus type of estimate. As such, they may have been Association of the Advancement of Cost Engineering (AACE) class 5 estimates in the initiation or planning phase, or AACE class 1 estimates in the construction or close-out phase. Estimates at the planning phase of a project are based on less detailed information and assumed precision than estimates during the construction phase of a project, but PG&E's GRC workpapers do not provide that level of detail. As noted in Recommendation 1 below, AzP recommends that PG&E revise its forecasting

¹³⁷ Resolution E-4731 dated August 13, 2015 and Advice Letter 4553-E dated August 19, 2015

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

methodology to account for the phase of projects based on class of estimate included in the Company's project-level forecasts.

3. OBJECTIVE 2 – *For each year covered by the audit, list the Rule 20A budget amounts adopted in each GRC.*

In order to derive Rule 20A imputed adopted figures for the audit period by division, adjustment to forecast Rule 20A figures was required. As discussed later in greater detail in the *Spending* section of this report, PG&E's internal budgets are not approved or authorized by the Commission,¹³⁸ nor are they embedded in PG&E's rates. Additionally, the timing of GRC decisions is not in sync with PG&E's budget cycle.¹³⁹ For these reasons, AzP focused on the "imputed adopted" amounts for each year under audit for purposes of its analysis. Since most GRC decisions impacting the audit period did not include a specific capital expenditure level for the Rule 20A program, PG&E calculated imputed adopted figures to serve as a proxy for the amounts not explicitly disclosed by the Commission in its rate case decisions. PG&E's objective in calculating imputed adopted amounts is "to determine a set of MWC forecasts that sum to the total functional (e.g. electric distribution) adopted amounts and are consistent with the overall adopted revenue requirement. In some instances, the adopted Post Test Year Ratemaking (PTYR) method adopted by the Commission produces attrition year revenue requirements without underlying detailed forecast for attrition year expenditures (e.g. indexing of the adopted test year revenue requirement). The imputed adopted analysis does acknowledge/include those instances where the Commission has adopted a specific value for an item."¹⁴⁰

PG&E's stated methodologies for calculating imputed-adopted figures are summarized below:

2007 GRC - Application 05-12-002

To impute 2007 GRC adopted amounts to individual MWCs, PG&E compared funding against PG&E's forecasts for the test year (2007).¹⁴¹ For the attrition years (2008 through 2010), PG&E derived its total capital expenditures based on the Commission's adopted revenue requirement for the attrition years and its authorized rate of return, with any reductions to the total Company-level revenue requirement applied proportionally across all capital MWCs.¹⁴²

2011 GRC – Application 09-12-020

To impute 2011 GRC amounts to individual MWCs, PG&E first applied any reductions specifically identified in the Settlement Agreement to PG&E's request at the specific MWC level. Since the

¹³⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery ED-001-001

¹³⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-015

¹⁴⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery 002-004

¹⁴¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery 006-015, Supplement Attachment, Tab 2007 GRC Methodology

¹⁴² *Id.*

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Settlement Agreement did not specifically identify capital expenditures for attrition years, and because PG&E believed attrition revenues would not provide funding to maintain its 2011 spending profile, PG&E adjusted the 2011 capital expenditure values to yield evenly distributed capital expenditures over the 2011 through 2013 period. This is demonstrated in Figure III.1.3 with the consistent level of the imputed-adopted amounts for all three years in which this GRC set PG&E's revenue requirement, 2011 through 2013.¹⁴³

2014 GRC - Application 12-11-009

To impute 2014 GRC amounts to individual MWCs, PG&E utilized the 2014 GRC Decision which specifically identified amounts by MWC, adjusted for changes in capitalized A&G costs for the 2014 test year.¹⁴⁴ For the 2015 attrition year, PG&E escalated the 2014 adopted MWC amounts by a year-over-year percentage change for total GRC adopted capital expenditure levels.¹⁴⁵ For the 2016 attrition year, PG&E utilized a cost model the Company states was intended to improve accountability by assigning some costs to service providers, such as Shared Services and Information Technology, where the costs would be "better monitored."¹⁴⁶

In order to provide the Commission with the most relevant and localized analysis possible, AzP utilized the imputed adopted figures and GRC forecasts at the MWC level, in conjunction with division-level forecasts and spending data to present adopted figures on a division-level basis.¹⁴⁷ This allows the Commission to review and consider PG&E's spending relative to its imputed adopted amounts for each geographic division.

The first step in deriving these estimates was to calculate an adjustment factor for each year under audit. This adjustment factor represents the proportion of PG&E's request adopted by the Commission. This calculation is illustrated in the figure on the following page.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

¹⁴³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery 001-020, Att. 8, p. 1-1

¹⁴⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery 001-020, Att. 5, p. C-73

¹⁴⁵ *Id.*

¹⁴⁶ The change to the new cost model from the old cost model reduced PG&E's imputed adopted calculation by approximately 3.5% (from \$47.201 million to \$45.551 million). GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery 006-015, Supplement Attachment, Tab 2007 GRC Methodology, 2014 GRC Tab and 2014GRC Recasted Tab

¹⁴⁷ As discussed in the *Reprioritization* section of this report, project level forecast data was not provided by PG&E. Rather, the most detailed level of data PG&E was able to provide was on a Planning Order basis. Planning Orders are used by PG&E to consolidate project data by geographic divisions.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Figure III.1.3: AzP Calculation of PG&E GRC Forecast Multiplier Calculation

GRC Filing	Year	Imputed Adopted Amounts	Total GRC Forecasts	GRC Forecast Multiplier
2007 GRC	2007	\$56,722	\$55,000	103.1%
	2008	\$47,017	\$55,000	85.5%
	2009	\$49,070	\$55,000	89.2%
	2010	Not Applicable*		
2011 GRC	2011	\$69,401	\$80,000	86.8%
	2012	\$69,401	\$80,000	86.8%
	2013	\$69,401	\$80,000	86.8%
2014 GRC	2014	\$53,475	\$88,222	60.6%
	2015	\$46,159	\$88,107	52.4%
	2016	\$45,551	\$88,394	51.5%

{Dollar figures in thousands}

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-020 Att. 01-Rev01 (for "Imputed Adopted Amounts" column); AzP-001-012Att. 01, Att. 02 and Att. 03 (for "Total GRC Forecasts" column); "GRC Forecast Multiplier" column are calculated figures.

*Forecasts for 2010 were not filed in the 2007 GRC.

The next step AzP performed in calculating the imputed adopted amounts for each division was to utilize the GRC forecast multiplier developed above and multiply it by the GRC forecast amount submitted by PG&E in its rate case. For illustration purposes, AzP has included the Central Coast Division below. As an example of how the GRC Multiplier was utilized, for year 2011 in the illustrative example of the Central Coast division, PG&E's original forecast amount included in its GRC filings to the Commission was \$5,955 thousand. When this amount is multiplied by the relevant GRC Multiplier for that year of 86.8%, it yields \$5,166 thousand. To add additional context for this figure, AzP has also calculated the actual expenditures recorded during the relevant period for each division, as well as calculations of dollar and percentage variances relative to the imputed adopted amounts.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Figure III.1.4: GRC Imputed Adopted Expenditures vs. Actual Expenditures - Central Coast

Division	GRC Filing	Year	GRC Forecast Amounts	GRC Multiplier	Calculated Commission-Adopted Amounts (internal check)	Difference (internal check)	Imputed Adopted Amounts	Actual Expenditures	Variance (\$s)	Variance (%)
Central Coast	2007 GRC	2007	\$ 2,100.00	103.1%	\$ 2,165.75	-	\$ 2,165.75	\$ 3,053.88	\$ (888.13)	-41.0%
		2008	\$ 4,600.00	85.5%	\$ 3,932.31	-	\$ 3,932.31	\$ 644.88	\$ 3,287.43	83.6%
		2009	\$ 350.00	89.2%	\$ 312.26	-	\$ 312.26	\$ 797.95	\$ (485.69)	-155.5%
		2010	Not Applicable							
	2011 GRC	2011	\$ 5,955.00	86.8%	\$ 5,166.04	-	\$ 5,166.04	\$ 2,606.73	\$ 2,559.31	49.5%
		2012	\$ 3,780.00	86.8%	\$ 3,279.20	-	\$ 3,279.20	\$ 2,420.63	\$ 858.57	26.2%
		2013	\$ 25.00	86.8%	\$ 21.69	-	\$ 21.69	\$ 1,463.78	\$ (1,442.10)	-6649.3%
		2014	\$ 1,420.00	60.6%	\$ 860.72	-	\$ 860.72	\$ 140.87	\$ 719.85	83.6%
	2014 GRC	2015	\$ -	52.4%	\$ -	-	\$ -	\$ 157.76	\$ (157.76)	*
		2016	\$ -	51.5%	\$ -	-	\$ -	\$ 1,423.12	\$ (1,423.12)	*
		Total	\$ 18,230.00				\$ 15,737.96	\$ 12,709.60	\$ 3,028.37	19.2%

{Dollar figures in thousands}

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-004-002 Att. 01 for "Actual Expenditures" column; "Commission-Adopted Amounts" were calculated by multiplying the division-level forecasts provided in AzP-004-002 Att. 01 by the GRC Multiplier for that year. The "Variance (\$s)" and "Variance (%)" columns are calculated figures.

4. **OBJECTIVE 1 – For each year covered by the audit, demonstrate PG&E’s budgeting process for developing the Rule 20A budgets that are subsequently submitted to, and adopted by, the Commission in each GRC (a) Document the assumptions and workpapers that support the budgeted amounts.**

The circumstances surrounding PG&E’s treatment of the Rule 20A program accounting, specifically with respect to its forecasting methodology, are indicative of fraud risk factors.

While AzP’s audit is a focused operational audit of PG&E’s Rule 20A program and not a financial statement audit, observations noted in this examination present the need to state the existence of fraud risk factors in PG&E’s management of the Rule 20A program. Specifically, auditing guidance set forth by the AICPA identify three elements as “fraud risk factors”: conditions that indicate incentives or pressures to perpetrate fraud, opportunities to carry out the fraud, or attitudes or rationalizations to justify a fraudulent action.¹⁴⁸ Fraud is a legal term, the determination of which is contingent on the existence of *intent* to misrepresent.¹⁴⁹ Proof of intent is neither within the scope of, or under the legal jurisdiction of, the auditors of this engagement to determine. This finding merely identifies the existence of *risk factors* for fraud for the Commission’s consideration of the Rule 20A program during the audit period. The auditors further acknowledge that the existence of fraud need not be contingent on grand plans or conspiracies, but by guidance of accounting authoritative literature, may simply be “that management

¹⁴⁸ AICPA, AU Section 316, Consideration of Fraud in a Financial Statement Audit, Paragraph 31.

¹⁴⁹ AICPA, AU Section 316, Consideration of Fraud in a Financial Statement Audit, Paragraph 05.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

representatives rationalize the appropriateness of a material misstatement, for example, as an aggressive rather than indefensible interpretation of complex accounting rules.”¹⁵⁰

Accounting guidance further provides for the auditors’ identification of fraud risk factors without the need to specifically detect the existence of fraud.¹⁵¹ While these risk factors do not necessarily indicate the existence of fraud, they are often present in circumstances where fraud does exist.¹⁵² Specifically, AICPA guidance states:¹⁵³

Three conditions generally are present when fraud occurs. First, management or other employees have an incentive or are under pressure, which provides a reason to commit fraud. Second, circumstances exist—for example, the absence of controls, ineffective controls, or the ability of management to override controls—that provide an opportunity for a fraud to be perpetrated. Third, those involved are able to rationalize committing a fraudulent act. Some individuals possess an attitude, character, or set of ethical values that allow them to knowingly and intentionally commit a dishonest act. However, even otherwise honest individuals can commit fraud in an environment that imposes sufficient pressure on them. The greater the incentive or pressure, the more likely an individual will be able to rationalize the acceptability of committing fraud.

The findings in this report appear to demonstrate a close representation of this nature in PG&E’s interpretations regarding its level and mode of discretion over development, rate-recovery request of, and need for reliability (or lack thereof) of Rule 20A forecasts and subsequent spending. As illustrated throughout this report and based on the findings of this audit, all three factors appear to be present with respect to PG&E’s management of the Rule 20A program for the period under audit. Examples include:

- PG&E’s evaluation of its Rule 20A Program Manager on the [BEGIN CONFIDENTIAL]

[END

CONFIDENTIAL] (further described in the *Reprioritization* section).

¹⁵⁰ AICPA, AU Section 316, Consideration of Fraud in a Financial Statement Audit, Paragraph 06.

¹⁵¹ AICPA, AU Section 316, Consideration of Fraud in a Financial Statement Audit, Paragraph 31.

¹⁵² Id.

¹⁵³ AICPA, AU Section 316, Consideration of Fraud in a Financial Statement Audit, Paragraph 07.

¹⁵⁴ [BEGIN CONFIDENTIAL]

[END CONFIDENTIAL] (Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery AzP-002-62, Att. 04, CONFIDENTIAL)

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

- PG&E's explanations that the Company was not ordered a balancing account, thus it was not under a legal mandate to have its forecasting and actual results be aligned (rationalization) as well as PG&E's continuous development of aggressive forecasts for GRC rate-recovery request for Rule 20A and lack of controls in place to ensure reasonableness of forecasts (lack of controls).¹⁵⁵
- We note here that, with respect to the forecasts presented to the Commission for the Rule 20A program, rather than recognize its estimates as unreliable and adjust its forecasting methodology accordingly, PG&E has instead argued that the Company's actual results represented anomalous circumstances when they fell short of PG&E's projections¹⁵⁶ (rationalization), rather than recognize and acknowledge that PG&E's forecasting procedures required revisions. PG&E has continued to further present increasingly aggressive and unrealistic forecasts for capital expenditures in its request for rate recovery rather than track and utilize its data to revise its budgeting and forecasting methodology.¹⁵⁷

III.1.a.4 Recommendations

1. **OBJECTIVE 1 – For each year covered by the audit, demonstrate PG&E's budgeting process for developing the Rule 20A budgets that are subsequently submitted to, and adopted by, the Commission in each GRC (a) Document the assumptions and workpapers that support the budgeted amounts**

PG&E should be required to support its future GRC filings with well-defined project-level forecasts and the relevant localities should be made aware of the level of expenditures PG&E has forecast for each community, by project in PG&E's proposed forecast Rule 20A expenditures. As stated in Finding 2 above, PG&E had high variances from imputed adopted levels of Rule 20A forecasts during the audit period. AzP recommends that the Commission require PG&E to support the Rule 20A expenditures requested in its GRC filing with specific and well-

¹⁵⁵ "PG&E's internal budget has been greater than the recorded expenditures in all the years from 2007 through 2016," and "There is no formal "protocol" for ensuring that PG&E's internal annual budget for MWC 30 /Rule 20A is sufficient to match the expenditures forecast for projects currently underway or that may be proposed during the year." (Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery AzP-001-09). Furthermore, as also noted in the *Reprioritization* section of this report, PG&E did not maintain native files of past Rule 20A GRC forecasts, thus limiting the ability of future PG&E GRC witnesses to review and possibly improve upon prior forecasting techniques.

¹⁵⁶ PG&E argued, for example, that in 2012, anomalous events such as "crews being diverted for Hurricane Sandy support, December storm activity, and reductions to fund higher priority work within Electric Operations" were the cause of Rule 20A forecast and recording variances. (Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery AzP-001-007, Att. 04, D. 14-08-032, pages 250-251) However, in the absence of these events and in prior and subsequent years, PG&E's forecast continued to outpace actual expenditures.

¹⁵⁷ PG&E has made no budgeting protocol changes to Rule 20A during the period under audit (Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery AzP-001-058 and AzP-001-013).

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

defined project-level forecasts from active projects. AzP believes requiring project-level forecasts will have the following primary benefits. First, it would ensure that the forecast expenditures are, at a minimum, not purely speculative. While it may be reasonable in some cases to allow a utility to forecast based on expectations alone, PG&E has demonstrated not just an inability to accurately forecast Rule 20A expenditures, but a significant bias toward over-estimating the resources it anticipates dedicating to the Rule 20A program over the entire audit period. Limiting initial PG&E recovery to only those expenditures that can be supported by project-level forecasts will help alleviate some of this bias. Second, requiring project-level forecasts would ensure that there is a clear audit trail in which PG&E's performance in this program can be tracked. As discussed in Recommendation 3, in the *Spending* section of this report, AzP has recommended that at the time of each GRC, PG&E be required to demonstrate how the approved or imputed adopted portion of its Rule 20A capital expenditures forecast within the approved GRC revenue requirement reconcile to actual spending since the prior GRC, at the project level. Requiring project level forecasts as a condition of expenditure approval will allow this comparison to be made in an efficient and unambiguous manner. To increase transparency, the project forecasts should also include the applicable AACE classification the forecasts represent.

2. **OBJECTIVE 1** – *For each year covered by the audit, demonstrate PG&E's budgeting process for developing the Rule 20A budgets that are subsequently submitted to, and adopted by, the Commission in each GRC (a) Document the assumptions and workpapers that support the budgeted amounts*

PG&E should explicitly state unique budgeting and forecasting considerations for each MWC. In review of PG&E's GRC applications and related workpapers during the audit period, AzP noted inconsistencies between PG&E's representations in its GRC application versus what was employed in practice for the Rule 20A program. For example, as discussed in Finding 1 above, PG&E stated in its 2007 GRC application that program managers developed detailed budgetary forecasts for their program areas. However, the forecasts and related workpapers for the Rule 20A program area were not what AzP would consider "detailed" as they did not, for example, include fundamental information such as unique project identification numbers. Also, in its 2007 GRC application, PG&E referenced monthly Management Committee meetings that it stated were used to "reallocate resources to respond to changing conditions."¹⁵⁸ However, PG&E was unable to provide any documentation from these meetings (or any other documentation) for purposes of supporting its reallocation decisions for the Rule 20A program.¹⁵⁹ In future GRC filings, PG&E should be more descriptive and explicit with whether, and the extent to which, stated procedures are applicable to all areas of the company, and whether and how they are tailored for specific MWCs, including Rule 20A. For example, if PG&E utilized monthly Management Committee meetings to reallocate resources, as it stated, then the reasons for reprioritization of funds from

¹⁵⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-004, Att. 2, p. 3-3 and p. 3-4

¹⁵⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery AzP-001-058 and AzP-004-020

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

the Rule 20A program should have been documented and available for review by the Commission or, in this case, audits ordered by the Commission. As explained above, this was not the case.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

III.1.b. SUBTASK 1(B) – SPENDING

III.1.b.1 Introduction and Background

PG&E's underspending relative to its budget for Rule 20A projects was a highly contentious issue among the various parties in PG&E's 2017 GRC, PG&E's most recent GRC as of the time of this audit. As part of the decision in the 2017 GRC, the CPUC noted that it believed PG&E had managed the Rule 20A Program in a manner that was "inconsistent with the Commission's intent."¹⁶⁰ In its decision for the 2017 GRC, the Commission referenced an ORA¹⁶¹ exhibit that illustrated over \$150 million of unspent Rule 20A funds since the year 2000¹⁶²--program underspending that Commission found "greatly concern[ing]." ¹⁶³ Also concerning to the Commission was that PG&E had provided no record in the proceeding regarding the actual use of the unspent Rule 20A funds the utility had collected in rates.¹⁶⁴

The discussion in this section addresses the Commission's objectives for examination of PG&E's spending on the Rule 20A program during the audit period.¹⁶⁵ This section of the audit report seeks to further elucidate the issues identified during PG&E's 2017 GRC as they pertain specifically to the scope and objectives of this audit related to PG&E's Rule 20A program spending. Much of the discussion in this section focuses on the magnitude of discrepancies between PG&E's actual Rule 20A program expenditures and the amounts adopted by the Commission during the audit period.

To fully assess the adequacy of PG&E's spending on the Rule 20A program during the audit period, it is essential to first define the relevant data points. As noted above, the Commission referenced an exhibit presented by ORA that indicated that PG&E had significantly underspent on the Rule 20A program for several years. AzP's analysis discussed below and the data provided in Figure III.1.6 arrive at a similar conclusion. Namely, that PG&E underspent on its Rule 20A program by millions of dollars during the audit period, from 2007 through 2016. It is critical, however, to recognize that the underspend noted by ORA and referenced on page 72 of Decision 17-05-013 is similar, but not identical, to the underspend that is referenced in this audit report. The underspend referenced in the ORA exhibit does not directly relate to the Rule 20A program expenditures approved by the Commission and embedded in PG&E's rates. The ORA analysis utilized PG&E's internal budgets for the Rule 20A program, rather than Commission-adopted amounts, for purposes of its comparison.¹⁶⁶ PG&E's internal budgets are not approved or authorized by

¹⁶⁰ D.17-05-013, p. 64

¹⁶¹ ORA is now referred to as the Public Advocates Office, or CalPA. Source: <https://www.publicadvocates.cpuc.ca.gov/default.aspx>

¹⁶² D.17-05-013, p. 72

¹⁶³ D.17-05-013, p. 71

¹⁶⁴ D.17-05-013, p. 74

¹⁶⁵ For an analysis of how PG&E performed during the audit period regarding its ability to manage individual projects, please see section IV.5

¹⁶⁶ D.17-05-013, p. 71, Column (B); GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-020, Att. 1 Rev, BOY Budget

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

the Commission, nor are they embedded in PG&E's rates, and the timing of GRC decisions is not in sync with PG&E's budget cycle.^{167,168} Therefore, PG&E's internal budgets are not a relevant data point for assessing whether or not PG&E spent an amount consistent with the amounts embedded in PG&E rates. For these reasons, AzP utilized figures representing Commission-adopted Rule 20A amounts, rather than PG&E's internal budgets, for its comparison analysis. In this report, in order to distinguish between the internal PG&E budget and the PG&E Rule 20A forecasts adopted by the Commission in PG&E's GRCs, we refer to the amounts approved, either explicitly or implicitly by the Commission, as the "imputed adopted" figures. For a discussion of the assumptions and inputs of the calculation comprising the imputed adopted amounts, please see the *Budgeting* section of this report.

III.1.b.2 Audit Objectives

Per Commission Decision 18-03-022, the objectives for the *Spending* subcategory of this audit are to:¹⁶⁹

- i. Document how the annual budgets approved by the Commission are subsequently assigned to specific Rule 20A projects;
- ii. Document PG&E's annual spending, at the project level;
- iii. Provide a full breakdown of the annual program spending by FERC account and SAP account (labor, materials, overhead, etc.);
- iv. Demonstrate that recorded spending is equal to Commission-approved, budgeted project amounts, or account for all variances.

III.1.b.3 Findings

5. OBJECTIVE 1 – *Document how the annual budgets approved by the Commission are subsequently assigned to specific Rule 20A projects*

Forecasts presented to the Commission in PG&E's GRCs are not assigned to specific Rule 20A projects. As explained in the *Introduction and Background* discussion of the *Budgeting and Spending* sections of this report, PG&E develops imputed adopted amounts at the MWC level. The Company stated in discovery that it does not assign the adopted Rule 20A capital expenditures to specific Rule 20A projects and that it only imputes adopted amounts at the MWC level.¹⁷⁰ PG&E contends that the Company "did not and could not" assign Rule 20A funds to specific Rule 20A projects because "in none of the decisions [during the audit period] did the Commission adopt forecasts at the level of individual projects" for the Rule 20A program.¹⁷¹ While PG&E's assertion that the Commission's decisions did not contain a list of individual projects explicitly required to be funded at a specific level is factually accurate, PG&E's assertion does not explain why PG&E did not attempt to impute project amounts to assess whether its actual spending was materially

¹⁶⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery ED-001-001

¹⁶⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-015

¹⁶⁹ *Final Scope and Objectives* for this audit were ordered in D.18-03-022, Att. A

¹⁷⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-002-004 and Response to Discovery AzP-004-015

¹⁷¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-015

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

consistent with PG&E's portrayal of its proposed needs and anticipated spending, as presented to the Commission when the Company requested that the CPUC authorize an increase in PG&E customers' rates. PG&E had the responsibility to fund the Rule 20A Program in a manner that was generally consistent with the Commission's adopted revenue requirement and PG&E failed to do so. PG&E could have utilized a level of funding generally consistent with the Rule 20A funding adopted by the Commission for Rule 20A projects, even if particular projects differed from those which were originally forecast by PG&E in its GRC filing. These calculations would have enabled the Company to assess variances in a meaningful fashion and to make the necessary changes in PG&E's estimation process for future GRCs and to prevent the ongoing over-collection of funds from ratepayers for a program that was consistently underfunded. In summary, we believe making this necessary assessment was a requisite for PG&E to ensure the Company funded the Rule 20A Program in a manner that was generally consistent with what the Commission adopted during the audit period and PG&E failed to do so.

6. OBJECTIVE 2 - *Document PG&E's annual spending, at the project level; and*

OBJECTIVE 3 - *Provide a full breakdown of the annual program spending by FERC account and SAP account (labor, materials, overhead, etc.)*

Annual Rule 20A program expenditures recorded in PG&E's SAP system and the expenditures recorded for purposes of FERC accounting did not agree for seven of the 10 years during the audit period, with annual variances as high as \$2.7 million. PG&E manages its operations using a program management approach that organizes the Company functionally by MWCs.¹⁷² SAP, PG&E's management accounting module, is organized by MWC.¹⁷³ SAP tracks expenditures without regard to which FERC account the dollars will be booked.¹⁷⁴ PG&E is required to report financial results and express requests to the Commission using a FERC account format.¹⁷⁵ As such, translation from SAP-account expenditures to FERC-account expenditures is a necessity.

PG&E provided two different figures when requested to provide the total expenditures for the Rule 20A program over the audit period, one recorded in SAP and one recorded for purposes of FERC accounting. In aggregate, the amount of Rule 20A program expenditures recorded in SAP for the audit period was \$432.6 million, while the amount recorded for purposes of FERC accounting was \$433.8 million, resulting in a \$1.2 million difference over the ten-year audit period. PG&E was only able to provide a schedule by project number to support the \$433.8 million figure.¹⁷⁶ This figure is reproduced as AzP Exhibit B. In discovery, PG&E initially attributed these differences to "the conversion to a new fixed asset accounting system that was implemented in 2010."¹⁷⁷ When

¹⁷² GRC 2007, Exhibit PG&E-1, p. 2-7

¹⁷³ Id.

¹⁷⁴ GRC 2007, Exhibit PG&E-1, p. 2-8

¹⁷⁵ Id.

¹⁷⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-035 and AzP-006-013

¹⁷⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-035

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

asked to provide further explanation of the variance, PG&E stated that the Company believed the difference between these figures is “immaterial” and that “[r]econciling these differences for the Rule 20A program over a 10-year period would be overly burdensome and time-consuming...”¹⁷⁸ PG&E did, however, state that it knew of one “known cause” for these differences being that, “certain overhead costs are tracked within a single order in SAP but are allocated to multiple orders in the Power Plant asset subsidiary ledger [that tracks FERC account postings].”¹⁷⁹

While the total variance of \$1.2 million over the audit period is only approximately 0.3% of total Rule 20A expenditures, when viewed on a year-by-year basis, some years have significant variances between the amounts recorded in SAP and the amounts recorded for FERC accounting. In 2011, for example, the amount of recorded Rule 20A expenditures in PG&E’s SAP system was \$33.6 million and the amount recorded for purposes of FERC accounting was \$36.3 million, resulting in a \$2.7 million variance for just this one year (an 8% variance relative to total program costs). Given that there is no inherent reason why these two amounts should not agree, an 8% variance is significant. Furthermore, the aggregate total variance of \$1.2 million is misleading because positive variances in one year negate (*i.e.*, cancel out) negative variances in another year. When the variances are viewed in absolute dollars, the total variance over the audit period is \$4.2 million. The difference in these amounts during the audit period on an annual basis is demonstrated in Figure III.1.5 below.

Figure III.1.5: Rule 20A SAP vs FERC Acct Actual Expenditures

Year	Actual Expenditures - SAP	Actual Expenditures - FERC Acct	Variance (Nominal \$s)	% Variance	Variance (Absolute \$s)	% Variance
2007	\$ 45,385	\$ 44,835	\$ (550)	-1.2%	\$ 550	1.2%
2008	\$ 39,916	\$ 39,538	\$ (378)	-0.9%	\$ 378	0.9%
2009	\$ 41,142	\$ 40,708	\$ (434)	-1.1%	\$ 434	1.1%
2010	\$ 36,610	\$ 36,583	\$ (27)	-0.1%	\$ 27	0.1%
2011	\$ 33,628	\$ 36,326	\$ 2,698	8.0%	\$ 2,698	8.0%
2012	\$ 52,426	\$ 52,291	\$ (135)	-0.3%	\$ 135	0.3%
2013	\$ 69,378	\$ 69,354	\$ (24)	0.0%	\$ 24	0.0%
2014	\$ 41,117	\$ 41,117	\$ 0	0.0%	\$ 0	0.0%
2015	\$ 41,885	\$ 41,885	\$ (0)	0.0%	\$ 0	0.0%
2016	\$ 31,123	\$ 31,123	\$ 0	0.0%	\$ 0	0.0%
Total	\$ 432,610	\$ 433,761	\$ 1,151	0.3%	\$ 4,247	1.0%

(Dollar figures in thousands)

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-020, Rev01, Att. 1 and AzP-001-035, Att. 1

¹⁷⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-017

¹⁷⁹ *Id.*

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

7. OBJECTIVE 4 - *Demonstrate that recorded spending is equal to Commission-approved, budgeted project amounts, or account for all variances.*

PG&E's recorded spending is not equal to Commission-approved, budgeted project amounts for Rule 20A projects and PG&E's lack of spending for its Rule 20A program relative to Commission-adopted amounts, particularly when compared to PG&E's spending in other major work categories, suggests a systematic bias. Three specific factors make the spending variances of the Rule 20A program relative to Commission-adopted amounts particularly concerning. The first factor is that the variances, both in aggregate and on an individual year-to-year basis, are dramatically skewed toward *underspending* on the Rule 20A program. Each year during the ten-year audit period, PG&E underspent on the Rule 20A program relative to the Commission-adopted amounts embedded in its rates. This is in stark contrast to the oscillation between underspending and overspending that would be anticipated of a program where spending is done in a non-biased manner (*i.e.*, a situation in which there were an equal chance of overspending and underspending for a given year). To put PG&E's ten-year consecutive underspend in the Rule 20A program in perspective, the odds of PG&E underspending on this program for ten consecutive years, assuming an equal probability of overspending and underspending, is less than 1 in 1,000.¹⁸⁰ The second factor making the Rule 20A underspending particularly concerning is that the Rule 20A program compared to other MWCs was unique during the audit period because the Rule 20A MWC was the *only* one of 30 electric capital MWCs at PG&E that spent less than its Commission-adopted expenditures every year during the ten-year audit period.¹⁸¹ The third concerning factor is the observed underspending of the program exists even in light of schedule and budget overruns on the projects that were performed during this period.¹⁸²

A comparison of Commission-adopted Rule 20A expenditures to actual expenditures for the audit period is provided in Figure III.1.6 below. This data demonstrates that during the 10-year audit period, PG&E's aggregate underspend relative to the amounts embedded in its rates was \$123 million.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

¹⁸⁰ Calculated as: $(1/2^{10}) = 1/1,024$

¹⁸¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016, Att. 1

¹⁸² Section IV.5 of this report.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Figure III.1.6. Rule 20A Actual vs. Imputed Adopted Expenditures

Year	Imputed Adopted Expenditures	Actual Expenditures	\$ Variance	% Variance
2007	\$56,722	\$45,385	(\$11,337)	-20.0%
2008	\$47,017	\$39,916	(\$7,101)	-15.1%
2009	\$49,070	\$41,142	(\$7,927)	-16.2%
2010	\$49,580	\$36,610	(\$12,970)	-26.2%
2011	\$69,401	\$33,628	(\$35,773)	-51.5%
2012	\$69,401	\$52,426	(\$16,975)	-24.5%
2013	\$69,401	\$69,378	(\$23)	0.0%
2014*	\$53,475	\$41,117	(\$12,358)	-23.1%
2015	\$46,159	\$41,885	(\$4,274)	-9.3%
2016	\$45,551	\$31,123	(\$14,428)	-31.7%
Total	\$555,776	\$432,610	(\$123,166)	-22.2%

(Dollar figures in thousands)

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-020, Rev01, Att. 1

*The actual expenditures for 2014 includes \$24.4 million PG&E wrote off for financial accounting and ratemaking purposes. These expenditures were related to 16 projects that were completed at a cost in excess of the localities' available work credits (i.e., Rule 20A allocations plus 5-years' borrowing). PG&E recommended that these costs be borne by PG&E shareholders in Advice Letter 4553-E and Resolution E-4731, and the Commission agreed with this approach.¹⁸³

Also as noted in Figure III.1.6, PG&E's Commission-adopted expenditures exceeded PG&E's actual expenditures for every year under audit, with a total underspending variance of 22.2%. For every dollar of capital expenditure embedded in PG&E customer rates over the ten-year audit period, PG&E spent only 78 cents.

8. **OBJECTIVE 4 - Demonstrate that recorded spending is equal to Commission-approved, budgeted project amounts, or account for all variances.**

PG&E's underspending during the audit period was due to underactivity in the program. PG&E's underspending on the Rule 20A program during the audit period was not due to efficiencies in project management or project construction. While we have quantified PG&E's variance relative to Commission-adopted amounts for Rule 20A projects during the audit period, the reasons for this underspend are equally important to consider. A utility should be encouraged by its regulator to, whenever possible, develop efficiencies in its processes that allow it to perform its services at a lower cost than it originally budgeted. With this objective in mind, underspending on a particular program relative to Commission-adopted amounts would, in certain circumstances, represent

¹⁸³ Resolution E-4731 dated August 13, 2015 and Advice Letter 4553-E dated August 19, 2015

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

utility management identifying areas of efficiency and cost reduction that benefit both the ratepayer and the utility. The CPUC advocated this very principle in D.85-03-042 stating that the Commission, “will continue our practice of adopting sound, informed estimates with the hope that utility management accepts the challenge and can somehow ‘do it for less.’”¹⁸⁴ The underspending variance on the Rule 20A program during the audit period, however, is not a demonstration of PG&E’s ability to “do it for less.” When the final costs of projects completed during the audit period are compared to the initial estimates of these projects, the final cost exceeds the initial estimates by 35%.¹⁸⁵ As such, the underspending variance does not represent efficiencies, but rather a lack of activity in the program.

9. OBJECTIVE 4 - *Demonstrate that recorded spending is equal to Commission-approved, budgeted project amounts, or account for all variances.*

The absence of a balancing account during the audit period is not justification for PG&E’s substantial underspending on the Rule 20A Program. As noted previously, it is not a single year underspend in this program that is concerning, but the multi-year and seemingly systematic underspending. When asked in discovery to provide the criteria for what it believes to constitute proper budgeting under the Rule 20A program, PG&E stated that it, “sets its internal budget for Rule 20A to provide funding for the projects that are underway or are anticipated to be underway during the year.” It continued its response by stating that, “Aside from instances where the Commission adopts a one-way balancing account that requires PG&E to return certain unspent revenues or limits PG&E’s ability to recover recorded costs, there is no tariff language, Commission order, or statute that requires that PG&E’s internally developed budget match forecast amounts that are adopted by the CPUC for use in the revenue requirement calculation.”¹⁸⁶

This response demonstrates PG&E’s lack of understanding of the basic responsibility as a regulated monopoly to implement the steps necessary for reasonable accounting and spending at the Company. It also demonstrates a disregard for the fact that the Company bears the burden of proof for reasonableness of its filings with the Commission, which include the forecasts relied-upon for the development of its requested revenue requirement in each GRC. The lack of spending in the Rule 20A program, particularly when compared to the amounts that were embedded in PG&E’s rates, over a prolonged period prompted the Commission to order a balancing account for this program. However, the fact that a balancing account was not ordered by the Commission until the 2017 GRC, did not exempt PG&E from utilizing the funds it was collecting from ratepayers for the Rule 20A program in a manner that provided ratepayers a commensurate level of benefit.

10. OBJECTIVE 4 - *Demonstrate that recorded spending is equal to Commission-approved, budgeted project amounts, or account for all variances.*

¹⁸⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-002-018

¹⁸⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-092 Att. 01

¹⁸⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-08

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

PG&E did not retain documentation during the audit period sufficient to determine how Commission-adopted Rule 20A funds were spent. One of the main concerns the Commission noted in Decision 17-05-013 was that the difference between the funds approved and adopted for the Rule 20A program (i.e., the amounts related to the Rule 20A program embedded in PG&E's rates) was not tracked. That is, PG&E has spent the funds embedded in rates that were not spent on Rule 20A, however, since dollars are fungible and PG&E did not retain documentation of reprioritization from the Rule 20A program,¹⁸⁷ it is impossible to determine with precision where the funds were spent.¹⁸⁸ AzP has, however, developed analysis that addresses the relative over- and under-funding of MWCs at PG&E during the audit period. Please see Figure III.1.11 in the *Reprioritization* section of the report for this analysis.

11. OBJECTIVE 4 - *Demonstrate that recorded spending is equal to Commission-approved, budgeted project amounts, or account for all variances.*

PG&E could have increased the effectiveness and productivity of the Rule 20A program if it had spent Commission-adopted funds on the program during the audit period. As previously noted, the Rule 20A program was underfunded by \$123 million over the audit period. PG&E's explanations regarding Rule 20A project delays and underspending are, in some cases, contradictory, and in other cases indicate that additional funding would have improved the performance of the program.

In multiple data requests PG&E noted resource constraints as a cause for Rule 20A project delays. Specifically, PG&E stated that "resource constraints can delay a project,"¹⁸⁹ in some instances resources were reprioritized from Rule 20A projects,¹⁹⁰ and that a cause for delays was "resource availability."¹⁹¹ Given that the Rule 20A program was consistently underfunded by millions of dollars, and that "resource constraints" were a cause for such delays, AzP asked PG&E why some of the \$123 million of the unspent Rule 20A funds (as illustrated in Figure III.1.2) were not utilized to procure additional resources to enhance the productivity of the Rule 20A Program. PG&E stated that, "Contractors were hired when internal resources were not available" and that such resources were available and not cost-prohibitive".¹⁹² PG&E's response, that there *were* available resources and that these available resources *were* utilized when PG&E resources were not available, the logical conclusion would be that resource constraints did not impact the effectiveness of the Rule 20A program inconsistent with PG&E's discovery responses cited above.

¹⁸⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-020

¹⁸⁸ D.17-05-013, p. 74

¹⁸⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-095

¹⁹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-058

¹⁹¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-002-064

¹⁹² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-013

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Another reason cited by PG&E for underspending¹⁹³ and delays¹⁹⁴ in the Rule 20A Program were third party administrative issues, such as problems in obtaining easements. Given that PG&E noted these as being substantial and recurring roadblocks that were causing delays on multimillion-dollar projects, AzP asked PG&E whether the Company considered hiring additional personnel to assist localities with their responsibilities, to which PG&E replied, “No.”¹⁹⁵

In summary, there is no doubt PG&E collected more from its ratepayers on the Rule 20A program during the audit period than it spent on administering the program. PG&E’s recurring underspending on the Rule 20A program, particularly in light of the options it had to utilize the funding (such as those noted above) to improve the performance of the program, indicates PG&E’S management of this program during the audit period was severely lax.

III.1.b.4 Recommendations

3. *OBJECTIVE 1 - Document how the annual budgets approved by the Commission are subsequently assigned to specific Rule 20A projects*

At the time of each GRC, PG&E should demonstrate how the approved or imputed Commission-adopted portion of the capital expenditures forecast within the approved GRC revenue requirement at the project level for Rule 20A Program reconcile to actual spending since the prior GRC. This information should serve two primary purposes: first, PG&E should utilize this information to support its forecast for any subsequent GRC based on actual results, and second, it would allow greater transparency for examination of the reasonableness of any future requests. PG&E should only be allowed a maximum of Rule 20A-related expenditure forecasts to the extent it has demonstrated prior spending.

In addition, as referenced in recommendation number six below, given that even a balancing account provides only for retroactive rather than proactive accounting—i.e., a credit back to the program (not the customers), any overcollection of funds in rates represents an interest-free loan from ratepayers to PG&E—free credit to the utility at the expense of captive customers whose credit cards in the meantime, charge interest rates in the double-digits. Thus, the only way to ensure just and reasonable rates is to disallow PG&E from including in rates any amount for which it is unable to reasonably support a need. With its next and each subsequent GRC, we recommend that the Commission require a comparison, on a project-basis of PG&E’s actual spending in the Rule 20A program versus the forecasts as adopted by the Commission at the time of its prior GRC.

¹⁹³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-004

¹⁹⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-002-015

¹⁹⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-011

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

4. **OBJECTIVE 1 - Document how the annual budgets approved by the Commission are subsequently assigned to specific Rule 20A projects.**

PG&E should inform localities of changes to Rule 20A project budgets in a formalized manner.

This type of communication, when necessary, should be standardized, timely, and well-documented. PG&E stated in response to AzP-001-092 that, “Any changes to the [Rule 20A project] estimate as the project is refined are communicated informally either by e-mail or verbally.”¹⁹⁶

PG&E’s communications to localities regarding project delays and changes in project estimates is vital and this communication should not be conducted “informally.” This process should be formalized, with standard written documentation from PG&E to the locality to ensure there is an objective record of this correspondence. This correspondence should, at a minimum, contain the following information: (1) Any and all reasons for the budget change or estimated completion time change. (2) Revised project budget and/or completion date. (3) Action plan and timeline to resolve the issues noted. (4) Option for the localities’ representatives to provide written questions to PG&E regarding the delay and/or have an in-person meeting with the Rule 20A Program manager or other knowledgeable PG&E representative to discuss questions and concerns from the localities. (5) To the extent the delay and cost overruns were foreseeable or caused by PG&E negligence and cause the project to not be completed, the locality should be able to appeal to the Commission for the opportunity for a timely refund of any costs incurred for the project to date.

5. **OBJECTIVE 2 - Document PG&E’s annual spending, at the project level.**

PG&E should provide detailed support for the activity within the PG&E Rule 20A balancing account with each GRC filing. The supporting materials should include native Excel files with formulas intact and should clearly demonstrate at a minimum, by city and county, by project, and by date, all debits and credits to the balancing account. A requirement to submit this information for all activity in the account including and through the prior rate case, along with native supporting documentation will increase transparency and reduce the time and administrative burden associated with examining this information during the GRC proceeding.

6. **OBJECTIVE 3 - Provide a full breakdown of the annual program spending by FERC account and SAP account (labor, materials, overhead, etc.).**

We recommend that the Commission consider requiring PG&E to utilize a balancing account for all programs that are routinely over- or underfunded. Providing an audit trail requiring balancing accounts would improve transparency and allow the Commission the opportunity to better track movement of funds within the Company. While it would be a reasonable expectation that the utility itself would maintain and examine its own records to ensure general consistency with Commission-adopted amounts, and adjust its methods of forecasting costs for any programs that

¹⁹⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-092

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

had consistent variances, the underspending in the Rule 20A program during the audit period is an example that absent explicit requirements from the Commission to do so, the utility may not exercise this responsibility to assess or ensure whether the rates it collects have been spent on the efforts for which PG&E presented to the CPUC in its GRCs.¹⁹⁷

7. **OBJECTIVE 3 - *Provide a full breakdown of the annual program spending by FERC account and SAP account (labor, materials, overhead, etc.).***

PG&E should develop and implement record-keeping and accounting internal controls related to Rule 20A projects sufficient to ensure that the amounts reported in SAP and those reported for purposes of FERC accounting are consistent. As noted in the *Findings* section of this report, annual Rule 20A program expenditures recorded in PG&E's SAP system and the expenditures recorded for purposes of FERC accounting did not agree for seven of the 10 years during the audit period, with five of these years having a variance of over \$100 thousand and one year with a variance of \$2.7 million. Since there is no inherent reason why these figures should differ, PG&E should implement internal controls to ensure that these two figures are consistent with any differences reconciled in a timely manner, preferably monthly, but, at a minimum, annually.

8. **OBJECTIVE 4 - *Demonstrate that recorded spending is equal to Commission-approved, budgeted project amounts, or account for all variances.***

PG&E should provide to the Commission analysis of, and justification for, programs that are routinely over- or underfunded. As noted in the *Findings* section above, PG&E's actual expenditures over the ten-year audit period were \$123 million less than the Commission-adopted amounts that were embedded in rates. This led to PG&E customers, in every year of the audit period, overpaying for the benefits they received from this program. While the balancing account ordered by the Commission in D.17-05-013 provides a mechanism for an over-collection of revenue to be credited against future costs of the program,¹⁹⁸ we believe it is prudent to consider ways to proactively identify and address other programs that may be consistently over- or underfunded at PG&E. Specifically, we believe that additional preventative measures should be put into place so that consistent and significant variances from Commission-adopted amounts for a program, like what occurred in the Rule 20A program over the audit period, does not occur with other programs. In addition, as discussed in greater detail in the *Reprioritization* section of this report, this measure should serve to better identify resources that were reprioritized subsequent to PG&E's GRC with greater transparency.

To help address this issue, we recommend reporting requirements for PG&E's Budget Report be enhanced as follows: In order to highlight and bring to the Commission and Commission Staff's attention programs that are routinely being over- or underfunded relative to the amounts

¹⁹⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery ED-001-001

¹⁹⁸ *Id.*

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

embedded in PG&E's rates we recommend that a multi-year analysis of the different major work categories be required within a distinct section of the annual Budget Report, which specifically identifies any major work categories that significantly and routinely vary from the amounts embedded in PG&E's rates. As a threshold, we recommend this analysis include any major work category wherein the company has over- or underspent by 10% or more for three consecutive years or cumulatively over- or underspent by 10% for the past 5 years. For the major work categories that meet or exceed these thresholds, PG&E should be required to provide a detailed plan on how it intends to revise and improve its forecasting and/or spending procedures related to the applicable work category. We recommend that the Commission deny PG&E's request to include in rates forecasts for the applicable MWCs that lack the necessary modifications to address the unreliability of PG&E's prior forecasting methods.

9. OBJECTIVE 4 - Demonstrate that recorded spending is equal to Commission-approved, budgeted project amounts, or account for all variances.

In filings to the Commission, PG&E should provide unambiguous definitions when referring to GRC forecasts, PG&E internal budgets and/or Commission-adopted (imputed adopted) figures.

As noted in the *Introduction and Background* section of this report, it is critical when reviewing data related to the Rule 20A program that fundamental terms be defined and used consistently. PG&E alluded to the ambiguity of certain terms in a discovery response that stated, in part, "With respect to the Commission's use of the term 'budget,' it is customary that the utilities' testimony and Commission decisions frequently use the word 'budget' to describe the utilities' forecast amounts and the amount the Commission ultimately adopts for use in the revenue requirement calculation that underlies the authorized rates. However, the term 'budget' used in this manner is not the same as the internal budget that PG&E develops."¹⁹⁹

As such, in future filings with the Commission, PG&E should define terms at the beginning of the filing, including, but not limited to, internal budget, GRC forecasts, and Commission-adopted (or, imputed-Commission-adopted), figures. To the extent data from one of these categories is included in embedded figures within a filing (*e.g.*, a table of historical internal budgets), PG&E should label such data consistent with these definitions and be able to reconcile differences within various categories. The GRC forecast developed as of a particular date should be reconcilable to PG&E's internal budget as of the same time, which may require PG&E to maintain snapshots or otherwise set up its internal accounting system such that this information can be retrieved at a later date if necessary.

¹⁹⁹ *Id.*

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

III.1.c. SUBTASK 1(c) – RATEMAKING

III.1.c.1 *Introduction and Background*

Ratemaking, specifically how the Rule 20A program is incorporated into the ratemaking calculus at PG&E, is the focal point of this section. Given its fundamental impact on PG&E customers, ratemaking is also discussed within the context of other sections of this report in order to provide enhanced context on the impacts of PG&E budgeting, spending, and reprioritization decisions, as well as the relationship between customer rates and those customers' purchasing power toward Rule 20A Program services. Given the technical nature of this subject matter, the *Introduction and Background* section of this report begins with a discussion of fundamental concepts of utility ratemaking with a specific emphasis on ratemaking elements and mechanisms used in the state of California and applicable to PG&E. The purpose of this discussion is to provide the reader additional context of the ratemaking concepts referenced in the *Findings and Recommendations* sections of this report.

As a public utility, PG&E's rates are not set by the open market but are instead established by the Commission through a rate-setting proceeding called a GRC. Public Utilities Code 701 provides the Commission broad authority to regulate public utilities, stating that the Commission, "may supervise and regulate every public utility in the State and may do all things, whether specifically designated in this part or in addition thereto, which are necessary and convenient in the exercise of such power and jurisdiction."²⁰⁰ Public Utilities Code 451 provides specificity to the ratemaking aspect of the Commission's regulatory power and provides the fundamental principle and ultimate objective of public utility ratemaking in California: just and reasonable rates. Public Utilities Code 451 states that charges of a public utility for any "commodity furnished or...service rendered...shall be just and reasonable."²⁰¹ Public Utilities Code 451 further states that any, "unjust or unreasonable charge...is unlawful."²⁰² For a rate to be "just and reasonable" in this context it is neither necessary, nor appropriate, for the rate to be set at the highest rate the ratepayer would be willing and able to pay, nor the lowest level the utility would be willing and able to provide service. Rather, a "just and reasonable" rate is one that allows for the utility and its investors to be fairly, but not excessively, compensated for providing safe and reliable service to its customers. As the Supreme Court stated in its seminal 1944 decision in *Federal Power Commission vs. Hope Natural Gas Co.*, "the fixing of 'just and reasonable' rates, involves a balancing of the investor and the consumer interests."²⁰³

²⁰⁰ California Public Utilities Code § 701

²⁰¹ California Public Utility Code § 451

²⁰² *Id.*

²⁰³ *Federal Power Commission vs. Hope Natural Gas Co.*, 320 U.S. 591

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

In California the rate-setting process for major investor-owned utilities, such as PG&E,²⁰⁴ consists of two separate GRC phases. General protocol utilized in GRCs are described in the Commission's Rules of Practice and Procedure Article 2.²⁰⁵ GRC Phase I determines the revenue requirement, or the total amount of dollars the utility is authorized to collect from customers.²⁰⁶ GRC Phase II sets the allocation of that revenue requirement to the various customer classes and the rate design used to collect the rates from the customers in those classes.^{207,208} The revenue requirement is calculated utilizing the following formula:²⁰⁹

$$\text{Revenue Requirement} = \text{O\&M} + \text{Taxes} + \text{Depreciation} + (\text{Rate Base} * r) - \text{OR}$$

Where:

O&M	=	normal business expenses for running a utility company
Taxes	=	Federal, state and local taxes
Depreciation	=	accumulated depreciation of plants used to produce and deliver the utility's product
Rate Base	=	net value of plant in service plus working capital
R	=	rate of return on invested capital
OR	=	other operating revenue

The term rate base, in the context of California public utility ratemaking, is the net value of the assets on which investors are entitled to earn a return.²¹⁰ Rate base is calculated as follows:²¹¹

$$\text{Rate base} = \text{GPIS} - \text{AD} + \text{WC}$$

Where:

GPIS	=	Gross Plant in Service
AD	=	Accumulated Depreciation
WC	=	Working Capital

²⁰⁴ Other California utilities subject to this process include: Southern California Edison Company, San Diego Gas & Electric Company, Southern California Gas Company. *Utility General Rate Case – A Manual for Regulatory Analysts*, p. 7

²⁰⁵ Commission's Rules of Practice and Procedure Article 2

²⁰⁶ *What is a General Rate Case* obtained from: <https://www.cpuc.ca.gov/General.aspx?id=10431>

²⁰⁷ *Utility General Rate Case – A Manual for Regulatory Analysts*, p. 7

²⁰⁸ Given its role in setting the revenue requirement, GRC Phase 1 is the more relevant of the two phases for this audit and it is generally the phase being referenced when the "GRC" acronym is used in this report.

²⁰⁹ *Utility General Rate Case – A Manual for Regulatory Analysts*, p. 19

²¹⁰ *Utility General Rate Case – A Manual for Regulatory Analysts*, p. 8

²¹¹ *Utility General Rate Case – A Manual for Regulatory Analysts*, p. 26 and 27

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Given the Rule 20A program's characteristics as a capital program, the ratemaking discussion that follows is primarily focused on the impact of rate base. Unlike the operating expense components of the revenue requirement calculation—such as O&M, taxes, and depreciation—rate base is not incorporated into PG&E's rates on a dollar-for-dollar basis in the year incurred. Instead, \$1 of incremental rate base will increase required revenue by varying degrees and is a function of, primarily, the increase of the rate base (in dollars) and the level of rate of return authorized by the Commission. The public utility industry is highly capital-intensive, and utilities borrow capital to finance their investments in plant. Thus, the return attributed to rate base is designed to provide a return to both debt investors (such as payment on interest of debt), as well as equity investors (such as payment of dividends).

In addition to the traditional ratemaking formula described above, different states use specific ratemaking mechanisms in their respective jurisdictions. One of these mechanisms utilized in California and of significance to the Rule 20A program are balancing accounts. Two types of balancing accounts are utilized in California, a one-way balancing account and a two-way balancing account.²¹² A one-way balancing account helps ensure that ratepayers are not harmed by a utility not spending its authorized funds on a specified activity. It does this by crediting back to ratepayers any unspent authorized funds. A two-way balancing account works in a similar manner as a one-way balancing account if the utility spends less than its authorized level of funding. However, if the utility spends more than its authorized level of funding, the difference is recorded and recovered from ratepayers. On page 2 of Decision 17-05-013, the Commission ordered that, "PG&E shall establish a Rule 20A balancing account that tracks the annual capital and expense costs for Rule 20A undergrounding projects, on a forecast and recorded basis." On page 76 of Decision 17-05-013, the Commission noted that, "even though [the Commission] approved significant annual budgets (i.e., ratepayer funds) with the intention and expectation that PG&E would spend all of those funds in order to reduce the [work credit allocation] backlog, PG&E appears to have diverted a significant share of those funds to other uses." The Commission further stated that, "Since reasons specific to the Rule 20A program may prevent full expenditure of these funds, we will require PG&E to track the unspent amounts in a one-way balancing account so that they are spent on Rule 20A projects in the current and future years."²¹³ Additional consideration of the implications of the balancing account are discussed in the *Findings* and *Recommendations* sections below.

PG&E, as well as the other major investor-owned utilities operating in California, are required to file a GRC application every 36 months.²¹⁴ The GRCs of these large utilities are complex and multi-faceted, with Commission GRC decisions sometimes extending several hundred pages. GRC proceedings generally take approximately two years from the time an application is filed to the date a final decision is published.²¹⁵ Four GRCs established the revenue requirement for PG&E for calendar years 2007 through 2019. Three

²¹² Cost Recovery Mechanisms for Energy Utilities, Presented by Elaine Lau, Electric Costs Section Commissioner, Committee Meeting, October 26, 2016

²¹³ D.17-05-013, p. 76 p. 77

²¹⁴ *Utility General Rate Case – A Manual for Regulatory Analysts*, p. 8

²¹⁵ *Utility General Rate Case – A Manual for Regulatory Analysts*, p. 7 and p. 8

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

of these cases, the 2007 GRC, 2011 GRC and 2014 GRC established the revenue requirement for the historical audit period of 2007 through 2016. The 2017 GRC established the revenue requirement for 2017 through 2019. These cases are summarized below.

Figure III.1.7: PG&E GRC Rate Case Cycle Summary - 2007 GRC through 2017 GRC²¹⁶

GRC Filing	Years GRC Established Revenue Requirement	Application Date	Decision	Decision Date	Base Year	Test Year	Post Test Years / Attrition Years
2007 GRC	2007	December 2, 2005	Decision 07-03-044	March 15, 2007	2004	2007	2008-2010
	2008						
	2009						
	2010						
2011 GRC	2011	December 21, 2009	Decision 11-05-018	May 5, 2011	2008	2011	2012-2013
	2012						
	2013						
2014 GRC	2014	November 15, 2012	Decision 14-08-032	August 14, 2014	2011	2014	2015-2016
	2015						
	2016						
2017 GRC	2017	September 1, 2015	Decision 17-05-013	May 11, 2017	2014	2017	2018-2019
	2018						
	2019						

Source: 2007 GRC - Decision 07-03-044, pages 1, 3, and 147; 2011 GRC - Decision 11-05-018, pages 1, 2, and 11; 2014 GRC - Decision 14-08-032, pages 1, 13, and 87; 2017 GRC - Decision 17-05-013, pages 1, 9, and 112

The 2007 GRC, 2011 GRC and 2014 GRC, which set the revenue requirement for the historical audit period were the primary focus of the other three Task 1 audit areas (*Budgeting, Spending, and Reprioritization*). This section largely focuses on ratemaking processes as they are currently implemented at PG&E. As such, the 2017 GRC, which is the most recent GRC decision as of the time of this report and which established the Rule 20A balancing account, will be discussed in this section.

III.1.c.2 Audit Objectives

In the Commission's expanded discussion of the PG&E Rule 20A audit, the CPUC described its intent to expand on the audit objectives regarding ratemaking. The Commission ordered the following audit objectives to be addressed in the *Ratemaking* section of this audit:²¹⁷

- i. Demonstrate how completed Rule 20A projects enter rate base.

²¹⁶ PG&E submitted its 2020 GRC on December 13, 2018. At the time of this report, this proceeding was ongoing with a final decision expected in 2020. Source: https://www.pge.com/en_US/about-pge/company-information/regulation/general-rate-case/grc.page

²¹⁷ *Final Scope and Objectives* for this audit ordered in D.18-03-022, Att. A

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

- ii. Demonstrate how the revenue requirements associated with completed Rule 20A projects are incorporated into customer rates.
- iii. With respect to Rule 20A projects, and generalizing as necessary, demonstrate the relationship between PG&E's ratemaking accounting and PG&E's financial statement-related accounting.

III.1.c.3 Findings

12. OBJECTIVE 1 – Demonstrate how completed Rule 20A projects enter rate base.

OBJECTIVE 2 – Demonstrate how the revenue requirements associated with completed Rule 20A projects are incorporated into customer rates.

The process for including Rule 20A projects in PG&E rate base is the same as that used for other PG&E capital projects²¹⁸ and occurs through a combination of actual plant additions and forecasts of plant additions. PG&E's rate base in which a return is applied for purposes of calculating its revenue requirement includes both recorded costs of previously completed Rule 20A projects through the base year and forecasted Rule 20A plant additions through the test year.²¹⁹ Both of these components increase rate base and are separately described below.

The "recorded costs" component of Rule 20A projects represent the historical costs previously incurred by PG&E for past projects that were closed to plant and initially charged to work orders which are accounted for in capital work in progress (CWIP).²²⁰ Since California does not allow for a utility to earn a return on construction of new facilities until such facilities are deemed used and useful and included in rate base, PG&E is not allowed to include CWIP in its rate base.²²¹ PG&E is, however, allowed to capitalize its financing costs during project construction, and these accumulated costs are accrued in an AFUDC account.²²² At completion of a Rule 20A project, total project costs, including CWIP and the AFUDC, are transferred to electric plant in service (FERC Account 101) on the operative date, which is defined as the date the first section of new underground cable is installed and energized.²²³ Plant expenditures incurred after the first section is energized are deemed operative as installed²²⁴ and posted directly to plant in service during the month the costs are incurred.²²⁵

²¹⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-042

²¹⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-053

²²⁰ Id.

²²¹ *Utility General Rate Case – A Manual for Regulatory Analysts*, p. 27

²²² Id.

²²³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-053

²²⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-054

²²⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-044

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Since PG&E's revenue requirement is based on a forecast of rate base, including both actual *and* forecast Rule 20A project plant additions,²²⁶ a portion of the plant associated with Rule 20A projects in the test year reflects projects that have not been completed at the time the rate base forecast is adopted, that is, the rate base includes plant that is not yet, but is presumed to be, used and useful.²²⁷ Rate base is calculated, in part, utilizing completed Rule 20A projects through the base year. While forecast error from previous GRCs is not carried forward into future years, error is inherent in the forecast portion of plant additions in each year's rates.²²⁸ As an illustrative example, assuming that in its filing for the 2011 GRC PG&E included a forecast for a Rule 20A Project of \$10 million that it assumed would close to plant in service in 2011, PG&E would have then calculated its revenue requirement for 2011, 2012 and 2013 based on a rate base that included this \$10 million project. If the Commission accepted PG&E's forecast, the costs of the forecast cost of this project would have been embedded in customers' rates for 2011 through 2013, regardless of whether the project materialized. PG&E stated its view of this process in discovery as follows, "Once adopted, rate base is not affected by differences between the forecast timing of plant additions and the recorded additions. The next rate case cycle *eliminates* any previous forecast error by starting with recorded plant at the end of the base year."²²⁹ [emphasis added] While AzP agrees with the first sentence of PG&E's response excerpt, the second sentence, which states that previous forecast error is eliminated by virtue of starting the rate base calculation in its next rate case cycle with the end of the base year plant, employs imprecise and potentially misleading language. By "starting with recorded plant at the end of the base year,"²³⁰ PG&E does not *eliminate* the past impacts of the inaccurate forecast on PG&E customers, rather it merely does not *continue* the forecast error from the previous GRC. In the illustrative example, if the \$10 million project was never completed and closed to plant, then the forecast rate base embedded in customer rates would have, all other factors remaining the same, been overstated by \$10 million. This distinction is particularly germane to the Rule 20A program, given that PG&E consistently estimated Rule 20A activity and expenditures at levels much greater than the expenditures that were actually incurred.

13. **OBJECTIVE 1 – Demonstrate how completed Rule 20A projects enter rate base.**

OBJECTIVE 2 – Demonstrate how the revenue requirements associated with completed Rule 20A projects are incorporated into customer rates.

PG&E's requests for recovery of Rule 20A forecast expenditures have been inflated and represent costs included in rates and repeatedly deferred. In the 2014 GRC, the latest impacting years during the audit period, PG&E purported that it would meet its forecast expenditures, with

²²⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-050

²²⁷ Id.

²²⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-054

²²⁹ Id.

²³⁰ Id.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

plans to eliminate accumulation of unfunded projects by the end of 2017, with an average project duration of seven years, arguing that its projections of over \$88 million were sound and prior years' shortfall in actual spending relative to forecasts were "due to crews being diverted for Hurricane Sandy support, December storm activity, and reductions to fund higher priority work within Electric Operations."²³¹ The company claimed that its actual demonstrated record of spending on the program was not a reasonable basis for assessing its forecast and that going forward, it planned "to perform more Rule 20A work than in the past in order to complete projects already underway and to address customer demand for undergrounding of overhead electric distribution facilities in a more timely fashion."²³² PG&E claimed it needed additional funds to complete "\$274.1 million worth of unfunded customer Rule 20A projects - a combination of partially completed projects and planned work that has not been started - in PG&E's project queue."²³³

CalPA reasonably argued—based on the information available at that time and as further supported by actual results now available since the time of the GRC—that PG&E was unable to demonstrate its ability to fund this program at the levels at which it claimed and that the Commission should not approve rates based on the Company's unsupported claims. Specifically, CalPA pointed out that the evidence available suggested that PG&E did not need additional funds, spent much less than the Commission authorized for Rule 20A work in prior years, that PG&E's recorded spending was lower than its forecast, and funding PG&E's forecast would not guarantee performance of the work.²³⁴ The PUC accordingly adopted a lower forecast (based on historical actual spending) than that which was requested by PG&E.

As discussed in greater detail in the *Spending* section of this report, and as illustrated below, PG&E's Rule 20A forecast, despite its claims to the contrary, have been continuously misguided at best, and misleading at worst. While PG&E stated its belief that the Company was willing and able to devote over \$88 million in funds to the Rule 20A program, in reality, the resources the Company was able or willing to devote to the Program were substantially less—less than 50% of that amount in 2014 as illustrated in Figure III.1.8 below. While AzP recognizes the amount of PG&E forecast is not synonymous with the amount adopted by the Commission, PG&E's spending was also significantly less than the capital expenditures adopted in rates over the audit period. As illustrated below, PG&E's actual spending was approximately \$41 million—or 23% lower—than even the adopted expenditures of \$53.5 million. In reality, PG&E was unable to devote the \$53.5 million adopted in rates, let alone the \$88 million it originally forecast.

²³¹ D.14-08-032, pages 250 through 251 (GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-007, Att. 4)

²³² D.14-08-032, pages 250 (GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-07, Att. 4) 3

²³³ D.14-08-032, pages 250 (GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-07, Att. 4)

²³⁴ Id.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Figure III.1.8: Rule 20A Expenditures - PG&E GRC Forecast vs. Adopted vs. Actual

Year	PG&E's Requested GRC Forecast	Imputed Adopted Expenditures	Actual	\$ Variance - Actual v. Adopted	% Variance Actual v. Adopted
2007	\$55,000	\$56,722	\$45,385	(\$11,337)	-20.0%
2008	\$55,000	\$47,017	\$39,916	(\$7,101)	-15.1%
2009	\$55,000	\$49,070	\$41,142	(\$7,927)	-16.2%
2010	Not Applicable	\$49,580	\$36,610	(\$12,970)	-26.2%
2011	\$80,000	\$69,401	\$33,628	(\$35,773)	-51.5%
2012	\$80,000	\$69,401	\$52,426	(\$16,975)	-24.5%
2013	\$80,000	\$69,401	\$69,378	(\$23)	0.0%
2014	\$88,222	\$53,475	\$41,117	(\$12,358)	-23.1%
2015	\$88,107	\$46,159	\$41,885	(\$4,274)	-9.3%
2016	\$88,394	\$45,551	\$31,123	(\$14,428)	-31.7%
Total	\$669,723	\$555,776	\$432,610	(\$123,166)	-22.2%

(Dollar figures in thousands)

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-012, Att. 2 and Att. 3, and AzP-001-020, Rev 01, Att. 1

14. **OBJECTIVE 2 – Demonstrate how the revenue requirements associated with completed Rule 20A projects are incorporated into customer rates.**

While the Rule 20A Balancing Account provides a mechanism that ensures differences between the Rule 20A program are accounted for, the level of protection that this will provide ratepayers is dependent on CPUC Staff's ability to review and audit expenses and expenditures recorded in this program. As noted in the *Introduction and Background* section, the Commission ordered PG&E to establish a Rule 20A one-way balancing account that "tracks the annual capital and expense costs for Rule 20A undergrounding projects, on a forecast and recorded basis."²³⁵ According to a January 16, 2018 filing with the Commission (and revised from a previous filing made on June 12, 2017), PG&E will maintain the Rule 20A Balancing Account through the debits and credits noted in Figure III.1.9.

²³⁵ D.17-05-013, p. 2

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Figure III.1.9: PG&E Rule 20A Balancing Accounting Entries

Entry Description	Debit	Credit	Debit or Credit
One-twelfth of the adopted annual revenue requirements, net of allowance for Revenue Fees and Uncollectibles		X	
Capital-related revenue requirement based on incurred capital costs, including: depreciation expense, return on investment, federal and state income taxes, and property taxes associated with the costs of installed equipment and excluding Revenue Fees and Uncollectibles	X		
Recorded program expenses incurred, including cancelled project expenses	X		
Recorded audit expenses	X		
Transfer of amounts to or from other accounts as approved by the Commission			X
Interest on the average balance in the account			X

Source: Supplemental: Establish Electric Preliminary Statement Part HC – Rule 20A Balancing Account in Compliance with the 2017 General Rate Case Decision 17-05-013, filed on January 16, 2018

While AzP agrees with the Commission that the establishment of a one-way balancing account could provide “added scrutiny”²³⁶ of the Rule 20A program, the level of protection that the balancing account will provide is dependent, in large part, on whether PG&E maintains and provides access to detailed, project-level information. While maintenance and availability of data are components of any data-driven audit or review, the availability of data is particularly pertinent in an audit or review of PG&E’s Rule 20A balancing account for several reasons. First, the review of balancing accounts in California has been cited by state officials as a critical and labor-intensive component of Staff’s review in GRCs of California’s major investor-owned utilities, such as PG&E.²³⁷ A March 2014 California State Auditor report noted that the review of balancing accounts was an “important responsibility”²³⁸ of the Commission and recommended conducting “in-depth reviews” that “include ensuring transactions recorded in balancing accounts are supported by appropriate documentation, such as invoices.”²³⁹ Second, since the Rule 20A balancing account is relatively new, PG&E will be maintaining a separate set of sub-ledgers for the Rule 20A account for the first time. As such, having clear support for what comprise the amounts in these sub-ledgers is critical to assessing the accuracy and reasonableness of the account balance. Third, PG&E has historically underspent on this program and the establishment of a one-way balancing account creates a situation in which PG&E now has an added financial incentive to allocate costs to Rule 20A projects if it believes that it may underspend (and, consequently, be required to return unused funds) on the Rule 20A program for that particular year. PG&E could,

²³⁶ D.17-05-013, p. 78

²³⁷ California State Auditor Report 2013-109, p. 16

²³⁸ Id.

²³⁹ California State Auditor Report 2013-109, p. 31

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

for example, choose to allocate common project costs to Rule 20A projects at a rate higher than it otherwise would in order to meet the spending threshold.

15. **OBJECTIVE 3** – *With respect to Rule 20A projects, and generalizing as necessary, demonstrate the relationship between PG&E’s ratemaking accounting and PG&E’s financial statement-related accounting.*

Rule 20A project activity is recorded on multiple regulatory and financial statement line items. The determination of where the activity is recorded is largely dependent on the completion stage of the project. The accounting for Rule 20A projects is the same as other capital projects at PG&E. As discussed in Finding 12 above, capital expenditures incurred prior to the operative date are charged to CWIP. CWIP is recorded for regulatory accounting in FERC Account 107, and on PG&E’s financial statements as Property, Plant, and Equipment – Construction Work in Progress.²⁴⁰ When plant is placed in service, the costs accumulated in CWIP and AFUDC are transferred to operational plant asset accounts which are encompassed in the 300 series of the FERC chart of accounts, and included on PG&E’s financial statements as Property, Plant and Equipment.²⁴¹ In discovery, AzP requested a mapping of FERC to financial reporting for all accounts utilized to record Rule 20A activity accounts utilized to record Rule 20A activity during the audit period. This mapping is reproduced in Figure III.1.10 below. PG&E limited its response to a mapping of only balance sheet line items. While the costs of the Rule 20A program are usually capitalized,²⁴² the program also impacts the income statement through charges from canceled projects,²⁴³ revenue (based on the adopted GRC forecasts), in depreciation expense associated with recorded plant, as well as property taxes, operations and maintenance expenses associated with previously installed equipment, and income taxes associated with PG&E’s taxable net income.²⁴⁴

A mapping of Rule 20A costs to their relevant FERC and SEC balance sheet line items is provided in the figure that follows.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

²⁴⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-051

²⁴¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-051 and AzP-001-048

²⁴² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-006-027

²⁴³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-003, Att. 2, slide 54

²⁴⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-048

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Figure III.1.10: Rule 20A Project Costs - Mapping of FERC to SEC Balance Sheet Line Items

Cost Category	FERC Account		FERC Account Description		10-K SEC Filing Balance Sheet Line Item
Project Costs Incurred Prior to Operative Date	107		Construction Work in Progress—Electric		Property, Plant, and Equipment – Construction Work in Progress
Cost of Removal	108		Accumulated provision for depreciation of electric utility plant		Noncurrent Liabilities – Regulatory liabilities
Operational Plant Assets (Other)	376		Gas Distribution Plant - Mains		Property, Plant, and Equipment – Gas
Cost Category	FERC Account	FERC Account Description	FERC Account	FERC Account Description	10-K SEC Filing Balance Sheet Line Item
Operational Plant Assets (Electric)	360	Electric Distribution Plant - Land and land rights	373	Electric Distribution Plant - Street lighting and signal systems	Property, Plant, and Equipment – Electric
	368	Electric Distribution Plant - Line transformers	361	Electric Distribution Plant - Structures and improvements	
	370	Electric Distribution Plant - Meters	367	Electric Distribution Plant - Underground conductors and devices	
	365	Electric Distribution Plant - Overhead conductors and devices	366	Electric Distribution Plant - Underground conduit	
	364	Electric Distribution Plant - Poles, towers and fixtures	356	Electric Transmission Plant - Overhead conductors and devices	
	369	Electric Distribution Plant - Services	355	Electric Transmission Plant - Poles and fixtures	
	397	General Plant - Communication equipment	[Intentionally left blank]		

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-051

The mapping of several of the line items noted above appear straightforward due to either the nearly identical descriptions and common terminology between the regulatory and financial

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

accounting line items (such as the descriptions of CWIP), or the clearly logical relationship between the line items (such as the inclusion of electric distribution meters as Property, Plant, and Equipment – Electric). Regulatory and financial accounting standards differ relative to the cost of removal. In accordance with FERC rules, the cost of removal subaccount is recorded in FERC Account 108 - Accumulated provision for depreciation of electric utility plant.²⁴⁵ The SEC, however, requires that the cost of removal subaccount of FERC account 108 be reclassified to regulatory liabilities for purposes of PG&E's 10-K filings.²⁴⁶ This regulatory liability represents the cumulative unspent funds provided by ratepayers for removal activities.²⁴⁷ Actual removal expenditures reduce the balance of unspent funds provided by ratepayers, as such, the costs of removal expenditures are applied as reductions to the regulatory liability.²⁴⁸ This financial statement classification does not impact the ratemaking treatment for Rule 20A projects.²⁴⁹

III.1.c.4 Recommendations

10. **OBJECTIVE 2 – *Demonstrate how the revenue requirements associated with completed Rule 20A projects are incorporated into customer rates.***

PG&E should update its Rule 20A Tariff Application Guide to update it for changes necessitated by the adoption of the Rule 20A Balancing Account. Changes should include a protocol for maintaining documentation for CPUC Staff's review and audit of the Rule 20A Balancing Account at a source document (e.g., invoice) level of detail. When asked in discovery to provide Rule 20A training materials, PG&E provided a Tariff Application Guide²⁵⁰ that had not been revised since July 2009.²⁵¹ AzP recommends PG&E update this Tariff Application Guide to reflect the establishment of the Rule 20A program one-way balancing account, particularly in regards to the documentation required for the Rule 20A program. PG&E should discuss in this guide the different sub-ledgers to be maintained regarding the Rule 20A balancing account. These should include sub-ledgers for the entries included in Figure III.1.9 discussed in Finding 14 above. PG&E should also provide specific instructions to its personnel regarding the level of transaction support to be maintained. As noted in Finding 14, in a 2014 audit report, the California State Auditor recommended that "in-depth reviews" be conducted that "include ensuring transactions recorded in balancing accounts are supported by appropriate documentation, such as

²⁴⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-038

²⁴⁶ *Id.*

²⁴⁷ *Id.*

²⁴⁸ *Id.*

²⁴⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-052

²⁵⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-003, Att. 2

²⁵¹ In the same discovery response, PG&E also provided a Microsoft PowerPoint presentation from September 2018 titled *Rule 20A Program Workshop*. This document also did not make reference to the Rule 20A balancing account. GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-003, Att. 1

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

invoices.”²⁵² Clearly, a necessary condition of performing this level of review is that the data itself be retained by PG&E and made available for review upon request. As such, AzP recommends that the source documentation, including invoices, of all Rule 20A project charges be provided to CPUC Staff as part of each rate case cycle, and when otherwise requested by Staff. Requiring that all charges be supported with source documentation accomplishes multiple objectives. First, the act of PG&E identifying and segregating Rule 20A project charges for review by regulators will help ensure that such data is maintained. Maintaining support data is particularly important to the Rule 20A program, as AzP encountered several examples in which seemingly fundamental data and records were not maintained.²⁵³ Second, the practice of the utility providing supporting documentation and native files at the commencement of a GRC proceeding is an industry best practice we have observed that allows commission staffs to conduct their examinations in a more efficient and effective manner. This is particularly important since, given the historical underspending on the Rule 20A program, this is likely to be viewed as a high-risk balancing account for purposes of testing.

11. **We recommend that the Commission disallow recovery of any forecast Rule 20A program expenditures to the extent PG&E has previously recovered those costs in rates and deferred expenditures.** PG&E has continuously deferred the PG&E Rule 20A expenditures while continuously requesting them in rates—a practice for which the Commission has stated disapproval.²⁵⁴ Collection of deferred costs in rates, like those related to Rule 20A, should be disallowed without exception.
12. **We recommend that the structure of the Rule 20A program be modified so that rather than all ratepayers paying for this special service, only those who receive the service are charged with its costs.** This recommendation would yield rates that are consistent with the concept of differential pricing—the distribution of rates based on different characteristics of service cost and usage. Differential ratemaking is a long-standing fundamental principle of public utility ratemaking as it pertains to rate design. Under differential ratemaking, customers receiving service under different conditions are reasonably expected to pay the cost of their particular service. We recommend that in the OIR, the Commission consider how to amend the program from its current structure and instead apply differential ratemaking if the Commission elects to allow costs of the Rule 20A program to continue to be collected in rates.

Another way to achieve this objective may be by eliminating the program cost in revenue requirement and instead offering the option for communities to opt in (allowing them to opt out by default). Then the communities who opt into the program would have separate line items

²⁵² California State Auditor Report 2013-109, p. 31

²⁵³ Including the absence of any supporting documentation for four of AzP’s sample selections discussed in additional detail in the *Task 5* section of this report.

²⁵⁴ D.11-05-018, p. 28

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

accounting for costs associated with their electric bill for funding the cost of the conversions in their communities. Separately accounting for and disclosing the costs of the Rule 20A program to ratepayers and regulators would allow for enhanced price transparency to customers. Customers would be able to easily determine the amount of costs being charged to them related to the Rule 20A program, and, therefore, be in a better position to consider whether the value of potential undergrounding projects are worth the incremental costs on their bills.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

III.1.d. SUBTASK 1(D) – REPRIORITIZATION

III.1.d.1 Introduction and Background

In the Commission’s decision in PG&E’s 2017 GRC, the Commission referred to reprioritizations as instances that involve “management discretion” to reallocate “Commission-authorized GRC spending, after [PG&E] has been granted authority to spend specific designated amounts.”²⁵⁵ PG&E initially utilized a different interpretation of the term, reprioritization, during this audit. While the subject of the reprioritization inquiries posed to PG&E explicitly referenced documentation for proper allocation of Rule 20A amounts “approved in [PG&E’s] General Rate Case (GRC) Decisions,”²⁵⁶ in its initial set of discovery responses, PG&E characterized the term reprioritization as “[c]hanges to the internal budget for the Rule 20A program...”²⁵⁷ As discussed in detail in the *Spending* section of this report, modifications of PG&E’s internal budget are not a relevant data point for assessing whether or not PG&E spent an amount consistent with the amounts embedded in PG&E rates. For purposes of the analysis in this report, we have utilized CPUC’s definition of reprioritization as described in this excerpt, rather than PG&E’s interpretation of the term. Specifically, we have defined the term reprioritization as the use of management discretion to re-allocate amounts approved, either implicitly or explicitly, by the Commission and embedded in PG&E’s revenue requirement.

Given the ratemaking mechanisms in place in California, some deviation, or reprioritization, from amounts adopted by the Commission is expected. In the decision in PG&E’s 2011 GRC, the Commission acknowledged this as a necessity stating that, “It is generally recognized that when a utility files a GRC, expenditure estimates are based on plans and preliminary budgets developed at least two years in advance of when they will actually be incurred. When the utility finalizes its budget...there may be reprioritization. This process is expected and is necessary for the utility to manage its operations in a safe and reliable manner.”²⁵⁸ In PG&E’s 2017 GRC, the Commission also referred to reprioritization issues as an “oft-recurring theme in GRCs.”²⁵⁹ What makes reprioritization particularly germane to the Rule 20A program is not the fact that some reprioritization occurred during the audit period. Rather, it is the consistent reprioritization of funds, year-after-year, which resulted in substantial underspending on the Rule 20A program relative to the amounts embedded in PG&E’s revenue requirement during the ten-year audit period that are particularly concerning. The Commission has also emphasized the importance of necessity and reasonableness of the utility’s actions and warned that the flexibility available to the utility is not to be misconstrued for carte blanche for PG&E to request and include in GRC-authorized rates cost

²⁵⁵ D.17-05-013, p. 182

²⁵⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-055 through AzP-001-067

²⁵⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-056 through AzP-001-060

²⁵⁸ D.11-05-018, p. 27

²⁵⁹ D.17-05-013, p. 182

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

of activities that it defers and re-requests in subsequent GRCs, which the Commission has disallowed in the past.²⁶⁰

III.1.d.2 Audit Objectives

In the Commission's expanded discussion of the PG&E Rule 20A audit, the CPUC described its intent to expand on the audit objectives regarding reprioritization. The Commission ordered the following four specific audit objectives to be addressed in the *Reprioritization* section of this audit:²⁶¹

- i. Were Rule 20A budgeted amounts re-prioritized?
- ii. If so, demonstrate (with supporting documentation) how PG&E decided to proceed with each specific re-prioritization. Identify the level of managers and officers that reviewed and approved each re-prioritization.
- iii. What were the project-specific budget amounts that resulted from re-prioritization throughout the year (*i.e.*, project-specific budget increases or decreases)?
- iv. Demonstrate how re-prioritization of funds is documented and tracked in PG&E's FERC and SAP accounting systems.

III.1.d.3 Findings

16. OBJECTIVE 1 – *Were Rule 20A budgeted amounts re-prioritized?*

PG&E re-prioritized spending away from the Rule 20A program in every year under audit. Utilizing the definition of reprioritization noted in the *Introduction and Background* section above, the determination of whether, and the extent to which, amounts have been reprioritized is demonstrated through comparison of Commission-adopted expenditures for the Rule 20A program embedded in PG&E customer rates to the amounts actually spent on the Rule 20A program by PG&E. AzP performed this comparison in the preceding, *Spending*, section. As illustrated in Figure III.1.6 of this report, Rule 20A actual expenditures were approximately \$123 million less than the Rule 20A expenditures adopted by the Commission over the audit period. In discovery, PG&E acknowledged Rule 20A amounts had been reprioritized during the audit period.²⁶²

17. OBJECTIVE 1 – *Were Rule 20A budgeted amounts re-prioritized?*

PG&E's reprioritizations of Rule 20A program funding during the audit period was highly

²⁶⁰ D.17-05-013, p. 183

²⁶¹ *Final Scope and Objectives* for this audit ordered in D.18-03-022, Att. A

²⁶² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-020

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

atypical when compared to other PG&E electric capital MWCs. As shown in the AzP Exhibit C - *Electric Capital Major Work Order Over/Under-Spending Variances During Audit Period*, AzP examined annual spending variances for PG&E's 30 electric distribution capital MWCs and found that the Rule 20A program was the only one of 30 electric distribution capital MWCs at PG&E that had a negative (i.e., underspending) variance relative to its Commission-adopted expenditures every year during the ten-year audit period (the Rule 20A program MWC is highlighted in the attachment for ease of reference).²⁶³

Additionally, when viewed on an aggregate basis, the negative spending variances for the Rule 20A program during the audit period counter PG&E's spending in the other electric capital MWCs. As shown in Figure III.1.11 below, the Rule 20A program MWC had an underspending variance of \$123.166 million, or 22.2%, while the aggregate of the remaining 29 other MWCs in the electric capital had an *overspending* variance of \$2.14 billion, or 20.9%.

Figure III.1.11: Imputed vs Actual Expenditures - Electric Capital MWCs

Years 2007 through 2016	Imputed Adopted Expenditures	Actual Expenditures	\$ Variance	% Variance
Total MWC 30	\$555,776	\$432,610	-\$123,166	-22.2%
All Other MWCs	\$10,246,359	\$12,389,338	\$2,142,979	20.9%

(Dollar figures in thousands)

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-020, Rev01, Att. 1 (annual totals summed by AzP; adjusted for 2007 and 2014 MWC totals for discrepancies versus response to discovery AzP-004-016, Att. 1)

18. AUDIT OBJECTIVE 2 – *If [Rule 20A budgeted amounts were re-prioritized], demonstrate (with supporting documentation) how PG&E decided to proceed with each specific re-prioritization. Identify the level of managers and officers that reviewed and approved each re-prioritization.*

PG&E was unable to provide documentation supporting specific reprioritization decisions; however, reviews of PG&E personnel evaluations provide insight into reasons for why Rule 20A Managers would have been incentivized to reprioritize Rule 20A funding. When asked in discovery to provide supporting documentation for instances wherein PG&E re-prioritized Commission-adopted Rule 20A expenditures to other purposes, PG&E stated that, "PG&E is unable to identify documentation for instances where the revisions to forecast spending for MWC 30 [Rule 20A] were made."²⁶⁴ The clear implication from PG&E's inability to provide reprioritization documentation during the audit period is that it deemed such documentation unnecessary. PG&E stated in discovery that it believed the Commission's requirement of budget

²⁶³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016, Att. 1

²⁶⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-020

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

compliance reports is evidence that the Commission-adopted amounts for the Rule 20A program during the audit period did not, “legally mandate that the utility’s internally developed budget match that amount”²⁶⁵ and, as an adopted amount, prior to the balancing account ordered by the Commission in 2017, PG&E deemed Rule 20A funds “subject to PG&E’s separate internal budgets between rate cases that reflected actual market conditions and customer needs...”²⁶⁶ PG&E also stated that it gives no consideration whatsoever to the GRC project-level forecasts in its spending decisions.²⁶⁷ PG&E’s statements reflect a lack of acknowledgement of its responsibilities to ensure the funds it was spending on the Rule 20A program approximated what customers were paying for the Rule 20A program such that the customers paying the charges benefit from the cost, even if not required to do so by a specific legal mandate. At the same time, PG&E understands that, “the Commission uses [PG&E’s forecasts of capital and expense elements that PG&E includes in its rate cases] to determine the revenue requirement that supports the rates that the Commission ‘authorizes’.”²⁶⁸

While PG&E was unable to provide formal documentation of Rule 20A re-prioritization of funds for the audit period, review of the personnel evaluations of key Rule 20A program decision makers at PG&E during the audit period indicates that **[BEGIN CONFIDENTIAL]**

[END CONFIDENTIAL] The focus of PG&E management on recovery of its Rule 20A program in 2012 is particularly noteworthy given that in the previous year (2011) PG&E’s expenditures in the program were approximately \$36 million, or 51.5%, less than the Commission-adopted amount.²⁷⁰ PG&E spent less than one-half the amount embedded in customer rates in the Rule 20A program in 2011, and, thus, recovered far more in rates than it spent on this program. Given this context, it would seem reasonable that in 2012 PG&E management would seek to bridge this gap by devoting more, rather than fewer, funds to the Rule 20A program. As evidenced by the evaluation comments noted, this was not PG&E’s focus, and the results for 2012 appear consistent with PG&E’s management directive, as PG&E’s actual expenditures in the program were approximately \$17 million, or 24.5% less than the

²⁶⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery ED-001-001

²⁶⁶ Id.

²⁶⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-004

²⁶⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery ED-001-001

²⁶⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-002-062, Att. 4

²⁷⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016 Att. 01, calculated by AzP as the difference between imputed adopted amount of \$69.401 million minus \$33.628 million actual expenditures.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

Commission-adopted amount approved for rate recovery by the Commission.²⁷¹ **[BEGIN CONFIDENTIAL]**

[END CONFIDENTIAL]

19. AUDIT OBJECTIVE 2 – *If [Rule 20A budgeted amounts were re-prioritized], demonstrate (with supporting documentation) how PG&E decided to proceed with each specific re-prioritization. Identify the level of managers and officers that reviewed and approved each re-prioritization.*

PG&E's continuous underfunding of the Rule 20A program was inconsistent with the stated prioritization policy PG&E provided in its GRCs. In discovery responses, PG&E stated that reprioritization of Rule 20A funding occurred in some instances due to internal resources being diverted to "higher priority work."²⁷³ When asked to provide details regarding PG&E's prioritization process, PG&E referenced discussions of PG&E's prioritization models submitted in its GRC filings during the period.²⁷⁴ Based on review of these filings, PG&E appears to have applied its model inconsistently in at least some of the years during the audit period regarding the Rule 20A program. Specifically, in PG&E's 2011 GRC filing, which was used to set PG&E's revenue requirement for the years 2011 through 2013, PG&E stated that gas and electric distribution work could generally be classified into the following three major categories:

- (1) Safety and Compliance;
- (2) Customer Connection, Demand Growth and Franchise Obligations; and
- (3) Maintain and Improve System Performance and Support.

PG&E classified the Rule 20A program (MWC 30) classified in category 2 listed above, *Customer Connection, Demand Growth and Franchise Obligations*. PG&E described this category as having "limited flexibility over the quantity and timing of work that the Company must perform."²⁷⁵ PG&E continued by discussing the relative priority of other categories, stating that, "...PG&E has more flexibility regarding the amount of work it undertakes in the near term in the third category—maintain and improve system performance and support."²⁷⁶ Given PG&E's stated prioritization model, it would be expected that the Rule 20A program (as a higher priority item) be funded during this period at a level that met or exceeded the amounts embedded in its rates before PG&E

²⁷¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016 Att. 01, calculated by AzP as the difference between imputed adopted among of \$69.401 million minus \$52.426 million actual expenditures.

²⁷² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Confidential Response to Discovery AzP-002-062, Att. 4

²⁷³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-001-058

²⁷⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-060

²⁷⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-060, specifically, page 1-15 from GRC2011-Ph-I_Test_PGE_20091221-Exh003, obtained from external link noted in discovery response

²⁷⁶ Id.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

would direct additional funding to the lower-priority category, *Maintain and Improve System Performance & Support*. However, a review of the historical spending data from this period reveals the opposite. During the time period for which the 2011 GRC was used to set rates (i.e., 2011 through 2013), Rule 20A program expenditures were \$52.769 million *less* than the Commission-adopted amounts, whereas the aggregate variance of the MWCs included in the *Maintain and Improve System Performance & Support* category showed an overspending variance of \$297.807 million relative to its Commission-adopted amounts.²⁷⁷ Stated another way, when compared to the amounts embedded in PG&E rates, PG&E over-funded a lower-priority category of work by nearly \$300 million, while, during the same period, underfunding a self-described higher priority item, the Rule 20A program, by almost \$53 million.

20. AUDIT OBJECTIVE 3 – *What were the project-specific budget amounts that resulted from re-prioritization throughout the year (i.e., project-specific budget increases or decreases)?*

PG&E was not able to provide a mapping of the Rule 20A project forecasts in its GRCs to actual expenditures. When asked in discovery to provide a mapping of GRC forecasts to actual expenditures, by project, PG&E objected on the grounds that the request would be “unduly burdensome” because PG&E did not retain GRC workpapers in native format and included an inconsistent level of detail in its GRC workpapers.²⁷⁸ For example, while PG&E included a consolidated list of projects and order numbers in its 2011 GRC application, it did not do so in its 2014 or 2007 GRC. In fact, in its 2007 GRC application, PG&E only identified projects by name and omitted order number.²⁷⁹ The fact that PG&E is unable to provide a simple mapping of the project forecast expenditures presented to the Commission in its GRCs to actual project expenditures demonstrates a lack of basic workpaper retention protocol that we address in the *Recommendations* section. It also demonstrates a lack of controls and lack of adequate management of PG&E’s estimation procedures; a fundamental element of ensuring that recurring estimates are developed in a sound and defensible manner, which requires review of historical estimate versus actual results to identify and correct for outdated, incorrect, improper, or erroneous assumptions in the estimation model.

While the requested mapping of the project forecast expenditures presented to the Commission in its GRCs to actual project expenditures was not provided, PG&E was able to provide information on a more consolidated, higher-level, basis. Specifically, PG&E provided this information on a Planning Order basis. Planning Orders are used by PG&E to consolidate data for geographic divisions.²⁸⁰ While not as detailed as project-level data, in an effort to provide the Commission with the most relevant findings and recommendations possible with the information available,

²⁷⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016 Att. 01, calculated by AzP as described above, consistent with the figures presented in AzP Exhibit L

²⁷⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery 004-002

²⁷⁹ Id.

²⁸⁰ Id.

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

AzP performed technical analysis on the Planning Order data. The results of this analysis are presented in the *Budgeting* section of this report.

21. AUDIT OBJECTIVE 4 – *Demonstrate how re-prioritization of funds is documented and tracked in PG&E’s FERC and SAP accounting systems.*

Reprioritization of Rule 20A funds is not documented in PG&E’s FERC and SAP accounting systems. As discussed in the *Introduction and Background* discussion of this section, for purposes of this audit, reprioritization is defined as PG&E’s spending of funds approved by the Commission (and, as such, embedded in PG&E’s revenue requirement) with the intention of use on the Rule 20A program on other, non-Rule 20A program, activities by PG&E management. PG&E utilizes its FERC and SAP accounting systems to record actual expenditures activity, not Commission-adopted amounts.²⁸¹ Since the calculation of reprioritized amounts require both actual and Commission-adopted expenditure activity, and since neither PG&E’s FERC nor SAP accounting systems capture the Commission-adopted element, the reprioritization of Rule 20A funds cannot be derived solely from review of PG&E’s FERC and SAP accounting systems. As discussed in the *Spending* section of this report, and provided in *Figure III.1.6.* in the *Spending* section, AzP developed analyses regarding the impact of spending reprioritization decisions utilizing the actual amounts calculated in PG&E’s accounting systems for purposes of calculating the annual and aggregate spending variances versus Commission-adopted figures.

III.1.d.4 Recommendations

13. AUDIT OBJECTIVE 2 – *If [Rule 20A budgeted amounts were re-prioritized], demonstrate (with supporting documentation) how PG&E decided to proceed with each specific re-prioritization. Identify the level of managers and officers that reviewed and approved each re-prioritization.*

The satisfactory completion of Rule 20A projects should be a primary performance criterion on which the Rule 20A Program Manager is evaluated by PG&E senior management. As noted in Finding 18 above, for purposes of assessing the Rule 20A Program Manager’s performance during the audit period, PG&E senior management **[BEGIN CONFIDENTIAL]**

[END CONFIDENTIAL] AzP recommends that a primary evaluative criterion of the Rule 20A Program Manager and Program Liaisons be satisfactory completion of Rule 20A projects. The term “satisfactory completion” is in reference to the satisfaction of the localities in which the Rule 20A project is performed.

Making the satisfactory completion of Rule 20A projects a primary evaluative criterion of the Rule 20A Program Manager will incentivize this individual to facilitate processes more effectively. It

²⁸¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-004-020

Technical Analysis

Task 1: Ensure that PG&E has fully accounted for annual Rule 20A budgeted amounts by documenting that PG&E has properly allocated the entire budgeted amount approved in its General Rate Case (GRC) decisions.

will also help to set a “tone from the top” that reverses the financially focused culture demonstrated during audit period, with an approach that better emphasizes project completion and customer satisfaction. In order to provide greater incentive for and accountability with regard to this shift in focus, we recommend that the Commission require PG&E to obtain and provide written documentation of survey results obtained from Rule 20A participants regarding PG&E’s overall management of the program and management of specific Rule 20A conversion projects. AzP has attached a sample survey as AzP Exhibit D-1 and D-2.

14. AUDIT OBJECTIVE 2 – *If [Rule 20A budgeted amounts were re-prioritized], demonstrate (with supporting documentation) how PG&E decided to proceed with each specific re-prioritization. Identify the level of managers and officers that reviewed and approved each re-prioritization.*

PG&E should either more closely adhere to the tenets of its prioritization model, or more accurately describe the Rule 20A program’s level of priority in its GRC filings. As noted in Finding 19 above, PG&E reprioritized funds from the Rule 20A program to other programs that, according to PG&E’s own prioritization model, were a lower priority to the Company. PG&E should either more closely adhere to its stated prioritization, or it should re-prioritize it, that is, present an accurate depiction of its prioritization model, one that is in accordance with its *actual* priorities in practice, in a manner that accurately depicts PG&E management views on the program—that the program is a lower priority item from which funds are frequently re-allocated. This would allow the necessary transparency for the Commission’s considerations and more reasonable expectations for other interested stakeholders regarding PG&E’s management and funding of the Rule 20 Program.

15. AUDIT OBJECTIVE 3 – *What were the project-specific budget amounts that resulted from re-prioritization throughout the year (i.e., project-specific budget increases or decreases)?*

PG&E should implement a formal workpaper retention protocol for the Rule 20A program witnesses in its GRCs that ensures a fundamental level of detail is historically maintained for auditing purposes. As noted in Finding 20 above, PG&E was not able to provide a mapping of the Rule 20A project forecasts in its GRCs to actual expenditures. The fact that PG&E was unable to provide this mapping is concerning. It indicates a lack of audit trail on a project-level basis linking PG&E’s Rule 20A forecasts presented to the Commission in its GRCs to actual results. AzP recommends that PG&E implement a formal workpaper retention protocol for the forecasts it submits for its Rule 20A projects. Specifically, AzP recommends that all relevant project forecast assumptions and details, including a comprehensive list of unique project identification numbers, be maintained electronically in their native format. With each GRC application, PG&E should submit for review the native electronic files and all documents containing support and underlying assumptions, in native workable format at the time of application. With each filing, PG&E should also provide a mapping of its prior GRC Rule 20A project forecasts-to-actual expenditures at the project level.

III.2 TASK 2: ENSURE THAT LOCALITIES WILL RECEIVE THE FULL BENEFIT OF RULE 20A FUNDS

III.2.a. SUBTASK 2(A) – ALLOCATIONS TO GOVERNMENTAL AGENCIES

III.2.a.1 Introduction and Background

PG&E's annual work credit allocation (WCA) system is one of the two primary components making up the Rule 20A undergrounding program (with the construction budget as the other component).²⁸² The WCA system consists of the method of allocation, which is outlined in PG&E's Rule 20A tariff, and the annual WCA dollar amount that PG&E is authorized to allocate to the cities and counties within its service territory.²⁸³ The latter—the WCA dollar amount—is set within the context of PG&E's GRCs and, in conjunction with the directions set forth in the tariff (including the borrow-forward provision, for example), determine the gross purchasing power of PG&E-serviced cities and counties for Rule 20A overhead-to-underground electric line conversions. Each city or county's WCA is a measure of that governmental agency's credits available for redemption toward the cost of overhead undergrounding conversion projects under Rule 20A.

For years 2007 to 2010 inclusive, PG&E allocated work credits pursuant to Section 2 of the Rule 20A Tariff in effect at that time, which used the amount allocated to the city or county in 1990 as a base and any changes from the 1990 level in PG&E's total annual authorized WCA amount was allocated to individual counties using a two-part formula as follows:²⁸⁴

- 1) Fifty percent of the change from the 1990 total budgeted amount was allocated in the same ratio as the number of overhead meters in any city or unincorporated area of any county to the total system overhead meters; and,
- 2) Fifty percent of the change from the 1990 total budgeted amount was allocated in the same ratio as the total number of meters in any city or the unincorporated area of any county to the total system meters.

Except for the deviations otherwise noted in the paragraphs that follow, from 2007 to 2010, PG&E generally followed the allocation methodology discussed above, as illustrated in Figure III.2.1 below.²⁸⁵ For 2011 to 2016, the methodology was the same, except for the removal of the 1990 base allocation amount from the formula.²⁸⁶

²⁸² D. 17-05-013, p. 66 and 67

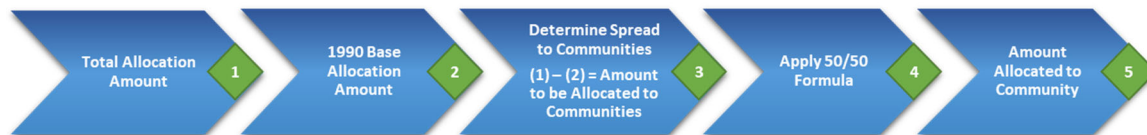
²⁸³ D. 17-05-013, p. 67

²⁸⁴ Advice Letter 5085-E-A, Re: Modification to PG&E Electric Rule 20 Regarding Rule 20A Work Credit Allocations in Conformance with Decisions 11-05-018, 14-08-032, and 17-05-013 (2011, 2014, and 2017 General Rate Case Decisions), Dated November 27, 2017 and GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-073.

²⁸⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-073 and Advice Letter 5085-E-A, Re: Modification to PG&E Electric Rule 20 Regarding Rule 20A Work Credit Allocations in Conformance with Decisions 11-05-018, 14-08-032, and 17-05-013 (2011, 2014, and 2017 General Rate Case Decisions), Dated November 27, 2017.

²⁸⁶ Advice Letter 5085-E-A, Re: Modification to PG&E Electric Rule 20 Regarding Rule 20A Work Credit Allocations

Figure III.2.1: PG&E Rule 20A Work Credit Allocation Methodology 2007 to 2010



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-073, Attachments 1 through 4.

In addition to the allocation methodology, PG&E's tariff—Rule 20A, 2.c.—also outlines conditions for exceeding allocation amounts and provides guidance regarding distance, cost, and geographic considerations. This portion of the tariff allows communities to exceed their allocation allowance by an amount up to five years of allocations at then-current levels borrowed forward, provided additional participation on a project is warranted and resources are deemed available at PG&E's discretion.²⁸⁷

As mentioned earlier, since the 2011 GRC decision, PG&E has calculated the work credit allocable to each community using a revised methodology that eliminates the use of the 1990 base in the allocation formula. However, it was not until Advice Letter 5085-E-A filed on October 11, 2017 and made effective November 13, 2017, that the elimination of the 1990 base (elimination of Steps 2 and 3, above) in the allocation formula was memorialized in PG&E's Rule 20A tariff. The revised two-part allocation formula is as follows:²⁸⁸

- 1) Fifty percent of the total authorized amount allocated in the same ratio as the number of overhead meters in any city or unincorporated area of any county to the total system overhead meters; and
- 2) Fifty percent of the total authorized amount allocated in the same ratio as the total number of meters in any city or unincorporated area of any county to the total system meters.

Section 2.c. of the Rule was not modified by the above and remains in place, allowing WCA for each city or county to exceed work credit amounts allocated by an amount up to a maximum of five years' allocation.²⁸⁹

From the early 1980s through 2006, annual allocations were escalated to keep pace with inflation, a practice that PG&E stopped in 2007 when it maintained allocations at \$81.0 million, the same level as the previous year.²⁹⁰ Thus the WCA authorized for the first year under audit, 2007, and in effect through the end of calendar year 2010, was \$81.0 million. Allocations used, or redeemed toward, undergrounding conversions were outpaced by the amounts accumulated and resulted in significant accumulation of

in Conformance with Decisions 11-05-018, 14-08-032, and 17-05-013 (2011, 2014, and 2017 General Rate Case Decisions), Dated November 27, 2017 and GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-073.

²⁸⁷ Cal. P.U.C. Sheet No. 41082-E, Electric Rule No. 20, Replacement of Overhead with Underground Electric Facilities, Paragraph A.2.c.

²⁸⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-074.

²⁸⁹ Advice Letter 5085-E-A, Re: Modification to PG&E Electric Rule 20 Regarding Rule 20A Work Credit Allocations in Conformance with Decisions 11-05-018, 14-08-032.

²⁹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-012, Att. 2, pages 7-6 through 7-7

unused WCAs. In 2011, concerned that the localities' accumulated WCAs were growing, the Commission ordered that the WCAs be reduced to \$41.3 million.²⁹¹ PG&E's annual WCA amount of \$41.3 million in effect as of the time of this audit was adopted in section 3.2.8 of the settlement agreement approved by the Commission in PG&E's latest GRC within the audit period (in 2014).²⁹² In that proceeding, the Commission approved the "PG&E proposal that the Commission continue the annual Rule 20A work credit allocation amount of \$41.3 million through the term of the 2017 GRC, in order to continue to reduce the number of accumulated allocations."²⁹³ In its 2011 decision, the Commission ordered PG&E to allocate work credits at the same level and in the same amount as the Company's Rule 20A annual budget for 2010 while allowing communities with projects already in progress to continue with their projects, even if they exceeded the 5-year allowable borrowing period under the revision.²⁹⁴

III.2.a.2 Audit Objectives

Per Commission Decision 18-03-022, the objectives for the *Allocations* subcategory of this audit are to ascertain the following:²⁹⁵

- i. What is the process of allocating work credits to governmental agencies?
- ii. What is the amount of work credits allocated to each governmental agency annually?
- iii. What is the end of year ledger balance of governmental agencies?
- iv. How does PG&E communicate work credits available to governmental agencies?

III.2.a.3 Findings

22. OBJECTIVE 1 – *What is the process of allocating work credits to governmental agencies?*

PG&E's process of allocating work credits to government agencies appears generally consistent with the Rule 20A Tariff. PG&E begins the WCA process in the fourth quarter each year when one of PG&E's Rule 20A Program Analysts requests verification of Town and Territory (TOT) codes from Revenue Operations, the department that maintains a master list of TOT codes.²⁹⁶ The Rule 20A Program Analyst then uses the list of TOT codes to obtain, from an Expert Business Analyst within its Distribution Asset Management department, overhead and underground meter counts for each TOT code with electric service.²⁹⁷ The Analyst then utilizes the meter counts in the 50-50 allocation formula, pursuant to Section 2 of Rule 20A, to calculate the amounts allocable to each

²⁹¹ D.11-05-018, p. 90, paragraph 6, "Pacific Gas and Electric Company shall allocate work credits at the same level and in the same amount as Pacific Gas and Electric Company's Rule 20A annual budgeted project amount for 2010"

²⁹² D.17-05-013, p. 152

²⁹³ Id.

²⁹⁴ D.11-05-018, p. 90, paragraph 6

²⁹⁵ *Final Scope and Objectives* for this audit were ordered in (D.) 18-03-022, Att. A

²⁹⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-070 and AzP-005-020

²⁹⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-020

governmental agency.²⁹⁸ The Rule 20A Program Manager and a Program Analyst (who did not prepare the annual allocation report) review the calculations for accuracy.²⁹⁹

For years 2011 through 2016, except for the exceptions noted below, PG&E used the following formula for calculating each government agency's annual allocation amount:³⁰⁰

Government Agency's Annual Allocation = $A ((0.5*(w/x) + 0.5*(y/z)))$, where:

A = total aggregate dollar value of Commission-approved WCA for that year

w = number of overhead meters in city or county

x = number of total system overhead meters

y = number of meters in city or county

z = number of total system meters

This formula is consistent with the allocation methodology discussed in the *Introduction and Background* discussion in this section of the report. For years 2007 through 2010, except for the exceptions noted below, PG&E used the following formula for calculating each government agency's annual allocation amount.³⁰¹

Government Agency's Annual Allocation =

$(A - 1990 \text{ Base Allocation}) ((0.5*(w/x) + 0.5*(y/z))) + 1990 \text{ Base Allocation}$

In reviewing PG&E's calculations of WCAs to each community, we noted several anomalies. These are discussed in greater detail under the discussion related to Objective 2, "*What is the amount of work credits allocated to each governmental agency annually?*"

23. OBJECTIVE 2 - *What is the amount of work credits allocated to each governmental agency annually?*

The amount of work credits PG&E allocated to each governmental agency each year under audit appeared generally consistent with the methodology noted earlier, but also contained several errors and corrections. PG&E's list of TOTs during the audit period consisted of 268 communities within 47 counties.³⁰² The total work credits PG&E allocated to communities during the audit period totaled \$571,753,205, with approximately \$81.0 million per year allocated annually in each of the years 2007 through 2010 and \$41.3 million allocated annually in each of the years 2011 through 2016 as illustrated in the table below.³⁰³

²⁹⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-70 and AzP-002-66

²⁹⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-66

³⁰⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-73

³⁰¹ Id.

³⁰² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-068, Att. 1 and AzP-001-074, Att. 1

³⁰³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-074, Att. 1 and AzP-002-073 Att. 01 through Att. 10

Figure III.2.2: Total PG&E Rule 20A Work Credit Allocations
2007-2016 (Nominal Dollars)

Year	Total Work Credit Allocation
2007	\$80,988,306
2008	\$80,988,301
2009	\$80,988,298
2010	\$80,988,300
2011	\$41,300,000
2012	\$41,300,000
2013	\$41,300,000
2014	\$41,300,000
2015	\$41,300,000
2016	\$41,300,000
Total	\$571,753,205

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-074, Att. 1.

AzP Exhibit E contains a full list of the amount of work credits PG&E has allocated to each community each year under audit. While PG&E's TOT list consisted of 268 communities in total for the period under audit, a review of PG&E's calculations revealed that several received no or negligible allocations over the ten years under audit or for several years within this period, or appeared otherwise anomalous with respect to PG&E's calculations for those communities' annual calculations. This included the WCAs PG&E calculated for the communities of Patterson, Biggs, Roseville, Healdsburg, and Folsom.

In 2007, 267 communities appeared on PG&E's list of TOTs for that year and PG&E's allocations utilized 264 of those communities.³⁰⁴ The three communities excluded from allocations were Biggs, Roseville, and Healdsburg.³⁰⁵ PG&E failed to provide annual allocations to the Cities of Biggs, Roseville, and Healdsburg until 2009. The Company discovered this error during its calculations of annual allocations in 2009; the reasons for this oversight are unknown to PG&E.³⁰⁶ To correct these omissions, PG&E posted catch-up 1967-2008 annual allocations to these three communities.³⁰⁷ PG&E discontinued its allocation of work credits to the City of Patterson beginning in 2007 because the city's electric provider changed from PG&E to Turlock Irrigation District.³⁰⁸ PG&E's workpapers indicate that Foster City formally exited PG&E's Rule 20A program

³⁰⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-073 Att. 01

³⁰⁵ Id.

³⁰⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-072

³⁰⁷ Id.

³⁰⁸ Id.

in 2009 on recognition that the city's power lines were completely undergrounded and that by agreement, the city's accumulated work credits were transferred to the City of Belmont (another city within San Mateo County).³⁰⁹ While annual allocations to the Foster City ceased in 2010 PG&E subsequently resumed allocations to Foster, along with catch-up allocations, in 2016 after further review.³¹⁰ When asked why, PG&E explained that the Rule 20A Program Manager at the time (in 2010) had reasoned that the City was completely undergrounded and should no longer continue receiving an annual allocation, but after further review, PG&E determined that based on the 50/50 allocation methodology, Foster City was eligible to receive annual allocations.³¹¹

Of the communities that have received WCAs from PG&E during the audit period, the City and County of San Francisco has been the largest recipient, comprising 7.49% of the total work credits allocated by PG&E for the ten-year period under audit, followed by the City of San Jose and City of Oakland, comprising 5.35% and 4.30% respectively as demonstrated in the figure below.³¹² Excluding the City of Patterson, the communities receiving the three smallest allocations during the audit period were Folsom, Shasta Lake, and Siskiyou County (Unincorporated), as summarized in Figure III.2.3 on the following pages.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

³⁰⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-068, Att. 1

³¹⁰ Id.

³¹¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-072

³¹² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-074, Att. 1

**Figure III.2.3: Recipients of Largest and Smallest Work Credit Allocations 2007-2016
(Nominal Dollars)**

Rank by WCA	County	Community	Total Work Credits Allocated by PG&E to Community During Audit Period	Percentage of Total
Recipients of Smallest WCAs				
1	Stanislaus	Patterson	\$0	0.00%
2	Sacramento	Folsom	\$9	0.00%
3	Shasta	Shasta Lake	\$4,852	0.00%
4	Siskiyou	Siskiyou County (Unincorporated)	\$8,173	0.00%
5	Butte	Biggs	\$14,060	0.00%
6	Placer	Roseville	\$18,594	0.00%
7	Amador	Amador City	\$20,040	0.00%
8	Humboldt	Trinidad	\$30,340	0.01%
9	Tehama	Tehama	\$35,602	0.01%
10	Alpine	Alpine County (Unincorporated)	\$39,406	0.01%
11	Mendocino	Point Arena	\$44,976	0.01%
12	Monterey	Sand City	\$58,059	0.01%
13	Amador	Plymouth	\$62,517	0.01%
14	San Mateo	Colma	\$72,036	0.01%
15	Sacramento	Isleton	\$75,516	0.01%
Recipients of Largest WCAs				
254	El Dorado	El Dorado County (Unincorporated)	\$6,886,968	1.20%
255	Alameda	Alameda County (Unincorporated)	\$7,481,470	1.31%
256	Santa Cruz	Santa Cruz County (Unincorporated)	\$7,802,609	1.36%
257	Contra Costa	Contra Costa County (Unincorporated)	\$7,806,306	1.37%
258	Alameda	Berkeley	\$7,881,802	1.38%
259	San Joaquin	San Joaquin County (Unincorporated)	\$9,051,591	1.58%
260	San Joaquin	Stockton	\$9,517,491	1.66%
261	Kern	Bakersfield	\$10,040,864	1.76%
262	Sonoma	Sonoma County (Unincorporated)	\$10,704,288	1.87%
263	Kern	Kern County (Unincorporated)	\$12,108,365	2.12%
264	Fresno	Fresno County (Unincorporated)	\$13,428,059	2.35%
265	Fresno	Fresno	\$17,562,772	3.07%
266	Alameda	Oakland	\$24,601,486	4.30%
267	Santa Clara	San Jose	\$30,585,095	5.35%
268	San Francisco	San Francisco	\$42,831,727	7.49%

Source: Sum and percentage calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-074.

A full list of recipients organized by dollar and percentage of work credits received during the ten-year audit period is provided in AzP Exhibit F.

24. OBJECTIVE 3 – *What is the end of year ledger balance of governmental agencies?*

Figure III.2.4 lists the allocations and year-end work credit balances by county for PG&E's Rule 20A communities. AzP Exhibit G to this report contains a full list of the end of year work credit allocation balances by community for all 268 communities for each year under audit.

Figure III.2.4: WCA and Year-End Credit Balances by County 2007-2016 (Nominal Dollars)

County	County	No. of Communities	Total Allocation 2007-2016	2007 Year End Balance	2008 Year End	2009 Year End Balance	2010 Year End Balance	2011 Year End Balance	2012 Year End Balance	2013 Year End Balance	2014 Year End Balance	2015 Year End Balance	2016 Year End Balance
Alameda	Alameda	14	\$68.44	\$77.29	\$84.81	\$89.16	\$99.07	\$102.30	\$85.31	\$86.75	\$76.08	\$78.63	\$74.96
Alpine	Alpine	1	\$0.04	-\$0.02	-\$0.02	-\$0.01	-\$0.005	-\$0.002	\$0.001	\$0.004	\$0.01	\$0.01	\$0.01
Amador	Amador	6	\$2.57	\$3.69	\$4.04	\$3.21	\$3.56	\$3.81	\$4.00	\$4.20	\$4.39	\$4.58	\$4.77
Butte	Butte	5	\$12.50	\$14.32	\$16.09	\$14.38	\$16.14	\$17.05	\$17.97	\$18.88	\$19.79	\$20.72	\$21.62
Calaveras	Calaveras	2	\$3.85	\$4.28	\$4.80	\$5.32	\$5.85	\$6.14	\$6.43	\$6.73	\$7.02	\$7.31	\$7.61
Colusa	Colusa	3	\$1.53	\$3.10	\$3.32	\$3.54	\$3.76	\$3.87	\$3.98	\$4.09	\$4.19	\$4.30	\$4.41
Contra Costa	Contra Costa	20	\$41.06	\$38.56	\$44.39	\$50.19	\$49.44	\$51.56	\$54.54	\$55.21	\$55.12	\$54.60	\$57.55
El Dorado	El Dorado	2	\$7.47	\$10.93	\$11.93	\$12.92	\$13.91	\$14.50	\$15.05	\$15.64	\$14.24	\$14.82	\$15.41
Fresno	Fresno	16	\$38.55	\$32.56	\$38.05	\$40.00	\$37.44	\$40.24	\$42.46	\$42.56	\$44.47	\$44.82	\$39.85
Glenn	Glenn	3	\$2.14	\$3.17	\$3.48	\$3.79	\$4.10	\$4.25	\$4.40	\$4.55	\$4.70	\$4.85	\$5.00
Humboldt	Humboldt	8	\$9.02	\$12.99	\$14.03	\$15.32	\$16.11	\$16.75	\$16.80	\$17.57	\$14.68	\$14.66	\$14.66
Kern	Kern	8	\$24.47	\$30.88	\$34.33	\$37.76	\$38.26	\$38.54	\$39.65	\$38.72	\$39.58	\$38.50	\$40.27
Kings	Kings	4	\$3.17	\$5.00	\$5.46	\$5.91	\$6.36	\$6.59	\$2.53	\$2.76	\$2.98	\$2.11	\$2.30
Lake	Lake	3	\$5.57	\$9.58	\$10.37	\$10.22	\$10.22	\$10.54	\$10.95	\$10.54	\$10.95	\$11.35	\$11.75
Lassen	Lassen	1	\$0.14	\$0.27	\$0.29	\$0.31	\$0.33	\$0.34	\$0.35	\$0.36	\$0.37	\$0.38	\$0.39
Madera	Madera	3	\$7.49	\$8.93	\$9.95	\$10.96	\$11.98	\$12.57	\$13.14	\$13.44	\$7.92	\$8.49	\$7.52
Marin	Marin	12	\$14.28	\$16.41	\$15.05	\$11.36	\$11.89	\$12.88	\$13.89	\$12.95	\$13.95	\$14.94	\$15.93
Mariposa	Mariposa	1	\$1.57	\$1.66	\$1.87	\$2.08	\$2.29	\$2.41	\$2.53	\$2.65	\$2.77	\$2.89	\$3.01
Mendocino	Mendocino	4	\$5.28	\$8.75	\$9.50	\$10.25	\$11.00	\$11.39	\$11.77	\$8.08	\$8.46	\$8.84	\$9.22
Merced	Merced	7	\$9.50	\$11.79	\$13.13	\$14.46	\$15.80	\$16.50	\$15.18	\$13.71	\$11.11	\$10.23	\$10.92
Monterey	Monterey	13	\$17.71	\$20.83	\$22.60	\$25.11	\$27.63	\$29.83	\$28.43	\$29.71	\$30.99	\$32.26	\$32.67
Napa	Napa	6	\$6.77	\$12.12	\$13.09	\$14.04	\$11.99	\$12.49	\$12.99	\$13.48	\$13.97	-\$2.60	-\$2.12
Nevada	Nevada	3	\$5.55	\$7.43	\$8.20	\$8.97	\$9.74	\$10.15	\$10.57	\$10.98	\$11.39	\$11.80	\$12.21
Placer	Placer	7	\$8.43	\$8.44	\$9.55	\$10.65	\$11.76	\$12.43	\$13.09	\$11.00	\$11.67	\$10.80	\$1.81
Plumas	Plumas	1	\$1.41	\$1.29	\$1.49	\$1.69	\$1.89	\$1.99	\$2.09	\$2.19	\$2.30	\$2.40	\$0.94
Sacramento	Sacramento	3	\$0.40	\$0.96	\$1.02	\$1.08	\$1.14	\$1.17	\$1.20	\$1.22	\$1.25	\$1.27	\$1.30
San Benito	San Benito	3	\$2.14	\$2.34	\$2.64	\$2.94	\$3.24	\$3.40	\$3.56	\$3.72	\$3.87	\$4.03	\$4.19
San Francisco	San Francisco	1	\$42.83	\$49.73	\$26.40	\$21.37	-\$33.35	-\$16.20	-\$55.95	-\$52.88	-\$56.87	-\$53.76	-\$50.67
San Joaquin	San Joaquin	7	\$23.34	\$30.34	\$32.26	\$32.13	\$34.40	\$36.32	\$34.65	\$35.63	\$37.35	\$39.05	\$40.74
San Luis Obispo	San Luis Obispo	8	\$14.85	\$16.29	\$18.35	\$20.39	\$22.44	\$24.43	\$23.43	\$21.28	\$17.30	\$16.10	\$13.14
San Mateo	San Mateo	21	\$36.66	\$54.73	\$57.20	\$62.41	\$67.67	\$66.59	\$67.00	\$70.04	\$72.40	\$73.92	\$67.73
Santa Barbara	Santa Barbara	5	\$6.46	\$8.31	\$9.22	\$10.12	\$11.02	\$11.49	\$11.97	\$11.11	\$11.59	\$12.07	\$12.54
Santa Clara	Santa Clara	14	\$59.92	\$81.75	\$89.70	\$97.19	\$105.76	\$111.09	\$110.37	\$105.22	\$105.45	\$87.49	\$80.99
Santa Cruz	Santa Cruz	5	\$13.32	\$16.29	\$18.22	\$20.13	\$22.05	\$22.99	\$20.04	\$20.98	\$21.93	\$25.87	\$26.59
Shasta	Shasta	3	\$5.19	\$5.60	\$6.07	\$6.81	\$7.36	\$7.73	\$8.11	\$8.49	\$8.86	\$5.90	\$6.26
Sierra	Sierra	1	\$0.18	\$0.26	\$0.29	\$0.31	\$0.34	\$0.35	\$0.37	\$0.38	\$0.39	\$0.40	\$0.41
Siskiyou	Siskiyou	1	\$0.01	\$0.03	\$0.03	\$0.03	\$0.03	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04
Solano	Solano	8	\$14.27	\$17.65	\$19.65	\$21.63	\$23.02	\$24.08	\$25.14	\$26.20	\$27.26	\$25.32	\$25.87
Sonoma	Sonoma	10	\$22.20	\$26.08	\$29.21	\$32.31	\$35.42	\$37.76	\$34.61	\$28.85	\$30.47	\$30.41	\$22.08
Stanislaus	Stanislaus	5	\$2.80	\$3.09	\$3.01	\$3.10	\$3.50	\$3.70	\$3.90	\$4.11	\$1.30	\$1.50	\$1.69
Sutter	Sutter	3	\$4.51	\$6.97	\$7.61	\$8.25	\$8.89	\$9.22	\$9.55	\$9.88	\$10.21	\$10.53	\$10.85
Tehama	Tehama	4	\$4.28	\$6.08	\$6.68	\$7.27	\$7.86	\$8.13	\$8.45	\$8.77	\$9.09	\$9.41	\$9.72
Trinity	Trinity	1	\$0.52	\$0.59	\$0.69	\$0.79	\$0.89	\$0.91	\$0.93	\$0.95	\$0.97	\$0.99	\$1.01
Tulare	Tulare	2	\$3.14	\$4.73	\$5.18	\$5.63	\$6.09	\$6.31	\$6.53	\$6.76	\$6.98	\$7.20	\$7.42
Tuolumne	Tuolumne	2	\$4.68	\$7.70	\$8.37	\$9.03	\$9.69	\$10.03	\$10.37	\$8.66	\$9.00	\$9.34	\$9.68
Yolo	Yolo	5	\$7.83	\$9.54	\$10.63	\$11.72	\$12.81	\$13.39	\$12.14	\$12.71	\$13.29	\$10.69	\$9.55
Yuba	Yuba	3	\$3.74	\$5.70	\$6.23	\$6.76	\$7.29	\$7.56	\$7.83	\$8.11	\$8.38	\$8.65	\$8.92
Grand Total	Grand Total	268	\$571.75	\$697.72	\$737.42	\$781.74	\$777.29	\$828.96	\$772.29	\$763.12	\$756.49	\$728.13	\$702.72

(Dollar figures in millions)

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-074, Att. 1 and AzP-001-075, Att. 1.

25. OBJECTIVE 3 – What is the end of year ledger balance of governmental agencies?

Figure III.2.5 lists the 2016 year-end work credit balances by Community for the PG&E's Rule 20A communities with the smallest and largest WCA balances as of the end of the audit period. AzP Exhibit H to this report contains a full list of WCA balances by community for all 268 communities by rank based on dollar and percentage of total WCA balances in PG&E's ledger as of the end of the audit period. Based on PG&E's ledger WCA balance for all communities, and as noted in AzP Exhibit H, the aggregate balance of PG&E Rule 20A communities totaled \$702,719,652 as of

December 31, 2016.³¹³ The community with the largest balance as of the end of the audit period was the City of Oakland, with a WCA balance of approximately \$32.4 million, while the community with the smallest balance as of the end of the audit period was the City of San Francisco, with a WCA balance of approximately negative \$50.7 million.³¹⁴

Figure III.2.5: 2016 Year-End Work Credit Balance for Communities with 15 Smallest and Largest Balances as of December 31, 2016 (Nominal Dollars)

Rank by WCA	County	Community	12-31-2016 Balance	Percentage of Total
Communities with Smallest Work Credit Balances				
1	San Francisco	San Francisco	(\$50,670,844)	-7.21%
2	Napa	Napa County (Unincorporated)	(\$11,793,650)	-1.68%
3	Santa Clara	Campbell	(\$3,397,677)	-0.48%
4	Placer	Placer County (Unincorporated)	(\$2,274,227)	-0.32%
5	Shasta	Anderson	(\$2,136,707)	-0.30%
6	Stanislaus	Riverbank	(\$1,758,708)	-0.25%
7	San Luis Obispo	San Luis Obispo	(\$1,413,332)	-0.20%
8	Merced	Atwater	(\$1,078,779)	-0.15%
9	Fresno	Firebaugh	(\$1,041,897)	-0.15%
10	San Mateo	Hillsborough	(\$948,780)	-0.14%
11	Marin	Mill Valley	(\$859,722)	-0.12%
12	Calaveras	Angels Camp	(\$674,389)	-0.10%
13	Kings	Lemoore	(\$611,379)	-0.09%
14	San Mateo	San Carlos	(\$490,929)	-0.07%
15	El Dorado	Placerville	(\$428,322)	-0.06%
Communities with Largest Work Credit Balances				
254	Butte	Butte County (Unincorporated)	\$11,312,069	1.61%
255	San Mateo	San Mateo	\$11,744,687	1.67%
256	Monterey	Monterey County (Unincorporated)	\$13,023,951	1.85%
257	Fresno	Fresno	\$13,360,972	1.90%
258	Fresno	Fresno County (Unincorporated)	\$13,755,299	1.96%
259	Sonoma	Sonoma County (Unincorporated)	\$14,291,067	2.03%
260	Santa Clara	Sunnyvale	\$14,575,651	2.07%
261	El Dorado	El Dorado County (Unincorporated)	\$15,836,285	2.25%
262	Contra Costa	Contra Costa County (Unincorporated)	\$15,894,798	2.26%
263	Santa Clara	Santa Clara County (Unincorporated)	\$16,159,500	2.30%
264	Santa Cruz	Santa Cruz County (Unincorporated)	\$17,381,233	2.47%
265	Kern	Kern County (Unincorporated)	\$21,828,930	3.11%
266	San Joaquin	San Joaquin County (Unincorporated)	\$22,257,986	3.17%
267	Santa Clara	San Jose	\$27,120,471	3.86%
268	Alameda	Oakland	\$32,416,860	4.61%

³¹³ Sum and percentage calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-075

³¹⁴ Id.

Source: Sum and percentage calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-075.

26. OBJECTIVE 4 – *How does PG&E communicate work credits available to governmental agencies?*

PG&E’s protocol for communicating the availability of work credits to each governmental agency is to provide this information in a letter or statement annually. PG&E’s stated protocol is to communicate to all communities their annual work credit allocation and their respective accumulated credit balances in the fourth quarter of each year by sending each community a work credit statement or letter.³¹⁵ This document contains the agency’s cumulative WCA balance, annual allocation for that year, and work credit adjustments, if any. PG&E noted that credit adjustments may include, but not necessarily be limited to, costs related to completed projects, estimates for projects not completed, and work credit transfers. PG&E also stated that the annual letters it provided to governmental agencies in 2016 contained only the agency’s work credit balance and annual allocation; that is, they included no adjustments that year.³¹⁶ It is unclear why or how PG&E implemented this change in 2016 and why the letters in prior years would not have been consistent in this manner, as the 2016 sample letter AzP reviewed states, “the work credit balance does not reflect an offset for currently active projects as this work is deducted at the conclusion of the project.”³¹⁷ This appears consistent with the manner in which PG&E has stated WCAs are deducted from the communities’ balances: at the conclusion of projects. However, this appears to contradict PG&E’s practice for years prior to 2016 based on the Company’s response.

27. OBJECTIVE 4 – *How does PG&E communicate work credits available to governmental agencies?*

PG&E’s annual notification to Rule 20A communities appears either outdated or inaccurate relative to timing of the Company’s annual allocation process. AzP reviewed a sample letter and noted the letter signed by PG&E’s Rule 20A Program Manager was dated October 28, 2016, contained cumulative WCA balance, the community’s allocations for that year, and name and phone number of the community’s Rule 20A PG&E Liaison. While according to PG&E, the annual allocations to each governmental agency were prepared in the fourth quarter of each year,³¹⁸ the PG&E allocation letter to the government agency, which is dated in late October, lists the agency’s work credit balance as of June 30 of that year and states that the WCAs include that year’s allocations.³¹⁹ Thus the timing of the allocations and the notification to Rule 20A communities appear inconsistent. If this observation is a result of PG&E calculating WCAs in the fourth quarter for the upcoming year, by the time communities have an opportunity to review their letters, the

³¹⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-072

³¹⁶ Id.

³¹⁷ GRC-2017-Rule 20A-Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-072, Att. 1

³¹⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-070 and AzP-005-020

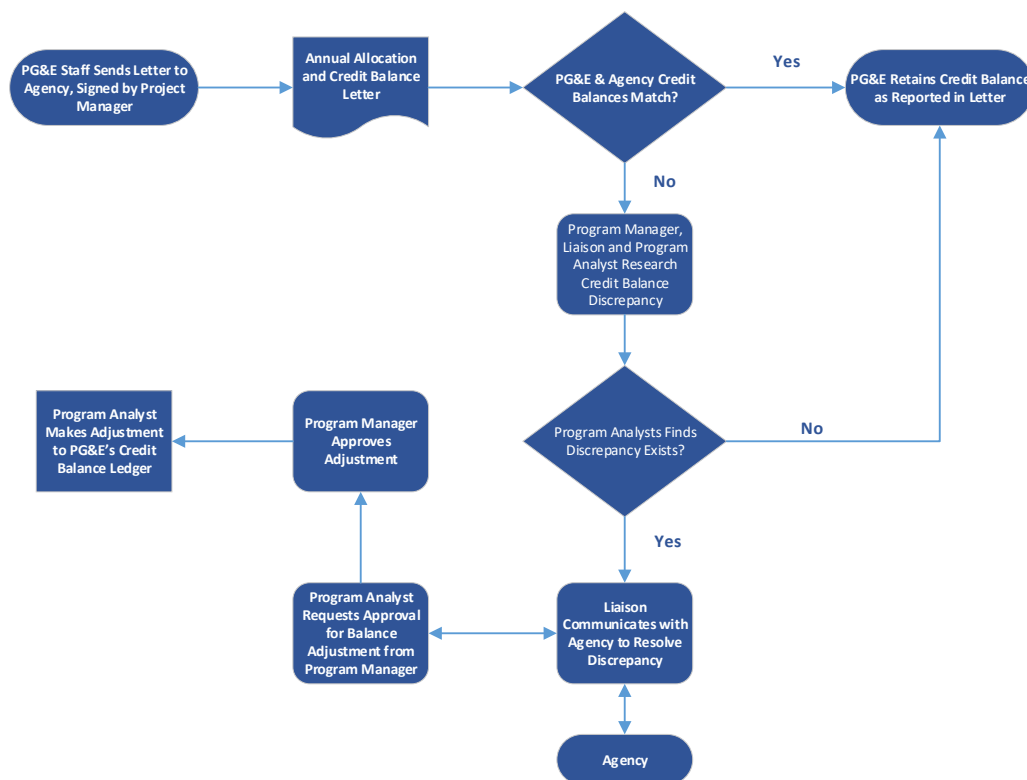
³¹⁹ GRC-2017-Rule 20A-Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-072, Att. 1

WCA balances would no longer be consistent with that which PG&E has recorded for each community on its ledger.

28. OBJECTIVE 4 – How does PG&E communicate work credits available to governmental agencies?

PG&E’s process for communication with Rule 20A communities outside the annual letter notification is not currently documented or standardized. Program Analysts extract and collect information regarding work credit balances and submit this information to the Liaisons, who communicate the information and other ad-hoc data requests to agency staff via phone or email, or in person. According to PG&E, in the event that a community’s work credit records do not match PG&E’s work credit records, the Program Manager, Liaison, and Program Analysts research the discrepancy and the Liaison communicates with the municipality the results of PG&E’s research.³²⁰ A Program Analyst then records adjustments to the municipality’s work credit balance with approval from the Program Manager.³²¹ The following flowchart illustrates PG&E’s procedures for communicating with local agencies regarding their Rule 20A WCAs.

Figure III.2.6: PG&E’s Work Credit Balance Communication Procedure



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-072.

³²⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-072

³²¹ Id.

PG&E has stated that the Company “does not have written procedures in the event that the municipality’s work credit records differ from PG&E’s ledger records for that municipality and for ad-hoc requests from a municipality for work credit balance data.”³²² In addition, PG&E does not provide a breakdown of final project costs to the city or county whose WCA balance is deducted unless the local agencies specifically makes a request for this information.³²³ While PG&E states that the annual allocation letter indicates the final amount of credits deducted for a project that is completed and closed,³²⁴ PG&E does not currently produce or maintain a close-out document to support the amount of work credits to be deducted at the conclusion of Rule 20A projects³²⁵ nor does the Company perform a formal review for ensuring accuracy of WCAs deducted for completed projects.³²⁶

Based on survey results, some PG&E Rule 20A communities appear concerned about “losing” WCAs. AzP sought feedback from PG&E Rule 20A governmental agencies regarding PG&E’s communication with the governmental agencies regarding Rule 20A and related WCAs. Questionnaires were prepared by AzP and provided to 372 individuals via initial contact by CPUC community liaisons to provide context from known and familiar sources and to support better response rates. Fifty-three respondents provided feedback by responding to AzP’s Rule 20A questionnaire. When asked what additional information the participants would like to see provided in PG&E’s annual WCA letter, the great majority of the respondents (46, or 87 percent) indicated that they did not desire any specific additional information in the annual letters. Of those who did wish additional information, one recurring item appeared to signal a concern regarding loss of WCAs: City of Selma, El Dorado County, and Tuolumne County wished to receive information regarding, “funds susceptible to forfeiture,” “any possible expiration or possibility of funds going away”, and whether they were “...in danger of losing credits,” respectively.

III.2.a.4 Recommendations

16. OBJECTIVE 1 – *What is the process of allocating work credits to governmental agencies?*
OBJECTIVE 2 – *What is the amount of work credits allocated to each governmental agency annually?*

We recommend that the Rule 20A Tariff be modified to replace ambiguous language where PG&E discretion may be interpreted based on management judgment, so the tariff instead provides greater clarity and incentive for the utility to complete undergrounding projects efficiently. For example, PG&E’s Rule 20A tariff states with respect to WCAs, “Where there is a carry-over or additional requested participation... of the work to be financed by the funds carried

³²² Id.

³²³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-006-004

³²⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-094

³²⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-002 and AzP-006-004

³²⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-106

over. When amounts are not expended or carried over for the community to which they are initially allocated they shall be assigned when additional participation on a project is warranted or be reallocated to communities with active undergrounding programs.”³²⁷ First, this language leaves significant and ambiguous room for PG&E discretion with regard to “capability” and “limits on the rate of performance”, which as discussed throughout this report, appear to have been exercised by PG&E to the detriment of the Program. Several instances are noted in AzP’s findings, including, but not limited to, Finding No. 11 (“PG&E could have increased the effectiveness and productivity of the Rule 20A program if it had spent Commission-adopted funds on the program during the audit period.”) in the *Spending* section of the report and Finding No. 13 (“While PG&E stated its belief that the Company was willing and able to devote over \$88 million in funds to the Rule 20A program, in reality, the resources the Company was able or willing to devote to the Program were substantially less—less than 50% of that amount...”) in the *Ratemaking* section of this report. Second, as discussed in additional detail in the findings related to transfer of WCAs among communities in the following section, the ability for WCAs to be “reallocated to communities with active undergrounding programs” leads to provision of services to some customers at the expense of others and is inconsistent with rates that are just and reasonable and designed consistent with cost causation and differential pricing. As such, we recommend that the Commission revise the tariff in a manner that puts the burden of delivery and proof on the utility, thereby incentivizing greater accountability for efficient completion of projects and setting resulting rates that pass on to ratepayers costs for which they can reasonably expect to receive commensurate benefits. This would include replacing “PG&E has the right to set, as determined by its capability, reasonable limits on the rate of performance” with “PG&E will complete projects in the time and within the budget provided to and agreed upon by the utility and the local agency, with an allowance for reasonable deviation within the applicable AACE estimate based on the phase of the projects. Any deviations outside the reasonable estimate range will be at the utility’s expense without deduction from community WCAs or inclusion in rates. For every 6 months by which the time and costs of completion exceed reasonable estimation range, PG&E will incur penalty at its then-authorized rate of return, to be collected in a regulatory asset and incorporated into its next GRC as a reduction to revenue requirement.”

17. OBJECTIVE 1 – What is the process of allocating work credits to governmental agencies?
OBJECTIVE 2 – *What is the amount of work credits allocated to each governmental agency annually?*

We recommend that Rule 20A communities’ purchasing power (i.e., annual WCAs), be adjusted and set at a rate commensurate with what their citizens are paying (and have paid), rather than be tied to PG&E’s internal budget or related to 1990 base allocations, both of which represent imprecise measures for setting this figure. Annual WCAs should be set at an amount equal to that which is authorized to be collected in rates (See AzP’s discussion of imputed adopted

³²⁷ Cal. P.U.C. Sheet No. 41082-E, Electric Rule No. 20, Replacement of Overhead with Underground Electric Facilities, Paragraph A.2.c.

amounts for Rule 20A), with an escalation factor to account for the time value of money. For any given year, the amount approved for inclusion in rates, should be limited to that which PG&E has demonstrated historical willingness and ability to provide in services. The Commission has stated that it believes its approach to setting work credit allocations and budgets in recent GRCs has not been successful, as the outcome has been inconsistent with the Commission's intention and expectation of reducing PG&E's credit backlog.³²⁸ We understand that the Commission seeks to ensure the Rule 20A projects incorporated in customer rates provide the intended benefits to ratepayers. Accordingly, we recommend the following.

First, perform an objective, third-party cost-benefit analysis of the Rule 20A program that considers the actual (not perceived) net value of the conversion of overhead lines to underground lines based on real historical statistics. While this analysis and determination is not within the scope of this audit, it is imperative that an objective third-party examination assess the costs and benefits (quantifiable impact on safety and reliability, property values, necessity for continued service in light of road construction, etc.) of the conversions in order for all stakeholders to employ an appropriate understanding of the necessity and costs and benefits of the program before proceeding with next actions. Currently, the program's primary purpose appears to be tied to beautification, road widening and road improvements, perceived safety improvement and perceived reliability improvement.³²⁹ To the extent public perception is gauged in the assessment of "benefits", the public must first be provided with a presentation of sound, objective, non-biased representation of the overhead (OH) conversions' true net costs or net benefits. Second, based on the results of the cost-benefit analysis, the Commission should assess whether the benefits of the Program justify its costs.

18. OBJECTIVE 1 – What is the process of allocating work credits to governmental agencies?
OBJECTIVE 2 – *What is the amount of work credits allocated to each governmental agency annually?*
OBJECTIVE 3 – *What is the end of year ledger balance of governmental agencies?*

We recommend that the Commission consider re-instituting an escalation factor for WCA amounts that would allow the purchasing power of localities participating in the Rule 20A program to not be eroded by inflation and construction cost increases. The increasing accumulation of work credits is not a financial liability to PG&E and represents a potential benefit to localities wishing to initiate undergrounding projects in their areas. Accumulated WCAs represent the localities' ability to initiate and have completed undergrounding projects through the Rule 20A program. Just as PG&E's revenue requirement in a GRC is adjusted in attrition years for the impact of inflation and rising costs, application of the same principle to the WCA allocation figures is necessary in order to reflect the time value of money accordingly.

³²⁸ D.17-05-013, p. 76

³²⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-037, Att. 09, slide 9, "Why do we underground?"

19. OBJECTIVE 1 – What is the process of allocating work credits to governmental agencies?
OBJECTIVE 2 – *What is the amount of work credits allocated to each governmental agency annually?*
OBJECTIVE 3 – *What is the end of year ledger balance of governmental agencies?*
OBJECTIVE 4 – *How does PG&E communicate work credits available to governmental agencies?*

The discrepancies noted in the *Findings* sections above demonstrate lack of proper protocol and controls relative to PG&E's calculation and communication of work credits allocated to each community. Maintenance of properly updated TOT list, updated line counts (overhead and underground), WCA calculation, review of WCA calculations, and communities' review of their annual allocations each represent opportunities for detection of miscalculations and should be implemented. We recommend that PG&E improve its calculation protocol by using a standardized checklist for ensuring the accuracy of the calculated WCAs and balances for each community. This checklist should be tailored for each stage (maintenance of properly updated TOT list, updated line counts (overhead and underground), WCA calculation, review of the calculation, and the communities' review of their annual allocations, each of which represent opportunities for detection of miscalculations) We recommend that PG&E require to be completed and initialed or signed by the individual responsible for each stage so that potential errors in calculation are proactively prevented or identified and corrected timely. This process would apply to, but not be limited to, a checklist utilized by the individual in Revenue Operations to ensure the master list of TOT codes is up to date and that the steps necessary to update any changes have been taken and fully documented; a checklist utilized by the Expert Business Analyst who maintains the overhead and underground meter counts for each TOT code with electric service in PG&E's Distribution Asset Management; a checklist for the Rule 20A analyst preparing the annual allocation calculations and calculating any work credit amounts to be deducted, the Analyst reviewing the calculations, and the Liaison preparing the annual letters.

20. OBJECTIVE 4 – *How does PG&E communicate work credits available to governmental agencies?*

The annual letters should contain sufficient detail, i.e., the formula, the total WCA authorized for that year, and PG&E's calculation in native format. Without this information, the reviewer would have to reperform all calculations—a highly inefficient duplication of efforts. Providing the underlying calculations and supporting documents PG&E utilizes to account for the localities' WCA balance would result in the communities access to adequate information to independently verify the accuracy of their allocations in an efficient manner, and would serve as an additional control to identify discrepancies or errors in the event that PG&E's internal controls fail.

21. OBJECTIVE 4 – *How does PG&E communicate work credits available to governmental agencies?*

We recommend that PG&E establish formal, written policies and procedures to resolve discrepancies of work credit allocation balances and to standardize and maintain written, formal documentation of PG&E-local agency correspondence and resolution regarding WCAs

issues. We recommend that these procedures require PG&E to collect information that would better assist PG&E in improving communication with municipalities. Attributes of such information should, at the minimum, identify the community disputing the discrepancy, name and title of individuals involved in resolving the discrepancy, reasons for discrepancies, dates of communication, the credit balance recorded in PG&E's ledger and the community's ledger, how the discrepancy was resolved, and a review of the authorization review process for final work credit adjustments. In order to ensure systematic, consistent, and effective application of these procedures, we recommend that the annual evaluation of all Rule 20A Liaisons, Analysts, and the Program Manager include an assessment of the accuracy of the information provided to local agencies, which should be measured based on positive confirmation from the local agencies in response to the annual letters. PG&E should request and document the local agencies' response and utilize the information in much the same way as customer satisfaction data is tracked and reported to the PUC for compliance.

22. OBJECTIVE 4 – *How does PG&E communicate work credits available to governmental agencies?*

In addition to the information already provided in the annual letters, we recommend that PG&E include the calculation the Company utilized for determining the local agency's WCAs along with the quantitative inputs, authoritative guidance (i.e., the then-current tariff), along with the amount collected from the customers of that agency in rates in each year for the Rule 20A program. This would allow the local agency to compare this information to its own records, understand, and independently test the assumptions and calculations in the WCA, and identify any discrepancies in its or PG&E's records. The statement should also include the calculated 5-year borrow forward at then-current allocation levels, the location of overhead power lines within the community and, hence, candidate projects.

23. OBJECTIVE 4 – *How does PG&E communicate work credits available to governmental agencies?*

We recommend that PG&E provide each agency a complete detailed invoice accounting for all the costs associated with any projects for which the city or county's WCA balance is deducted at project conclusion and in conjunction with the annual letter in the form of year-end activity summary. As noted in Finding No. 27 above, PG&E's process lacks standardization and documentation regarding the events that lead to, and accounting for, PG&E reducing the WCA balances of the Rule 20A cities and counties in its service area. Requiring reporting and documentation standards that are uniform and informative to account for the agencies' history of earned and redeemed WCAs would allow the local agencies access to adequate level of detail to ascertain the changes to PG&E's ledger balance of their WCAs. This practice would further serve as a control to proactively identify and/or prevent PG&E errors in calculation. Thus, we recommend that the annual letter serve as a comprehensive end-of-year summary that allows both PG&E and the local agencies to understand and confirm accuracy of, and agreement with, the WCA ledger balances as well as the debits and credits to the communities' account in an efficient manner. This level of documentation and communication should be the standard default, as opposed to PG&E's current practice, which lacks proper documentation, control, and transparency.

24. OBJECTIVE 4 – *How does PG&E communicate work credits available to governmental agencies?*

We recommend that PG&E create a public web portal, updated at least quarterly, through which municipalities can review data regarding project status, work credit balance, and the work credit balances of other PG&E Rule 20A communities. This recommendation would enhance transparency of the program for both the local agencies and the Commission and is consistent with the PUC's Recommendation #3 in D.01-12-009.³³⁰

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

³³⁰ The Commission issued an Interim Decision Revising the Rules For Conversion of Overhead Lines to Underground in the 00-01-005 OIR, D.01.12.009. On pages 22 to 23, paragraph 3, the Commission recommended that the utility "Improve Communication on the Status of Undergrounding Projects," addressed concerns regarding customers' access to information, and recommended, among other things, that the utility, "provide a web site for each committed conversion project that will be updated regularly to provide information on the progress of the project." To our knowledge, as of the time of this audit, the information noted in AzP's recommendation is not yet provided by PG&E in a centralized, public, easily accessible, up-to-date online format.

III.2.b. SUBTASK 2(B) – WORK CREDIT USAGE BY GOVERNMENTAL AGENCIES

III.2.b.1 Introduction and Background

The Rule 20A tariff sets the requirements for the eligibility of underground projects. Pursuant to Section 1(a) of Rule 20A, PG&E will replace existing overhead electric facilities with underground electric facilities at PG&E’s expense provided that the project is “in the general public interest” by meeting one or more of the following criteria:

- 1) The underground project will avoid or eliminate unusually heavy concentration of overhead facilities.
- 2) Involve a street, road or right-of-way extensively used by pedestrian or vehicular traffic.
- 3) The street, road, or right-of-way benefits a civic area, public recreation area, or an area of unusual scenic interest to the general public.
- 4) The street, road or right-of-way is considered an arterial street or major collector as defined in the Governor’s Office of Planning and Research General Plan Guidelines.

The governing body of the municipality is also required to adopt an ordinance creating an underground district in the identified area and to consider wheelchair access as a basis for defining the boundaries of the project, pursuant to Section 1(b) and Section 1(c) of Rule 20A, respectively.³³¹ This portion of the report contains a discussion of PG&E Rule 20A communities’ usage of WCAs for undergrounding projects.

PG&E’s record of Rule 20A communities’ WCAs accounts for six main elements impacting communities’ balance and purchasing (or credit redemption) power toward Rule 20A overhead-to-underground conversions. These six elements are: the community’s ledger balance (which represents the community’s cumulative unspent accumulated work credits), the community’s 5-year borrow-forward allowance, an accounting of forecasts at completion (FAC) for projects in the queue for which PG&E does not have orders, an OH relocation credit,³³² and the community’s remaining work credit balance, as follows:³³³

Figure III.2.7: PG&E’s Work Credit Balance Accounting for Rule 20A Communities



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-086, Att. 01

In addressing the objectives of the *Allocations* section of the report, AzP analyzed and reported on the ledger balances (item 1 in the figure above) for PG&E’s Rule 20A communities as of the end of the audit period. In addressing the Commission’s objectives in this section of the report with regard to AzP’s analysis of governmental agencies’ WCA usage and characteristics pertaining to redemption ability or

³³¹ Cal. P.U.C. Sheet No. 30474-E, Electric Rule No. 20, Replacement of Overhead Underground Electric Facilities.

³³² This is a credit for the cost that PG&E would have incurred to relocate overhead facilities absent the Rule 20A project. Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-105.

³³³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-086, Att. 01

purchase/conversion power, we provide additional context by presenting the figures and analysis primarily utilizing the PG&E Rule 20A communities' "remaining work credit balance" (the expression on the right side of the equation in the figure above) per PG&E's records. Where applicable, we present these figures as of the most recent date (September 30, 2018) this information was available at the time of request in order to address the Commission's objectives based on more recent (versus end-of-audit-period) data.

III.2.b.2 Audit Objectives

Per Commission Decision 18-03-022, the objectives for the *WCA Usage* subcategory of this audit are to ascertain the following:³³⁴

- i. What governmental agencies have not used work credit allocations and do not have any plans for an underground project?
- ii. What governmental agencies have large accumulations of work credits?
- iii. What governmental agencies are over-borrowed?
- iv. What governmental agencies would like to do an undergrounding project but have not built up enough work credits?

III.2.b.3 Findings

29. OBJECTIVE 1 – *What governmental agencies have not used work credit allocations and do not have any plans for an underground project?*

The majority—nearly 60%—of localities that received WCAs during the audit period did not use them. Of the 268 localities on PG&E's list of TOTs during the period 2007 through 2016, 155 (58%) did not spend any WCAs during this period.³³⁵ Of the 155 localities that did not use work credits during the audit period, 97 of them also did not have identified undergrounding projects as of September 30, 2018.³³⁶ PG&E's Rule 20A program Liaisons document the communities' identified undergrounding projects "if shared by the community."³³⁷ Thus, PG&E's understanding of communities' desire for performing undergrounding projects may be understated given that the utility does not actively seek requests for identified undergrounding projects from communities. PG&E records indicate that as of September 30, 2019, a total of 159 Rule 20A communities had no identified undergrounding projects.³³⁸ In the list provided, PG&E also provided the Ledger Balance of WCAs for the 159 communities with no identified undergrounding projects.³³⁹ This list

³³⁴ *Final Scope and Objectives* for this audit were ordered in (D.) 18-03-022, Att. A.

³³⁵ Calculated by AzP based on data provided by PG&E in Response to Discovery, Master Data Request in the Rule 20 OIR, R.17-05-010, "Historical Community Level Data" tab; as discussed in the previous section of this report, while PG&E no longer serves Patterson and Folsom, those communities are still included in the utility's TOT, which has not been updated to reflect this change. The figures noted here are based on PG&E's TOT list as is.

³³⁶ Response to Discovery, Master Data Request in the Rule 20 OIR, R.17-05-010 and AzP-001-085, Att. 1

³³⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-085

³³⁸ *Id.*

³³⁹ *Id.*

shows an aggregate balance of approximately \$183.7 million in the WCA Ledger Balances of these communities as of September 30, 2019.³⁴⁰ However, when AzP compared this figure against each community's Remaining WCA Balance as of the same date,³⁴¹ we noted that the aggregate balance, i.e. purchasing or redemption/conversion power of the same communities as of the same date was approximately negative \$1.1 million, which is a more accurate reflection of those communities' status—it explains, at least in part, why those communities are not identifying new undergrounding projects under Rule 20A.³⁴² This list and corresponding balances for each of the 159 communities is provided in AzP Exhibit I.

Of the 50 localities that received the highest number of WCAs during the audit period, 11 (22%) did not use any WCAs during the audit period; of the 50 localities that received the lowest number of WCAs during the audit period, 43 (86%) did not use any WCAs during the audit period.³⁴³ While not a perfect correlation, a positive relationship appears to exist between the level of WCAs allocated to communities and the likelihood that those communities utilize WCAs.

30. OBJECTIVE 2 – *What governmental agencies have large accumulations of work credits?*

As of September 30, 2018, the Remaining WCAs Balances accumulated by PG&E's Rule 20A communities ranged from a positive \$43.1 million (San Jose in Santa Clara) to a balance of negative \$30.0 million (San Francisco, San Francisco).³⁴⁴ AzP Exhibit J to this report contains a full list of all 266³⁴⁵ PG&E Rule 20A communities and their Remaining Work Credit Allocation Balances as of September 30, 2018, displayed in ascending order by WCA Balance. As illustrated in AzP Exhibit J, the total aggregate Remaining Work Credit Allocation for the 266 communities was approximately \$545.7 million.³⁴⁶ Figure III.2.8 below summarizes the composition of the total Remaining WCA Balance for all PG&E Rule 20A communities as of September 30, 2018. As noted below, the total \$545.7 million of Remaining Work Credit Allocation Balances as of September 30, 2018 was comprised of an aggregate of approximately \$294.1 million in negative balances and approximately \$839.8 million in positive balances.

³⁴⁰ Id.

³⁴¹ Based on information provided in both GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-085 and AzP-001-086

³⁴² Id.

³⁴³ Response to Discovery, Master Data Request in the Rule 20 OIR, R.17-05-010, "Historical Community Level Data" tab

³⁴⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-086, Att. 1

³⁴⁵ Patterson and Folsom are not included on this list as they are not served by PG&E per GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-072, however PG&E's TOT list is not updated to reflect this.

³⁴⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-086, Att. 1

Figure III.2.8: Total Remaining WCA Balance for All PG&E Rule 20A Communities as of September 30, 2018

Description	Sum of Remaining Work Credit Balance
Sum of Balance for all Communities with Negative Remaining Work Credit Balance	\$ (294,108,692)
Sum of Balance for all Communities with Positive Remaining Work Credit Balance	839,842,618
Aggregate Balance of Remaining Work Credit Balance for All Communities	\$ 545,733,927

Source: Sums calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-086, Att. 1

31. OBJECTIVE 2 – *What governmental agencies have large accumulations of work credits?*

As of September 30, 2018, the communities with the 15 largest positive balances had balances of over \$11 million each, with San Jose, Oakland, and Kern with the highest balances at \$43.1 million, \$30.5 million, and \$26.5 million.³⁴⁷ The 15 communities with the highest positive Remaining WCA Balances are listed in the figure that follows.

Figure III.2.9: Total Remaining WCA Balance of the 15 Communities with Largest Positive Balances as of September 30, 2018

Rank by Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance	Additional projects desired but insufficient avail work credits?
1	SANTA CLARA	SAN JOSE	31,636,193	11,431,760	43,067,953	-	-	-	\$ 43,067,953	No
2	ALAMEDA	OAKLAND	22,065,101	8,463,020	30,528,121	-	-	-	30,528,121	No
3	KERN	KERN COUNTY	22,514,166	3,986,720	26,500,886	-	-	-	26,500,886	No
4	FRESNO	FRESNO	15,972,148	6,527,160	22,499,308	-	-	-	22,499,308	No
5	SANTA CRUZ	SANTA CRUZ COUNTY	18,454,351	2,681,080	21,135,431	-	-	-	21,135,431	No
6	SAN JOAQUIN	SAN JOAQUIN COUNTY	16,183,721	3,071,760	19,255,481	-	-	-	19,255,481	No
7	SANTA CLARA	SANTA CLARA COUNTY	16,675,570	1,315,285	17,990,855	-	-	-	17,990,855	No
8	CONTRA COSTA	CONTRA COSTA COUNTY	16,946,499	2,625,540	19,572,039	-	(1,630,000)	-	17,942,039	No
9	EL DORADO	EL DORADO COUNTY	16,928,302	2,734,110	19,662,412	(1,812,884)	-	-	17,849,528	No
10	FRESNO	FRESNO COUNTY	12,567,180	4,364,935	16,932,115	-	-	-	16,932,115	No
11	MONTEREY	MONTEREY COUNTY	13,868,313	2,109,680	15,977,993	-	-	-	15,977,993	No
12	SAN JOAQUIN	STOCKTON	12,691,623	3,503,950	16,195,573	(3,252,323)	-	-	12,943,250	No
13	SANTA CLARA	SUNNYVALE	10,556,561	2,222,670	12,779,231	-	-	-	12,779,231	No
14	KERN	BAKERSFIELD	8,103,886	4,083,140	12,187,026	-	-	-	12,187,026	No
15	SAN MATEO	SAN MATEO	9,410,166	1,885,795	11,295,961	-	-	-	11,295,961	No
Total Remaining Work Credit Balance for Communities with Highest Positive Balances									\$ 298,885,180	36%
Total Remaining Work Credit Balance for All Other Communities with Positive Balances									540,957,438	64%
Total Remaining Work Credit Balance for Communities with Positive Balances									\$ 839,842,618	100%

Source: Sum and percentages calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-086, Att. 1

The community balance details provided in AzP Exhibit J are organized in Figure III.2.10 below, which displays the communities with positive Remaining WCA Balances by county. As shown in Figure III.2.10., over 90 percent of all positive balances were contained in the balances of communities within 23 counties, with Santa Clara, Alameda, and San Mateo as the three counties

³⁴⁷ Id.

comprising the communities with the largest positive balances at approximately \$104.4 million, \$89.0 million, and \$81.7 million respectively.³⁴⁸

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

³⁴⁸ Id.

Figure III.2.10: Total Remaining WCA Balance by County - Counties of Communities with Positive Balances Only as of September 30, 2018

Rank by Percentage	County	Number of Communities Within County Comprising Balance	Sum of Remaining Work Credit Balance	Percentage of Total
1	SANTA CLARA	13	104,430,672	12.4%
2	ALAMEDA	14	89,022,741	10.6%
3	SAN MATEO	19	81,738,666	9.7%
4	CONTRA COSTA	18	60,948,466	7.3%
5	FRESNO	11	50,275,686	6.0%
6	KERN	8	47,106,810	5.6%
7	SAN JOAQUIN	5	40,868,609	4.9%
8	MONTEREY	11	37,705,173	4.5%
9	SANTA CRUZ	5	31,374,123	3.7%
10	BUTTE	3	24,465,340	2.9%
11	MARIN	9	22,951,819	2.7%
12	SOLANO	6	22,728,018	2.7%
13	SAN LUIS OBISPO	6	18,960,991	2.3%
14	EL DORADO	1	17,849,528	2.1%
15	HUMBOLDT	7	16,256,950	1.9%
16	SANTA BARBARA	5	15,903,545	1.9%
17	LAKE	3	14,500,538	1.7%
18	NAPA	5	11,973,969	1.4%
19	SUTTER	2	11,042,193	1.3%
20	MENDOCINO	3	10,474,390	1.2%
21	MERCED	5	10,392,312	1.2%
22	CALAVERAS	1	10,202,647	1.2%
23	MADERA	3	10,118,099	1.2%
24	TUOLUMNE	2	9,776,024	1.2%
25	SHASTA	1	7,515,877	0.9%
26	TULARE	2	6,923,806	0.8%
27	SONOMA	2	6,668,430	0.8%
28	COLUSA	1	5,510,275	0.7%
29	TEHAMA	1	5,500,073	0.7%
30	SAN BENITO	3	5,309,667	0.6%
31	AMADOR	5	5,196,573	0.6%
32	GLENN	2	4,787,361	0.6%
33	YOLO	2	4,730,761	0.6%
34	MARIPOSA	1	3,861,443	0.5%
35	NEVADA	1	3,698,866	0.4%
36	STANISLAUS	3	2,876,470	0.3%
37	PLACER	3	2,239,180	0.3%
38	KINGS	1	2,212,591	0.3%
39	YUBA	1	752,400	0.1%
40	SIERRA	1	500,791	0.1%
41	LASSEN	1	458,097	0.1%
42	ALPINE	1	32,648	0.0%
Total		197	839,842,618	100.0%

90.6%

Source: Sum and percentages calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-086, Att. 1

32. OBJECTIVE 3 – What governmental agencies are over-borrowed?

As of September 30, 2018, 69 of 266 PG&E Rule 20A communities had a negative (i.e., over-borrowed) “Remaining WCA Balance”, totaling over \$294 million.³⁴⁹ As noted in Figure III.2.8 above, the aggregate \$546 million in Remaining WCA Balances as of September 30, 2018 included the negative balances of 96 communities with an aggregate negative balance of approximately \$294 million.³⁵⁰ As summarized in Figure III.2.11 below, the 15 communities with the largest negative Remaining WCA Balances had balances ranging between negative \$30.0 million and \$5.4 million, with San Francisco, Sebastopol, and Windsor with the largest negative balances at \$30.0 million, \$20.2 million, and \$15.6 million.³⁵¹

Figure III.2.11: Total Remaining WCA Balance of the 15 Communities with Largest Negative Balances as of September 30, 2018

Rank by Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5- Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance	Additional projects desired but insufficient avail work credits?
1	SAN FRANCISCO	SAN FRANCISCO	(45,657,686)	15,706,185	(29,951,501)	-	-	-	(29,951,501)	Yes
2	SONOMA	SEBASTOPOL	961,920	161,065	1,122,985	(16,781,251)	(4,500,000)	-	(20,158,266)	Yes
3	SONOMA	WINDSOR	606,864	220,975	827,839	(16,424,973)	-	-	(15,597,134)	Yes
4	CONTRA COSTA	PLEASANT HILL	2,347,563	563,860	2,911,423	(16,835,095)	-	-	(13,923,672)	No
5	NAPA	NAPA COUNTY	(11,483,629)	774,610	(10,709,019)	(2,014,537)	-	-	(12,723,556)	No
6	SOLANO	RIO VISTA	702,013	152,690	854,703	(5,968,607)	(6,500,000)	-	(11,613,904)	Yes
7	YUBA	YUBA COUNTY	1,924,632	1,037,405	2,962,037	(2,695,212)	(11,124,340)	-	(10,857,516)	No
8	SONOMA	SONOMA COUNTY	15,763,349	3,678,880	19,442,229	-	(27,523,519)	-	(8,081,290)	No
9	PLACER	AUBURN	(47,890)	280,675	232,785	(7,406,459)	-	-	(7,173,674)	No
10	SACRAMENTO	SACRAMENTO COUNTY	1,044,533	98,155	1,142,688	(4,285,057)	(3,669,870)	-	(6,812,239)	No
11	PLACER	LOOMIS	963,229	119,815	1,083,044	(7,839,406)	-	-	(6,756,362)	No
12	SONOMA	HEALDSBURG	34,571	8,815	43,386	(6,649,785)	-	-	(6,606,399)	No
13	SUTTER	SUTTER COUNTY	2,050,115	678,385	2,728,500	(8,918,811)	-	-	(6,190,311)	No
14	STANISLAUS	RIVERBANK	(1,688,582)	175,690	(1,512,892)	(4,331,553)	-	-	(5,844,445)	No
15	SOLANO	DIXON	699,605	206,610	906,215	(5,271,061)	(1,007,229)	-	(5,378,290)	Yes
Total Remaining Work Credit Balance for Communities with Highest Negative Balances									\$ (167,662,344)	57%
Total Remaining Work Credit Balance for All Other Communities with Negative Balances									(126,446,348)	43%
Total Remaining Work Credit Balance for Communities with Negative Balances									\$ (294,108,692)	100%

Source: Sum and percentages calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-086, Att. 1

The community balance details provided in AzP Exhibit J are organized in Figure III.2.12 below, which displays the communities with negative Remaining WCA Balances by county. As shown in Figure III.2.12, over 90 percent of all positive balances were contained in the balances of communities within 21 counties, with Sonoma, San Francisco, and Placer as the three counties comprising the communities with the largest negative balances at approximately \$67.0 million, \$30.0 million, and \$23.3 million respectively.³⁵²

³⁴⁹ Sums calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-086, Att. 1

³⁵⁰ Id.

³⁵¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-086, Att. 1

³⁵² Id.

Figure III.2.12: Total Remaining WCA Balance by County - Counties of Communities with Negative Balances Only as of September 30, 2018

Rank by Percentage	County	Number of Communities Within County Comprising Balance	Sum of Remaining Work Credit Balance	Percentage of Total
1	SONOMA	8	(66,959,832)	22.8%
2	SAN FRANCISCO	1	(29,951,501)	10.2%
3	PLACER	4	(23,324,751)	7.9%
4	SOLANO	2	(16,985,979)	5.8%
5	YUBA	2	(15,851,532)	5.4%
6	CONTRA COSTA	2	(14,193,170)	4.8%
7	NAPA	1	(12,723,556)	4.3%
8	SACRAMENTO	2	(10,557,325)	3.6%
9	YOLO	3	(10,346,813)	3.5%
10	FRESNO	5	(9,475,004)	3.2%
11	TEHAMA	3	(7,724,418)	2.6%
12	SUTTER	1	(6,190,311)	2.1%
13	STANISLAUS	1	(5,844,445)	2.0%
14	SISKIYOU	1	(5,107,506)	1.7%
15	TRINITY	1	(4,995,200)	1.7%
16	MERCED	2	(4,878,002)	1.7%
17	COLUSA	2	(4,597,790)	1.6%
18	HUMBOLDT	1	(4,544,724)	1.5%
19	BUTTE	2	(4,351,006)	1.5%
20	MENDOCINO	1	(3,969,213)	1.3%
21	SHASTA	2	(3,634,764)	1.2%
22	MONTEREY	2	(3,571,588)	1.2%
23	EL DORADO	1	(3,452,376)	1.2%
24	NEVADA	2	(2,916,704)	1.0%
25	PLUMAS	1	(2,551,735)	0.9%
26	CALAVERAS	1	(2,418,729)	0.8%
27	SANTA CLARA	1	(2,264,322)	0.8%
28	MARIN	3	(1,981,650)	0.7%
29	KINGS	3	(1,891,624)	0.6%
30	GLENN	1	(1,579,135)	0.5%
31	SAN LUIS OBISPO	2	(1,516,279)	0.5%
32	AMADOR	1	(1,472,110)	0.5%
33	SAN MATEO	2	(1,365,639)	0.5%
34	SAN JOAQUIN	2	(919,959)	0.3%
Total		69	(294,108,692)	100.0%

90.5%

Source: Sum and percentages calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-086, Att. 1

33. OBJECTIVE 4 –What governmental agencies would like to do an undergrounding project but have not built up enough work credits?

As of September 30, 2018, twenty percent (54 of 266) of PG&E Rule 20A communities had an interest in additional undergrounding projects, but did not have sufficient work credits.³⁵³

According to PG&E, as of September 30, 2018, 54 communities desired additional undergrounding projects, but did not have sufficient work credits to proceed with the conversions.³⁵⁴ AzP Exhibit

³⁵³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-089 and AzP-001-086, Att. 1

³⁵⁴ Id.

K contains the full list of these 54 communities, along with their WCA ledger balances, five-year borrow balance, FACs, OH relocation credit, and remaining work credit balances as of September 30, 2018. The counties with the largest distribution of communities among the 54 were Amador, Contra Costa, Fresno, and San Mateo, with five communities within each, followed by Martin, Monterey, Sonoma, and Stanislaus county, with three communities each as summarized in Figure III.2.13.³⁵⁵

Figure III.2.13: Distribution of Communities with Insufficient Work Credits, by County as of September 30, 2018

Rank by Number of Communities Lacking Desired WCAs	County	Count of Community
1	AMADOR	5
1	CONTRA COSTA	5
1	FRESNO	5
1	SAN MATEO	5
2	MARIN	3
2	MONTEREY	3
2	SONOMA	3
2	STANISLAUS	3
3	ALAMEDA	2
3	BUTTE	2
3	PLACER	2
3	SANTA CLARA	2
4	COLUSA	1
4	GLENN	1
4	HUMBOLDT	1
4	MERCED	1
4	NEVADA	1
4	PLUMAS	1
4	SAN BENITO	1
4	SAN FRANCISCO	1
4	SAN LUIS OBISPO	1
4	SANTA BARBARA	1
4	SANTA CRUZ	1
4	SHASTA	1
4	SIERRA	1
4	SOLANO	1
Total		54

Source: Grouped and counted by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-089 and AzP-001-086, Att. 01

³⁵⁵ Id.

34. OBJECTIVE 1 – *What governmental agencies have not used work credit allocations and do not have any plans for an underground project?*

OBJECTIVE 2 – *What governmental agencies have large accumulations of work credits?*

OBJECTIVE 3 – *What governmental agencies are over-borrowed?*

OBJECTIVE 4 – *What governmental agencies would like to do an undergrounding project but have not built up enough work credits?*

Beginning in March 2009, localities began trading Rule 20A work credit allocations with other localities for purposes of pursuing undergrounding projects. During the audit period, 30 trades were made, resulting in an aggregate \$33.690 million in Rule 20A WCAs traded.³⁵⁶ The first trade recorded by PG&E occurred on March, 17, 2009 and involved a transfer of \$1.836 million WCAs from Foster City to Belmont.³⁵⁷ When asked in discovery why localities began trading, PG&E stated, “Localities did not have enough work credits to cover the cost of their Rule 20A projects.”³⁵⁸

35. OBJECTIVE 1 – *What governmental agencies have not used work credit allocations and do not have any plans for an underground project?*

WCA trading has become more frequent in recent years. Of the 30 trades that occurred during the audit period, 27 occurred between 2014 and 2016. The 27 trades in these three years comprise \$30.854 million of the \$33.690 million (or 91.6%) of the total. The annual average WCAs traded over these three years is \$10.285 million, versus an average of \$405 thousand per year during the period 2007 through 2013.³⁵⁹ This trend indicates that Rule 20A WCA trading, while a recent development, has quickly become a significant issue that requires regulatory examination.

36. OBJECTIVE 1 – *What governmental agencies have not used work credit allocations and do not have any plans for an underground project?*

OBJECTIVE 2 – *What governmental agencies have large accumulations of work credits?*

OBJECTIVE 3 – *What governmental agencies are over-borrowed?*

OBJECTIVE 4 – *What governmental agencies would like to do an undergrounding project but have not built up enough work credits?*

³⁵⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-081, Att. 1

³⁵⁷ Id.

³⁵⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-004-005 and AzP-006-014

³⁵⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-081, Att. 1

WCA trades during the audit period were generally, but not exclusively, trades between localities within the same county. Of the 30 trades that occurred during the audit period, 26 were instances where a community traded its WCAs to a city within the same county. For example, on February 19, 2014, Fresno County traded \$500,000 of Rule 20A WCAs to the city of Kingsburg, which is in Fresno County.³⁶⁰

37. OBJECTIVE 1 – *What governmental agencies have not used work credit allocations and do not have any plans for an underground project?*

OBJECTIVE 2 – *What governmental agencies have large accumulations of work credits?*

OBJECTIVE 3 – *What governmental agencies are over-borrowed?*

OBJECTIVE 4 – *What governmental agencies would like to do an undergrounding project but have not built up enough work credits?*

The WCA secondary market is unregulated, inefficient, and disproportionately impacts PG&E ratepayers. Given that Rule 20A WCAs are fungible commodities (*i.e.*, each dollar of WCAs allocated in the Rule 20A program is interchangeable and functionally equivalent to every other dollar of work credit allocated) if the market for WCAs were efficient, trades would be valued the same or similarly for each dollar of WCA traded.³⁶¹ Based on the data provided by PG&E for the trades during the audit period, this was not the case. The average value given for \$1 of WCA during the trades occurring in this period was 14 cents per \$1 of WCA. This average, however, is misleading because in most of these 30 transactions no value was given for WCAs received. Of the 30 trades between localities for the audit period, 18 were uncompensated.³⁶² The value of uncompensated trades, in the aggregate, was \$21.730 million in WCAs. Each of these uncompensated transfers occurred within the same county--in several instances the county transferred its WCA to a city within the same county. The act of counties “gifting” WCAs to a particular city within the same county has the consequence of disproportionately impacting ratepayers of the recipient city, versus other cities in the same county.

For the seven trades in which a locality paid for WCAs, the value of \$1 of WCA varied significantly—from \$.05 per \$1 of WCA to \$.99 per \$1 of WCA. This discrepancy in WCA trade values results in disproportionate impact of the Rule 20A program cost and funding on the localities within PG&E’s service area.

38. OBJECTIVE 1 – *What governmental agencies have not used work credit allocations and do not have any plans for an underground project?*

³⁶⁰ *Id.*

³⁶¹ For a market to be efficient, all relevant information must be available to all participants at the same time.

³⁶² The value exchanged, if any, of five of these 30 trades is unknown to PG&E, per GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-081, Att. 1

OBJECTIVE 2 – *What governmental agencies have large accumulations of work credits?*

OBJECTIVE 3 – *What governmental agencies are over-borrowed?*

OBJECTIVE 4 – *What governmental agencies would like to do an undergrounding project but have not built up enough work credits?*

Funds received from localities in WCA trades are currently unregulated. While historical trading data indicates that the WCA secondary market is operating inefficiently, the concept of a secondary market for WCAs is inherently flawed. The WCA secondary market is based on a faulty premise that localities should have the option to convert their WCAs into funds they could then spend at their discretion (without regard to whether that spending would result in conversions within the Rule 20A Program or to any costs necessary for receiving safe and reliable electric services). The Rule 20A program is narrowly focused on providing an established method for a community to convert overhead power lines and other infrastructure to underground facilities when there is sufficient interest of the locality to do so. Allowing localities to trade WCAs amongst themselves broadens this program such that the ultimate use of the funds becomes unregulated. As discussed further in the *Recommendations* section, it is essential that restrictions be placed on these trades so that funds received in exchange for Rule 20A WCAs are used to provide benefits to PG&E ratepayers in their capacity as PG&E ratepayers—i.e., for the provision of safe and reliable electric services, and specifically for the conversion of overhead-to-underground powerlines.

III.2.b.4 Recommendations

25. OBJECTIVE 1 – *What governmental agencies have not used work credit allocations and do not have any plans for an underground project?*

OBJECTIVE 2 – *What governmental agencies have large accumulations of work credits?*

OBJECTIVE 3 – *What governmental agencies are over-borrowed?*

OBJECTIVE 4 – *What governmental agencies would like to do an undergrounding project but have not built up enough work credits?*

We recommend that a secondary market for WCAs be disallowed and that the Rule 20A tariff be revised to remove the provision for PG&E discretion in moving WCAs from one community to another. Rule 20A tariff does not explicitly allow for a secondary market for WCAs; the secondary market should be disallowed accordingly and to ensure the funds received from WCAs are used to provide benefits to PG&E ratepayers in their capacity as PG&E electric service ratepayers. In addition, we recommend that the tariff be further revised to remove the provision for PG&E discretion in moving WCAs from one community to another. As discussed in the findings above and in the recommendations in the previous (*Allocations*) section of this report, the current structure of the tariff and PG&E's and the communities' actions in trading have resulted in

disproportionate services being provided to the Rule 20A communities with charges in rates that are not commensurate with the undergrounding services provided for the charges associated with the collections intended for this program. The Commission could alternatively elect to modify the tariff with additional language in an attempt to promote more efficient and transparent trading, however, we believe no revisions would yield rates that are just and reasonable to the extent PG&E continues to charge in rates for services provided to some, but charged to all ratepayer, nor would any revisions yield rates that are just and reasonable to the extent PG&E continues to charge in rates fees that ultimately become unregulated and exchanged in a secondary market for any funds other than those necessary for the provision of safe and reliable electric services.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

III.2.c. SUBTASK 2(C) – REVIEW OF PROJECTS INITIATED, BUT NOT COMPLETED

III.2.c.1 *Introduction and Background*

The discussion in this section of the audit is focused on instances in which a PG&E Rule 20A community has formally initiated the Rule 20A project process (i.e., passed a resolution), but PG&E has not completed the project. These are projects for which PG&E states WCAs have not been deducted in the PG&E Rule 20A Program work credit ledger.³⁶³ Localities that pass resolutions should reasonably expect PG&E to undertake undergrounding projects in a manner conducive to timely and efficient completion. The Commission has stated concerns that while it may be true “that specific Rule 20A projects may be delayed for any number of reasons and that the implementation and completion of a full undergrounding project can be lengthy and complex,” the outcome demonstrated by PG&E data had nonetheless shown a consistent pattern where projects delayed in one year did not appear to be generally catching up as expected in a subsequent year.³⁶⁴ In addressing the Commission’s concerns in this regard, in this section of the report, AzP identifies and explains delays in projects that have been initiated but not completed under PG&E’s Rule 20A program. The information analyzed in this section of the audit is based on data as of September 30, 2018, the latest date for which data was available as of the time of AzP’s discovery request to PG&E.

III.2.c.2 *Audit Objectives*

Per Commission Decision 18-03-022, the objectives for the *Incomplete Projects* subcategory of this audit are to:³⁶⁵

- i. List the projects that have been initiated, but not completed.
- ii. Explain why Rule 20A projects initiated but not completed remain incomplete.

III.2.c.3 *Findings*

39. OBJECTIVE 1 – *List the projects that have been initiated, but not completed.*

As of September 30, 2018, PG&E’s Rule 20A project “queue” (i.e., list of projects that had been initiated but not completed) consisted of 126 projects.³⁶⁶ AzP Exhibit L contains a full list of the 126 incomplete PG&E Rule 20A projects as of September 30, 2018, as well as each project’s order number and description, date the initial resolution was passed, PG&E’s initial cost and completion date estimate, along with the Company’s revised completion date as of September 30, 2018. This exhibit also includes PG&E’s explanation of the reason for the delay in completion. As illustrated in AzP Exhibit L, the 126 incomplete projects were initiated within 89 different communities in

³⁶³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1, specifically, the spreadsheet heading, “Rule 20A Projects Not Yet Deducted in Ledger.”

³⁶⁴ D.17-05-013, page 74

³⁶⁵ *Final Scope and Objectives* for this audit were ordered in (D.) 18-03-022, Att. A.

³⁶⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

PG&E's service territory.³⁶⁷ San Jose, El Dorado County, Fresno, Sonoma County, Calaveras County, Chico, Santa Clara County, and South San Francisco were the communities with the largest distribution of incomplete projects as of September 30, 2019.³⁶⁸ These eight communities all had three or more incomplete projects and 30 projects in aggregate, while the remaining 96 projects were spread among 80 different communities that each had one or two incomplete projects.³⁶⁹ This distribution is summarized in Figure III.2.14 below.

Figure III.2.14: Communities with the Largest Number of Incomplete Rule 20A Projects as of September 30, 2018

Locality	Incomplete Projects
San Jose	6
El Dorado County	4
Fresno	4
Sonoma County	4
Calaveras County	3
Chico	3
Santa Clara County	3
South San Francisco	3
Subtotal	30
Incomplete Projects in other Localities	96
Total Number of All Incomplete Projects	126

Source: Calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

40. OBJECTIVE 1 – *List the projects that have been initiated, but not completed.*

The dates in which resolutions were passed by localities for projects remaining incomplete as of September 30, 2018 span over 31 years—ranging from April 1987 to August 2018.³⁷⁰ The dates in which PG&E Rule 20A incomplete projects were initiated span four decades.³⁷¹ As illustrated in Figure III.2.15 on the following page, 41% of incomplete projects were initiated in the 1980s, 1990s, or 2000s.³⁷²

³⁶⁷ Id.

³⁶⁸ Calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

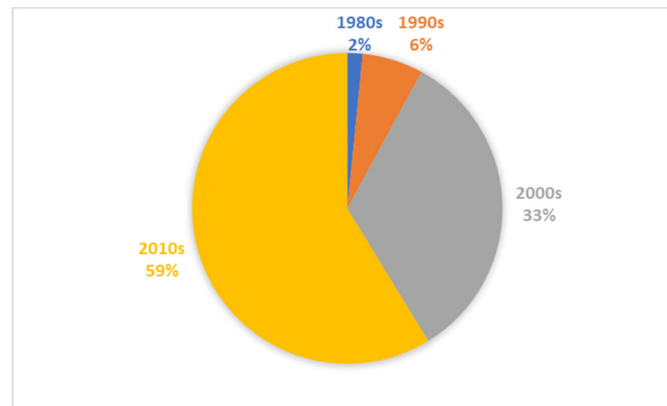
³⁶⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

³⁷⁰ Id.

³⁷¹ Id.

³⁷² Id.

Figure III.2.15: Distribution of PG&E Rule 20A Projects by Decade Initiated but Remaining Incomplete as of September 30, 2018



Source: Percentages calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1.

Of the incomplete projects that originated in the 1980s and 1990s, 60% (six projects) are still in the initial project planning stage.³⁷³

41. OBJECTIVE 1 – *List the projects that have been initiated, but not completed.*

Over 80% of the incomplete projects as of September 30, 2018 were identified by PG&E as being in the pre-construction stages of the project lifecycle.³⁷⁴ PG&E Rule 20A projects have four distinct phases, in sequential order: the planning phase, engineering (or “design”) phase, construction phase, and closeout phase.³⁷⁵

Figure III.2.16: PG&E Rule 20A Project Life Cycle



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-007

³⁷³ Id.

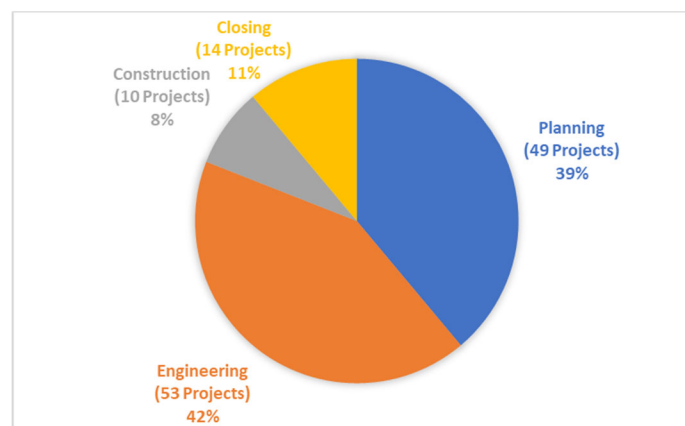
³⁷⁴ Percentages calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1.

³⁷⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-007

The stage of project completion among PG&E’s incomplete Rule 20A projects appears largely uncorrelated with the age of the project—the oldest projects are not necessarily the closest to completion, with some of the oldest incomplete projects still in the initial planning phase.³⁷⁶

As illustrated in Figure III.2.17 below, more than four out of five PG&E Rule 20A projects that remained incomplete as of September 30, 2018 were in either the Planning or Engineering (i.e., pre-construction) phases.³⁷⁷

Figure III.2.17: Status of PG&E’s 126 Incomplete Rule 20A Projects as of September 30, 2019 by Project Phase



Source: Percentages calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1.

PG&E only utilizes the four phases noted above as formal designations in its queue; however, during interviews with PG&E’s subject matter experts, the Company described the possibility for projects to be indefinitely stalled and not progressing within any of the phases—that is, the project being open but not moving forward.³⁷⁸ PG&E informally referred to these projects as “zombie” projects and noted that such projects did not have a separate formal designation, nor were they historically tracked.³⁷⁹

42. OBJECTIVE 1 – *List the projects that have been initiated, but not completed.*

Of the 126 PG&E Rule 20A projects remaining incomplete as of September 30, 2019, 77 percent were behind the original schedule and/or missing project estimate documentation.³⁸⁰ AzP compared initial project completion date estimates to current (as of September 30, 2018) project completion date estimates to assess whether the projects were ahead of schedule, behind

³⁷⁶ Percentages calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

³⁷⁷ Id.

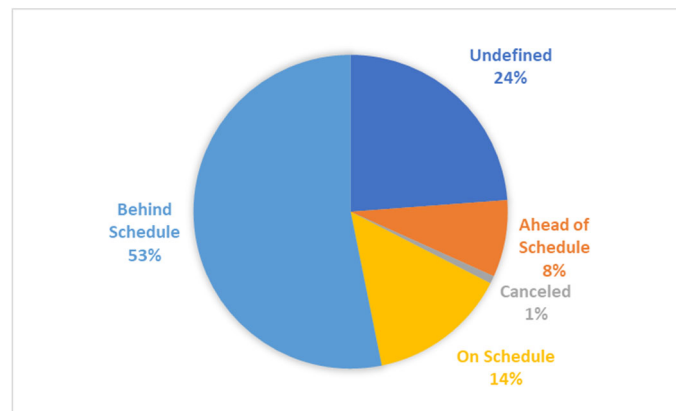
³⁷⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-053

³⁷⁹ Id.

³⁸⁰ Percentages calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

schedule, or on schedule. Figure III.2.18 below provides an illustration of the schedule status of these 126 projects.

Figure III.2.18: Status of PG&E Rule 20A Projects Relative to Originally Anticipated Schedule for Projects Remaining Incomplete as of September 30, 2018



Source: Percentages calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1.

As shown in Figure III.2.18 above, the majority—53 percent—of PG&E projects in the Rule 20A queue as of September 30, 2018, were behind the initially estimated schedule.³⁸¹ For the projects schedule statuses that could be calculated, the average time of the currently estimated project completion schedules relative to the initial estimated project completion date was approximately four years behind PG&E’s original estimate.³⁸²

However, AzP estimates that the percentages of projects shown as behind schedule in Figure III.2.18 are likely understated for the following reasons. First, a current-versus original estimate could not be calculated for 24 percent of the projects in the queue due to lack of information retained by PG&E.³⁸³ AzP categorized these as “Undefined” in Figure III.2.18.³⁸⁴ Specifically, AzP identified 18 projects in which PG&E listed the initial estimated project completion date as “N/A.”³⁸⁵ AzP also identified 15 instances in which PG&E listed the current project completion date as “N/A.”³⁸⁶ When asked in discovery the reasons why PG&E deemed this information as “N/A”, PG&E stated that the initial estimated project completion estimates for these projects were “not available”, and provided no explanation for why PG&E had not retained this

³⁸¹ Id.

³⁸² calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

³⁸³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

³⁸⁴ Id.

³⁸⁵ Id.

³⁸⁶ Id.

information.³⁸⁷ PG&E also stated that some projects did not have assigned order numbers and that those projects without order numbers also did not have current project completion date estimates.³⁸⁸ This is inconsistent with PG&E responses in discovery, in which the Company has stated that, “every project is assigned a unique SAP work order number.”³⁸⁹ Several of these projects are many years old—forty percent of the projects without order numbers were initiated in the 1990s or early 2000s.³⁹⁰ As such, if sufficient information related to these projects had been retained and made available, Figure III.2.18 would likely show a higher proportion of projects “Behind Schedule.”

The second reason that the percentage of projects noted as behind schedule in Figure III.2.18 are likely understated is that current estimated project completion dates appear, in some cases, clearly erroneous. PG&E dated the [then] current list of incomplete projects as of September 30, 2018.³⁹¹ However, in 19 instances PG&E’s “current” project completion date estimates were *before* September 30, 2018 for projects remaining incomplete as of September 30, 2018.³⁹² For example, Project Number 30576193 sponsored by San Jose had a Planned Completion Date of January 13, 2009. Since this project remained on PG&E’s list of incomplete project queue as of September 30, 2018, the 2009 completion date was obviously not met, and PG&E has not updated the Planned Completion Date of this project for several years.³⁹³

Specific reasons for project delays are discussed in the remaining findings.

43. OBJECTIVE 2 – *Explain why Rule 20A projects initiated but not completed remain incomplete.*

The causes cited by PG&E for delays on Rule 20A projects are generally targeted at external parties, appear to displace responsibility, and, in some cases, appear disproportionate to the significant change in estimated project completion dates. PG&E provided explanations regarding the delays related to 67 out of the 77 projects in which a deviation from the initial estimated completion date was observed.³⁹⁴ The reasons provided by PG&E for the delays are listed in the “Specific Cause/Reason for Delay” column of AzP Exhibit L. The following figure summarizes the party or parties PG&E cited as being responsible for the project delays.

³⁸⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-088, subpart J

³⁸⁸ *Id.*

³⁸⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-026

³⁹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

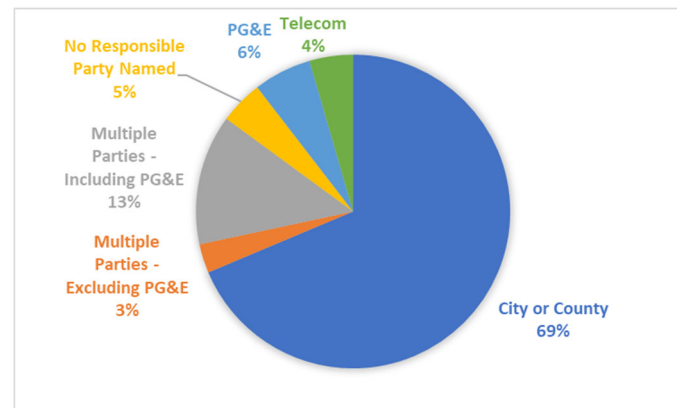
³⁹¹ *Id.*

³⁹² *Id.*

³⁹³ *Id.*

³⁹⁴ *Id.*

Figure III.2.19: Parties PG&E cited as Responsible for Project Delays for Incomplete Rule 20A Projects as of September 30, 2018



Source: Percentage calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1.

As noted in Figure III.2.19 above, in a large majority—76 percent—of cases, PG&E noted external parties as being responsible for project delays.³⁹⁵ PG&E noted itself as the single party responsible in only 6% of the delayed projects, whereas it named the cities and counties as the single party responsible in 69% of these delays.³⁹⁶ PG&E’s attribution of sole responsibility to other parties, in particular the cities and counties appear, in some cases, to be erroneous. For example, in several instances, PG&E attributed responsibility for the delay to the city or county because the project costs came in higher than expected and the locality did not have sufficient work credits to continue.³⁹⁷ Given that PG&E develops the initial project cost estimates,³⁹⁸ it would clearly bear some, if not all, the responsibility for project costs coming in higher than expected. In other instance, PG&E places sole responsibility for delay on the city or county for that locality’s refusal to accept PG&E’s terms in its proposed General Conditions Agreement (GCA).³⁹⁹

The length of the delays relative to the reasons PG&E provided for the delays appears, in many cases, to be disproportionate. For example, Project Number 74001556 in Madera County had a delay of over six years and the reason given was, “Issues with easement acquisition, such as at cell tower.”⁴⁰⁰ Another project in San Luis Obispo County, Project Number 30563617, was delayed

³⁹⁵ Percentage calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

³⁹⁶ Id.

³⁹⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1, specifically, project numbers 74008524, 30817976, and 30938105

³⁹⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-083

³⁹⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1, specifically, project numbers 30674762, 30707682, 31085931, 35056808, and 31085930

⁴⁰⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

10.5 years because the “City added sidewalk to design after contractor bids received, design re-work (sic) required.”⁴⁰¹

PG&E appears to have never conducted a comprehensive review to assess the reasonableness of these delays. As stated by PG&E in discovery, “PG&E does not conduct or retain formal analyses of instances where one or more...possible causes of project delays occurs.”⁴⁰²

44. OBJECTIVE 2 – *Explain why Rule 20A projects initiated but not completed remain incomplete.*

The incentives of PG&E personnel are not aligned with the objective of finishing Rule 20A projects on time and on budget. While PG&E acknowledges project costs rise over time,⁴⁰³ it does not separately track costs related to project delays.⁴⁰⁴ In several instances where PG&E acknowledged responsibility for the delays in the projects remaining incomplete as of September 30, 2018, the Company cited project management and estimation resource constraints as the reason for delay.⁴⁰⁵ As discussed in greater detail in the *Spending* section of this report, given PG&E’s significant underspending in this program, as well as availability of outside resources, this reason for delay is preventable and within the purview of the Company to mitigate proactively (See *Spending* section of this report, AzP Finding No. 11 “PG&E could have increased the effectiveness and productivity of the Rule 20A program if it had spent Commission-adopted funds on the program during the audit period.”)

Consistent with and in addition to the observations above, PG&E does not provide incentives in the Rule 20A program for projects to be completed under budget.⁴⁰⁶ The full amount of cost overruns are transferred by PG&E and included in plant in service,⁴⁰⁷ and the Company has not been exercising financial accountability for its Rule 20A project cost overruns. In fact, since the total amount of the Rule 20A project costs, including cost overruns, are transferred to plant in service, PG&E actually earns a return on these cost overruns given that the undepreciated portion of the plant will be included as part of PG&E’s rate base in subsequent rate cases. While PG&E is held harmless, or, arguably benefits, from cost overruns of Rule 20A projects, localities bear the full costs of these projects through the deduction of the full project costs, including cost overruns, from their work credit balances.⁴⁰⁸

⁴⁰¹ Id.

⁴⁰² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-064

⁴⁰³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1, specifically, project number 30762469

⁴⁰⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-026

⁴⁰⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1, specifically, project number 31081035, 31330811, 74010862, and 74015721

⁴⁰⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-026

⁴⁰⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-044

⁴⁰⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-027

III.2.c.4 Recommendations

26. OBJECTIVE 1— *List the projects that have been initiated, but not completed.*

PG&E should track (“zombie”) Rule 20A projects which are not actively moving forward, with a formal designation, and project status communicated to the relevant locality. As noted in Finding 41 above, PG&E noted during interviews and in discovery that there are instances in which a project is open but not moving forward.⁴⁰⁹ In instances in which a locality decides not to pursue a Rule 20A project after it has passed a resolution, AzP recommends that PG&E first provide formal notification to the locality and obtain approval/agreement that PG&E plans to cancel the project. If this cannot be obtained from the locality, AzP recommends that such “zombie” projects in PG&E’s Rule 20A project queue be designated as “Inactive.” Additionally, AzP recommends that PG&E formally notify the locality prior to assigning this designation to a project to inform the agency that PG&E personnel will no longer be working on the project, along with the reason(s) cited; PG&E should confirm the locality’s understanding of, and agreement with, this status. These changes would provide all interested parties—the Commission, the relevant localities, and PG&E—a more accurate depiction of the status of the projects in the Rule 20A queue. This practice would also ensure clarity and agreement among the relevant parties for why progress is not being made on any particular Rule 20A project. It would also help ensure that PG&E’s resources are focused on the projects for which the localities maintain an interest.

27. OBJECTIVE 2 – *Explain why Rule 20A projects initiated but not completed remain incomplete.*

PG&E should review current practices to ensure best management practices for initial cost estimation are employed and to ensure PG&E adherence to initial project cost estimating procedures, which should include additional training of Liaisons. Currently, PG&E provides no additional training materials to Liaisons who utilize the Rule 20A Project Planning Calculator, which is the tool, other than the calculator itself, used to determine costs for projects early in the project life cycle.⁴¹⁰ AzP recommends that PG&E enhance its process in reviewing a project’s scope of work and improve its approach in determining initial cost elements, such as labor, materials, contracts and overhead. This can be achieved through proper training of Liaisons in engineering cost estimating standard practices, requiring Liaisons to have formal education in electric design or engineering, and/or through revisions to the calculating tools in place at PG&E.

28. OBJECTIVE 2 – *Explain why Rule 20A projects initiated but not completed remain incomplete.*

To effectively address projects that have significant delays, AzP recommends that the Commission disallow PG&E to include in its rate base cost overruns of projects that exceed cost estimates due to PG&E’s mismanagement. PG&E’s current record of reasons for project delays

⁴⁰⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-053

⁴¹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-139 and AzP-006-003

appear unsupported and erroneous in many instances. The Company should institute a formal plan for preventing and addressing Rule 20A project delays. We recommend the Commission impose financial implications, including disallowance of cost overruns in rate base, for any project that, due to PG&E mismanagement, is delayed and remains overdue beyond the engineering estimate variance allowance of the planning and/or design phase estimates. This would greatly enhance the accountability of the Company both in terms of accuracy of its project cost estimates (which will, by extension, provide more accurate expectations of project costs to localities), as well as its operational efficiency (since it would provide PG&E an increased financial incentive to complete projects within budget).

29. OBJECTIVE 2 – *Explain why Rule 20A projects initiated but not completed remain incomplete.*

We recommend that PG&E include in its annual Rule 20A reports, tracking and reporting of metrics that measure the progress of Rule 20A conversions. Reporting of the progress of Rule 20A conversion projects with useful information on a regular basis to the Commission, including information on costs incurred per mile converted to underground, the number of overhead (OH) meters removed and the progress of projects at each construction phase, would improve accountability and provide greater transparency for communities and the Commission. We recommend that in its report, the Company include, similar to the information noted in AzP Exhibit L, any project delays, along with detailed explanation and supporting documentation for the causes, as well as explanation and written documentation of measures PG&E has actively taken to prevent and mitigate delays on each project remaining incomplete.

30. OBJECTIVE 2 – *Explain why Rule 20A projects initiated but not completed remain incomplete.*

PG&E should implement necessary controls to ensure that key historical project data is both retained and easily accessible electronically. As noted in the Findings section above, there were 18 projects in which PG&E was not able to provide an initial estimated project completion date and 15 instances in which PG&E was not able to provide a current project completion date for projects in the queue because these projects did not have associated order numbers. Without access to such fundamental information, neither the Commission, nor PG&E, can fully assess the Company's performance in this program, particularly in regard to meeting the localities' expectations regarding Rule 20A project completion. As discussed in greater detail in the *Budgeting* section of this report, "absence of controls, ineffective controls, or the ability of management to override controls" represent conditions that provide an opportunity for a fraud to be perpetrated (see Budgeting section, Finding No. 4, "The circumstances surrounding PG&E's treatment of the Rule 20A program accounting, ..., are indicative of fraud risk factors."). In order to reduce the risk inherent in the accounting for PG&E Rule 20A projects and to improve transparency, the Company should review past data available, and, if necessary, contact the relevant locality in an attempt to populate the missing data to the extent possible. For all future data, PG&E should ensure with regular review processes, that the information noted on the Rule 20A queue is current, correct, complete, and supported by documentation.

III.2.d. SUBTASK 2(D) – PROJECT COMPLETION

III.2.d.1 *Introduction and Background*

The following sections of this portion of the report provides additional details regarding PG&E's completion process for Rule 20A projects. As noted in the Findings that follow, the completion process for Rule 20A projects is a multi-step procedure that encompasses processes related to both accounting and project management, with the PG&E Rule 20A Project Manager as the primary individual responsible for facilitating the project completion process.

Within this section, AzP discusses accounting and operational processes and personnel involved in designating a Rule 20A project as complete, and the corresponding impacts to the relevant community's work credit balance. AzP also provides recommendations to improve the efficiency and transparency of the completion process in this discussion.

III.2.d.2 *Audit Objectives*

Per Commission Decision 18-03-022, the objectives for the *Project Completion* subcategory of the PG&E Rule 20A audit are to ascertain the following:⁴¹¹

- i. What is the process when a project is completed?
- ii. How are the work credits applied to the ledger?

III.2.d.3 *Findings*

45. OBJECTIVE 1 – *What is the process when a project is completed?*

PG&E deems electric construction activities complete when all underground cables have been installed, all customers connected, all overhead equipment removed from poles, and poles “topped down”⁴¹² to the height of any telecommunications facilities.⁴¹³ PG&E's project completion management process consists of six procedural steps, including accounting closure, project closeout, project critiquing, generation of a lessons learned report, closing of open items, and documentation of closed projects.⁴¹⁴ The PG&E Rule 20A Project Manager is the primary person responsible for closing completed projects.⁴¹⁵ PG&E uses SAP, Primavera (P6), SAP-DMS, Clarity, and SharePoint in the project completion process.⁴¹⁶ The following is an overview of PG&E's project completion management process.⁴¹⁷

⁴¹¹ *Final Scope and Objectives* for this audit were ordered in (D.) 18-03-022, Att. A

⁴¹² A “topped” pole is one in which PG&E's facilities have been removed and the remaining pole is cut to the height of the remaining telecommunications facilities. GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-101 and AzP-002-044

⁴¹³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-101

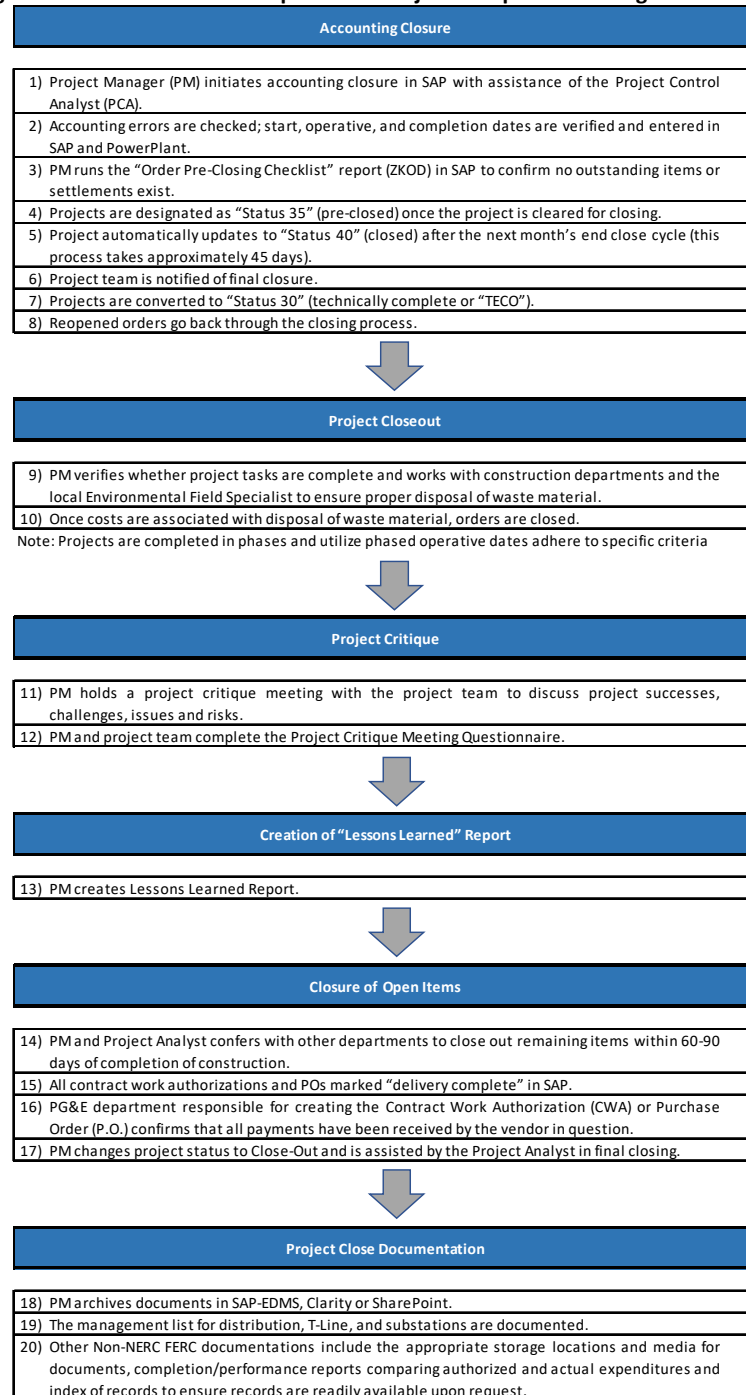
⁴¹⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-100, Att. 1

⁴¹⁵ *Id.*

⁴¹⁶ *Id.*

⁴¹⁷ *Id.*

Figure III.2.20: PG&E Electric Operations Project Completion Management Process



Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-100, Response to Discovery, AzP-001-100, Att. 1 and AzP-002-091.

The steps illustrated in Figure III.2.20 are PG&E's Electric Operations Project Management Close Management process.⁴¹⁸ PG&E provided this information in response to AzP's request specifically regarding Rule 20A project completions,⁴¹⁹ suggesting that PG&E's closing protocol is not uniquely tailored to the Rule 20A program, but rather developed for and intended to be applied to all electric operations projects uniformly.

46. OBJECTIVE 1 – *What is the process when a project is completed?*

Removal of poles are not currently a requirement for PG&E designating a Rule 20A project as complete.⁴²⁰ PG&E deems Rule 20A conversion construction complete even if telecommunication cables and equipment are still attached to "topped" poles.⁴²¹ PG&E indicates that telecommunication companies are responsible for removing their attachments at their expense⁴²² and the owner of the pole is responsible for removing the topped pole.⁴²³ PG&E also states that the ownership and timing of the removal of the pole does not affect when PG&E deems or designates the conversion as complete.⁴²⁴ PG&E deems the conversion operative when the service to the first customer is energized, at which point PG&E transfers expenditures to date from CWIP to Plant In-Service.⁴²⁵ After this date, PG&E deems future expenditures operative as installed.⁴²⁶ The transfer from CWIP to Plant In-Service is triggered when the project manager or other assigned personnel enter the operative date into PG&E's accounting system.⁴²⁷ PG&E states that other utility and telecommunication companies may impact project scope, cost, and duration, in various ways,⁴²⁸ including opting out of the joint trench, which may increase the cost for remaining participants.⁴²⁹ In some cases, another company may be the lead trench participant and, according to PG&E, "dictate schedule and cost."⁴³⁰ Additionally, in a situation with joint pole ownership, once PG&E removes its facilities and "tops" the pole, the other utility and/or telecommunication company becomes the pole owner and is responsible for removing the pole.⁴³¹ In a tenant situation, the tenant is required to remove its facilities prior to removal of the pole.⁴³²

⁴¹⁸ Id.

⁴¹⁹ Id.

⁴²⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-101

⁴²¹ Id.

⁴²² Id.

⁴²³ Id.

⁴²⁴ Id.

⁴²⁵ Id.

⁴²⁶ Id.

⁴²⁷ Id.

⁴²⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-103

⁴²⁹ Id.

⁴³⁰ Id.

⁴³¹ Id.

⁴³² Id.

47. OBJECTIVE 2 – *How are the work credits applied to the ledger?*

PG&E’s protocol is to deduct work credits from a community’s ledger when the related work order is closed in PG&E’s system. PG&E utilizes a cost sharing agreement known as a “Form B”, signed by all participants, to specify reimbursements from other joint trench participants, such as phone and cable companies, for their share of trench costs where PG&E is the lead trenching agent.⁴³³ PG&E tracks reimbursements in the SAP work order in the form of billing credits, which offset the gross expenditures charged to the work order.⁴³⁴

When an SAP work order reaches closed status (“CLSD”), PG&E posts a negative total to the community’s work credit account.⁴³⁵ This posting reduces the municipality’s credit ledger WCA balance.⁴³⁶ If the local agency requests, PG&E provides a breakdown of final project costs to the agency.⁴³⁷ The balance on the SAP work order at the project’s closeout represents the net cost of the project.⁴³⁸ Deductions in excess of a municipality’s ledger balance result in a negative ledger balance,⁴³⁹ and if the municipality exceeds its 5-year borrow, then it will be unable to initiate or continue other projects unless special permission is granted by the Commission.⁴⁴⁰

48. OBJECTIVE 2 – *How are the work credits applied to the ledger?*

It is unclear why PG&E elected to implement a change in accounting related to EM labor costs or whether and the extent to which PG&E may have duplicated costs that remain incorporated into work orders as a result of this change. Prior to 2010, PG&E charged Estimating and Mapping Labor (EM labor) directly to the work order based on actual labor hours.⁴⁴¹ At the start of 2010, PG&E began converting EM labor to overhead charges.⁴⁴² PG&E states that as a result, the Company now reviews work orders based on the status of the work order at the start of 2010 to remove potential duplicates of EM labor costs.⁴⁴³

49. OBJECTIVE 2 – *How are the work credits applied to the ledger?*

PG&E’s approach to resolving disputes between PG&E and municipalities regarding Rule 20A projects is ad hoc.⁴⁴⁴ Per PG&E, it resolves these disputes on a “case-by-case basis” and begins

⁴³³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-101.

⁴³⁴ Id.

⁴³⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-105.

⁴³⁶ Id.

⁴³⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-006-004.

⁴³⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-105.

⁴³⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-106.

⁴⁴⁰ Id.

⁴⁴¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-105.

⁴⁴² Id.

⁴⁴³ Id.

⁴⁴⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-107.

the process by first identifying the subject of the dispute,⁴⁴⁵ with communication taking the form of email, phone, in-person meetings or a combination.⁴⁴⁶ PG&E may engage subject matter experts and conduct site visits, and,⁴⁴⁷ if necessary, ask the Commission to assist in resolving the dispute.⁴⁴⁸ This finding and related recommendation are further discussed in the Allocations discussion of this report (see *Allocations* section, Finding No. 28 “PG&E’s process for communication with Rule 20A communities outside the annual letter notification is not currently documented or standardized,” and Recommendation No. 20, “The annual letters should contain sufficient detail, i.e., the formula, the total WCA authorized for that year, and PG&E’s calculation in native format,” and Recommendation No. 21, “We recommend that PG&E establish formal, written policies and procedures to resolve discrepancies of work credit allocation balances and to standardize and maintain written, formal documentation of PG&E-local agency correspondence and resolution regarding WCAs issues”).

50. OBJECTIVE 2 – *How are the work credits applied to the ledger?*

PG&E’s process for administering deductions of work credits for completed projects is not clearly defined.⁴⁴⁹ Although PG&E stated that work credit deductions require “oversight” by the Rule 20A Program Manager, ownership as to the accuracy of work credit deductions applied to the credit ledger is vague because there is no formal review conducted of the work credits PG&E deducts for completed projects.⁴⁵⁰ In addition, PG&E does not proactively provide a statement to the community for the deductions.⁴⁵¹

III.2.d.4 Recommendations

31. OBJECTIVE 1 – *What is the process when a project is completed?*

Local agency approval should be a requirement for a Rule 20A project to be deemed complete. When AzP asked PG&E in discovery whether approval of the relevant locality was a requirement for a Rule 20A project to be deemed complete, PG&E provided a narrative response with several qualifying statements of how in “some instances” approval “may” be required, as well as a reference to another narrative discovery response that mentioned nothing about local agency approval.⁴⁵² While PG&E did not make an explicit statement, the implication from its response is that approval of localities is not always a requirement to deem a Rule 20A project complete. Given the impacts of a Rule 20A project being deemed complete, namely, the deduction of a locality’s work credits, formal approval of the local agency should be required prior to PG&E deems a Rule 20A project complete. AzP recommends that PG&E obtain and retain standard, formal

⁴⁴⁵ Id.

⁴⁴⁶ Id.

⁴⁴⁷ Id.

⁴⁴⁸ Id.

⁴⁴⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-106.

⁴⁵⁰ Id.

⁴⁵¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-006-004.

⁴⁵² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-101 and AzP-001-102.

confirmation from the local agency impacted, in order to document satisfactory completion of Rule 20A projects as well as mutual understanding and agreement regarding the WCAs to be deducted.

Documenting this basic level of understanding regarding the status of the undergrounding project and impact on WCAs would help ensure both PG&E and the locality are aware of, and in agreement regarding, whether the project has been completed. This is especially beneficial in undergrounding projects since, as discussed in Finding 45 above, the completion of a Rule 20A project does not necessarily include the removal of all poles. Rather, in some cases, the poles are “topped” down to the height of telecommunications facilities, and the telecommunications companies are responsible for removing their equipment at their expense.⁴⁵³ As such, formal approval of the relevant localities would ensure PG&E is able to proactively address any confusion that a locality may have with regard to why poles remain in an area in which an undergrounding project has been “completed.”

32. OBJECTIVE 1 – *What is the process when a project is completed?*

PG&E-owned pole removal should be a requirement for a Rule 20A project to be deemed complete. As noted in Finding 46 above, PG&E has stated in discovery that the removal of the pole subsequent to a Rule 20A conversion varies based on ownership, but that “[removal of] the pole and the timing of the removal does not affect when the electric conversion project is deemed or designated complete.”⁴⁵⁴ When AzP requested PG&E to explain possible pole ownership scenarios, PG&E provided the following six circumstances.⁴⁵⁵

- PG&E solely owns utility pole (no rental to other users).
- PG&E solely owns utility pole and rents the pole to other user/tenants (e.g., telecom company).
- PG&E and another entity (e.g., telecom company) jointly own utility pole (no rental to other parties).
- PG&E and another entity (e.g., telecom company) jointly own utility pole and one or both of the parties rents the utility pole to a tenant(s).
- A telecom company solely owns a pole.
- A telecom company solely owns a pole and rents space to a tenant(s).

As noted in the possible pole ownership situations listed above, in some instances, PG&E itself is the sole pole owner. In these scenarios it would be a reasonable expectation of the localities that PG&E remove its poles prior to designating a Rule 20A project complete.

AzP recommends that pole removal be required to mark a project as complete in all instances in which PG&E is the pole owner, including the instances in which PG&E rents the pole to other

⁴⁵³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-101

⁴⁵⁴ Id.

⁴⁵⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-002-044

users. This will incentivize PG&E to not only remove its own equipment in a timely manner, but also to proactively (and as aggressively as reasonably possible) encourage its pole tenants to remove any existing equipment from the poles to allow for full removal of the poles.

33. OBJECTIVE 2 – *How are the work credits applied to the ledger?*

PG&E should implement a policy to formally review deductions of work credits for completed projects to improve accountability in the accuracy of the work credit ledger. Just as PG&E states that its protocol includes review and authorization for the cost and project packages prepared for Rule 20A, we recommend that the Company also conduct a review on the completed package to determine applicability, accuracy, and reasonableness of costs proposed to be deducted from the community's WCA balance. We recommend that PG&E implement this process by a formal review by designating and documenting applicable authorization levels in SAP and that the Company establish a process in which the amount of work credits is validated by authorized, designated individuals and documented in PG&E's system, documentation of which remains available for future retrieval.

34. OBJECTIVE 2 – *How are the work credits applied to the ledger?*

Consistent with AzP Recommendation No. 23 in the *Allocations* section of this report, PG&E should provide localities with a detailed breakdown of final project costs upon completion of a project. As noted in Finding 46 above, PG&E only provides localities details of project costs *upon request* once the Rule 20A conversion has been completed. To increase transparency of the program, AzP recommends that PG&E develop a standard practice of providing detailed statements containing final project costs and cost components to the localities upon completion of the project (by default, not upon request), along with a reconciliation to the locality's pre- and post-project work credit balance (see also, *Allocations* section, AzP Recommendation No. 8, "We recommend that PG&E provide each agency a complete detailed invoice accounting for all the costs associated with any projects for which the city or county's WCA balance is deducted at project conclusion and in conjunction with the annual letter in the form of year-end activity summary."). This will provide the locality with enhanced information regarding the level and nature of costs that were incurred on the project and being deducted from the community's WCA balance. Additionally, the reconciliation of the final project costs to the WCAs deducted will provide an additional check of the accuracy of these figures and an audit/documentation trail to improve accounting, controls, document retention, and standardization of practices pertaining to PG&E's accounting of the Rule 20A program activity.

35. OBJECTIVE 2 – *How are the work credits applied to the ledger?*

AzP recommends that the Commission consider the appropriateness of PG&E's cost allocation methodology within the Rule 20A Order Instituting Rulemaking (OIR) proceeding and in the context of the Company's GRC, with particular attention to the impact of the Company's change

in accounting related to EM labor costs as they pertain to Rule 20A cost allocations. All else equal, from an accounting perspective, it is best practice to direct-charge costs to the extent possible and feasible (i.e., not resource prohibitive or misleading); this practice leads to more accurate cost accounting and allows for greater transparency regarding cost drivers. As noted in AzP's Finding No. 48 above, PG&E revised its cost allocation methodology during the audit period with potential unknown impacts to the accuracy or appropriateness of this change and its potential impact on the Company's cost accounting in general and effect on Rule 20A cost in particular. While a cost allocation review is outside the scope of AzP's audit, we recommend that the Commission consider PG&E's cost allocation procedures and the reasons and impact of the Company's accounting changes in this context. In particular, this examination should seek to assess whether and the extent to which this change has caused or allowed PG&E to potentially overstate spending on the Rule 20A program.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

III.3 TASK 3: ASSESS PROGRESS IN IMPLEMENTING STEPS PG&E HAS TAKEN TO INCREASE ITS CAPABILITY TO PERFORM RULE 20A CONVERSIONS

III.3.a.1 Introduction and Background

In the Commission's 2017 decision in PG&E's GRC, in which the CPUC ordered this audit,⁴⁵⁶ the Commission noted many concerns with PG&E's management of the Rule 20A program. Nevertheless, the Commission concluded its review of the PG&E Rule 20A program by stating that there was "reason to remain optimistic"⁴⁵⁷ about the future of the program due, in part, to the "steps PG&E has taken to increase its capability to perform Rule 20A conversions."⁴⁵⁸ The steps the Commission referred to in that decision were based on Exhibit PG&E-23 of the GRC in which PG&E noted five specific initiatives that it asserted represented actions the Company had taken to increase its capability to perform Rule 20A conversions.⁴⁵⁹ In discovery, PG&E stated that these process initiatives were implemented due to situations that arose concerning the following PG&E's relationship with communities, confusion over responsibilities of involved parties (such as phone and cable companies), and PG&E's estimating and construction resource limitations.⁴⁶⁰

The steps PG&E stated it has taken to increase its capability to perform Rule 20A conversions in that proceeding and in discovery in the current proceeding are listed in Figure III.3.1 on the following page in chronological order by date of initiation.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

⁴⁵⁶ D.17-05-013, p. 244

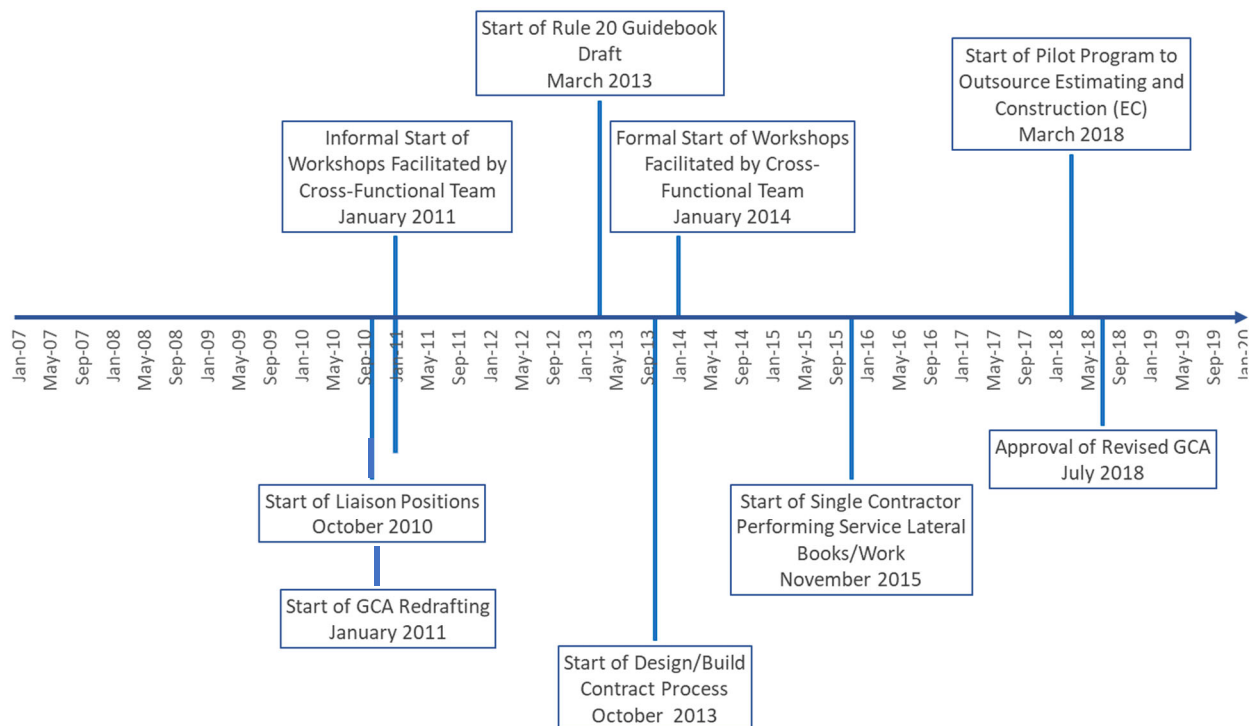
⁴⁵⁷ D.17-05-013, p. 78

⁴⁵⁸ Id.

⁴⁵⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Exhibit PG&E-23, p. 18-5

⁴⁶⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109

Figure III.3.1: PG&E Rule 20A Initiative Implementation Timeline



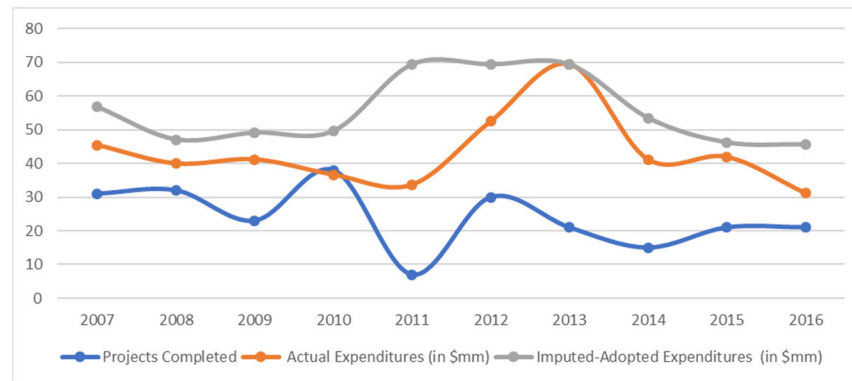
Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109, AzP-005-024, AzP-005-025, AzP-005-035; dates PG&E provided within the responses noted conflicted in several instances; in the figure above AzP has listed the earliest date of implementation stated by PG&E for each initiative in responses to discovery.

As noted in the *Findings* section below, while PG&E asserts that these measures have increased the ability of PG&E to carry out Rule 20A projects,⁴⁶¹ PG&E was unable to support this assertion as the Company did not rely on data to make this assertion, but rather its assertion was based on the subjective opinions of its personnel.⁴⁶² Since PG&E did not track or maintain data to assess the impact of these measures, AzP sought to assess the Rule 20A program's performance over the audit period in terms of its annual performance of two metrics so as to examine whether quantitative changes were observed in relation to the timing of PG&E's implementation of its Rule 20A initiatives and to assess the potential impact of the initiatives on PG&E's performance of Rule 20A conversions. The two metrics AzP examined in this context are: (1) completed Rule 20A projects, and (2) actual expenditures relative to imputed-adopted expenditures. Figure III.3.2, illustrates the levels of these two metrics over the audit period.

⁴⁶¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-108

⁴⁶² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035 subparts A, B, C, Q, R, and X.

Figure III.3.2: PG&E Rule 20A Metrics for Years 2007 through 2016: Projects Completed, Actual Expenditures, and Imputed-Adopted Expenditures



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1 and AzP-001-020, Att.1.

AzP examined the number of Rule 20A projects completed within the audit period by PG&E before and after the Company’s implementation of the steps PG&E has taken for increasing its ability to perform Rule 20A conversions. The examination of the first metric—the number of Rule 20A projects completed annually—was intended to assess whether notable changes were observed in the number of projects completed subsequent to implementation. As discussed in detail in the *Spending* section of this report, PG&E’s actual expenditures on the Rule 20A program have historically been substantially less than the amounts embedded in rates. Thus the examination of the second metric—the consistency of the level of spending with imputed-adopted amounts—was intended to assess whether PG&E appeared to be utilizing the new measures to ensure its spending better aligned with that which has been approved for recovery in customer rates for the completion of Rule 20A projects. In six of the ten years under audit, PG&E indicated that resource constraints impacted its actual funding of the Rule 20A program as the Company diverted funds to other endeavors.⁴⁶³ As such, actual Rule 20A expenditures that more accurately track imputed-adopted expenditures are one of the fundamental metrics that AzP considered, and believes should be considered,⁴⁶⁴ to assess the Company’s capability to effectively perform Rule 20A conversions.

⁴⁶³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-020, Att. 1, Rev 01, “Variance Explanation” for years 2007 through 2012 PG&E indicates prioritizing other activities over Rule 20A conversions, signaling a limitation on resources necessary for completing Rule 20A projects.

⁴⁶⁴ While PG&E is now mandated to track Rule 20A spending in a balancing account, reasonableness of the amounts proposed for and adopted for collection in rates is still a relevant consideration given that the charges PG&E may potentially over-collect in the future and has over-collected in the past are not anticipated to be refunded to ratepayers under the current regulatory structure. Thus, underspending, i.e. overcollection, represents a financial detriment to ratepayers. As PG&E acknowledges, “...even balancing accounts typically do not mandate or require a particular level of spending, but instead require that in future rate cases or periods, any over-collection of the revenue requirement associated with the particular program or activity during a prior period be “trued-up” and credited against future forecast costs of the program or activity in the next rate case.” (Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, ED-001-01). As future forecasts are at the discretion and developed under the judgement of PG&E, the best measure for level of reasonableness of the charges imbedded in rates is the actual data, since overcollection represents an interest-free loan from ratepayers to the utility until (if ever) “trued-up.”

As noted in AzP's below, PG&E has not tracked and maintained adequate performance data to assess the impact of the steps the Company purports have led to improvements. Also as discussed in the following paragraphs, when related data was available, it often did not support the assertion that PG&E's changes have significantly improved the performance of the Company's Rule 20A program.

III.3.a.2 Audit Objectives

Per Commission Decision 18-03-022, the objectives for this area of the audit—*Assessment of PG&E's Progress in Implementing Steps to Increase Capability to Perform Rule 20A Conversions*—are to assess the effectiveness of the five process improvement measures noted by PG&E in Exhibit PG&E-23 of its 2017 GRC as follows.^{465,466}

- 1) Instituting a single contract to increase project efficiency with civil design and construction phases
- 2) Establishing a cross-functional team to increase program understanding and share lessons learned to mitigate potential future risk
- 3) Dedicating four full time employees to focus on customer requirements
- 4) Establishing a single contractor to develop the service lateral books and perform service lateral work thereby increasing project efficiencies
- 5) Revising PG&E's General Conditions Agreement to facilitate the abilities of governmental agencies to get projects into the queue

As well as:

- 6) Assessment of other provisions (in addition to those listed above) to assist governmental entities in the form of programs, staff support, and/or information available to municipalities undertaking underground conversion projects, especially to those who are struggling to complete projects.

III.3.a.3 Findings

51. OBJECTIVE 1 – *Assess the effectiveness of Instituting a single contract to increase project efficiency with civil design and construction phases.*

PG&E stated in discovery that the Company began utilizing a single contract for both civil design and construction (design/build contracts) to address PG&E internal resource constraints.⁴⁶⁷ While PG&E asserted this change improved PG&E's ability to conduct Rule 20A projects, the Company was unable to provide evidence to substantiate this claim and has indicated that internal resource constraints for civil design have not been eliminated.⁴⁶⁸ PG&E stated it began to implement a single contract design/build process in 2013.⁴⁶⁹ With this change, PG&E decided

⁴⁶⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Exhibit PG&E-23, p. 18-5

⁴⁶⁶ *Final Scope and Objectives* for this audit were ordered in (D.) 18-03-022, Attachment A

⁴⁶⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-108

⁴⁶⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-35 subpart (g)

⁴⁶⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109

to utilize contractors for civil design and construction work because PG&E's internal estimating group "did not have the resources to produce civil design work."⁴⁷⁰

When asked how this change impacted project schedule and project cost, PG&E stated that it, "Decreased the magnitude and frequency of change orders by construction contractor. Decreased the number of contracts executed. Addressed internal resource constraints for civil design which was limiting throughput."^{471,472} However, when asked to substantiate this claim by providing support for the alleged improvements, PG&E provided no quantitative support. Instead, PG&E stated that its response was "qualitative" and "based on the knowledge and experience of the Rule 20A program management team, the program liaisons and project managers."⁴⁷³ The degree to which PG&E actually utilized outside contractors for civil design and construction work is also unclear, particularly since PG&E noted that it does not outsource this function entirely, but instead, seeks to use this approach to "mitigate the internal resource constraints"⁴⁷⁴ and "mitigate for fluctuations in [internal resources] work load."⁴⁷⁵ Also, as noted earlier, PG&E was unable to provide data to demonstrate the extent, if any, PG&E's institution of a single contract for civil design and construction phases for Rule 20A projects may have led to an increased capacity for PG&E to perform Rule 20A conversions.

As noted in Figure III.3.2, if there has been an improvement from this change during the audit period, it was not evident when viewed on the basis of completed projects, as in the first full year that this change was implemented (2014), the number of Rule 20A projects PG&E completed *declined* rather than increased relative to the previous year. Additionally, the difference between the actual expenditures of the program and the imputed expenditures widened substantially from 2013 to 2014—illustrating a larger difference between the imputed-adopted expenditure amounts embedded in rates and the amounts actually spent by PG&E for completion of Rule 20A conversions.

PG&E has continued to cite internal estimating resource constraints as the primary explanation for project delays attributable to PG&E, even after the date in which PG&E asserts that this change was implemented.⁴⁷⁶ This suggests that PG&E's institution of utilizing a single contract process is either ineffective for addressing internal estimating resource shortages at PG&E or, at a minimum, is under-utilized.

Figure III.3.3 below is a partial reproduction of AzP Exhibit L. Figure III.3.3 lists five projects that had resolution dates after October 2013, when PG&E asserts that it initiated the civil design and

⁴⁷⁰ Id.

⁴⁷¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-108

⁴⁷² PG&E clarified in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart (a) that PG&E used the term "magnitude" to refer to the dollar amount of change orders, which was a qualitative rather than a quantitative assessment.

⁴⁷³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart B

⁴⁷⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart H

⁴⁷⁵ Id.

⁴⁷⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1

construction single contract process change. In all these projects, PG&E still stated its own internal estimating resources as one of (or, in some cases, the only) reason for the delay.

Figure III.3.3: Rule 20A Projects Delayed Due to PG&E Estimating Resource Issues During and After October 2013

Sponsor	Order	Description	Resolution Date	Specific Cause/Reason for Delay
LINCOLN	74015721	CIVIC CENTER PLAZA LINCOLN R20A	26-Sep-17	<u>PG&E resource issues</u> with Project Management and <u>Estimating</u> .
MILPITAS	74010862	SOUTH MAIN ST MILPITAS R20A	3-Jan-17	<u>PG&E Estimating resource issue</u> .
MOUNTAIN VIEW	31081035	R7 EP CALIFORNIA ST MOUNTAIN VIEW R20A	10-Dec-13	<u>PG&E Estimating resource issue</u> . Some delay due to City not providing base map on time, and unresponsiveness regarding potential scope change.
SANTA CLARA COUNTY	31330811	MONTAGUE EXPWY MILPITAS R20A	6-Dec-16	<u>PG&E Estimating resource issue</u> due to fire restoration.
SANTA CLARA COUNTY	35029458	LINCOLN PARK LOS ALTOS R20A	14-Feb-17	City base map delay; <u>PG&E Estimating resource issue</u> .

Source: Excerpt of AzP Exhibit L. Source data obtained from GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att.1

Emphasis added by AzP for ease of reference in “Specific Cause/Reason for Delay” column

52. OBJECTIVE 2 – *Assess the effectiveness of establishing a cross-functional team to increase program understanding and share lessons learned to mitigate potential future risk.*

Workshops conducted by PG&E “cross-functional” teams formally began in 2014.⁴⁷⁷ The workshops, while informative, have irregular schedules and subject matters—occurring multiple times some years, only once others. Additionally, while PG&E classified these workshops in one discovery response as “training,”⁴⁷⁸ and has stated that they were intended to establish a “cross-functional team” PG&E noted in a separate discovery response that these workshops are not used to cross-train individuals in different functions.⁴⁷⁹ Both the timing and the subject matter of PG&E’s workshops stated to address this step are irregular. PG&E began to formally use a cross functional team in 2014, but states the Company started workshops as early as 2011 for purposes of cross-training teams for Rule 20A.⁴⁸⁰ PG&E continued to conduct workshops through 2018—conducted twice in 2015 (June and December), twice in 2016 (July and October), and once in both 2017 (in November) and in 2018 (in September).⁴⁸¹ The first workshop conducted in June 2015, covered a variety of subjects, including graphical depictions and diagrams of street lights,⁴⁸² whereas the most recent workshop materials made available from September 2018 were focused almost exclusively on informing personnel of updates on the GCA.⁴⁸³ As noted by PG&E in the discovery response summarized in Figure III.3.4 below, none of the PG&E staff participants at these workshops were cross-trained in another Rule 20A function; additionally,

⁴⁷⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035 subpart (i); in AzP-001-109 PG&E states June 2015 as the date this initiative started.

⁴⁷⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-002

⁴⁷⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart J

⁴⁸⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109

⁴⁸¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart I

⁴⁸² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart I, Att. 1

⁴⁸³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart I, Att. 6

Technical Analysis

Task 3: Assess progress in implementing steps PG&E has taken to increase its capability to perform Rule 20A conversions

there was no testing or evaluation of the knowledge acquired at these workshops.⁴⁸⁴ As such, the purpose of the workshops appear to be directed toward presenting information to the workshop participants, rather than providing formal training to cross-functionalize personnel.

Figure III.3.4: Rule 20A Workshop Participants and Cross-Training Summary

Rule 20A Staff Member	Job Description Of Individual's Primary Function	Rule 20A Function In Which Individual Is Cross-Trained
Program Manager	Manages Rule 20A Program	Not applicable
Program Analyst	Analyzes data	Not applicable
Project Manager	Manages Rule 20A Projects as well as other types of projects	Not applicable
Program Liaison	Works with communities and readies Rule 20A projects for design phase.	Not applicable
Government Relations Representatives	Works with elected officials	Not applicable
Electric Associate Distribution Engineer/Estimator	Designs/Reviews Rule 20A Electric Design	Not applicable
Gas Associate Distribution Engineer/Estimator	Designs/Reviews Rule 20A Gas Design	Not applicable
Law	Provides legal guidance	Not applicable
Tariffs	Provides information and clarification regarding tariffs	Not applicable

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035 subpart J

53. OBJECTIVE 3 – *Assess the effectiveness of dedicating four full time employees to focus on customer requirements.*

In October 2010, PG&E hired four Rule 20A Liaisons,⁴⁸⁵ each assigned to a different geographic region.⁴⁸⁶ The Liaisons were intended to assist with coordination of various functions in the Rule 20A program, including having contact and/or meeting with each and every active Rule 20A locality on a regular basis.⁴⁸⁷ PG&E Rule 20A Liaisons' correspondence records indicate that Liaisons often mis-characterized details regarding meetings with localities, contacted Rule 20A communities only in the last few days of the calendar year, and/or made contact with localities only through mass email.⁴⁸⁸ When asked in discovery to provide a log of Rule 20A Liaisons' correspondence with localities, PG&E provided correspondence log spreadsheets for the years during the audit period in which Liaisons were active—2010 through 2016.⁴⁸⁹ The template of these logs became more formalized beginning in 2013, in which PG&E added a stated goal to visit all localities within each Liaison's region. While most Liaisons noted in their log sheets that they had met this goal and visited each (i.e., 100%) of the localities within their region, their

⁴⁸⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-002

⁴⁸⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109

⁴⁸⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-067

⁴⁸⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-108

⁴⁸⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-036

⁴⁸⁹ Id.

correspondence records indicated otherwise. For instance, in the most recent correspondence log provided by PG&E (for 2016), one Liaison classified several visits with localities as being “Face-to-Face” meetings, even though the Liaison’s meeting notes indicated that the correspondence was actually through email (“12:28: Emailed [locality contact]).”⁴⁹⁰ Additionally, the same Liaison would note there had been “Face-to-Face” meetings with a locality even on dates when the Liaison had not actually met with anyone from the locality.⁴⁹¹ For example, this Liaison noted a “Face-to-Face” field visit was conducted at County of Lake on July 28, 2016, but the notes of the meeting state, “7/28/16: Stopped by City Hall - staff unavailable.”

Another Liaison classified localities as having been “Visited” even when the only communication was a mass email.⁴⁹² In 2013, one of the Liaisons had no correspondence with 16 of the 74 localities (21.6%) in the Liaison’s region until sending an email to them on December 30th.⁴⁹³ This Liaison’s correspondence also marked five of these 16 localities as being contacted by email, even though no contact email was listed for these localities, indicating that, at a minimum, PG&E’s contact list was not updated, and calling into question whether these localities had been contacted at all.⁴⁹⁴ Another Liaison who was assigned as the designated Liaison of 47 localities had a 2013 correspondence log that was completely blank.⁴⁹⁵ These issues indicate lack of proper oversight and accountability from Liaisons, particularly with respect to correspondence with localities. These oversight issues are particularly concerning given the critical role Liaisons play in the Rule 20A program, including developing cost estimates that are utilized to assess project eligibility for a locality. AzP provides a recommendation to address this issue in AzP Recommendation 38 below.

- 54. Responses from PG&E Rule 20A communities to AzP’s questions regarding the impact of Liaisons on the effectiveness of PG&E’s Rule 20A program indicate improvements are necessary for achieving the intended improvements.** In addition to the document review noted above, AzP also surveyed local agencies regarding their experience with the PG&E Rule 20A Liaisons. When asked whether a “Rule 20A Project Liaison communicate[s] with [the agency] at least once annually to review the Rule 20A program, review [the] agency’s current Rule 20A allocation, and discuss upcoming projects,” approximately 30 percent of respondents stated “no.”⁴⁹⁶ When asked if the survey participants believed “the implementation of Rule 20A Project Liaisons (which

⁴⁹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-036, Att. 5, for example, see “Lizette” tab, Correspondence Log: 12/28/2016, City of Anderson.

⁴⁹¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-036, Att. 5, for example, see “Lizette” tab, Correspondence Log: 07/28/2016, County of Lake

⁴⁹² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-036, Att. 5, for example, see “Keith” tab, Correspondence Log: “Mass email 5-2-16 & 5-19-16 GC rev”, Sierra County

⁴⁹³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-036, Att. 2, for example, see “Keith” tab, Correspondence Log: 12/30/2013, Colfax

⁴⁹⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-036, Att. 2, for example, see “Keith” tab, Correspondence Log: 12/30/2013, Colfax

⁴⁹⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-036, Att. 2, for example, see “Sidney” tab

⁴⁹⁶ Calculated as 15 out of 52 respondents, including City of Daly City, City of Campbell, City of Hanford, City of Foster City, City of Riverbank, County of Placer, El Dorado County Sheriff’s Office, City of San Luis Obispo, County of Kings, City of Clovis, Kings County Fire Department, Lodi Electric Utility, City of Richmond, City of Concord, City of Redding, Electric.

occurred in October 2010) has made a noticeable impact on the Rule 20A Program's effectiveness," 50 percent answered "no".⁴⁹⁷

55. **PG&E's failure to consider and quantify the costs and tangible, attributable benefits of the Liaisons, as well as other supposed capacity-improving measures, further demonstrate a skewed perception, misleading portrayal, and lack of transparency of the net benefits of the steps implemented to increase PG&E's capacity to perform Rule 20A conversions.** In addition to PG&E Rule 20A Liaisons' performance, AzP also believes the cost related to the Liaisons is a relevant consideration for the Commission. PG&E stated that the Liaison positions increased headcount and total overhead but when asked to provide the costs of the steps PG&E implemented to increase its Rule 20A conversion capability, PG&E stated that it believed "the process improvement measures were no-cost or low-cost."⁴⁹⁸ PG&E did not quantify the costs of the Rule 20A Liaisons in discovery responses. However salary data obtained from a workers' union website lists a Rule 20A Liaison's hourly compensation range for the years 2016 through 2019 from a minimum of \$47.15 (\$98,072 per year) to a maximum of \$64.80 (\$134,784 per year).^{499,500} While the Liaisons appear to be represented by *Engineers and Scientists of California*, according to responses to discovery, Liaisons have no formal training or education in electric design or electric engineering.^{501,502} When the compensation of all four Liaisons are taken into account, the amount would range from approximately \$400,000 to \$539,000 per year. While AzP generally supports enhancements to PG&E's focus on customer requirements, PG&E's data and supporting documents regarding the conduct and impact of its Rule 20A Liaisons are not sufficient to support that the addition has enhanced the Company's focus on customer requirements sufficiently to justify their costs.

56. **OBJECTIVE 4 – Assess the effectiveness of establishing a single contractor to develop the service lateral books and perform service lateral work intended to increase project efficiencies.**

Data provided by PG&E regarding its initiative to begin utilizing a single contractor to develop the service lateral books and perform service lateral work indicates that this change may have led to project efficiencies; however, the sparseness of the data, as well as anomalies in the data itself, call into question its reliability. Service lateral books are pre-engineering investigation reports which Liaisons order in the initial planning phase of Rule 20A projects and provide to

⁴⁹⁷ Source: Responses to AzP's Rule 20A questionnaire provided to local agencies in May 2019.

⁴⁹⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-111

⁴⁹⁹ Standard of Wage and Salary Ranges on 40-hour Workweek Basis and Codes, and Beginning Classifications, January 1, 2016 Pacific Gas and Electric Company Represented by Engineers and Scientists of California, Local 20 IFTPE, AFL-CIO & CLC, Obtained from: <https://www.ifpte20.org/wp-content/uploads/2016/10/ESC-Local-20-PGE-Exhibit-A-Wages-2016-2019.pdf>

⁵⁰⁰ Annual calculations assume 2,080 hours paid time per year (52 weeks * 40 hours / week = 2080 hours).

⁵⁰¹ Standard of Wage and Salary Ranges on 40-hour Workweek Basis and Codes, and Beginning Classifications, January 1, 2016 Pacific Gas and Electric Company Represented by Engineers and Scientists of California, Local 20 IFTPE, AFL-CIO & CLC, Obtained from: <https://www.ifpte20.org/wp-content/uploads/2016/10/ESC-Local-20-PGE-Exhibit-A-Wages-2016-2019.pdf>

⁵⁰² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-007

estimators and Rule 20A project managers.^{503,504} PG&E began utilizing service lateral books in the latter part of 2012.⁵⁰⁵ In November 2015 PG&E began utilizing a single contractor to develop the service lateral books and perform service lateral construction work.⁵⁰⁶

When asked about the benefits of the service lateral single contractor initiative, PG&E stated that utilizing a single contractor has, “Increased project efficiency by having the same vendor who develops the conversion plans to conduct the work. Decreased the number of change orders. Decreased number of contracts required by project.”⁵⁰⁷ However, when asked to provide specific details regarding whether, and the extent to which, there has been an actual reduction in the time it takes to perform service lateral construction work, PG&E stated that it, “does not track the time to complete service lateral work.”⁵⁰⁸ PG&E provided two samples related to the time it has taken to prepare service lateral books, one consisting of projects prior to the establishment of a single contractor for the service lateral books (comprised of seven projects),⁵⁰⁹ and another sample consisting of projects subsequent to the establishment of a single contractor for the service lateral books (comprised of 43 projects).⁵¹⁰ Based on this information, the time to prepare service lateral books decreased from 57 business days to 41 business days.⁵¹¹ While this reduction in time to prepare service lateral books could be viewed as encouraging, the veracity of the data PG&E provided for developing this analysis is questionable. First, it is unclear on what basis PG&E chose to “sample” the projects, especially given the anomalous nature of some of the projects chosen in the post-initiative group. For example, one of the projects chosen demonstrated that the service book was completed one day from the Contract Work Authorization,⁵¹² while another showed a negative value of 7 days, indicating that the service book work was completed *before* a contract work authorization.⁵¹³ This could be an indication of erroneous dating of PG&E records. Alternatively, it could mean that the contractor in question began its work (and began providing deliverables) prior to the contract work authorization. Either of these alternatives calls into question whether the data is reliable to assess whether the time necessary to develop service lateral books has truly decreased due to the utilization of a single contractor.

⁵⁰³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart I, Att. 2, slide 16

⁵⁰⁴ The Service Books includes such items as a satellite overview of the project with the proposed trench route, service conversion information, where the termination enclosure and other equipment will be located on the building, and the property owner’s signature for consent of trench and equipment locations. GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, ORA-036-Q12

⁵⁰⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart O

⁵⁰⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-10

⁵⁰⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-108

⁵⁰⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart O

⁵⁰⁹ Id.

⁵¹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart P

⁵¹¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subparts P and O

⁵¹² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart P, specifically the Green Valley Rd. project sponsored by El Dorado County

⁵¹³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart P, specifically the Lobo Avenue project sponsored by Merced

57. OBJECTIVE 5 – *Assess the effectiveness of revisions made to PG&E’s General Conditions Agreement intended to facilitate the abilities of governmental agencies to get projects into the queue.*

The extent of PG&E’s role in the initial problems with the GCA and whether, and the extent to which, the recently revised GCA will have a significant impact on Rule 20A program participation by localities is unknown. However, the additional responsibilities directed toward PG&E could increase program efficiency if PG&E directs adequate resources to these areas. In PG&E’s filed testimony in May 2016, the Company noted revisions to the GCA as a “step” PG&E had “taken.”⁵¹⁴ However, due in part to protests by some localities, and subsequent revisions to the GCA ordered by the Commission, the GCA was not accepted by the CPUC in its current form until July 2018, over two years after the referenced testimony was filed.^{515,516, 517} AzP requested copies of PG&E’s Rule 20A GCA(s) in use prior to the revisions adopted in 2018. PG&E indicated that the revised GCA assigns responsibility of some Rule 20A activities more directly to PG&E, such as the development of base maps (formerly the responsibility of the localities)⁵¹⁸ and the acquisition of easements (now PG&E’s responsibility with assistance from the localities).⁵¹⁹ PG&E had cited the development of base maps, as well as the acquisition of easements, as causes of several Rule 20A project delays, as noted on AzP Exhibit L discussed in Section III.2.c. of this report. As such, shifting greater responsibility for these actions to PG&E should lead to improved efficiencies to the extent the delays were caused by local agencies’ actions (or inactions), since PG&E could potentially utilize more dedicated and specialized resources than the localities have available. However, whether the shifting of these responsibilities enhance or further diminish the performance of the PG&E Rule 20A program depends on how dedicated PG&E is to provide adequate resources to, and adequate oversight to meeting its responsibilities. The data provided by PG&E is not adequate to conclude whether and to what extent this change has led to enhanced performance of Rule 20A project conversions. While AzP acknowledges that the revised GCA was ultimately adopted recently—in 2018, the Company has been touting its revisions to the GCA since 2016⁵²⁰ and governmental bodies have been expressing the need for its revision since inception in 2010.⁵²¹ It would be reasonable to expect PG&E to have resolved issues and made tangible improvements to this issue by this time.

⁵¹⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Exhibit PG&E-23, p. 18-5

⁵¹⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart I, Att. 6, slide 18

⁵¹⁶ The city of San Jose has not signed the Rule 20A GCA due to concerns regarding responsibility for contaminated soil and cultural resources as well as a one-time maintenance charge for special facilities. GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-019

⁵¹⁷ PG&E originally submitted Advice Letter 4948-E on October 31, 2016 and withdrew it due to protests by the City of San Jose. PG&E resubmitted the Advice Letter for approval on October 24, 2017. GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, Att. 6, slide 8.

⁵¹⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart S

⁵¹⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-035, subpart I, Att. 6, slide 18

⁵²⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Exhibit PG&E-23, p. 18-5

⁵²¹ Advice Letter 5166-E dated October 24, 2017, *Background* section explanation by PG&E states, “On December 31, 2010, the Commission approved Advice 3767-E establishing Form 79-1127, which memorializes the roles and responsibilities of both the Applicant and PG&E on Rule 20A projects. Since the inception of Form 79-1127, Governmental Bodies have expressed the need to revise Form 79-1127...”

58. *OBJECTIVE 6 – Assess the effectiveness of other provisions to assist governmental entities in the form of programs, staff support, and/or information available to municipalities undertaking underground conversion projects, especially to those who are struggling to complete projects.*

PG&E has recently instituted a “pilot contracting strategy” intended to improve its ability to perform Rule 20A projects within estimated timeframes. While in one response, PG&E stated that the five-process list above “includes all process improvements identified [by PG&E] through December 2018,”⁵²² in another response, the Company indicated that it also implemented a pilot strategy, in March 2018, in order to outsource estimating and construction functions related to Rule 20A conversions.⁵²³ According to PG&E, communities have been made aware of the outsourcing of the estimating and construction tasks to contractors.⁵²⁴ As noted in Finding 51, according to PG&E, the lack of internal estimating resources directed toward Rule 20A projects have been, and remain, a significant cause of Rule 20A project delays. As such, if applied adequately, this program could help address a major constraint to the Rule 20A program.

PG&E stated that in its pilot contracting strategy, the Company directly awarded two projects each of the two contractors the Company deemed “most experienced” with Rule 20A.⁵²⁵ PG&E stated that it has the right to “refuse construction estimate[s] and put project[s] out to competitive bid” to ensure best price.⁵²⁶ As such, the reasonableness of the construction cost proposals from these contractors will depend in part on whether, and the extent to which, PG&E utilizes a competitive bidding process.⁵²⁷ PG&E stated in discovery that, “without implementing this process, four of the projects currently underway would not be moving forward,” however, it did not provide any corroborating support for this statement, and, stated that “[s]pecific supporting documentation does not exist” for its evaluation of this program.⁵²⁸

59. **PG&E has not complied with the Commission’s order in D.01.12.009 to update its Undergrounding Planning Guide.** On page 25 of the Commission’s order in the *Order Instituting Rulemaking Into Implementation of Assembly Bill 1149, Regarding Underground Electric and Communications Facilities*, the Commission ordered the following, “Pacific Gas & Electric, Pacific Bell, and the League of California Cities are ordered to meet and confer on the drafting (sic) an updated Undergrounding Planning Guide, and report to the Energy Division as to when the update could be available, both in hard copy, and on the CPUC website.”⁵²⁹ When asked in discovery, PG&E stated that this guide has not been updated.⁵³⁰ PG&E provided no justification for why the Company has not updated its Undergrounding Planning Guide in accordance with the Commission’s order except a statement that it had “worked with other investor owned utilities to develop a draft guidebook in March 2013” and that this draft was “never finalized and published

⁵²² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109

⁵²³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-024

⁵²⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-026

⁵²⁵ Id.

⁵²⁶ Id.

⁵²⁷ Id.

⁵²⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-024

⁵²⁹ D. 01-12-009, p. 25

⁵³⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-115

because work started on revising the General Conditions Agreement.”⁵³¹ These reasons appear specious, given that the Commission’s Decision was released nearly 18 years ago, in December 2001. In a March 2019 letter to the Commission, PG&E provided additional history of the drafting of the Undergrounding Planning Guide, stating that according to the Company’s “preliminary research” PG&E had reached out to various parties in 2005 and “engaged in multiple iterations of updating the Rule 20A Guidebook” from the end of 2005 until early 2008.⁵³² However, PG&E stated that this version was never formally approved and that PG&E was not able to determine what happened to the draft of the Rule 20 Guidebook afterwards.⁵³³ AzP believes a reasonable expectation would be that this planning guide would have been completed, or, at a minimum, begun, well before the late 2005 timeframe that PG&E stated it sought to “initiate the update effort.”⁵³⁴ Furthermore, based on PG&E’s own statements, it is now unable to locate a copy of the draft developed from the end of 2005 until early 2008, in which there were “multiple iterations” over the course of more than two years.⁵³⁵ Not maintaining a draft of a document in which it appears a substantial amount of time and effort was expended, represents a lack of basic record retention protocol, and is similar to the issues noted by AzP in Finding 20 and Recommendation 15 of the *Reprioritization* section of this report.

60. OBJECTIVE 1 – *Assess the effectiveness of Instituting a single contract to increase project efficiency with civil design and construction phases.*

OBJECTIVE 2 – *Assess the effectiveness of establishing a cross-functional team to increase program understanding and share lessons learned to mitigate potential future risk.*

OBJECTIVE 3 – *Assess the effectiveness of dedicating four full time employees to focus on customer requirements.*

OBJECTIVE 4 – *Assess the effectiveness of establishing a single contractor to develop the service lateral books and perform service lateral work intended to increase project efficiencies.*

OBJECTIVE 5 – *Assess the effectiveness of revisions made to PG&E’s General Conditions Agreement intended to facilitate the abilities of governmental agencies to get projects into the queue.*

OBJECTIVE 6 – *Assess the effectiveness of other provisions to assist governmental entities in the form of programs, staff support, and/or information available to municipalities undertaking underground conversion projects, especially to those who are struggling to complete projects.*

Since the start of PG&E’s implementation of steps the Company claimed to increase PG&E capacity to perform Rule 20A conversions, the average number of Rule 20A projects PG&E completed has declined and the gap between imputed-adopted versus actual spending in the

⁵³¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109

⁵³² R.17-05-010, PGE’s Response to Administrative Law Judge’s Guidance Ruling Outlining Additional Activities, Dated March 13, 2019

⁵³³ Id.

⁵³⁴ Id.

⁵³⁵ Id.

program has widened. Figure III.3.2 in the *Introduction and Background* section above provided a visual illustration of the trend in number of projects completed as well as the relationship between the estimated amounts collected in rates versus the amounts PG&E has actually incurred in costs for its management of the Rule 20A program during the period under audit. As illustrated in that figure and quantified in additional detail in Figure III.3.5 below, in the years following the steps PG&E initiated to increase Rule 20A conversion capacity, the average number of Rule 20A projects completed each year has *declined* from approximately 31.0 to 19.2 projects per year.

Figure III.3.5: PG&E Rule 20A Projects Completed During Years 2007 through 2016

Year	Prior to Start of Rule 20A Initiatives				After Start of Rule 20A Initiatives					
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Projects Completed	31	32	23	38	7	30	21	15	21	21
Average Annual Projects Completed	31.0				19.2					

Source: Average projects calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1 and AzP-001-020, Att.1.

As illustrated in Figure III.3.2, and quantified in additional detail in Figure III.3.6 below, since PG&E started implementing steps the Company claimed would increase its capability to perform Rule 20A conversions, PG&E's underspend on the program has increased from an average of approximately \$9.8 million underspend per year in years 2007 through 2010 to an average underspend of approximately \$14.0 million per year.

Figure III.3.6: PG&E Rule 20A Actual Expenditures vs. Imputed-Adopted Expenditures During Years 2007 through 2016

Year	Prior to Start of Rule 20A Initiatives				After Start of Rule 20A Initiatives					
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Actual Expenditures (in \$mm)	\$ 45.4	\$ 39.9	\$ 41.1	\$ 36.6	\$ 33.6	\$ 52.4	\$ 69.4	\$ 41.1	\$ 41.9	\$ 31.1
Imputed-Adopted Expenditures (in \$mm)	\$ 56.7	\$ 47.0	\$ 49.1	\$ 49.6	\$ 69.4	\$ 69.4	\$ 69.4	\$ 53.5	\$ 46.2	\$ 45.6
Difference (in \$mm)	\$ 11.34	\$ 7.10	\$ 7.93	\$ 12.97	\$ 35.77	\$ 16.98	\$ 0.02	\$ 12.36	\$ 4.27	\$ 14.43
Average Annual Underspend on Rule 20A Program (in \$mm)	9.8				14.0					

Source: Average figures calculated by AzP based on data provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1 and AzP-001-020, Att.1.

AzP's assessment of these metrics suggest that the steps PG&E claims to have increased its capacity to perform Rule 20A conversions are not consistent with data on the Company's actual performance and are particularly relevant given that PG&E has not collected or analyzed objective quantifiable metrics to demonstrate otherwise.

III.3.a.4 Recommendations

36. **OBJECTIVE 1** – Assess the effectiveness of instituting a single contract to increase project efficiency with civil design and construction phases.

OBJECTIVE 2 – Assess the effectiveness of establishing a cross-functional team to increase program understanding and share lessons learned to mitigate potential future risk.

OBJECTIVE 3 – *Assess the effectiveness of dedicating four full time employees to focus on customer requirements.*

OBJECTIVE 4 – *Assess the effectiveness of establishing a single contractor to develop the service lateral books and perform service lateral work intended to increase project efficiencies.*

OBJECTIVE 5 – *Assess the effectiveness of revisions made to PG&E's General Conditions Agreement intended to facilitate the abilities of governmental agencies to get projects into the queue.*

OBJECTIVE 6 – *Assess the effectiveness of other provisions to assist governmental entities in the form of programs, staff support, and/or information available to municipalities undertaking underground conversion projects, especially to those who are struggling to complete projects.*

PG&E should maintain and review, on an annual basis, the performance of the Rule 20A program relative to established metrics and report the cost and duration, by phase, as well as pre- and post-conversion reliability (SAIDI, SAIFI, CAIDI) of Rule 20A undergrounded power lines internally and in annual reports to the Commission. PG&E asserts that it continually reviews and evaluates its processes.⁵³⁶ However, as noted in the *Findings* section of this report, PG&E lacks quantitative data and a methodical approach to tracking the effectiveness of intended process improvements. PG&E should track, and clearly and accurately account for, quantifiable costs and benefits of implemented measures the Company claims increase its capability to perform Rule 20A conversions. To the extent possible, the Company should document quantitative measures of actual improvements achieved, the time frame over which the improvements were experienced, the specific metric used to account for improvements, and reasons why the improvements noted are believed to be attributed to the specific step taken by the company (as opposed to other factors). PG&E should compile and maintain relevant program performance measures and discuss them at least annually as part of the Rule 20A workshops. We recommend that the performance measures include duration of a project in each phase. This is akin to producing budget variances (i.e., estimated budget versus actual cost) but utilizing project schedules as the factor. PG&E could include timing variance data in reports to allow examination of planned-versus-actual schedules and to report the duration of a project in each phase (Planning, Engineering, Construction, Closing) and to better utilize “lessons learned to mitigate potential future risk.” The delineation of the project duration by phase would be helpful to more effectively isolate the impact of specific initiatives. For example, if an initiative is focused on an element of the planning phase, such as making the development of the base map⁵³⁷ more efficient, the duration of the design phase relative to budget should be evaluated pre- and post-initiative. While this may not necessarily isolate this one particular variable, the enhanced segmentation would allow for the results of the initiative to be more effectively evaluated.

Furthermore, AzP's recommendation to track and report reliability metrics as they relate to pre- and post-conversions is intended to ensure that any enhancements PG&E achieves in timeliness and cost-effectiveness of Rule 20A conversions are achieved in the presence, not at the expense of, effective, reliable infrastructure and to ensure that the focus on timeliness and cost-

⁵³⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-109

⁵³⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-037, Att. 6

effectiveness does not introduce an incentive for potential to compromise quality. As such, AzP recommends that, to the extent technologically feasible, reliability metrics for undergrounding distribution lines are reported as a subcategory in PG&E's reliability metrics.

37. **AzP recommends that PG&E track and discuss at the Rule 20A workshops and in annual reports to the Commission the overall satisfaction of the localities with the program.** As noted in Recommendation 13 in the *Reprioritization* section of this report, a key criterion on which the Rule 20A Program Manager should be evaluated is the satisfaction of the localities in which the Rule 20A project is performed. Addressing feedback, both positive and negative, that localities have provided to PG&E with regard to the Rule 20A program during these workshops would provide the Company the opportunity to “increase program understanding and share lessons learned to mitigate potential future risk” as stated to be an intention of Objective 2 above. To ensure these locality satisfaction results are monitored in a way that ensures the validity of the data, PG&E should develop a protocol for how it is going to conduct these surveys and present it to the Commission. If PG&E's suggested protocol does not include sufficient controls to obtain data and maintain the data, CPUC Staff should consider conducting the surveys itself to help ensure the integrity of the data.
38. **AzP recommends that evaluation of any steps implemented with the intention of increasing capacity to perform Rule 20A conversions, be evaluated, at a minimum, on the basis of the two metrics evaluated by AzP in the introduction of this report and further discussed in Finding 60 above: the number of Rule 20A projects PG&E is willing and able to complete in periods subsequent to any purported enhancements as well as the Company's willingness and ability to spend the funds it collects from customers in rates for the management of the Rule 20A program following those steps.** As noted in the introduction and findings section of this report, PG&E lacks the objective data to demonstrate that it increased its capacity to perform Rule 20A conversions through recent initiatives. Rather, the data on the two key metrics AzP reviewed suggests that PG&E's management of the program successfully has, on average, deteriorated rather than improved following their recent initiatives. Objective and quantifiable results should be a key consideration both internally at PG&E and for the Commission's assessment of the effectiveness of PG&E's efforts to improve the Rule 20A program. In some instances, the individual impact of discrete measures implemented may be difficult to isolate. However, where the Company makes a claim of improvements, *some* objective, quantifiable measure must serve as a basis to support the Company's claim. At a minimum, changes to fundamental metrics related to the management of the Rule 20A program should not be lowering PG&E's capability to complete projects. The metrics proposed here could check the overall reasonableness even if a particular measure's individual impact is not uniquely tracked to the magnitude of movement in these proposed metrics. So while a change in the desired direction does not necessarily prove that a particular effort caused the shift (unless PG&E demonstrates that it reasonably tracked and quantified the impact), all else equal, a shift that demonstrates deterioration in the management of the program refutes PG&E's unproven claims of improvement.

39. OBJECTIVE 3 – *Assess the effectiveness of dedicating four full time employees to focus on customer requirements.*

PG&E should improve oversight of Rule 20A Liaisons to ensure that their incremental value to the Rule 20A program, including the quantity and quality of correspondence with the localities within their region, is adequate to justify their incremental costs. This oversight should include clear communication of explicit “customer requirements” as well as the appropriate evaluation of Liaisons relative to the achievement of those requirements. As noted in Finding 53 above, AzP’s review of PG&E Liaisons’ correspondence records with localities indicates that in several instances Liaisons only communicated with some localities in their region through mass email, in other instances meetings with localities were mis-characterized, and an instance in which a correspondence log was left completely blank for the year. Given that Liaisons now play a critical role in the Rule 20A program, and that a primary component of their position is correspondence with localities, AzP recommends that Liaisons offer each community the opportunity for at least one annual face-to-face meeting to discuss Rule 20A project opportunities within the community, and that, if the locality declines, the Liaison maintain formal written documentation of the locality’s choice to decline. To help ensure face-to-face meetings are productive and relevant for the localities, AzP recommends that the Liaisons perform an analysis of potential conversion projects that meet Rule 20A criteria. Additionally, the Liaisons should determine the cumulative WCA balance and the equivalent cumulative dollars collected in rates from customers in that locality for Rule 20A program conversions. The Liaisons should provide all this information to the locality prior to the meeting. More broadly, to assess whether the intent of implementation of this step is met, PG&E should explicitly state and clearly communicate the “customer requirements” that the Liaisons are to focus on and evaluate Liaisons accordingly. We recommend that PG&E maintain adequate documentation to support actions taken to advance these efforts.

40. OBJECTIVE 5 – *Assess the effectiveness of revisions made to PG&E’s General Conditions Agreement intended to facilitate the abilities of governmental agencies to get projects into the queue.*

We recommend that the Commission dismiss PG&E’s claims of improvements unless the Company is able to present clear and convincing documentation that supports the necessity and positive impact of steps implemented. PG&E’s claims should be viewed with caution given the Company’s historical lack of accountability and transparency, as well as unsubstantiated claims. This includes claims regarding the need for the funds necessary for collection in rates as discussed in the *Spending* section of this report, as well as claims of steps having been implemented to increase capability to perform Rule 20A conversions as discussed in the findings above. Given PG&E’s lack of transparency and accountability in meeting its burden of proof for its claims, we caution against any optimism resulting from PG&E’s promises for future improvements. Rather, we recommend that these changes be viewed, at best, as the Company removing an impetus that was self-created (such as those caused by potentially unreasonable or one-sided terms and conditions in GCAs), until PG&E’s claims of constructive efforts are supported by data.

41. *OBJECTIVE 2 – Assessment of other provisions to assist governmental entities in the form of programs, staff support, and/or information available to municipalities undertaking underground conversion projects, especially to those who are struggling to complete projects.*

To proactively prevent Rule 20A project delays, PG&E should either outsource its estimation function, or ensure that the Company is willing and able to dedicate adequate internal resources to Rule 20A projects. As noted in the *Task 5* section of this report, in almost all Rule 20A project files reviewed, PG&E categorized the resources for Rule 20A projects as “Most Flexible,” indicating that resources of the project could be pulled onto other jobs. This low prioritization of Rule 20A projects was likely a contributing factor to the delays noted in Figure III.3.3 above, where PG&E cited a lack of internal estimating resources as the cause for the delays (i.e., estimating resources were reprioritized to other, non-Rule 20A projects).

PG&E has noted that it recently established a pilot strategy to outsource estimating and construction activities.⁵³⁸ If PG&E were able to demonstrate the Company’s effective utilization of this initiative, it would be a positive sign that PG&E was taking steps to address an area that has historically caused project delays. AzP recommends that correcting this problem area be formalized and for PG&E to commit to the timely outsourcing of the project estimating function on any Rule 20A projects that do not have dedicated internal estimating resources assigned. This would help reduce the frequency and duration of Rule 20A project delays caused by a dearth of PG&E’s internal estimation resources.

42. **PG&E should update its Underground Planning Guide in accordance with Commission Order D.01.12.009.** As noted in the *Findings* section of this report, PG&E has not complied with Commission Decision 01.12.009. Released in December 2001, this Decision ordered PG&E, along with two other parties, to draft an updated Underground Planning Guide and report to the Energy Division with updates. In responses to discovery, PG&E appeared to recognize the value in updating this guide, stating that, if the guide were updated it would improve coordination and increase understanding of the program.⁵³⁹ PG&E further stated that it is “willing to participate in the development of an Underground Planning Guide” and PG&E suggested resuming this process at the end of the current OIR.⁵⁴⁰ Given the delay in the updating of this guide, which was ordered by the Commission nearly two decades ago, AzP recommends that PG&E begin drafting an updated Underground Planning Guide and to coordinate this draft with the other relevant parties immediately, and present the proposed updated Guide to the Commission for review and considerations no later than March 31, 2020. AzP also recommends that PG&E update the Energy Division regarding the progress of this draft on a monthly basis until finalized.

⁵³⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-024

⁵³⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-115

⁵⁴⁰ *Id.*

III.4 TASK 4: ASSESS PG&E PROCESSES TO VERIFY ELIGIBILITY OF RULE 20A PROJECTS

III.4.a.1 Introduction and Background

The public interest eligibility requirements for conversion of overhead to underground electric power lines under Rule 20A are set forth in section A.1. of the Rule 20A tariff, which states that PG&E will replace its existing overhead power lines to underground lines “along public streets and roads, and on public lands and private property across which rights-of-ways satisfactory to PG&E have been obtained by PG&E, provided that”.⁵⁴¹

The governing body of the city or county in which such electric facilities are and will be located has:

a. Determined, after consultation with PG&E and after holding public hearings on the subject, that such undergrounding is in the general public interest for one or more of the following reasons:

- 1) Such undergrounding will avoid or eliminate an unusually heavy concentration of overhead electric facilities;*
- 2) The street or road or right-of-way is extensively used by the general public and carries a heavy volume of pedestrian or vehicular traffic;*
- 3) The street or road or right-of-way adjoins or passes through a civic area or public recreation area or an area of unusual scenic interest to the general public; and*
- 4) The street or road or right-of-way is considered an arterial street or major collector as defined in the Governor’s Office of Planning and Research General Plan Guidelines.*

b. Adopted an ordinance creating an underground district in the area in which both the existing and new facilities are and will be located requiring, among other things, (1) that all existing overhead communication and electric distribution facilities in such district shall be removed, (2) that each property served from such electric overhead facilities shall have installed in accordance with PG&E’s rules for underground service, all electrical facility changes on the premises necessary to receive service from the underground facilities of PG&E as soon as it is available, and (3) authorizing PG&E to discontinue its overhead service.

⁵⁴¹ Id.

c. Acknowledged that wheelchair access is in the public interest and will be considered as a basis for defining the boundaries of projects that otherwise qualify for Rule 20A under the existing criteria set forth in Section A(1)(a) above.

The subsequent section of the tariff, Rule 20A.2., establishes the work credit allocation guidelines as they pertain to PG&E's communities.⁵⁴² The impact of this portion of the tariff was addressed in greater detail under the Task 2 section of this report. Rule 20A tariff section A.3. sets additional eligibility requirements with respect to distance-related considerations, stating that PG&E's conversions under this Program are further contingent on the following:⁵⁴³

The undergrounding extends for a minimum distance of one block or 600 feet, whichever is the lesser.

Upon request of the governing body, PG&E will pay from the existing allocation of that entity for:

The installation of no more than 100 feet of each customer's underground electric service lateral occasioned by the undergrounding.

The conversion of electric service panels to accept underground service, up to \$1,500 per service entrance, excluding permit fees.

The governing body may establish a smaller footage allowance, or may limit the amount of money to be expended on a single customer's electric service, or the total amount to be expended on all electric service installations in a particular project.

III.4.a.2 Audit Objectives

Per Commission Decision 18-03-022, the objectives for this area of the audit are to *Assess PG&E processes to verify eligibility of Rule 20A projects* by determining the following.⁵⁴⁴

- 1) What is the process for governmental agencies to initiate a project?
- 2) What criteria does PG&E use to determine the eligibility of a project?
- 3) How does PG&E ensure tariff requirements are met?
- 4) What factors would make a project not eligible for Rule 20A funds?
- 5) Are there instances that would make an eligible project change to be ineligible for Rule 20A funds?
If so, what is the cause?

⁵⁴² Id.

⁵⁴³ Id.

⁵⁴⁴ *Final Scope and Objectives* for this audit were ordered in (D.) 18-03-022, Attachment A

III.4.a.3 Findings

61. OBJECTIVE 1 – *What is the process for governmental agencies to initiate a project?*

Governmental agencies initiate Rule 20A projects by providing their respective PG&E Rule 20A Liaisons information regarding the boundaries of potential Rule 20A projects.⁵⁴⁵ The general process for initiating a Rule 20A project in PG&E's service territory begins with the interested community informing PG&E of its interest and providing PG&E project boundaries for the request.⁵⁴⁶ Once the PG&E Rule 20A Liaison receives boundary information from a governmental agency, the Liaison reviews the project area against the Rule 20A Tariff criteria to determine the project's eligibility.⁵⁴⁷

62. OBJECTIVE 2 – *What criteria does PG&E use to determine the eligibility of a project?*

PG&E indicated that the Company recognizes the guidance in section A.1.a. of the Rule 20 tariff as the authoritative guidance setting forth eligibility requirements for Rule 20A projects.⁵⁴⁸ PG&E stated in discovery that the regulatory actions of the CPUC's 1967 decision and Resolution E-3767, which added item A.1.a.4 above to the tariff, contain the eligibility requirements for Rule 20A projects under section A.1.a. of the tariff.⁵⁴⁹ However, AzP's assessment of the Rule 20A tariff suggests that eligibility requirements are not limited to the guidance only in section A.1.a., but are also established, and at a minimum, influenced, by the tariff language in subsections A.1. 'b' and 'c', as well as A.2. and A.3., which addresses WCA guidelines and minimum distance requirements for undergrounding projects.⁵⁵⁰ PG&E appears to acknowledge this requirement in other responses to discovery, indicating that in the event that a portion of a Rule 20A project is found ineligible, "the local governmental agency can re-scope the project to remove the portion that is ineligible, providing that the remaining eligible portion still meets the minimum of one block or 600 feet, whichever is the lesser."⁵⁵¹ The Company also acknowledged that while the public interest criteria of section 20A.1.a may be met for a particular project, the project may still be ineligible to proceed under the Program rules due to the insufficient work credits of its respective community.⁵⁵²

63. **PG&E's current protocol for communicating Rule 20A project eligibility to governmental agencies is not standardized.**⁵⁵³ PG&E indicated that once the Company has made an assessment regarding the eligibility of a Rule 20A project, PG&E may notify the governmental agency by email,

⁵⁴⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-119

⁵⁴⁶ Id.

⁵⁴⁷ Id.

⁵⁴⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-116

⁵⁴⁹ Id.

⁵⁵⁰ Electric Rule No. 20 Revised Cal. P.U.C. Sheet No. 30474-E, 41082-E, 41083-E; GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-116

⁵⁵¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-133

⁵⁵² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-134 Supplemental Response 01

⁵⁵³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-119

phone, or in person.⁵⁵⁴ There is not a consistent standard method of communication, and consequently no standard documentation retention protocol exists for this correspondence.

64. **PG&E has no formal dispute resolution protocol in place for resolving conflicts between PG&E and local governmental agencies regarding eligibility of Rule 20A projects.**⁵⁵⁵ PG&E indicated that there is no formal process for dispute resolution related to the eligibility of Rule 20A projects.⁵⁵⁶ The Company's approach to addressing disputes for Rule 20A project eligibility is the same as any other potential Rule 20A dispute, wherein the Company first identifies the nature of the dispute.⁵⁵⁷ Next, PG&E contacts the governmental agency by email, phone, in person, or a combination of these contact methods.⁵⁵⁸ Depending on the nature and level of dispute, input from subject matter experts and the guidance of the CPUC may be relied upon to help resolve the dispute.⁵⁵⁹ PG&E further explains that the Company addresses conflicts and disputes "on a case-by-case basis" and does not require or utilize any standard approval, forms, or records to document its procedures in this regard.⁵⁶⁰

65. **OBJECTIVE 3 – How does PG&E ensure tariff requirements are met?**

PG&E's assessment of project eligibility may include field visits, reliance on Geographic Information System ("GIS") mapping, and utilization of the California Department of Transportation California Road System maps ("CRS").⁵⁶¹ PG&E has stated that the Company relies on the authoritative guidance set forth in the Rule 20A tariff when assessing the eligibility of Rule 20A projects.⁵⁶² In making this assessment, the Company utilizes resources and tools such as GIS mapping and CRS maps.⁵⁶³

66. **PG&E indicates that the Company ensures compliance with the Rule 20A tariff project eligibility requirements through three specific reviews during a project's lifecycle, as well as reviews through all internal funding gates,**⁵⁶⁴ **however these were not always substantiated through documentation.** PG&E's first internal review for compliance with Rule 20A tariff requirements occurs early in the project life cycle as the PG&E Liaison assists the governmental agency with development of the agency's underground district—in the planning phase of the project.⁵⁶⁵ The second internal review is performed by the Rule 20A Project Manager when signing the GCA for the project.⁵⁶⁶ A third review is performed during the creation of PG&E's internal notification

⁵⁵⁴ Id.

⁵⁵⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-120

⁵⁵⁶ Id.

⁵⁵⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-120 and AzP-001-107

⁵⁵⁸ Id.

⁵⁵⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-120 and AzP-001-107, and AzP-002-028

⁵⁶⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-122

⁵⁶¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-119

⁵⁶² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-116 and AzP-001-119

⁵⁶³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-119

⁵⁶⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-121

⁵⁶⁵ Id.

⁵⁶⁶ Id.

document as a project is handed off from PG&E's Rule 20A Liaison to the Project Manager.⁵⁶⁷ PG&E states that the Company also reviews eligibility requirements for compliance with the tariff at the Advanced Authorization (AA) and the Business Case Authorization (BCA) stages—PG&E's Rule 20A "internal funding gates."⁵⁶⁸ AzP reviewed BCAs for each year under audit for PG&E Rule 20A projects, noting that while some elements relating to eligibility were notable on the form, explicit and clear designations regarding each eligibility consideration should be more clearly documented. This is the subject of AzP Recommendation 44 below.⁵⁶⁹

67. **In 2015, PG&E identified several projects that had been erroneously qualified prior to October 2010 (the start of the Liaison positions).**⁵⁷⁰ While PG&E believes that the eligibility requirements set forth in the Rule 20A tariff are clear, the Company also admits that some of the projects PG&E qualified for the Rule 20A program in the past should have been deemed partially or wholly ineligible.⁵⁷¹ It is unclear why the eligibility issues with these projects were not identified early in PG&E's review processes or why the Company now believes those projects should have been ineligible for conversions under this program. PG&E believes that the changes made by its Rule 20A Liaison now fully mitigates the potential for such errors in current and future evaluations of project eligibility.⁵⁷² When asked to provide "a list of all Rule 20A projects submitted for approval and deemed eligible for Rule 20A ... during the period 2007 to 2016 inclusive, that were later determined to be ineligible for Rule 20A funds, for any reason," PG&E failed to account for the projects identified in its 2015 eligibility review process, stating in response, that "[t]here are no projects (sic) where a project was deemed eligible for Rule 20A and then later determined ineligible."⁵⁷³ PG&E's initial erroneous eligibility designations and the inconsistencies in these responses appear to signal problems with the design and/or operating effectiveness of controls necessary for compliance with Rule 20A tariff requirements.

68. **PG&E stated that Rule 20A program Liaisons receive training on tariff eligibility requirements but did not provide specific descriptions of the process or the training materials requested.**⁵⁷⁴ PG&E's Rule 20A Liaisons are the primary conduits between the Company and the governmental agencies seeking to complete overhead conversion projects under Rule 20A. Also, as noted in Finding 61 above, Liaisons are charged with the responsibility of assessing and communicating the eligibility of Rule 20A projects with the governmental agencies.⁵⁷⁵ In response to discovery, when AzP asked the Company about its documentation and communication of Rule 20A eligibility requirements, PG&E stated that Liaisons "have received training regarding the Rule 20A tariff eligibility requirements", but referenced another discovery response that did not address

⁵⁶⁷ Id.

⁵⁶⁸ Id.

⁵⁶⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-041

⁵⁷⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-130

⁵⁷¹ Id.

⁵⁷² Id.

⁵⁷³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-134

⁵⁷⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-123

⁵⁷⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-119

training.⁵⁷⁶ AzP also requested Rule 20A training documents in another discovery request, in response to which PG&E stated that “Rule 20A Liaisons received extensive training” but only provided copies of a workshop presentation and PG&E’s tariff application guide related to the Rule 20A program, neither of which AzP considers formal training materials.⁵⁷⁷

69. OBJECTIVE 4 – *What factors would make a project not eligible for Rule 20A funds?*

PG&E stated that during the period 2007 through 2016, of the projects governmental agencies sought to complete under Rule 20A, six were deemed ineligible.⁵⁷⁸ PG&E provided a list of these six projects, which pertained to the communities of Carmel, Colma, Manteca, Oakdale, Oakland, and Woodland. The Company indicated that these six projects were requested by their respective communities for completion under Rule 20A, but were deemed ineligible by PG&E.⁵⁷⁹ All six determinations were made based on PG&E field visits, with the latter three also involving input from PG&E’s legal counsel.⁵⁸⁰ Of the six projects, eligibility of three were disputed by the proposing governmental agency; per PG&E, two of the disputes were “resolved by PG&E law department input” and “A path forward has been agreed upon by PG&E and City of Oakland” for the other.⁵⁸¹ None of the projects deemed ineligible escalated to dispute resolution involvement from the CPUC.⁵⁸² The following figures summarizes these details for the six projects deemed ineligible by PG&E during the audit period.

Figure III.4.1: Projects PG&E Deemed Ineligible for Conversion Under Rule 20A During the Period 2007 through 2016

No.	Community	Project	Process By Which PG&E Determined the Project Ineligible for Funding Under Rule 20A	PG&E's Method of Communicating Ineligibility to Governmental Agency	Existence of Dispute and Resolution if Applicable	Level of Involvement From CPUC for Dispute Resolution
1	Carmel	Scenic Rd	Field visit	Email to the city's representative	No	Not applicable
2	Colma	El Camino Real	Field visit	Email to the city's representative	No	Not applicable
3	Manteca	Alleys in residential area	Field visit	Verbal: in-person meeting at site	No	Not applicable
4	Oakdale	Oakdale Airport	Field visit; Consulted PG&E law and Program Manager	Email to city's representative	Yes. Was resolved by PG&E law department input.	None
5	Oakland	Piedmont Pines Ph2	Field visit; Consulted PG&E law and Program Manager	In-person meetings and emails	Yes. Local community wanted entire project to be qualified. A path forward has been agreed upon by PG&E and City of Oakland.	*
6	Woodland	Dead Cat Alley	Field visit; Consulted PG&E law and Program Manager	Email to city	Yes. Was resolved by PG&E law department input.	None

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-126 Att. 01

*In a response to discovery dated November 21, 2018, PG&E noted that there had been no CPUC involvement in the proceeding "to date." Subsequent to PG&E's discovery response, PG&E submitted Advice Letter 5464-E on January 4,

⁵⁷⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-123, PG&E references AzP-001-001, which pertains to ratemaking, not training.

⁵⁷⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-003

⁵⁷⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-126

⁵⁷⁹ Id.

⁵⁸⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-127 and AzP-001-126

⁵⁸¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-128 and AzP-001-126

⁵⁸² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-129 and AzP-001-126

2019 requesting that the Commission allow inclusion in this project of some ancillary streets and parcels that may not meet the public interest criteria in Rule 20A.

PG&E states that Liaisons may assist Rule 20A communities choose a different location for overhead conversions when a community's original proposal is deemed ineligible.⁵⁸³

70. The list of projects deemed ineligible by PG&E during the audit period for Rule 20A conversions appears understated. In a 2016 whitepaper, CPUC Staff noted that within PG&E service territory, the number of jurisdictions that had an overhead conversion plan or a utility underground district (UUD) established was only 42 out of 282—approximately 15 percent—the lowest percentage among PG&E's peers.⁵⁸⁴ PG&E listed 65 projects in a response to discovery for which no UUDs were established.⁵⁸⁵ This full list is provided in AzP Exhibit M to this report. The descriptions of several of these projects noted that they had been canceled, however, it is unclear why these projects were initially deemed a Rule 20A eligible project and, generally, given a project number when the community had not formed an undergrounding district.^{586,587} Given that establishment of a UUD is a requisite for eligibility of Rule 20A projects, this suggests that PG&E either failed to adequately identify this ineligibility factor for these projects or many more projects than the six listed in Figure III.4.1 should have been reported by PG&E as those that could not proceed due to this factor.

71. OBJECTIVE 5 – Are there instances that would make an eligible project change to be ineligible for Rule 20A funds? If so, what is the cause?

Changes in the amount of required-versus-available work credits are the main changes in circumstance accounting for otherwise eligible Rule 20A projects becoming ineligible.⁵⁸⁸ When asked about the Company's protocol to address changes in eligibility of a Rule 20A project after initial eligibility determination, PG&E stated that "the requirements for Rule 20A eligibility have not changed"⁵⁸⁹ and "no project was deemed eligible for Rule 20A and then later determined to be ineligible."⁵⁹⁰ While the tariff language may have remained consistent for several years, *meeting* requirements may not consistently continue throughout the lifecycle of a Rule 20A project. According to PG&E, during the period 2007 through 2016, the average duration of Rule 20A projects—from district formation to service restoration—was 7.4 years.⁵⁹¹ Also according to

⁵⁸³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-133

⁵⁸⁴ *Program Overview California Overhead Conversion Program, Rule 20A For Years 2011-2015 The Billion Dollar Risk!* Issued by the California Public Utilities Commission Policy and Planning Division, November 23, 2016, Page 10. Staff noted that comparable figures were 42 percent (81 of 192) at SCE and 77 (percent (21 of 27 jurisdictions) at SDGE.

⁵⁸⁵ Electric Rule 20 OIR, Case NO. R. 17-05-010, Data Request Tables, Energy Division

⁵⁸⁶ *Id.*

⁵⁸⁷ AzP checked these 65 projects/communities against the projects completed (based on PG&E response to discovery in AzP-001-092, Att. 1), as well as the projects in PG&E's most recent Rule 20A project queue (from PG&E response to discovery in AzP-002-076, Att. 2) and none of the 65 projects were listed on either list, suggesting they were likely deemed ineligible to proceed.

⁵⁸⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-134 and AzP-001-138

⁵⁸⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-129 and AzP-001-131

⁵⁹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-129 and AzP-001-136

⁵⁹¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-129 and AzP-001-131

PG&E, there were no projects that were deemed eligible for Rule 20A conversion during this period, which later became ineligible.⁵⁹² However, as noted in Finding 67 and Finding 70 above, this response does not adequately convey the impact of changes to PG&E Rule 20A project eligibility status due to two missing considerations. The first is the impact of projects PG&E identified in 2015 as ineligible; to the extent these projects consumed resources from the Program, other legitimately eligible projects were likely stalled as a result, as PG&E has stated in several instances that internal PG&E resource constraints contributed to delays in Rule 20A project completion. This is discussed in greater detail in the preceding sections of this report. The second consideration that is not conveyed in PG&E's original response, is the impact of changes in project cost and work credit allocations over time, leading to changes in a community's ability to proceed with a given project that is otherwise eligible for Rule 20A conversion. In a supplemental response to discovery, PG&E provided a list of seven projects, that while eligible under the public interest criteria of the Rule 20A tariff, were not able to proceed due to insufficient work credit balances of their respective communities.⁵⁹³ These projects are listed in Figure III.4.2 below.

Figure III.4.2: PG&E Rule 20A Projects Deemed Eligible and Later Deemed Ineligible Due to Project Costs Exceeding Available Work Credits During the Period 2007 through 2016

No.	Order No.	Project Description	Resolution Date	Period Deemed Ineligible	Reason Ineligible to Proceed
1	30678560	FRANKWOOD AVE, REEDLEY	09/23/08	3rd quarter 2015	Insufficient work credits
2	30755274	BELLEVUE RD PH 2, ATWATER	04/13/09	2nd quarter 2015	Insufficient work credits
3	30794542	RAMONA AVE, GROVER BEACH	11/02/09	3rd quarter 2015	Insufficient work credits
4	30767369	PARLIER AVE, PARLIER	12/02/09	2nd quarter 2015	Insufficient work credits
5	30882110	MISSION BLVD DIST 29, HAYWARD	12/07/10	2nd quarter 2015	City of Hayward reprioritized Underground District 30 ahead of District 29 leaving District 29 with insufficient work credits.
6	30882109	EDEN RD, SAN LEANDRO	06/06/11	2nd quarter 2015	Insufficient work credits
7	No order	SOUTH BAY BLVD, SLO COUNTY	08/27/14	4th quarter 2015	Insufficient work credits

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-134 and AzP-001-138

As noted in Figure III.4.2, all seven projects were deemed ineligible in 2015, the same year that PG&E indicated its review identified projects that were erroneously deemed eligible in earlier years, thus the review and re-designation of eligibility appears to have been a one-time effort rather than an ongoing process at PG&E.⁵⁹⁴ This is addressed in AzP Recommendation 46 below.

- 72. Recent feedback from a locality indicates that non-transparency and inaccuracy of project cost estimates continues to be a contributing factor to projects being deemed ineligible.** As noted in the previous section of this report under the discussion pertaining to *Audit Scope Task 3*, AzP, with the assistance of CPUC Staff, sent questionnaires to PG&E Rule 20A communities to obtain information from those communities primarily related to Rule 20A projects completed by PG&E during the audit period. One governmental agency declined to submit a questionnaire because its

⁵⁹² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-134, AzP-001-135, and AzP-001-136

⁵⁹³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-134, AzP-001-135, and AzP-001-134 Supplemental Response 01

⁵⁹⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-130

experience with PG&E involved a project that was never completed and, ultimately, deemed ineligible due to a lack of work credits. This agency contacted AzP directly and expressed significant frustration with PG&E's management of the Rule 20A program—specifically regarding lack of transparency in the Company's cost estimation procedures and unreliable nature of those procedures.⁵⁹⁵ As they pertain to eligibility considerations, the specific example provided by the local agency revealed that the community elected to proceed with a Rule 20A project based on PG&E's initial estimate, which was within the agency's available work credits at the time. According to the local agency representative, PG&E subsequently revised its estimate to over twice its original estimate once the project had entered the design phase.⁵⁹⁶ At that time, the government agency purchased additional work credits to ensure the project remained eligible to proceed.⁵⁹⁷ Later, PG&E revised the final cost of the project to more than four times its initial estimate, at which time the community was no longer able to proceed given the significantly-higher-than-expected cost.⁵⁹⁸ While the project, or community's purchasing capability, no longer deemed the project eligible for completion, the agency had incurred costs and paid PG&E for the design costs incurred by the Company, leaving the agency with a lower WCA balance, an ineligible Rule 20A project, no tangible benefit from the process undergone, and concerns regarding pursuing future projects for fear of experiencing the same.⁵⁹⁹

III.4.a.4 Recommendations

43. OBJECTIVE 1 – *What is the process for governmental agencies to initiate a project?*

AzP recommends that PG&E standardize and document its protocol for communicating the Company's determination of project eligibility to the respective governmental agencies. AzP recommends this protocol include a review of, on an annual or more frequent basis, projects submitted for consideration and deemed eligible, as well as projects underway, for assessment of changing conditions on eligibility. The original eligibility assessment should be formally documented in an "eligibility checklist" further discussed in Recommendation 44 below. As noted in Finding 63 above, PG&E's current method of communication with governmental agencies is not standardized. Standardization of this protocol, including documenting communication of PG&E's assessment of eligibility would allow the company to review projects that were submitted for consideration but deemed ineligible, as well as projects underway which may become ineligible due to changing conditions. We recommend that PG&E review, at least annually, previously ineligible projects to assess whether new conditions, such as additional accrual of WCAs, render them eligible. In addition, maintaining a centralized list of projects that have been requested by local agencies for Rule 20A conversion, which were deemed ineligible, would allow the Company to identify patterns and work to proactively devise solutions for completing a greater number of projects. Also, maintenance and review of written correspondence with local agencies regarding the eligibility of Rule 20A projects would provide greater transparency externally, and additional opportunities to examine "lessons learned" regarding bottlenecks in

⁵⁹⁵ Feedback from City of Tiburon, received from County Engineer, on June 05, 2019.

⁵⁹⁶ Id.

⁵⁹⁷ Id.

⁵⁹⁸ Id.

⁵⁹⁹ Id.

approving projects for conversions as the Company conducts its internal trainings and resolves to make improvements in the program. Regular review of PG&E's list of proposed and underway projects would further ensure that resources are not tied to projects that may have been erroneously deemed eligible, or which may have later become ineligible at the expense of legitimately eligible projects.

44. OBJECTIVE 2 – *What criteria does PG&E use to determine the eligibility of a project?*

AzP recommends that PG&E standardize and document its protocol for ensuring compliance with Rule 20A tariff requirements. As noted in Finding 62 above, PG&E primarily cited Rule 20A tariff section A.1a. as the eligibility determinants for Rule 20A projects. Also as noted in Finding 62, all three sections of Rule 20A contain guidance that impact the eligibility of a project to be initiated and to progress under this program. While PG&E also appears to believe that the Company's understanding of tariff requirements is clear (as discussed in Finding 67 above) and review processes in place are adequate for proper application of tariff requirements,⁶⁰⁰ we believe that incorporating a standard formal checklist that includes each section of the tariff with a 'yes' or 'no' checkbox would be a best approach to ensure that 1- approval of Rule 20A projects are contingent on meeting each requirement of the tariff, 2- rejection of each proposed Rule 20A project is clearly documented and tied to specific authoritative guidance 3- consideration of eligibility requirements for Rule 20A projects are clearly communicated to all parties, and 4- reassessment of eligibility is easily conducted in light of changing circumstances, and 5- lessons learned regarding patterns of recurring ineligible projects are observed, reviewed, and reduced to the extent possible for future projects. The current language in the PG&E Rule 20A tariff is subjective in many instances. For example, the tariff contains no quantitative objective description for what conditions should constitute "unusually heavy concentration of overhead electric facilities" (Rule 20A.1.a.1), how a street or road or right-of-way is determined to be "extensively used" by the general public or to carry "a heavy volume" of pedestrian or vehicular traffic (Rule 20A.1.a.2.), or what constitutes "unusual scenic interest to the general public" (Rule 20A.1.a.3.). As such, if the eligibility and ineligibility determinations of Rule 20A projects were clearly documented and communicated to all parties, specific areas of dispute and those leading to the greatest conflict in interpretation of the authoritative guidance could be identified. PG&E, government agencies, and the Commission could utilize this information to assess the need for revisions to the tariff and in resolving and preventing future disputes.

45. OBJECTIVE 3 – *How does PG&E ensure tariff requirements are met?*

OBJECTIVE 4 – *What factors would make a project not eligible for Rule 20A funds?*

AzP recommends that PG&E implement a standard step-by-step dispute resolution process regarding Rule 20A projects and for the Company to make this protocol public by providing a standard dispute resolution form for submission by local agencies, which should include PG&E's and the government agency's completed eligibility checklist. We recommend that the dispute resolution form including, at a minimum, project description, date of dispute initiation, reason(s) for dispute, and the initial completed eligibility checklist recommended in AzP Recommendation

⁶⁰⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-130

44. As noted in AzP Finding 64 above, PG&E has no formal or standard protocol for documenting or resolving disputes regarding the eligibility of Rule 20A projects. Given the long history of underspending in this program coupled with the numerous concerns raised by PG&E Rule 20A communities in PG&E's 2017 general rate case ("GRC"),⁶⁰¹ a documented, easy-to-use and standard procedure is warranted in order to provide an audit trail and adequate level of transparency.

46. OBJECTIVE 4 – *What factors would make a project not eligible for Rule 20A funds?*

OBJECTIVE 5 – *Are there instances that would make an eligible project change to be ineligible for Rule 20A funds? If so, what is the cause?*

PG&E should annually assess for reconsideration the eligibility of previously proposed Rule 20A projects that were deemed ineligible at the time of original submission. Changing WCA balances of a community over time can increase its ability to complete a Rule 20A project. As noted in Finding 71 above, the evaluation of changes in eligibility do not appear to be an ongoing process for projects underway or those previously submitted but rejected. AzP suggests that PG&E regularly assess changes in a community's ability to proceed with a Rule 20A project following receipt of additional WCAs in subsequent periods, and that Rule 20A Liaisons work with the relevant community to proactively schedule the continuation of the project in anticipation of the adequate WCAs, to ensure no projects remain unnecessarily halted once adequate WCAs are accrued.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

⁶⁰¹ As noted in the Commission's Decision (D.)17-05-013, page 64, "In response to the concerns expressed by [local government] officials, approximately half of the September 1, 2016 evidentiary hearing time devoted to examination of the Settlement Agreement was devoted to the Rule 20A issue."

III.5 TASK 5: VERIFY THE RELIABILITY OF RULE 20A PROJECT COST ESTIMATES

III.5.a.1 Introduction and Background

Accurate project cost estimates are an essential component of any large-scale construction project and are particularly critical for the effective management of the Rule 20A program. Whether or not a locality has sufficient work credits available to fund the estimated costs of a project is one of the determining factors as to whether a Rule 20A project will be undertaken and progressed to completion.⁶⁰² Rule 20A project costs that escalate above estimated project costs adverse impacts on PG&E's Rule 20A communities. If project costs increase from earlier estimates, the locality will, at a minimum, have fewer remaining work credits post-project, diminishing the feasibility of future Rule 20A projects within the locality. In some cases, project costs may completely exhaust a locality's accumulated and available Rule 20A work credits, leaving the locality with options that may be significantly costly and administratively burdensome. These options include: changes and/or reductions to the scope of the project, the need to borrow or purchase additional credits, cancellation of the project (which can result in a reduction of the WCAs of a community with no tangible benefit to offset the cost⁶⁰³), or conversion of the project into a combination Rule 20A/Rule 20B project.⁶⁰⁴

As part of the Final Scope and Objectives of this audit ordered in (D.) 18-03-022, Attachment A, the Task 5 area objectives alluded to the use of statistical sampling for verification of the reliability of PG&E's Rule 20A project cost estimates. In documenting AzP's testing approach, we reference AICPA's Audit Guide on Audit Sampling, dated May 1, 2017 (the most recent pronouncement as of the time of this audit). The authoritative guidance relied upon is primarily those carried forward by Statement on Auditing Standards (SAS) No. 122 and recodified in AU-C section 530, *Audit Sampling*, AU-C section 450, *Evaluation of Misstatements Identified During the Audit*, and AU-C section 330, *Performing Audit Procedures In Response to Assessed Risks and Evaluating the Audit Evidence Obtained*.⁶⁰⁵

As defined by the AICPA, audit sampling is "the selection and evaluation of less than 100 percent of the population of audit relevance such that the auditor expects the items selected (the sample) to be representative of the population and, thus, likely to provide a reasonable basis for conclusions about that population."⁶⁰⁶ As noted in Finding 73 below, AzP calculated a variance rate for project cost estimates (both initial project cost estimates and design cost estimates) that utilized the population of available cost estimates for all projects completed during the audit period. Since AzP's approach allowed for a calculated variance rate for all available estimate information—that is, a calculation of the population of estimates—

⁶⁰² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-138, Att. 1

⁶⁰³ As noted in the *Allocations to Governmental Agencies* section of this report, while PG&E had stated in discovery that it deducts WCAs at the end of a project, it also reduces WCAs when a project is canceled. Over \$1.2 million in WCAs were charged to localities for canceled projects during the audit period.

⁶⁰⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-002-024 and AzP-002-025, Att. 1, Table 1

⁶⁰⁵ AICPA Audit Guide Audit Sampling, dated May 1, 2017, Paragraph 1.11 and 1.12

⁶⁰⁶ AICPA AU-C section 530, Paragraph .05; see AICPA Audit Guide Audit Sampling, dated May 1, 2017, Paragraph 1.04

accuracy and reliability of the testing results were enhanced relative to reliance on a statistical sample, which serves merely as a proxy for the population. Thus, sampling was not necessary in AzP's addressing of the objective for Task 5.a. for this audit: "[r]eview of PG&E's final project cost with approved design cost estimates." Regarding the objective for Task 5.b. to "identify and quantify factors that contribute to cost variances," AICPA guidance states that a sample is generally expected to be representative with respect to the occurrence rate or incidence of misstatements, but not their specific nature.⁶⁰⁷ Since Task 5.b. was focused on determining the specific nature of the project cost variances, statistical sampling was not applicable to this objective. Instead, in order to isolate those projects that had substantial variances between their actual and estimated costs, AzP utilized a testing approach that stratified (i.e., separated) the population of Rule 20A projects and allowed for focused testing on those projects in which both the initial cost estimates and design cost estimates were outside the range deemed acceptable by engineering standards. The findings and exhibits that follow contain the results of AzP's review.

This section of the report contains a discussion on AzP's analysis of the following:

- PG&E's development of project cost estimates, including the documentation maintained to support project cost estimates and variances from actual project costs
- Reliability and accuracy of project cost estimates compared to final project costs, as well as the marketing materials PG&E made available to localities regarding Rule 20A project cost estimates
- Benchmarking of costs per mile of conversion at PG&E relative to industry standards

III.5.a.2 Audit Objectives

Per Commission Decision 18-03-022, the objectives for this area of the audit—*Verify the reliability of Rule 20A project cost estimates*—are:

- 1) Review of PG&E's final project cost with approved design cost estimates
- 2) Identify and quantify factors that contribute to cost variances

III.5.a.3 Findings

73. OBJECTIVE 1 – *Review of PG&E's final project cost with approved design cost estimates*

Due to a lack of an audit trail in PG&E's system, PG&E's initial and design cost estimate data for the audit period are unreliable.⁶⁰⁸ In discovery, AzP requested initial project cost estimates, as well as the design cost estimates for PG&E Rule 20A projects. Of the 239 projects completed during the audit period, PG&E provided initial estimates for 237 projects and design cost estimates for 238 projects.⁶⁰⁹ The data that was provided by PG&E for these projects demonstrate that, in the aggregate, final costs of projects completed during the audit period were 35% higher

⁶⁰⁷ AICPA Audit Guide Audit Sampling, dated May 1, 2017, Paragraph 1.05

⁶⁰⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-028, Supp. 1

⁶⁰⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP -001-092, Att.1 and AzP-005-028, Supp. Att. 1, subpart (b)

than initial project cost estimates and 8% lower than design cost estimates developed later in the estimation process.⁶¹⁰

However, PG&E's data related to its initial cost estimates is unreliable as the Company was unable to provide supporting documentation for any of the selections for which AzP requested documentation (discussed in greater detail in AzP Finding 76 below). PG&E's data related to its design cost estimates is unreliable because while the Company noted that estimates were updated throughout the construction phase of a project,⁶¹¹ PG&E did not track modifications to the design cost estimates over the life of Rule 20A projects in its system.⁶¹² As such, the design cost estimate precision implied by this data is overstated because PG&E personnel had the ability to overwrite the original design cost estimates with subsequent estimates.⁶¹³ AzP Exhibit N contains a comprehensive list of all available initial and design cost estimates associated with the projects completed during the audit period.

74. **PG&E's processes for developing project cost estimates stayed largely unchanged during the audit period, with the exception of the process for developing project cost estimates in the planning phase.**⁶¹⁴ Project cost estimates developed during the audit period did not noticeably improve—though project data in the latter years of the audit period were too sparse to be reliable.⁶¹⁵ As discussed in Finding 41 in the *Review of Projects Initiated, But Not Completed* section of this report, lifecycle of Rule 20A projects consist of four distinct phases: Planning Phase, Engineering (also referred to as Design/Estimate) Phase, Construction Phase, and Closeout Phase.⁶¹⁶ When asked to provide the process used and the personnel responsible for estimates developed in the different phases, PG&E noted that it did not develop estimates for the final (closeout) phase.⁶¹⁷ With respect to project cost estimates for the initial (planning) phase of Rule 20A projects, from 2007 until October 2010 project managers developed initial project cost estimates based on personnel knowledge and "historicals"⁶¹⁸ with a general starting assumption that Rule 20A projects would cost approximately \$1 million per mile.⁶¹⁹ Beginning in October 2010, PG&E Rule 20A Program Liaisons began developing the initial project estimates in the planning phase by using a Microsoft Excel-based Rule 20A Project Planning Calculator.⁶²⁰ In 2011, additional information, including information about joint trench participants, were included as inputs to the PG&E Rule 20A Project Planning Calculator.⁶²¹ For the duration of the audit period, PG&E's processes for estimating project costs for the engineering and construction phases of Rule

⁶¹⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP -001-092, Att.1 and AzP-005-028, Supp. Att. 1, subpart (b)

⁶¹¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

⁶¹² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-028, Supp. 1

⁶¹³ Id.

⁶¹⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

⁶¹⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1, AzP-005-028, Supp. Att. 1, and AzP-005-035, subpart (t), Att. 1

⁶¹⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-007

⁶¹⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

⁶¹⁸ Id.

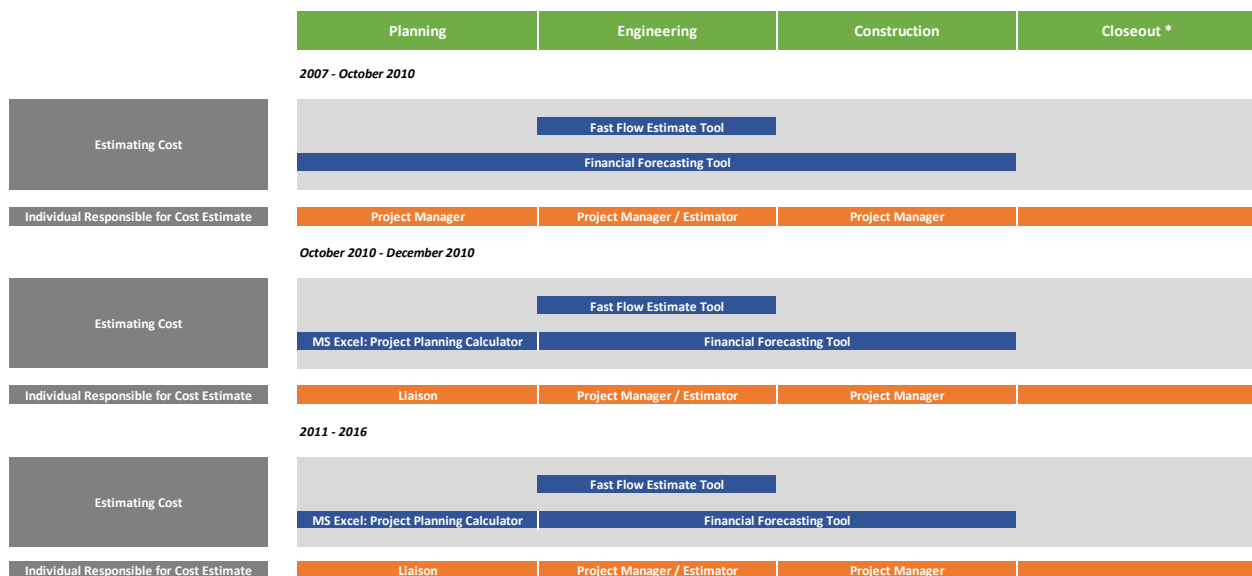
⁶¹⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-139

⁶²⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

⁶²¹ Id.

20A projects remained unchanged with respect to both the manner in which they were calculated and the personnel responsible for their development.⁶²² During the engineering phase, PG&E would input project information, including information from the project team, into a tool called the Fast Flow Estimate Tool to produce a Job Estimate.⁶²³ PG&E estimators used the project boundary map and base map to define the scope of Rule 20A projects.⁶²⁴ PG&E stated that its Rule 20A design team personnel would conduct field visits to determine location and placement of the new facilities.⁶²⁵ PG&E would then input the Rule 20A project Job Estimate into its Financial Forecasting Tool, which would calculate overhead costs and produce a forecasted cost for the project.⁶²⁶ Generally, PG&E would only notify localities of new cost estimates developed during this stage if it appeared that project costs would be higher than the localities' available Rule 20A work credits.⁶²⁷ Prior to the start of construction, PG&E's Rule 20A project manager would complete a constructability review for each project.⁶²⁸ This would include a review of the cost information from the Job Estimate, as well as additional items the project manager may have believed had not been fully captured in the Job Estimate.⁶²⁹ During the construction phase, the project manager would continue to update the Financial Forecasting Tool with any known changes.⁶³⁰ PG&E's Rule 20A cost estimate processes in place during the audit period, as described in this section, are also visually depicted in Figure III.5.1 below.

Figure III.5.1: PG&E Rule 20A Cost Estimation Process - 2007 through 2016



⁶²² Id.

⁶²³ Id.

⁶²⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-139

⁶²⁵ Id.

⁶²⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

⁶²⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-006-005

⁶²⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-139

⁶²⁹ Id.

⁶³⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

Technical Analysis

Task 5: Verify the Reliability of Rule 20A Project Cost Estimates

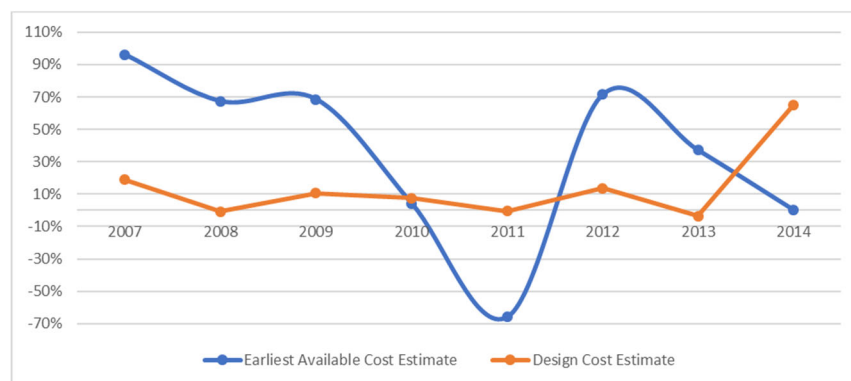
Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

*PG&E does not develop estimates during the closeout phase per GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

AzP assessed whether the changes noted above appeared to have improved the precision of PG&E's cost estimates for the Rule 20A projects completed during the audit period. The Rule 20A project estimates PG&E provided in discovery occurred over various periods. As such, AzP utilized the initiation year for Rule 20A projects as a reasonable proxy for when the estimates were made. This is particularly relevant to the initial estimates, which, generally, would have been calculated early in a project's lifecycle.

An illustration of the relative precision of the completed projects' design cost estimates and initial estimates is provided below in graphical and tabular form.

Figure III.5.2: Percentage Variance of Actual-Versus-Initial and Actual-Versus-Design Project Cost Estimates for Projects Initiated and Completed During the Audit Period, by Year Initiated*



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1, AzP-005-028, Supp. Att. 1, and AzP-005-035, subpart (t), Att. 1

*There were no projects completed during the audit period which were initiated in 2015 or 2016.

Figure III.5.3: Percentage Variance of Actual-Versus-Initial and Actual-Versus-Design Project Cost Estimates for Projects Initiated and Completed During the Audit Period, by Year Initiated*, **

Project Initiation Year	Number of Projects with Initial Estimate Data	Sum of Earliest Available Estimates	Sum of Final Project Costs	Percentage Variance	Number of Projects with Design Cost Estimate Data	Sum of Design Cost Estimates	Sum of Final Project Costs	Percentage Variance
2007	11	\$14,940,000	\$29,304,989	96%	11	\$34,864,976	\$29,304,989	-16%
2008	27	\$42,786,494	\$71,631,428	67%	27	\$71,205,317	\$71,631,428	1%
2009	8	\$10,085,000	\$17,006,730	69%	8	\$18,804,964	\$17,006,730	-10%
2010	7	\$8,915,000	\$9,305,636	4%	7	\$10,008,265	\$9,305,636	-7%
2011	1	\$4,581,799	\$1,569,890	-66%	1	\$1,562,508	\$1,569,890	0%
2012	5	\$6,579,107	\$11,278,123	71%	5	\$12,818,815	\$11,278,123	-12%
2013	2	\$994,168	\$1,363,033	37%	2	\$1,314,556	\$1,363,033	4%
2014	2	\$1,772,807	\$1,776,822	0%	3	\$3,071,134	\$1,858,167	-39%
2015	0	\$0	\$0	NMF	0	\$0	\$0	NMF
2016	0	\$0	\$0	NMF	0	\$0	\$0	NMF

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1, AzP-005-028, Supp. Att. 1, and AzP-005-035, subpart (t), Att. 1

NMF: Not a Meaningful Figure

*There were no projects completed during the audit period which were initiated in 2015 or 2016.

**2014 "Number of Projects with Initial Estimate Data" was reduced by one because the initial estimate for project 31051957 - Healdsburg Ave Bridge, Healdsburg was not provided by PG&E.

As noted in the preceding figures, the variances between actual and estimated costs for the projects initiated and completed during the audit period appear haphazard, with no noticeable trend toward more reliable estimates over time. For example, the projects initiated in 2014 had the most precise initial estimates, and the most imprecise design cost estimates. One of the reasons for the volatile and inconsistent trend noted may be the fact that the "design cost estimates" PG&E provided were continuously revised over time and do not represent an accurate depiction of the estimates developed at the design phase. With 2014 as one of the later years under audit, the later revisions are likely not yet reflected in the figure provided as reflected in the earlier estimates. Another reason for the volatile nature of the data, particularly in the later years of the audit period, is the small number of data points available. For example, only three projects were initiated during 2014 and completed during the audit period (and only two with initial estimate data), whereas 27 projects completed during the audit period were initiated during 2008. The lack of data for projects initiated near the end of the audit period is not surprising given the length of a Rule 20A project. Assuming a Rule 20A conversion project takes 5 to 7 years to complete,⁶³¹ a project initiated in 2014 would likely be completed sometime in the 2019 to 2021 timeframe or later. To further supplement AzP's analysis regarding the reasons for, and reasonableness of, PG&E's actual project cost variances from estimates, AzP performed variance testing on individual project files, as well as benchmark testing of conversion costs per mile. These are discussed in the findings that follow.

75. **During the audit period, approximately one fourth of PG&E's initial Rule 20A project cost estimates and the majority—nearly 60 percent—of PG&E's Rule 20A project design cost estimates were outside the range deemed acceptable by engineering standards.** During the life of a Rule 20A project, multiple estimates are developed as the project moves from phase to phase.⁶³² As additional information about the work to be performed is developed, it is expected that the quality of the design drawings for the project plan, the level of detail developed by the estimator about the work that will be required and the materials needed, enable PG&E to develop more accurate project cost estimates.⁶³³ As described in PG&E's Project Cost Management Standard PM-1015S and as illustrated in the table below, PG&E utilizes and, during the audit period, utilized the cost estimate classification system and recommended practices of the AACE.⁶³⁴ These estimates have high and low accuracy ranges built into the estimates. The accuracy ranges narrow as the estimate develops from a Class 5 estimate to a Class 1 estimate just prior to the start of construction.⁶³⁵ A detailed description of the estimate methodology is provided in AzP Exhibit O.

⁶³¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-005-037, Att. 10, p. 6

⁶³² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-012, Att. 1

⁶³³ Id.

⁶³⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-018, Att. 20

⁶³⁵ GRC-2017-Rule 20A-Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-0139, AzP-002-096 Att. 01, and AzP-001-018 Att. 20

Figure III.5.4: PG&E's Rule 20A Estimate Classification System

AACE Cost Estimate Class	Maturity Level of Project Definition Expressed as % of Complete Definition	Typical Estimating Methods	Estimate Accuracy Range
Class 5	0% to 2%	Probabilistic: e.g., Top down, historical, parametric, analogous, capacity factored	+100% to -50%
Class 4	1% to 15%	Primarily Probabilistic: e.g., Equipment factored, parametric modelling	+50% to -30%
Class 3	10% to 40%	Probabilistic/Deterministic: e.g., Semi-detailed unit costs, quantity take-offs.	+30% to -20%
Class 2	30% to 75%	Primarily Deterministic: e.g., Bottom up, detailed unit costs, limited take-offs.	+20% to -15%
Class 1	65% to 100%	Deterministic: e.g., Bottom up, detailed unit costs.	+10% to -5%

Sources: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-018, Att. 20, p. 9 and AzP-002-096, Att. 1

As previously discussed in Finding 73, AzP calculated the accuracy of both the initial and design cost estimates of PG&E for all projects completed during the audit period for which PG&E was able to provide data. These calculations are presented in AzP Exhibit N.

PG&E has confirmed in discovery that the Company's earliest Rule 20A initial project estimates are AACE Class 5 estimates, which have an acceptable accuracy range of +100% to -50%.⁶³⁶ AzP's analysis revealed that the Company failed to maintain costs within +100% to -50% of PG&E's initial cost estimates for 23 percent (55 of 239) of the Rule 20A projects PG&E completed during the audit period.⁶³⁷

As noted earlier, PG&E has not maintained original documentation for design cost estimates on Rule 20A projects. PG&E personnel can revise the design phase estimate of a Rule 20A project throughout the life of a project since the Company does not lock this field in SAP after the original design cost estimate is made.⁶³⁸ To evaluate the accuracy of PG&E's Rule 20A design cost estimates, AzP utilized the Class 1 AACE estimate criteria, which, as demonstrated in Figure III.5.4, allows for deviations from actual costs of +10% to -5%. When evaluated on the Class 1 criteria, the analysis revealed that PG&E failed to maintain costs within a +10% to -5% variance threshold for 57 percent (136 of 239) of Rule 20A projects completed during the audit period, even though

⁶³⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-002-085 and AzP-002-088 subpart 'i'; while in several discovery responses the Company confirmed that PG&E's initial Rule 20A estimates are AACE Class 5 estimates, PG&E has also contradictorily claimed that one of the reasons for cost variances is that the PG&E Rule 20A "initial estimate is a pre-AACE Class 5 estimate, meaning it could be more than 100% higher or more than 50% lower than the calculating tool cost figure." (AzP-001-095)

⁶³⁷ PG&E did not have initial estimate documentation for data pertaining to two of the projects, which AzP noted as failure to demonstrated staying within the AACE +100% to -50% threshold.

⁶³⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-028, Supp. 1

the Company continuously updated the amount of the estimate after the initial design estimate was calculated.⁶³⁹

AzP Exhibit N includes the results of the assessment regarding Rule 20A project cost versus estimates within the AACE Class 5 and Class 1 acceptable ranges of accuracy.

76. OBJECTIVE 2 –*Identify and quantify factors that contribute to cost variances*

AzP requested project level data for Rule 20A projects with cost variances outside the AACE acceptable estimate range for projects completed during the audit period and found that PG&E had not maintained, or had inconsistently maintained fundamental project level data pertaining to the Company’s cost estimates.⁶⁴⁰ As noted in Finding 75 above, the initial estimates and the design cost estimates of the projects completed during the audit period were often outside of the acceptable accuracy estimate range. Specifically, there were 45 Rule 20A projects completed during the audit period in which estimate data was either not provided for the project,⁶⁴¹ or for which both the initial estimate and design cost estimate were outside of their respective AACE estimate accuracy ranges. To gain additional understanding related to these issues, AzP requested documentation related to each of these projects in discovery request AzP-007-001. The information requested is presented in the following figure. In several cases, PG&E provided no responsive documents. For Selection 12 (project number 30514516 - Guadalupe Gardens, Ph 1, San Jose) and Selection 44 (project number 30155281 - Fremont Blvd-Irvington, Fremont), PG&E was unable to provide any responsive documents.⁶⁴² A full log of the documents provided for this request is provided as AzP Exhibit P. The following figure lists the information requested, as well as the number and percentage of selections in which PG&E provided no responsive documents.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

⁶³⁹ In one of these projects, PG&E did not have design cost estimate, which AzP noted as lacking sufficient documentation to support costs were maintained within the variance threshold. GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1 and AzP-005-028, Supp. Att. 1, subpart (b), AzP-005-035, Att. 1, subpart (t)

⁶⁴⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001

⁶⁴¹ AzP selected 45 project numbers for testing. Per GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001, Supplemental Response 1, PG&E noted that project number 30647467 and 30071453, as well as project number 30223376 and 31370088 pertained to the same project, and AzP has aggregated these project numbers for purposes of our analysis.

⁶⁴² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001

**Figure III.5.5: Rule 20A Project Estimate Variance Selection Testing
Summary of Documents Requested and Received**

Subpart Ref. Nbr.	Subpart Request	Number of Selections Where No Documents Were Provided	Percentage of Selections Where No Documents Were Provided
(A)	A copy of the documents containing the project's Advance Authorization and related supporting files. Please include the calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented and approved in the project's Advance Authorization.	15	35%
(B)	A copy of the documents containing the project's Business Case and related supporting files. Please include the calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented and approved in the project's Business Case.	5	12%
(C)	The calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented in the project's earliest initial estimate as provided in response to discovery AzP 001-Q092 Atch01. If this differs from the response provided in subpart 'A' please reconcile and fully explain any difference.	43	100%
(D)	The calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented in the project's design cost estimate provided in response to discovery AzP 005-Q028Supp01Atch01. If this differs from the response provided in subpart 'B' please reconcile and fully explain any difference.	3	7%
E*	The calculation and underlying supporting documents in native format that support the actual cost and duration for the project once completed.	Not Applicable	Not Applicable
(F)	For each project, please include a narrative response stating the primary reasons for the variance of the final project cost from the initial and design estimates.	31	72%
(G)	For each of the projects identified, please provide copies of subsequent costs estimates that were developed to support an increase in the authorized cost for the project. Also provide copies of all additional documents that are part of the project folder that were developed to support the increase in the authorized project cost.	24	56%
(H)	For each of the projects identified, please provide copies of the Project Manager's close-out email as referenced in AzP 001-Q144 for if not already a part of the job folder provided in subpart 'G' response.	42	98%
(I)^	For each of the projects identified, please provide copies of any authorizations for release of contingency or reauthorization for an increase in the approved project costs.	Not Applicable	Not Applicable

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-007-001

* PG&E referred AzP to responses in a separate discovery request (AzP-005-028, Supplemental Response 1, Att. 1)

^ PG&E referred AzP to responses for subpart (G).

As noted in Figure III.5.5 above, PG&E was not able to provide support for any of its initial estimates. In 35% of the selected projects, PG&E was not able to provide an Advanced Authorization, a document the Company stated in discovery, is an “internal funding gate”—a necessary approval step in the Rule 20A project lifecycle.⁶⁴³ In 13 of the instances in which an Advanced Authorization was provided, the approval signature area was left blank.⁶⁴⁴ As also noted in Figure III.5.5, in all but one (98%) of the selections, PG&E was not able to provide a project “closeout email.” This appears inconsistent with PG&E responses to discovery in which PG&E stated that at the completion of Rule 20A projects, “the Project Managers report out in email the comparison, indicating the initial request, the actuals and the drivers for the variance (either over or under).”⁶⁴⁵ PG&E stated in a subsequent discovery response that “the report-out emails... are not centrally archived” and that PG&E does not require these emails to be retained by their sender or recipients. The fact that such an email was available for only one selection contradicts PG&E’s explanation and indicates that the “close-out email” process PG&E described as its practice for tracking and reconciling final Rule 20A costs with estimated costs is not a reliable or consistent practice that takes place at PG&E.⁶⁴⁶

In addition to the lack of responsive documents, the project files that PG&E provided often contained data that was inconsistent with project cost data provided by PG&E elsewhere in discovery. For example, AzP requested that PG&E provide the calculation and underlying documents that supported PG&E’s design cost estimates for Rule 20A projects, and to provide reconciliations for any instances in which the support provided did not agree to the selection’s design cost estimates.⁶⁴⁷ For most projects, the estimate data did not align with the supporting documents provided by PG&E, and PG&E provided no reconciliations to address the discrepancies.⁶⁴⁸ That is, the contemporaneous documentation that PG&E provided as support for its design cost estimates, in many cases, varied from the design cost estimates that were ultimately recorded in PG&E’s SAP system.

In selection 29, for example, the Job Estimate report provided by PG&E listed a gross financial cost estimate of \$2,116,587 which did not support the selection’s design cost estimate of \$2,614,757.⁶⁴⁹ In other selections, this discrepancy was more significant. In selection 2, for example, the Job Estimate report provided by PG&E listed a gross financial cost estimate,⁶⁵⁰ which

⁶⁴³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-121, AzP-002-008, and AzP-002-010

⁶⁴⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001, subpart A. Specifically selection numbers: 5, 7, 8, 9, 13, 15, 16, 19, 29, 30, 32, 36, and 42.

⁶⁴⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-144

⁶⁴⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-029

⁶⁴⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-007-001, subpart ‘D’

⁶⁴⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart D and AzP-005-028, Supp. Att.

1

⁶⁴⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001, subpart D. Specifically selection number 29.

⁶⁵⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001, subpart D. Specifically selection number 2.

did not support the selection's design cost estimate of \$15,396,064.⁶⁵¹ When the values provided in the supporting documents did align with the selection's project cost estimates, the estimate methodology was inconsistently applied. For example, the Job Estimate report provided as support for Selection 6 (Project Number 30069479) and Selection 20 (Project Number 30010732- El Camino Real, Colma, Daly City, San Mateo County) demonstrated that PG&E utilized the *net* financial cost with an added contingency to derive the design cost estimate.⁶⁵² However, for other selections, such as the estimate support provided for Selection 25 (Project Number 30267067- C & D Streets, Madera) and Selection 40 (Project Number 30472856 - Friant Road Shoo Fly (Rule 20A), Fresno) PG&E utilized the *gross* financial cost with the contingency added to derive the design cost estimate for these selections.⁶⁵³

AzP also requested that PG&E provide the calculation and underlying documents that supported the actual cost and duration of each completed project.⁶⁵⁴ PG&E's response referred AzP to PG&E's response to a different discovery request that PG&E claimed supported the calculation of the final project costs.⁶⁵⁵ However, the actual project cost figures in the response referenced were generally inconsistent with the final project cost figures referenced in other discovery responses, with variances ranging from -61% to 284% as illustrated in Figure III.5.6 below.⁶⁵⁶ The variances for the selection items are provided in the figure that follows.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

⁶⁵¹ Id.

⁶⁵² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001, subpart D. Specifically selection numbers 6 and 20.

⁶⁵³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001, subpart D. Specifically selection numbers 25 and 40.

⁶⁵⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-007-001, subpart 'E'

⁶⁵⁵ Id.

⁶⁵⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1 and AzP-005-028, Supp. Att. 1

Technical Analysis

Task 5: Verify the Reliability of Rule 20A Project Cost Estimates

Figure III.5.6: PG&E Rule 20A Discrepancies Between Final Project Costs as provided by PG&E in Discovery

Selection Nbr.	Order Nbr.	Final Project Cost (per AzP-001-092, Att. 1)	Final Project Cost (per AzP-005-028, Supp. Att. 1)	Percent Variance
1	30185719	\$17,048,836	\$7,020,539	-59%
2	30256639	\$8,853,448	\$8,831,127	0%
3	30629431	\$787,398	\$788,175	0%
4	30669061	\$6,011,030	\$6,268,365	4%
5	30575460	\$6,472,553	\$6,595,627	2%
6	30069479	\$7,371,678	\$8,242,802	12%
7	30720578	\$6,429,730	\$3,353,701	-48%
8	30677789	\$7,211,391	\$7,259,393	1%
9	30169463	\$5,084,513	\$5,092,339	0%
10	30170714	\$4,568,193	\$3,488,072	-24%
11	30172470	\$4,067,720	\$4,207,696	3%
12	30514516	\$953,720	\$957,014	0%
13	30563616	\$5,094,591	\$4,328,671	-15%
14	30644207	\$3,333,295	\$1,306,767	-61%
15	30406159	\$3,663,855	\$3,645,432	-1%
16	30520215	\$3,382,558	\$3,433,438	2%
17	30348512	\$207,406	\$207,406	0%
18	30776251	\$432,091	\$442,546	2%
19	30406568	\$3,010,033	\$1,541,966	-49%
20	30010732	\$2,238,614	\$2,234,869	0%
21	30072595	\$2,678,450	\$2,898,256	8%
22	30726360	\$688,009	\$685,054	0%
23	30323741	\$2,312,480	\$2,285,617	-1%
24	30675529	\$2,423,475	\$1,416,033	-42%
25	30267067	\$1,990,498	\$2,008,444	1%
26	30629323	\$2,303,558	\$2,457,679	7%
27	30367568	\$2,058,774	\$1,202,992	-42%
28	30563720	\$2,053,328	\$2,084,618	2%
29	30492230	\$2,167,700	\$2,376,968	10%
30	30746320	\$1,533,550	\$1,544,704	1%
31	30616114	\$1,292,764	\$1,350,009	4%
32	30917227	\$1,717,193	\$1,686,629	-2%
33	30317644	\$2,026,094	\$2,044,839	1%
34 & 35	30647467 & 30071453	\$3,523,227	\$3,725,025	6%
36	30676933	\$1,255,533	\$1,245,525	-1%
37	30323751	\$1,169,786	\$1,177,642	1%
38 & 39	30223376 & 31370088	\$5,122,168	Data Not Provided	Data Not Provided
40	30472856	\$492,448	\$492,543	0%
41	30563619	\$937,277	\$1,018,137	9%
42	30675659	\$993,089	\$546,273	-45%
43	30383780	\$808,835	\$840,753	4%
44	30155281	\$1,216,246	\$1,291,562	6%
45	31051957	\$81,345	\$312,741	284%

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-092, Att.1 and AzP-005-028, Supp. Att. 1

PG&E was also unable to provide data to support increases in project costs. For example, PG&E provided no support for the cost increases related to selection number 16 (project number 30520215) which had actual costs exceeding its initial and design estimates by 247% and 117%,

respectively, and for selection number 14 (project number 30644207 - Balls Ferry Rd, Anderson) which had actual costs exceeding its initial and design estimates of 567%.⁶⁵⁷

AzP addressed retention and standardization of fundamental project-level data in AzP Recommendation 47 below.

77. OBJECTIVE 2 – *Identify and quantify factors that contribute to cost variances.*

Review of PG&E documents for the projects with variances outside the AACE range revealed that PG&E often deemed the resources or schedule for Rule 20A projects as “most flexible”⁶⁵⁸ and at the same time failed to track the incremental costs incurred for Rule 20A projects due to delays.⁶⁵⁹ In examining the documented reasons that most often contributed to variances in PG&E’s Rule 20A estimated-versus-actual costs, AzP reviewed documentation of factors including flexibility matrices, SWOT analyses, and issues and risks identified by PG&E personnel in Rule 20A project funding gate documents as well as documented reasons for cost reauthorizations. PG&E often characterized Rule 20A resources or schedules as “most flexible,”⁶⁶⁰ with some employees acknowledging that limitations on resources necessary to complete the project, would “...impact the city’s schedule.”⁶⁶¹ At the same time, PG&E would also often document anticipated dollar impact associated with a potential delay, of zero dollars.⁶⁶² When AzP asked PG&E in discovery how the Company tracked project costs incurred due to delays in completion, PG&E responded that the Company “does not track delay costs for Rule 20A projects.”⁶⁶³

Project delays invariably result in increased costs, and while in several instances some semblance of acknowledgement or quantifiable measure existed in PG&E documents, PG&E records on the whole, and overall practices do not adequately account for the financial impact of delays on Rule 20A projects individually or on the Program as a whole. When projects remain stagnant, allowance for funds used under construction (AFUDC) continues to be accrued,⁶⁶⁴ materials, labor, and overhead costs rise over time,⁶⁶⁵ and changes in Company accounting (increase in costs allocated)⁶⁶⁶ impact the costs incurred on Rule 20A projects. In one report, PG&E personnel noted, “...the length of time this project has taken in construction has resulted in much higher AFUDC costs than were estimated.”⁶⁶⁷ In another document PG&E noted “...the project has been in a holding pattern from Spring of 2005 to today. Therefore, AFUDC charges continue to accrue and will soon overrun the original AA [advanced authorization] amount if not reauthorized... If the

⁶⁵⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001, subparts G and H. Specifically, selection numbers 14 and 16. PG&E’s initial and design estimates for selection number 14 were the same.

⁶⁵⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B

⁶⁵⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-026

⁶⁶⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B

⁶⁶¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, Selection 8

⁶⁶² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, see Selections 8 and 11 for examples.

⁶⁶³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-026

⁶⁶⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 10

⁶⁶⁵ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-022, Att. 1, specifically project number 30762469

⁶⁶⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 06

⁶⁶⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 41

project were to be closed, then all costs to date would be expensed.”⁶⁶⁸ Another form reviewed acknowledged that additional overhead dollars continue to accumulate in the event of delays which PG&E noted if occurred, “construction start [would] be delayed” and “Additional overhead dollars [would] continue to accumulate.”⁶⁶⁹

Others noted that “[r]esources and funding availability could impact efficient construction scheduling which could adversely affect the project financially,”⁶⁷⁰ or identified as a potential weakness to overcome, “[m]aintaining consistent labor force” as “PG&E crews frequently are pulled off R20A project onto higher priority work causing an increase in costs to the job.”⁶⁷¹ Another noted issues and risks to the project included “[c]rew re-deployment due to higher priority work.”⁶⁷² In one reauthorization document, PG&E noted “This project is fully funded in 2011 from Major Work Category 30 – WRO-Rule 20A. The additional funding will come from deferring other Rule 20A projects.”⁶⁷³

AzP addresses the impact of PG&E’s Rule 20A cost variances caused by Company management decisions regarding prioritization and resource utilization in Recommendation 50.

78. OBJECTIVE 2 – *Identify and quantify factors that contribute to cost variances.*

Benchmarking of actual per mile conversion costs during the audit period for PG&E Rule 20A projects demonstrates that, when PG&E’s Rule 20A undergrounding conversion costs per mile are separated by population density (urban, suburban, rural) and compared to an industry study of underground conversion costs, PG&E’s costs per converted mile were higher than the “maximum” conversion cost for two out of the three population densities. AzP asked PG&E to provide benchmarking studies the Company performed during the audit period to identify best cost estimation practices for the Rule 20A program.⁶⁷⁴ PG&E stated that it did not perform any benchmarking studies pertaining to the Rule 20A program from 2014 to the present, and was “not aware” of any such studies being performed from 2007 through 2013.⁶⁷⁵

While PG&E did not perform any benchmarking studies, in order to provide additional context in which to assess the Company’s performance in the Rule 20A program during the audit period, AzP utilized the 2012 Edison Electric Institute (EEI) study on undergrounding as a means of comparison for PG&E’s performance.⁶⁷⁶ The study titled *Out of Sight, Out of Mind 2012 – An Updated Study on the Undergrounding of Overhead Power Lines*, presented a minimum and

⁶⁶⁸ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 10

⁶⁶⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, Selection 16

⁶⁷⁰ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, several responses noted. See for example, selection 37.

⁶⁷¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, Selection 01

⁶⁷² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart B, Selection 07

⁶⁷³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-007, Subpart G, Selection 06

⁶⁷⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Responses to Discovery, AzP-001-140 and AzP-001-143

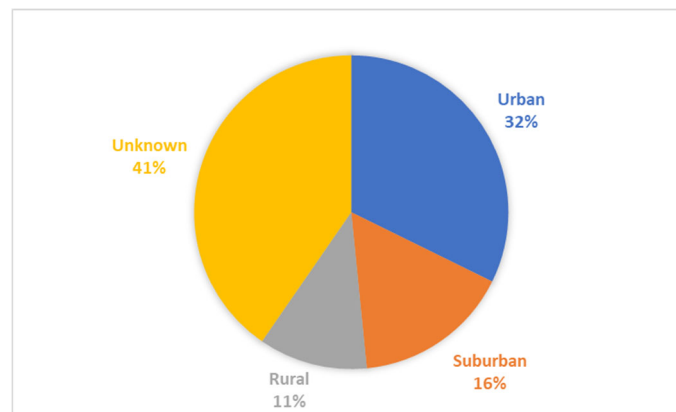
⁶⁷⁵ Id.

⁶⁷⁶ PG&E references this study on its website, noting: “A report prepared by the Edison Electric Institute...found that burying above-ground electric distribution systems can cost up to \$5 million a mile in urban areas.” Obtained from: <http://www.pgecurrents.com/2017/10/31/facts-about-undergrounding-electric-lines/>

maximum range of costs per mile for converting overhead electric distribution lines to underground distribution lines for three population densities—urban, suburban, and rural.⁶⁷⁷ The data was collected on customer density defined as: Urban—150+ customers per square mile; Suburban—51 to 149 customers per square mile; Rural—50 or fewer customers per square mile.⁶⁷⁸

PG&E had conversion projects in each of these population densities, as well as conversion projects in areas where the population density was unknown to PG&E. A list of the nominal costs and miles converted of each project completed during the audit period is provided as AzP Exhibit R. A breakdown of each of these categories for PG&E’s Rule 20A conversion projects, as a percentage of miles converted, is provided in the figure below.

Figure III.5.7: Percentage of PG&E Rule 20A Miles Converted During Audit Period by Population Density



Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1 and Response to Master Data Request in the Rule 20 OIR, R.17-05-010, “Detailed Project Information” tab

Since the EEI study was prepared in 2012, and since this audit is conducted over the ten-year period 2007 through 2016, AzP converted the EEI figures to inflation-adjusted (real) dollars using 2016 as the base year.⁶⁷⁹ This calculation is summarized in the figure that follows

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

⁶⁷⁷ Edison Electric Institute. *Out of Sight, Out of Mind* 2012. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, p. 31

⁶⁷⁸ Edison Electric Institute. *Out of Sight, Out of Mind* 2012. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, p. 29

⁶⁷⁹ CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Figure III.5.8: EEI Study - Minimum and Maximum Cost per Mile: Converting Overhead to Underground Distribution Lines (Nominal and Real Dollars)

(In Nominal \$s)			
Min/Max	Urban	Suburban	Rural
Minimum	\$1,000,000	\$313,600	\$158,100
Maximum	\$5,000,000	\$2,420,000	\$1,960,000
Inflation Adjustment Factor (to convert 2012 \$s to 2016 \$s)			
Inflation Adjustment Factor			1.05
(In Real \$s)			
Min/Max	Urban	Suburban	Rural
Minimum	\$1,050,000	\$329,280	\$166,005
Maximum	\$5,250,000	\$2,541,000	\$2,058,000

Sources: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012; CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

AzP then performed similar calculations for each year of the audit period for the costs related to PG&E's Rule 20A conversion program. Details of these calculations are provided in AzP Exhibit R, and a summary demonstrating the cost per conversion mile for each population density in inflation-adjusted figures for the period 2007 through 2016 is provided in the figure that follows.

Figure III.5.9: PG&E Performance Compared to EEI Study - Minimum and Maximum Cost per Mile for Converting Overhead to Underground Distribution Lines (Real Dollars)

Per EEI Report (Converted to Real \$s)				
Min/Max	Urban	Suburban	Rural	Unknown
Minimum	\$1,050,000	\$329,280	\$166,005	N/A
Maximum	\$5,250,000	\$2,541,000	\$2,058,000	N/A
PG&E Performance - 2007 through 2016 (Converted to Real \$s)				
	Urban	Suburban	Rural	Unknown
	\$3,505,113	\$4,790,559	\$2,540,321	\$3,765,621
PG&E Performance Relative to Min/Max	Urban	Suburban	Rural	Unknown
% of Minimum	334%	1455%	1530%	N/A
% of Maximum	67%	189%	123%	N/A
Costs Above Max?	No	Yes	Yes	N/A

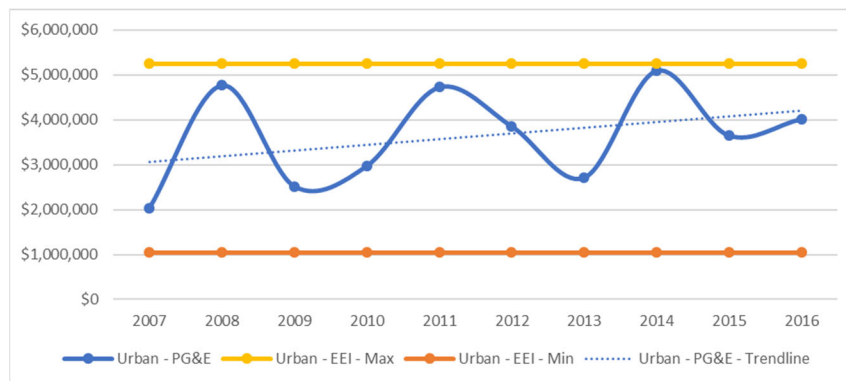
Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

As noted in the preceding table, while PG&E's conversion costs in urban areas appeared to be within the EEI range, two of the three population densities, suburban and rural, had costs per mile of conversion at PG&E that exceeded the EEI maximums.

The following series of line graphs illustrate for each population density category: (1) EEI's minimum and maximum conversion cost per mile in real dollars to provide visual context for

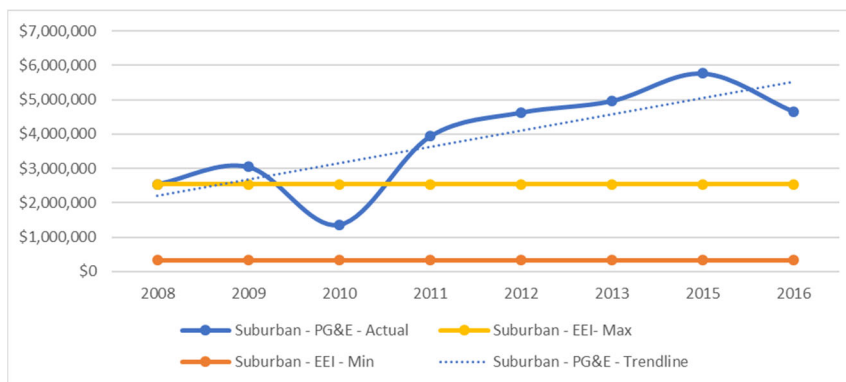
PG&E's performance during the year, (2) PG&E's conversion cost per mile in real dollars for each of the 10 years of the audit period, and (3) a trendline based on PG&E's annual conversion cost data. The years in which the associated population density had no activity were excluded from the chart below (e.g., the Suburban population density in 2007 was excluded from the figures below).

Figure III.5.10: Average Cost Per Mile of Conversion - by Year and Population Density - Urban Regions



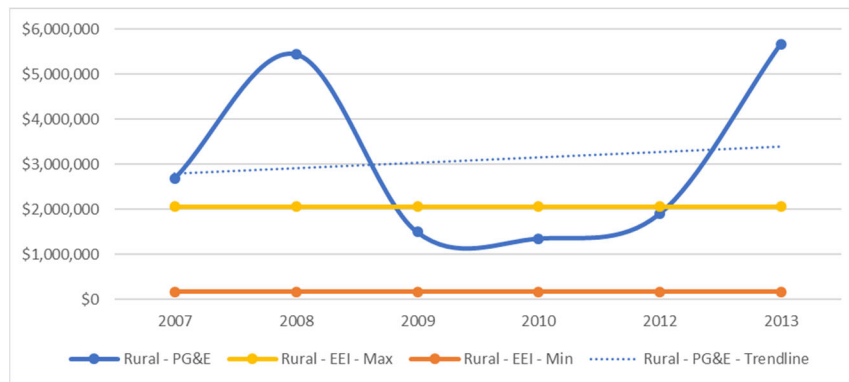
Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Figure III.5.11: Average Cost Per Mile of Conversion - by Year and Population Density - Suburban Regions



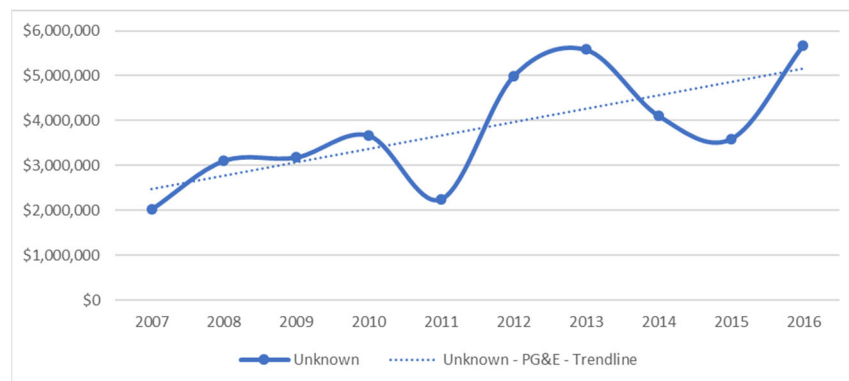
Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Figure III.5.12: Average Cost Per Mile of Conversion - by Year and Population Density - Rural Regions



Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Figure III.5.13: Average Cost Per Mile of Conversion - by Year and Population Density - Unknown Regions



Source: Edison Electric Institute. Out of Sight, Out of Mind. Prepared by Kenneth Hall for EEI, Edison Electric Institute, 2012, GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpicalc.pl>

Viewed graphically on a year-by-year basis, PG&E's Rule 20A conversion cost per mile, even after adjusting for inflation, trended upward for each of the population density categories.

79. **Actual per mile conversion costs during the audit period for PG&E Rule 20A projects were multiples higher than PG&E presented to localities.** When asked in discovery to provide the information that was provided to localities during the audit period regarding the Rule 20A program, PG&E provided a PowerPoint presentation that was created on October 7, 2010⁶⁸⁰ titled

⁶⁸⁰ Date created information was obtained from the "Description" tab in the "Document Properties" of the file provided. GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-037, Att. 9

*PG&E's Rule 20A Program Conversion of Overhead to Underground Facilities.*⁶⁸¹ In a presentation slide titled *How Much Does a Rule 20A Project Cost*, PG&E stated that a “ballpark cost would be on average \$1,000,000 to \$1,500,000 per mile.”⁶⁸² Actual project information AzP reviewed for the audit period demonstrates that, on average and in almost all individual projects completed during the audit period, localities were charged substantially more than the upper of \$1.5 million per mile of conversion of the range the Company presented to the communities in its service area.

During the audit period, PG&E converted 149.66 miles of overhead line to underground line at a cost of \$531.9 million.⁶⁸³ This equates to a cost per mile of conversion of \$3.55 million, or 2.4 times greater than the upper range of PG&E's stated “ballpark cost” of \$1.5 million. In fact, only 15% (37 of 239) of the projects completed during the audit period had average costs per mile of conversion of less than or equal to \$1.5 million.⁶⁸⁴ Not a single year of the ten-year audit period had an average cost per mile of conversion by PG&E that was less than the Company's referenced \$1.5 million.⁶⁸⁵

The referenced PowerPoint slide from PG&E's presentation does not cite a source for the \$1 million to \$1.5 million range. As such, it is unclear where PG&E obtained this information.⁶⁸⁶ However, what does appear clear is that PG&E knew (or, clearly should have known) that its own historical project data was much higher than the stated range. In the three years before this presentation was made (2007 through 2009), PG&E converted 40.46 miles of overhead line to underground line at a cost of \$102.8 million, for an average cost of \$2.5 million—\$1 million higher than the upper range quoted by PG&E.⁶⁸⁷ Information posted on PG&E's website subsequent to the audit period supports AzP's assertion that the \$1 million to \$1.5 million was unreasonably low. In an October 31, 2017 posting on PG&E's website titled *Facts About Undergrounding Electric Lines*, PG&E states that, “According to PG&E estimates, it costs approximately \$3 million per mile to convert underground electric distribution lines from overhead.”⁶⁸⁸

During the audit period, PG&E's communication to localities of inaccurate data, in conjunction with inaccurate initial estimates discussed in AzP Finding 73 led to localities beginning projects that ultimately resulted in project costs that were, oftentimes, multiples higher than those PG&E originally estimated.⁶⁸⁹

⁶⁸¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-037, Att. 9

⁶⁸² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-037, Att. 9, Slide 12

⁶⁸³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1 and Response to Master Data Request in the Rule 20 OIR, R.17-05-010, “Detailed Project Information” tab

⁶⁸⁴ Id.

⁶⁸⁵ Id.

⁶⁸⁶ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-037, Att. 9, Slide 12

⁶⁸⁷ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att.1 and Response to Master Data Request in the Rule 20 OIR, R.17-05-010, “Detailed Project Information” tab

⁶⁸⁸ “Currents” portion of PG&E website, obtained from: <http://www.pgecurrents.com/2017/10/31/facts-about-undergrounding-electric-lines/>

⁶⁸⁹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-092, Att. 1

III.5.a.4 Recommendations

47. OBJECTIVE 1 – *Review of PG&E’s final project cost with approved design cost estimates*

PG&E should enhance its transparency regarding the potential costs of Rule 20A projects. This should include providing accurate and updated information regarding PG&E’s historical performance in both its estimating accuracy and operational efficiency in conducting Rule 20A projects. As discussed in AzP Finding 73, the actual costs of PG&E’s Rule 20A conversion projects were often substantially different than project cost estimates. Actual project costs for projects completed during the audit period were on average 35% higher than PG&E’s initial estimates.⁶⁹⁰ Additionally, as discussed in Finding 74, localities were often not notified of changes in estimates unless it appeared that the locality would not have sufficient work credits to fund the project.⁶⁹¹ AzP recommends that PG&E be more transparent and proactive in its communication regarding project cost estimates. AzP recommends that PG&E annually calculate a ten-year rolling average of PG&E’s actual-to-estimate variances for each of the different project phases and to post this information on its website and report the same in its annual letter to the localities and the Commission.

Similar to providing additional information regarding PG&E’s estimation accuracy, AzP recommends that PG&E accurately maintain, document, and disclose historical information regarding PG&E’s operational efficiency for Rule 20A Conversions. As discussed in AzP Finding 79, during the audit period PG&E provided localities with materials that provided a “ballpark cost” of Rule 20A projects substantially below PG&E’s historical performance.⁶⁹² AzP recommends that PG&E annually calculate a ten-year rolling average of PG&E’s average cost per conversion mile for its system as a whole, as well as by population density, and that PG&E post this information on its website and report the same in its annual letter to the localities and to the Commission.

Providing the historical estimate and operational data as discussed in this recommendation is a simple and cost-effective mechanism to help ensure that, at a minimum, localities enter Rule 20A projects with an accurate understanding of PG&E’s actual recent performance—which is a level of transparency that local agencies did not have access to during the audit period.

48. OBJECTIVE 2 – *Identify and quantify factors that contribute to cost variances.*

PG&E should establish a specific, unambiguous protocol for retaining records related to its cost estimates for the Rule 20A program. These records should be completed and maintained by phase and stored in a central electronic repository that can be accessed by PG&E (as well as, for auditing and verification purposes, by the Commission). PG&E internal controls regarding the Rule 20A program are often either lacking or inconsistently applied. As noted in Finding 76 there were several areas in which PG&E was unable to provide responsive documentation, and there

⁶⁹⁰ Id.

⁶⁹¹ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-006-005

⁶⁹² GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-005-037, Att. 9, Slide 12

were two projects for which PG&E was unable to provide any responsive documentation at all.⁶⁹³ Additionally, certain cost estimate data was likely overwritten in PG&E's system, making budget-to-actual comparisons far less valuable than appropriate. As also noted in Finding 76, there were inconsistent applications of what PG&E utilized as its design cost estimates (sometimes utilizing net cost estimates, other times utilizing gross cost estimates).⁶⁹⁴ To address these issues, AzP recommends that PG&E establish specific internal controls related to its Rule 20A projects to ensure documentation is completed and retained by phase (i.e., Planning, Engineering, Construction, Closing). Additionally, AzP recommends that a history of estimate revisions be maintained so that revisions to PG&E's estimates are adequately recorded and original values are not overwritten to potentially convey a false level of precision. As previously noted, the design cost estimates PG&E documented for Rule 20A projects reflected inconsistent characteristics and represented inconsistent phases. To address this issue, AzP recommends that PG&E clearly define and document with standard consistent written support, what information is to be utilized for the estimates in each phase of each Rule 20A project.

49. **PG&E should utilize conversion cost per mile as a performance metric for projects completed during each year. The year-over-year performance of this metric should be a primary component of the performance evaluation of the Rule 20A program manager.** In Findings 78 and 79 AzP discussed and quantified PG&E's operational performance of the Rule 20A program based on the Company's average conversion costs per mile, noting that PG&E's cost per mile converted was often as high, and sometimes substantially higher, than what a recent industry study considered to be the "maximum" cost for conversions. AzP also noted that the average conversion cost per mile of a PG&E Rule 20A project was trending upward for every population density. As noted in AzP Recommendation 47 PG&E should track and calculate average cost per mile of conversion and communicate this information to the localities to enhance program transparency. Additionally, AzP recommends that PG&E utilize this information as a key performance metric on which it evaluates the program, as well as applicable key personnel, including the Rule 20A program manager.
50. **Given the lack of accounting and accountability from PG&E to consider or document the magnitude of the impact of discretionary resource limitations imposed on Rule 20A projects, AzP recommends that the Commission view any purported improvements to PG&E spending on the program in light of increases in project costs caused by PG&E's own decisions.** In Finding 77 AzP discussed PG&E's recurring yet hidden cause for project cost variances: scheduling delays resulting from PG&E's lack of adequate prioritization and/or adequate staffing. Accordingly, a portion of PG&E spending on the Rule 20A program has been, and until otherwise addressed will continue to be, caused by PG&E's mismanagement of the program, causing higher project costs under Rule 20A than are prudent to incur. In addition to AzP's recommendation in the Work Credit Usage by Governmental Agencies section of this report (that the Commission disallow rate recovery of PG&E Rule 20A costs previously requested, recovered, spending of which the Company deferred, and rate-recovery re-requested), we recommend that the Commission require PG&E to demonstrate reasonably efficient utilization of resources as a condition of rate recovery. This is to ensure rates are just and reasonable and not in excess of the costs reasonably

⁶⁹³ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001

⁶⁹⁴ GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-007-001, subpart D.

incurred under prudent management practices. To the extent utility costs are greater due to PG&E's mismanagement of a program, those costs should be excluded from rates.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IV. GLOSSARY

IV.1 ACRONYMS AND DEFINITIONS

A&G - Administrative and General
AA - Advanced Authorization
AACE - Association of the Advancement of Cost Engineering
AFUDC - Allowance for Funds Used During Construction
AICPA - American Institute of Certified Public Accountants
BCA - Business Case Authorization
CalPA - California Public Advocates Office
Commission - The California Public Utilities Commission
CPUC - The California Public Utilities Commission
CWIP - Capital Work in Progress
ED - Energy Division
EEI - Edison Electric Institute
EM – Estimating and Mapping
FAC - Forecast at Completion
GAAS - Generally Accepted Auditing Standards
GAGAS - Generally Accepted Government Auditing Standards
GCA - General Conditions Agreement
GRC - General Rate Case
LOB - Line of Business
MAT - Maintenance Activity Type
MWC - Major work category
ORA - California Public Advocates, formerly known as Office of Ratepayer Advocates
OH - Overhead
OIR - Order Instituting Rulemaking
PG&E - Pacific Gas and Electric Company
PTYR - Post Test Year Ratemaking
SAS - Statement on Auditing Standards
Staff - The California Public Utilities Commission Staff
The Company - Pacific Gas and Electric Company
TOT - Town and Territory
UUD - utility underground district
WCA - Work credit allocation
WRO - Work at the request of others

V. EXHIBITS

AzP Exhibit A

AzP Exhibit A. Summary of Recommendations		
Reference Nbr	Party for Whom Recommendation is Intended	Recommendation
1	PG&E	PG&E should be required to support its future GRC filings with well-defined project-level forecasts and the relevant localities should be made aware of the level of expenditures PG&E has forecast for each community, by project in PG&E's proposed forecast Rule 20A expenditures.
2	PG&E	PG&E should explicitly state unique budgeting and forecasting considerations for each MWC.
3	PG&E	At the time of each GRC, PG&E should demonstrate how the approved or imputed Commission-adopted portion of the capital expenditures forecast within the approved GRC revenue requirement at the project level for Rule 20A Program reconcile to actual spending since the prior GRC.
4	PG&E	PG&E should inform localities of changes to Rule 20A project budgets in a formalized manner.
5	PG&E	PG&E should provide detailed support for the activity within the PG&E Rule 20A balancing account with each GRC filing.
6	CPUC	We recommend that the Commission consider requiring PG&E to utilize a balancing account for all programs that are routinely over- or underfunded.
7	PG&E	PG&E should develop and implement record-keeping and accounting internal controls related to Rule 20A projects sufficient to ensure that the amounts reported in SAP and those reported for purposes of FERC accounting are consistent.
8	PG&E	PG&E should provide to the Commission analysis of, and justification for, programs that are routinely over- or underfunded.
9	PG&E	In filings to the Commission, PG&E should provide unambiguous definitions when referring to GRC forecasts, PG&E internal budgets and/or Commission-adopted (imputed adopted) figures.
10	PG&E	PG&E should update its Rule 20A Tariff Application Guide to update it for changes necessitated by the adoption of the Rule 20A Balancing Account. Changes should include a protocol for maintaining documentation for CPUC Staff's review and audit of the Rule 20A Balancing Account at a source document (e.g., invoice) level of detail.
11	CPUC	We recommend that the Commission disallow recovery of any forecast Rule 20A program expenditures to the extent PG&E has previously recovered those costs in rates and deferred expenditures.
12	CPUC	We recommend that the structure of the Rule 20A program be modified so that rather than all ratepayers paying for this special service, only those who receive the service are charged with its costs.
13	PG&E	The satisfactory completion of Rule 20A projects should be a primary performance criterion on which the Rule 20A Program Manager is evaluated by PG&E senior management.
14	PG&E	PG&E should either more closely adhere to the tenets of its prioritization model, or more accurately describe the Rule 20A program's level of priority in its GRC filings.
15	PG&E	PG&E should implement a formal workpaper retention protocol for the Rule 20A program witnesses in its GRCs that ensures a fundamental level of detail is historically maintained for auditing purposes.
16	CPUC	We recommend that the Rule 20A Tariff be modified to replace ambiguous language where PG&E discretion may be interpreted based on management judgment, so the tariff instead provides greater clarity and incentive for the utility to complete undergrounding projects efficiently.
17	CPUC	We recommend that Rule 20A communities' purchasing power (i.e., annual WCAs), be adjusted and set at a rate commensurate with what their citizens are paying (and have paid), rather than be tied to PG&E's internal budget or related to 1990 base allocations, both of which represent imprecise measures for setting this figure.
18	CPUC	We recommend that the Commission consider re-instituting an escalation factor for WCA amounts that would allow the purchasing power of localities participating in the Rule 20A program to not be eroded by inflation and construction cost increases.
19	PG&E	We recommend that PG&E review and enhance its controls related to the management of the Rule 20A program. Maintenance of properly updated TOT list, updated line counts (overhead and underground), WCA calculation, review of WCA calculations, and communities' review of their annual allocations each represent opportunities for detection of miscalculations and should be implemented.
20	PG&E	The Rule 20A annual letters provided to localities should contain sufficient detail, i.e., the formula, the total WCA authorized for that year, and PG&E's calculation in native format.
21	PG&E	We recommend that PG&E establish formal, written policies and procedures to resolve discrepancies of work credit allocation balances and to standardize and maintain written, formal documentation of PG&E-local agency correspondence and resolution regarding WCAs issues.
22	PG&E	In addition to the information already provided in the annual letters, we recommend that PG&E include the calculation the Company utilized for determining the local agency's WCAs along with the quantitative inputs, authoritative guidance (i.e., the then-current tariff), along with the amount collected from the customers of that agency in rates in each year for the Rule 20A program.
23	PG&E	We recommend that PG&E provide each agency a complete detailed invoice accounting for all the costs associated with any projects for which the city or county's WCA balance is deducted at project conclusion and in conjunction with the annual letter in the form of year-end activity summary.
24	PG&E	We recommend that PG&E create a public web portal, updated at least quarterly, through which municipalities can review data regarding project status, work credit balance, and the work credit balances of other PG&E Rule 20A communities.
25	CPUC	We recommend that a secondary market for WCAs be disallowed and that the Rule 20A tariff be revised to remove the provision for PG&E discretion in moving WCAs from one community to another.
26	CPUC	PG&E should track inactive ("zombie") Rule 20A projects which are not actively moving forward, with a formal designation, and project status communicated to the relevant locality.

AzP Exhibit A

AzP Exhibit A. Summary of Recommendations		
Reference Nbr	Party for Whom Recommendation is Intended	Recommendation
27	PG&E	PG&E should review current practices to ensure best management practices for initial cost estimation are employed and to ensure PG&E adherence to initial project cost estimating procedures, which should include additional training of Liaisons.
28	CPUC	To effectively address projects that have significant delays, AzP recommends that the Commission disallow PG&E to include in its rate base cost overruns of projects that exceed cost estimates due to PG&E's mismanagement.
29	PG&E	We recommend that PG&E include in its annual Rule 20A reports, tracking and reporting of metrics that measure the progress of Rule 20A conversions.
30	PG&E	PG&E should implement necessary controls to ensure that key historical project data is both retained and easily accessible electronically.
31	PG&E	Local agency approval should be a requirement for a Rule 20A project to be deemed complete.
32	PG&E	PG&E-owned pole removal should be a requirement for a Rule 20A project to be deemed complete.
33	PG&E	PG&E should implement a policy to formally review deductions of work credits for completed projects to improve accountability in the accuracy of the work credit ledger.
34	PG&E	Consistent with AzP Recommendation No. 23 in the Allocations section of this report, PG&E should provide localities with a detailed breakdown of final project costs upon completion of a project.
35	CPUC	AzP recommends that the Commission consider the appropriateness of PG&E's cost allocation methodology within the Rule 20A Order Instituting Rulemaking (OIR) proceeding and in the context of the Company's GRC, with particular attention to the impact of the Company's change in accounting related to EM labor costs as they pertain to Rule 20A cost allocations.
36	PG&E	PG&E should maintain and review, on an annual basis, the performance of the Rule 20A program relative to established metrics and report the cost and duration, by phase, as well as pre- and post-conversion reliability (SAIDI, SAIFI, CAIDI) of Rule 20A undergrounded power lines internally and in annual reports to the Commission.
37	PG&E	AzP recommends that PG&E track and discuss at the Rule 20A workshops and in annual reports to the Commission the overall satisfaction of the localities with the program.
38	PG&E	AzP recommends that evaluation of any steps implemented with the intention of increasing capacity to perform Rule 20A conversions, be evaluated, at a minimum, on the basis of the number of Rule 20A projects PG&E is willing and able to complete in periods subsequent to any purported enhancements as well as the Company's willingness and ability to spend the funds it collects from customers in rates for the management of the Rule 20A program following those steps.
39	PG&E	PG&E should improve oversight of Rule 20A Liaisons to ensure that their incremental value to the Rule 20A program, including the quantity and quality of correspondence with the localities within their region, is adequate to justify their incremental costs. This oversight should include clear communication of explicit "customer requirements" as well as the appropriate evaluation of Liaisons relative to the achievement of those requirements.
40	CPUC	We recommend that the Commission dismiss PG&E's claims of improvements unless the Company is able to present clear and convincing documentation that supports the necessity and positive impact of steps implemented.
41	PG&E	To proactively prevent Rule 20A project delays, PG&E should either outsource its estimation function, or ensure that the Company is willing and able to dedicate adequate internal resources to Rule 20A projects.
42	PG&E	PG&E should update its Underground Planning Guide in accordance with Commission Order D.01.12.009.
43	PG&E	AzP recommends that PG&E standardize and document its protocol for communicating the Company's determination of project eligibility to the respective governmental agencies. AzP recommends this protocol include a review of, on an annual or more frequent basis, projects submitted for consideration and deemed eligible, as well as projects underway, for assessment of changing conditions on eligibility. The original eligibility assessment should be formally documented in an "eligibility checklist."
44	PG&E	AzP recommends that PG&E standardize and document its protocol for ensuring compliance with Rule 20A tariff requirements.
45	PG&E	AzP recommends that PG&E implement a standard step-by-step dispute resolution process regarding Rule 20A projects and for the Company to make this protocol public by providing a standard dispute resolution form for submission by local agencies, which should include PG&E's and the government agency's completed eligibility checklist.
46	PG&E	PG&E should annually assess for reconsideration the eligibility of previously proposed Rule 20A projects that were deemed ineligible at the time of original submission.
47	PG&E	PG&E should enhance its transparency regarding the potential costs of Rule 20A projects. This should include providing accurate and updated information regarding PG&E's historical performance in both its estimating accuracy and operational efficiency in conducting Rule 20A projects.
48	PG&E	PG&E should establish a specific, unambiguous protocol for retaining records related to its cost estimates for the Rule 20A program. These records should be completed and maintained by phase and stored in a central electronic repository that can be accessed by PG&E (as well as, for auditing and verification purposes, by the Commission).
49	PG&E	PG&E should utilize conversion cost per mile as a performance metric for projects completed during each year. The year-over-year performance of this metric should be a primary component of the performance evaluation of the Rule 20A program manager.
50	PG&E	Given the lack of accounting and accountability from PG&E to consider or document the magnitude of the impact of discretionary resource limitations imposed on Rule 20A projects, AzP recommends that the Commission view any purported improvements to PG&E spending on the program in light of increases in project costs caused by PG&E's own decisions.

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2007 through 2012 Activity																	
	2007			2008			2009			2010			2011			2012	
Order	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010
1009863		\$0		-\$43,131	\$0		-\$90,720	\$0		-\$141,214	-\$137,915		-\$194,413	\$137,915			\$0
1010155							\$16,759										
1010385										\$77,045							
1010411										\$7,973							
1012176		\$0			\$0			\$0			\$0			\$0			\$0
6116403																	
30004724		\$0			\$0			\$0			\$0			\$0			\$0
30010732		\$62,522			\$1,465,589	\$69,683	\$2,037,581	-\$1,639,568	\$20,505	\$24,407	\$0	\$1,444	\$0	\$0			\$0
30010785	\$38,838		\$3,692														
30011097	\$21,007																
30014022	\$284,360		\$9,643	\$14,395		\$488	-\$22,404		-\$760								
30025922	\$684		\$33														
30027068	\$6,100	-\$104,796	-\$8,989		\$0			\$0			\$0			\$0			\$0
30034755	\$23,003			\$5,157													
30040767	\$1,098		\$52	\$2,585		\$123											
30055034		\$18,554			\$302,093	\$36,495		\$1,398,012	\$171,895	\$2,469,562	-\$1,898,690	\$60,149	\$575,860	\$3,964	\$78,400	\$7,079	\$0
30058339		-\$97,832			-\$69			\$112,550			-\$112,579		-\$98	\$98			\$0
30060281	\$14,797		\$1,090	-\$17,594		-\$1,296	\$15,469		\$1,139								
30069479		\$110,186	\$2,875		\$52,590	\$665		\$708,355	\$15,970	\$3,472,723	-\$1,198,325	\$68,265	\$6,557,174	\$0	-\$67,983	-\$157,603	\$0
30070533		-\$20,638			\$0			\$0			\$0			\$0			\$0
30070717		\$0			\$0			\$0			\$0			\$0			\$0
30071191		\$0			\$0			\$0			\$0			\$0			\$0
30071453		\$4,594			\$39,389	\$496	\$476,497	-\$451,354			\$0			\$0			\$0
30072595		-\$82,432			\$172,527	\$1,335		\$109,583	\$6,046		\$1,729,595	\$114,501	\$2,669,774	-\$2,011,704	\$40,144	-\$6,045	\$0
30084561										-\$16,323		-\$678					
30098043	\$4,759		\$331							-\$39,057		-\$2,715					
30098410		-\$7,583			\$40,039			\$5,791	\$5,693		\$5,244	\$294		\$7,677	\$1,480		\$9,539
30126926		\$660,151	\$16,430	\$2,685,565	-\$804,313	\$106,771	\$524,901	\$0	\$31,728		\$0			\$0			\$0
30134049	\$25,053	\$0	\$1,408	\$13,787	\$0	\$775	\$1,700	\$0	\$95	\$673	\$0	\$38		\$0			\$0
30136844							-\$1,128		-\$65								
30146944		\$1,782,688	\$114,347	\$3,190,576	-\$2,548,384	\$39,870	\$16,450	\$0	\$1,147		\$0			\$0			\$0
30148780		\$0			\$0			\$0			\$0			\$0			\$0
30155006		\$105,964			\$51,559		\$881,253	-\$162,624	\$74,251	\$242,184	-\$6,312	\$26,424	\$1,491	\$6,312	\$847		\$0
30155323	\$4,004	\$0	\$217		\$0			\$0			\$0						\$0
30160625	\$195,437		\$12,851	\$27,451		\$1,805	-\$44,034		-\$2,896	\$25,687		\$1,689					
30166232	\$158,174	-\$112,646	-\$578		\$0			\$0			\$0			\$0			\$0
30169463		-\$162,163			\$194,115			\$61,979			\$68,579			\$76,346			\$3,452,373
30170714		-\$191,454	\$621		\$236,519	\$19,636		\$49,596	\$2,606		\$32,681	\$687		\$30,902	\$220		\$103,309
30170818		-\$124,071	\$1,088		\$155,809	\$17,287		\$129,029	\$13,494	\$2,333,026	-\$327,878	\$198,046	\$201,181	\$43,040	\$22,649	\$109,927	\$0
30172470		\$20,650	\$1,322		\$58,162	\$5,557		\$43,137	\$651,971		\$480,898	\$58,761		\$1,066,964	\$48,667	\$3,202,294	-\$1,791,927
30177662	\$6,479	-\$6,221			\$0			\$0			\$0			\$0			\$0
30178098				\$14,345		\$656											
30178490		\$174,553	\$7,357		\$1,943,231	\$120,939	\$4,195,581	-\$2,239,592	\$120,445	-\$92,396	\$0	-\$5,973		\$0		\$0	\$0
30184983	\$8,540		\$1,644														
30185077	\$4,210,120	-\$3,119,207	\$28,497	\$50,437	\$0	\$1,394		\$0			\$0			\$0			\$0
30185719		-\$14,585			\$57,546			\$44,718			\$166,408			\$444,524			\$5,462,250
30185815	\$1,122,378	-\$125,322	\$63,308	\$6,998	\$0	\$461		\$0			\$0			\$0			\$0
30186000		\$0			\$0			\$0			\$0			\$0			\$0
30192420	-\$27,355		-\$5,682	\$3,499		\$727											
30194569																	
30200858	-\$8,768		-\$650														
30206851	\$669,465	-\$130,158	\$70,246	\$61,843	\$0	\$8,234	\$8,433	\$0	\$1,123		\$0			\$0			\$0
30211896	\$4,436		\$77				\$1,552		\$27								
30213683		\$156,419	\$24,571	\$424,520	-\$264,722	\$22,686	\$712	\$0	\$122		\$0			\$0			\$0
30215433	-\$13,458		-\$1,289														
30215963	\$3,767,235	-\$3,211,298	\$23,103	\$101,165	\$0	\$5,168	\$305,621	\$0	\$15,612	-\$37,275	\$0	-\$2,078		\$0		\$0	\$0
30219331		\$1,170,648	\$61,858	\$3,582,991	-\$1,398,349	\$104,623	-\$766,646	\$0	-\$38,570		\$0			\$0			\$0
30222280	\$19,706		\$931	\$5,729		\$271											
30222281	\$524,570		\$8,259	\$51,331		\$808	\$14,069		\$222	-\$13,589		-\$214					
30222282	\$41,152		\$665	\$44,979		\$727	\$31,381		\$507								
30222768	\$4,248		\$252							\$1,203		\$75					
30223375	\$4,276		\$93														
30223376	\$197,454		\$3,374	\$232,727		\$3,977	\$62,883		\$1,075	-\$24,982		-\$427					
30223377	\$344,711		\$16,508	\$7,987		\$382	\$15,870		\$760								
30223951	\$8,819	-\$7,977		\$86,273	\$0		\$15,021	\$0		\$12,925	-\$38		\$7,274	\$38			\$0
30225680		-\$65,936			\$0			\$0			\$0			\$0			\$0
30233278	\$21,916		\$2,083	\$22		\$2											
30235385	\$8,836																
30237025		-\$17,361			\$0			\$0			\$0			\$0			\$0
30239755		-\$54,707			\$59,022	\$162		\$16,479	\$2,309		\$8,095	\$347		-\$75,714	-\$17,598	\$7,882	-\$7,882
30240320		\$2,796,860	\$213,733	\$3,642,539	-\$3,431,043	\$12,001	\$5,078	\$0	\$408	\$1,517	\$0	\$140		\$0		\$0	\$0
30240908	\$2,754,710	-\$1,689,782	\$79,735	\$161,789	\$0	\$24,218	\$639,964	\$0	\$95,796	\$217,902	\$0	\$32,601	-\$24,586	\$0	-\$3,589		\$0
30240911		\$1,699,215	\$71,374	\$3,334,969	-\$2,831,339	\$20,443	\$728,327	\$0	\$34,798	\$742,797	\$0	\$35,472	-\$16,890	\$0	-\$697	\$0	\$0

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2013 through 2016 Activity and Audit Period Totals															
Order	2013				2014				2015				2016		Grand Total
	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 426.5 / SAP 9426500	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	
1009863			\$0			\$0				\$0			\$0		-\$469,477
1010155															\$16,759
1010385															\$77,045
1010411															\$7,973
1012176			\$6,811			\$0				\$0			\$0		\$6,811
6116403		\$32,385			\$28,338				\$5,978			\$282			\$66,983
30004724			\$0			\$0				-\$29,864			\$0		-\$29,864
30010732			\$0			\$0				\$0			\$0		\$2,042,163
30010785															\$42,530
30011097															\$21,007
30014022															\$285,723
30025922															\$717
30027068			\$0			\$0				\$0			\$0		-\$107,685
30034755															\$28,160
30040767															\$3,857
30055034	\$989	-\$34,118	\$0	-\$4,732	\$4,538	\$0	\$629			\$0			\$0		\$3,190,679
30058339			\$0			\$0				\$0			\$0		-\$97,930
30060281															\$13,606
30069479		\$23,818	\$0	-\$23,818		\$0				\$0			\$0		\$9,564,893
30070533			\$0			\$0				\$0			\$0		-\$20,638
30070717			\$0			\$0				\$0			\$0		\$0
30071191			\$0			\$0				\$0			\$0		\$0
30071453			\$0			\$0				\$0			\$0		\$69,622
30072595	-\$415		\$0			\$0			\$5,645	\$0	\$376		\$0		\$2,748,930
30084561															-\$17,001
30098043															-\$36,682
30098410	\$2,053		\$8,798	\$1,498		\$6,833	\$311			\$11,179	\$2,009	\$5,118	-\$95,100	-\$45,368	-\$34,495
30126926			\$0			\$0				\$0			\$0		\$3,221,232
30134049			\$0			\$0				\$0			\$0		\$43,528
30136844															-\$1,193
30146944			\$0		\$27,542	\$0	\$1,921			\$0			\$0		\$2,626,156
30148780			\$0			-\$3,364				\$0		-\$3,364	\$3,364		-\$3,364
30155006			\$0			\$0				\$0			\$0		\$1,221,350
30155323			\$0			\$0				\$0			\$0		\$4,221
30160625									\$37,166		\$2,444				\$257,602
30166232			\$0			\$0				\$0			\$0		\$44,951
30169463	\$70,692	\$5,027,472	-\$3,853,392	\$21,425	\$2,345	\$0	\$44		-\$14,349	\$0	-\$276	\$0	\$0		\$4,945,190
30170714	\$6,126	\$3,807,768	-\$453,007	\$248,987	-\$499,539	\$0	-\$42,359	\$1,163,245	\$28,918	\$0	\$2,165	\$691	\$0	\$54	\$4,548,372
30170818	\$10,975	\$1,872	\$0	\$175		\$0			\$13,506	\$0	\$1,308		\$0		\$2,800,463
30172470	\$60,625	\$654,367	\$0	-\$658,018	\$20,307	\$0	\$891			\$0			\$0		\$3,924,628
30177662			\$0			\$0				\$0			\$0		\$258
30178098															\$15,000
30178490			\$0			\$0				\$0			\$0		\$4,224,145
30184983															\$10,184
30185077			\$0			\$0				\$0			\$0		\$1,171,241
30185719	\$222,622	\$17,658,549	-\$6,175,445	\$403,206	-\$10,916,029	\$0	-\$404,957	\$11,347,956	-\$26,998	\$0	-\$1,000		\$0		\$18,268,764
30185815			\$0			\$0				\$0			\$0		\$1,067,823
30186000			\$0			\$0				\$0			\$0		\$0
30192420															-\$28,811
30194569									-\$2,019						-\$2,019
30200858															-\$9,418
30206851			\$0			\$0				\$0			\$0		\$689,187
30211896															\$6,092
30213683			\$0			\$0				\$0			\$0		\$364,308
30215433															-\$14,747
30215963			\$0			\$0				\$0			\$0		\$967,253
30219331			\$0			\$0				\$0			\$0		\$2,716,556
30222280															\$26,636
30222281															\$585,455
30222282															\$119,410
30222768															\$5,778
30223375															\$4,369
30223376															\$476,081
30223377															\$386,218
30223951		\$16,678	\$0		\$18,540	\$0			\$60,704	\$0		-\$375,160	\$0		-\$156,904
30225680			\$0			\$0				\$0			\$0		-\$65,936
30233278															\$24,023
30235385															\$8,836
30237025			\$0			\$0				\$0			\$0		-\$17,361
30239755			\$0			\$0				\$0			\$0		-\$61,605
30240320			\$0			\$0				\$0			\$0		\$3,241,234
30240908			\$0			\$0				\$0			\$0		\$2,288,757
30240911			\$0			\$0				\$0			\$0		\$3,818,470

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2007 through 2012 Activity																	
	2007			2008			2009			2010			2011			2012	
Order	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010
30242352		\$104,837			\$830,689			\$1,423,903	\$77,570	\$3,258,930	-\$2,391,337	\$41,730	-\$7,664	\$6,881	-\$46		\$0
30242967	\$3,725,049	-\$3,060,264	\$27,171	\$18,875	\$0	\$970	-\$5,838	\$0	-\$300		\$0			\$0			\$0
30245221	\$11,203		\$388	-\$46,045		-\$1,596	\$2,839		\$98								\$0
30247819		-\$10,029			\$261			\$38,294			\$11,399			\$4,460			\$4,822
30249353	\$584,505		\$41,840	\$62,123		\$4,447	-\$145,016		-\$10,380	-\$63,982		-\$4,580					
30249355	\$465,237	\$0	\$40,510	\$1,050,165	\$0	\$91,443	\$175,083	\$0	\$15,245	-\$104,235	\$0	-\$9,805		\$0			\$0
30249357	\$230,730	\$0	\$8,492	\$353,123	\$0	\$12,997	-\$22,474	\$0	-\$827		\$0			\$0			\$0
30249359	\$820,099	\$0	\$30,097	-\$39,324	\$0	-\$1,443	\$25,486	\$0	\$935	\$10,813	\$0	\$407		\$0		\$0	\$0
30249629	\$112,324		\$2,292	-\$61,960		-\$1,264	\$18,640		\$380								
30249631	\$449,763	\$0	\$33,282	\$366,285	\$0	\$27,104	-\$12,739	\$0	-\$943	-\$29,468	\$0	-\$2,181		\$0			\$0
30249633	\$322,190	\$0	\$9,725	-\$1,746	\$0	-\$53	-\$12,918	\$0	-\$390		\$0			\$0			\$0
30249966	\$40,692		\$1,336														
30250051		-\$91,906			-\$17,459			\$17,459		\$0	\$0			\$0			\$0
30250053		\$0						\$0			\$176		\$176	-\$176			\$0
30250174	\$413,687		\$15,761	\$167,005		\$6,363	\$41,246		\$1,571	-\$32,252		-\$1,318				\$0	
30250175	\$303,528		\$20,858	-\$149,009		-\$10,240	-\$4,595		-\$316	\$97		\$7					
30251065		-\$18,420			-\$16			\$1,211			-\$1,196			\$0			\$0
30252291		-\$1,180			\$0			\$0			\$0			\$0			\$0
30256639		\$4,995			\$4,141			\$27,818			\$16,559			\$19,425			\$791,753
30256790		-\$21,406			-\$24			\$4,557			\$9,420			\$1,261			\$1,364
30256793		-\$4,045			\$0			\$0			\$0			\$0			\$0
30258465		-\$4,380			-\$4			\$6,597			\$7,397			\$4,361		-\$708	-\$18,351
30261740		-\$9,290			\$77,996	\$2,925		\$11,367	\$170		\$12,958	\$193		\$14,965	\$245		\$33,789
30264400	\$344	\$0	\$47	\$1,215	\$0	\$167		\$0		-\$30,473	\$0	-\$4,191		\$0			\$0
30267067		\$2,778			\$43,946			\$49,920			\$34,214			\$28,066			\$201,984
30267141	-\$158,514		-\$4,667														
30269571		-\$91,130	\$2,263		\$100,128	\$985		\$8,933	\$64		\$9,900	\$304		-\$86,814	-\$110,059	\$32,146	-\$32,146
30269575		\$0			\$0			\$0			\$0			\$0			\$0
30271350	\$1,658		\$46														
30276150	\$1,720,211	-\$1,639,623	\$1,467	\$87,555	\$0	\$4,502		\$0		\$6,598	\$0	\$339		\$0			\$0
30278150	\$212,945		\$7,358	-\$23,606		-\$816	\$22,173		\$766								
30282030	-\$25,573		-\$2,927														
30288220										\$5,578		\$523					
30292474	\$7,400		\$348	\$11,087		\$521											
30292479	-\$990		-\$42	\$10,622		\$446				\$714		\$30					
30297408	\$270,143		\$11,491	\$28,960		\$1,232	-\$1,404		-\$60								
30302192		\$21,111	\$817	\$219,312	-\$166,003	\$3,765	\$1,294,500	\$0	\$111,190	\$499,863	-\$142	\$42,483	-\$8,752	\$142	-\$691	\$0	\$0
30302872	\$201		\$4														
30303305	\$566,866		\$87,411	\$113,600		\$17,517	\$35,124		\$5,416	-\$55,223		-\$8,516					
30305109																-\$6,130	
30306856	\$1,369		\$65														
30308489		\$0			\$0			\$0			\$0			\$0			\$0
30308833		\$240,626			\$100,086	\$607		\$73,551	\$364	\$931,956	-\$914,028	\$66,690	\$18	\$2,764,564	\$148,667	\$9,174,736	-\$2,708,642
30311335		\$0		\$42,530	\$0	\$6,159		\$0			\$0			\$0			\$0
30311450		\$30,002	\$2,031	\$224,245	-\$35,037	\$21,906	\$807	\$0	\$95		\$0			\$0			\$0
30312923		-\$6,496			\$0			\$0			\$0			\$0			\$0
30314814	\$2,377		\$43	\$1,682		\$30	\$10,064		\$180								
30317644		\$4,582			\$111,747	\$587		\$1,499,342	\$65,377	\$2,201,609	-\$1,662,265	\$22,939	-\$236,948	\$268	-\$11,336	\$9,029	\$0
30321001	-\$6,836	\$0	-\$467		\$0			\$0			\$0			\$0			\$0
30323741		-\$71,350			\$5,206			\$9,359			\$10,460			\$92,832			\$34,406
30323748		\$0			\$0			\$0			\$0			\$0			\$0
30323751		-\$93,410			\$150,930			\$120,811	\$14,867		\$403,227	\$40,753	\$1,010,511	-\$674,967	\$35,433	-\$1,035	\$0
30326713	\$1,130,800	-\$358,963	\$27,592	\$9,442	\$0	\$357	\$707	\$0	\$27		\$0			\$0			\$0
30328762	\$5,071		\$313														
30330690		\$14,258	-\$16,723		\$47,902	\$81		-\$498,051	-\$142,434		-\$3,979			\$0		\$42,352	-\$42,352
30333103	\$311,126		\$34,493	\$75,509		\$8,371	\$44,074		\$4,886	-\$26,710		-\$2,961					
30334696	\$468,581	\$0	\$11,424	\$79,866	\$0	\$1,947	-\$2,407	\$0	-\$59		\$0			\$0			\$0
30334698	\$342,971	\$0	\$13,473	\$133,089	\$0	\$5,228	-\$60,097	\$0	-\$2,361	\$2,027	\$0	\$80		\$0			\$0
30334699	\$1,202,704	\$0	\$35,793	-\$116,155	\$0	-\$3,457	-\$51,389	\$0	-\$1,529	\$4,612	\$0	\$137		\$0			\$0
30334782	\$2,806,439	-\$1,709,263	\$125,389	\$239,790	\$0	\$29,879	-\$4,807	\$0	-\$599	\$472	\$0	\$58		\$0		\$0	\$0
30334783	\$525,146	\$0	\$28,513	-\$3,596	\$0	-\$195	\$18,930	\$0	\$1,028	-\$7,479	\$0	-\$406		\$0			\$0
30334785	\$133,149	\$0	\$2,690	\$104,327	\$0	\$2,107	\$483,934	\$0	\$9,776	-\$41,391	\$0	-\$836		\$0			\$0
30334786	\$553,079	\$0	\$30,276	\$188,269	\$0	\$10,306	\$805,466	\$0	\$44,092	\$27,393	\$0	\$1,510	-\$99,675	\$0	-\$5,319		\$0
30334788	\$1,370,147	\$0		\$821,045	\$0		\$22,656	\$0		\$25,694	\$0			\$0			\$0
30334789	-\$26,257		-\$896	-\$15,254		-\$521	-\$1,111		-\$38								
30334790	\$17,568	\$0	\$517		\$0		\$8,161	\$0	\$240		\$0			\$0			\$0
30334791	\$6,153		\$278														
30334792	\$275,367	\$0	\$17,452	\$73,682	\$0	\$4,670	-\$12,801	\$0	-\$811		\$0			\$0			\$0
30339035	\$6,862		\$673														
30339515		\$0		\$5,105	\$0	\$225		\$0			\$0			\$0			\$0
30340559		\$0			\$0			\$0			\$0			\$0			\$0
30344383		\$7,424			\$18,709	\$603		\$35,160	\$1,653		\$44,005	\$2,876		\$622,075	\$28,477	\$1,479,607	-\$816,089
30344715	\$2,113,531	-\$1,510,532	\$59,103	\$21,960	\$0	\$2,513	\$357	\$0	\$41		\$0			\$0			\$0

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2013 through 2016 Activity and Audit Period Totals															
Order	2013				2014			2015			2016			Grand Total	
	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 426.5 / SAP 9426500	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010		FERC 108* / SAP 1080110
30242352			\$0			\$0			-\$2,746	\$0	-\$143		\$0		\$3,342,605
30242967			\$0			\$0				\$0			\$0		\$705,664
30245221													\$0		-\$33,112
30247819			\$4,870			\$5,238				\$5,721			\$6,045		\$71,081
30249353															\$468,956
30249355			\$0			\$0				\$0			\$0		\$1,723,643
30249357			\$0			\$0				\$0			\$0		\$582,041
30249359			\$0			\$0				\$0			\$0		\$847,069
30249629															\$70,411
30249631			\$0			\$0				\$0			\$0		\$831,104
30249633			\$0			\$0				\$0			\$0		\$316,807
30249966															\$42,028
30250051			\$0			\$0				\$0			\$0		-\$91,905
30250053			\$0			\$0				\$0			\$0		\$176
30250174															\$612,062
30250175															\$160,330
30251065			\$0			\$0				\$0			\$0		-\$18,420
30252291			\$0			\$0				\$0			\$0		-\$1,180
30256639			-\$149,134	\$68,959		\$5,178,460	\$560,186		\$8,011,251	-\$5,941,433	\$218,379	\$18,597	\$0	\$2,054	\$8,832,011
30256790			\$1,377			\$1,533				\$1,688			\$1,854		\$1,625
30256793			\$0			\$0				\$0			\$0		-\$4,045
30258465			\$0			\$0				\$0			\$0		-\$5,087
30261740	\$908		\$57,751	\$1,731		\$90,237	\$2,748			\$52,112	\$1,084		\$363,867	\$25,781	\$741,535
30264400			\$0			\$0				\$0			\$0		-\$32,890
30267067	\$11,723	\$1,940,096	-\$396,908	\$50,131	-\$5,845	\$0	-\$195			\$0			\$0		\$1,959,907
30267141															-\$163,181
30269571			\$0			\$0				\$0			\$0		-\$165,427
30269575			\$0			\$0				\$0			\$0		\$0
30271350															\$1,704
30276150			\$0			\$0				\$0			\$0		\$181,049
30278150															\$218,820
30282030															-\$28,500
30288220															\$6,101
30292474															\$19,355
30292479															\$10,780
30297408															\$310,362
30302192			\$0		-\$131,524	\$0	-\$11,297	\$142,822		\$0			\$0		\$2,017,595
30302872															\$205
30303305															\$762,196
30305109	-\$1,860														-\$7,990
30306856															\$1,434
30308489			\$0			\$0				\$0			\$0		\$0
30308833	\$483,424	-\$743,086	\$0	\$13,097		\$0				\$0		\$5,617	\$0	\$457	\$9,638,703
30311335			\$0			\$0				\$0			\$0		\$48,689
30311450			\$0			\$0				\$0			\$0		\$244,049
30312923			\$0			\$0				\$0			\$0		-\$6,496
30314814															\$14,376
30317644	\$397		\$0			\$0				\$0			\$0		\$2,005,329
30321001			\$0			\$0				\$0			\$0		-\$7,304
30323741	\$4,558	\$2,095,506	-\$152,261	\$66,121	\$49,478	\$0	\$1,625		\$54,136	\$0	\$1,772		\$0		\$2,201,846
30323748			\$0			\$0				\$0			\$0		\$0
30323751	-\$101		\$0			\$0				\$0			\$0		\$1,007,018
30326713			\$0			\$0				\$0			\$0		\$809,963
30328762															\$5,384
30330690			\$0			\$0				\$0			\$0		-\$600,620
30333103															\$448,788
30334696			\$0			\$0				\$0			\$0		\$559,352
30334698			\$0			\$0				\$0			\$0		\$434,410
30334699			\$0			\$0				\$0			\$0		\$1,070,716
30334782			\$0			\$0				\$0			\$0		\$1,487,358
30334783			\$0			\$0				\$0			\$0		\$561,942
30334785			\$0			\$0				\$0			\$0		\$693,755
30334786		\$53,966	\$0	\$2,853	\$108	\$0	\$5			\$0			\$0		\$1,612,329
30334788			\$0			\$0				\$0			\$0		\$2,239,542
30334789															-\$44,076
30334790			\$0			\$0				\$0			\$0		\$26,487
30334791															\$6,431
30334792			\$0			\$0				\$0			\$0		\$357,560
30339035															\$7,534
30339515			\$0			\$0				\$572			\$0		\$5,902
30340559			\$0			\$0				\$0			\$0		\$0
30344383	\$22,344	\$2,817	\$0	-\$2,832		\$0				\$0			\$0		\$1,446,831
30344715			\$0			\$0				\$0			\$0		\$686,973

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2007 through 2012 Activity																	
	2007			2008			2009			2010			2011			2012	
Order	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010
30348512	\$207,406	-\$196,768			\$0			\$0			\$0			\$0			\$0
30354147	\$3,284	\$0	\$300	\$12,716	\$0	\$1,162		\$0			\$0			\$0			\$0
30354297	\$0	-\$7,240			\$0			\$0			\$0			\$0			\$0
30354298		\$128,177			\$121,423	\$1,163		\$1,638,856	\$43,491		\$1,214,658	\$29,682	\$3,442,806	-\$3,118,730	\$9,613	\$667,117	\$0
30366845	\$1,797,695	-\$1,503,502	\$20,628	\$3,172	\$0	\$236	\$3,447	\$0	\$256	\$9,109	\$0	\$677		\$0			\$0
30367124		\$359			-\$4,862			\$0			\$0			\$0			\$0
30367568		-\$51,506			\$1,539,109	\$38,195	\$1,995,267	-\$1,539,109	\$18,471	\$9,132	\$0	\$414	-\$4,160	\$0	-\$172	\$0	\$0
30368404		-\$176,698			\$1,184,074	\$86,138		\$144,255	\$2,090		\$156,099	\$2,052		\$132,952	\$63	-\$52,816	-\$1,617,380
30376352	\$481,511	\$0	\$25,770	\$801	\$0	\$43	\$11,580	\$0	\$620		\$0			\$0			\$0
30377230		-\$3,632			\$0			\$0			\$0			\$0			\$0
30377300		-\$541			\$0			\$0			\$0			\$0			\$0
30381109	\$3,516	\$0	\$177	\$24,279	\$0	\$1,221		\$0			\$0			\$0			\$0
30383452	\$1,217,056	\$0	\$168,324	\$1,657,537	\$0	\$229,244	\$40,066	\$0	\$5,541	-\$55,940	\$0	-\$7,759	-\$985	\$0	-\$147	\$0	\$0
30383780		-\$44,004	\$1,085		\$76,841	\$12,662		\$7,889	\$119		\$16,077	\$491		\$55,085	\$2,547	\$757,270	-\$155,892
30384129		\$646,278	\$32,898	\$880,508	-\$717,988	\$7,294	\$4,329	\$0	\$218		\$0			\$0			\$0
30384525	\$1,475	\$0	\$95		\$0			\$0			\$0			\$0			\$0
30387770		\$204,435			\$120,869	\$6,972		\$725,929	\$78,907		\$909,768	\$95,150	\$3,120,895	-\$2,134,014	\$113,106	\$12,909	\$0
30391234	\$1,407		\$50														\$0
30393476		\$4,071			\$117,310			\$492,743	\$54,747		\$694,103	\$75,494	\$2,790,267	-\$1,310,260	\$193,993	\$872,944	\$0
30395065		-\$8,691			\$72,258	\$57		\$821,814	\$37,629	\$2,461,088	-\$894,695	\$72,116	\$16,418	\$622	\$616	-\$222	\$0
30397444		-\$916		\$13,865	\$0	\$28,661	\$55,807	\$0	\$5,350	\$6,325	\$0	\$642	\$6,217	\$0	\$661	-\$154,754	\$0
30400105	\$364,612	\$0	\$20,894		\$0			\$0			\$0			\$0			\$0
30400280	\$581,649	\$0	\$23,164	\$24,912	\$0	\$992	\$14,472	\$0	\$576	-\$13,833	-\$201	-\$551	-\$100	\$201	\$4	\$0	\$0
30401677		\$8,010	\$371		\$25,828	\$360	\$215,194	-\$85,576	\$2,154	-\$206,162	\$0	-\$4,025	\$0	\$0			\$0
30402155	\$1,216,299	-\$617,750	\$37,737	-\$29,327	\$0	-\$1,942	\$8,192	\$0	\$542		\$0			\$0			\$0
30403106	\$1,011,130	-\$900,004	\$13,281	\$217	\$0	\$27	\$4,647	\$0	\$573		\$0			\$0			\$0
30406159		-\$14,790			\$6,327			\$33,948			\$16,576			\$18,096			\$118,362
30406410		\$0			\$0			\$0			\$0			\$0			\$0
30406567	\$810,465	-\$440,613	\$20,993	\$3,582	\$0	\$210		\$0			\$0			\$0			\$0
30406568		-\$3,931			\$116,976			\$36,974	\$1,678		\$1,132,830	\$107,663	\$2,827,373	-\$1,286,779	\$132,609	-\$541,683	\$0
30408801	\$256,741	\$0	\$18,526	-\$3,754	\$0	-\$271		\$0			\$0			\$0			\$0
30410006	\$401,243	\$0	\$22,635	\$63,397	\$0	\$3,576	\$6,050	\$0	\$341		\$0			\$0			\$0
30410007	\$306,818	\$0	\$8,190	\$372,652	\$0	\$9,948	-\$31,965	\$0	-\$853		\$0			\$0			\$0
30411405		-\$1,697			\$73,790	\$3,781		\$18,917	\$837		\$679,235	\$51,788		\$264,778	\$14,981	\$1,365,091	-\$1,036,720
30411562		\$1,053,803	\$10,145	\$3,365,378	-\$2,058,600	\$36,664	-\$27,616	\$0	-\$810		\$0			\$0			\$0
30415847	-\$24,814		-\$1,405														\$0
30417989	\$6	-\$500	-\$36		\$0			\$0			\$0			\$0			\$0
30418943	\$207,935	-\$191,025	\$1,111		\$0			\$0			\$0			\$0			\$0
30419337		\$145,264	\$2,206	\$476,745	-\$160,334	\$5,774	-\$4,890	\$0	-\$94		\$0			\$0			\$0
30421018	\$2,172,260	-\$418,973	\$83,199	\$108,337	\$0	\$6,015	\$5,673	\$0	\$315		\$0			\$0			\$0
30425691		-\$3,505			\$6,002			\$2,924			\$1,369			\$914			\$988
30431045		\$72,588			\$81,382	\$984		\$56,702	\$1,805		\$235,035	\$10,115		\$1,502,587	\$56,265	\$3,215,992	-\$1,965,010
30442255		-\$87,159	\$448		\$229,529	\$7,864		\$43,717	\$1,324		\$45,436	\$1,237		\$257,332	\$19,662	\$1,342,158	-\$576,014
30443282	\$21,836	\$0	\$673		\$0			\$0			\$0			\$0			\$0
30443283	\$26,579	\$0	\$802	\$4,659	\$0	\$141		\$0			\$0			\$0			\$0
30444989		-\$3,658			\$94,258	\$84		\$168,240	\$19,050	\$1,023,337	-\$262,546	\$99,610	\$2,794	\$49	\$495	\$0	\$0
30444991		-\$3,488		\$751,798	\$0	\$35,065	\$5,347	\$0	\$506	\$3,844	\$0	\$364		\$0			\$0
30449755		\$21,446	\$1,535	\$764,130	-\$55,012	\$49,845	-\$8,221	\$0	-\$576	-\$2,335	\$0			\$0			\$0
30450302		\$512,382	\$22,016	\$1,067,524	-\$594,565	\$25,092	\$27,641	\$0	\$1,532		\$0			\$0			\$0
30454611	\$906,453	-\$65,231	\$49,135	\$110,054	\$0	\$6,652	\$533	\$0	\$32	\$673	\$0	\$41		\$0			\$0
30454814		\$169,403	\$15,593		\$2,747,992	\$162,228	\$3,759,672	-\$3,023,428	\$27,263	\$1,006,960	-\$5,793	\$64,379	\$34,103	\$5,793	\$2,513	\$0	\$0
30455085	\$9,241	-\$7,826			\$0		-\$9,241	\$0			\$0			\$0			\$0
30456370		-\$35			\$0			\$0			\$0			\$0			\$0
30459828	-\$1,810	\$0	-\$341		\$0			\$0			\$0			\$0			\$0
30467134	\$376,421	\$0	\$37,235	\$176,350	\$0	\$19,203		\$0			\$0			\$0			\$0
30469953		\$675,975	\$49,259	\$940,894	-\$722,982	\$16,241	\$6,675	\$0	\$504		\$0			\$0			\$0
30472856	\$331,835	-\$134,372	\$83,624	\$37	\$0	\$16	\$3,515	\$0	\$1,501		\$0			\$0			\$0
30475687		-\$5,011			-\$2			\$809			\$177			-\$1,017		-\$34	\$34
30482073		\$20,240	\$629		\$33,613	\$3,513		\$10,634	\$145	\$8,050	-\$116,946	-\$15,821		\$0			\$0
30483968		-\$57			\$0			\$0			\$0			\$0			\$0
30485630		-\$172			\$0			\$4,565			\$2,001			\$818			\$660
30487832		-\$9,021			-\$3			\$10,332			\$906			\$997			\$1,078
30487833		-\$6,511			-\$3			\$7,491			\$657			\$723			\$781
30488767	\$73,543	\$0	\$3,854		\$0		\$5,215	\$0	\$273		\$0			\$0			\$0
30492230		\$8,111	\$86		\$20,329	\$605		\$58,327	\$2,040		\$57,282	\$1,870	\$2,088,485	-\$202,254	\$50,909	\$179,133	\$0
30500792		\$3,656			-\$7,787			\$0			\$0			\$0			\$0
30513231		\$218,661	\$1,732	\$719,047	-\$249,910	\$191,239	\$135,387	\$0	\$56,407		\$0			\$0			\$0
30514516		\$720,968	\$39,992	\$831,116	-\$754,141	\$3,763	\$4,413	\$0	\$263	\$60,905	\$0	\$3,780	\$7,393	\$0	\$486		\$0
30519332		\$11			\$49,210			\$45,670			\$15,165			\$12,090			\$31,681
30520215		\$8,833			\$102,302	\$107		\$49,655	\$1,997		\$767,891	\$55,686	\$3,631,908	-\$929,138	\$168,795	-\$670,147	\$0
30526916		\$70,392	\$3,699		\$683,172	\$99,602	\$988,751	-\$761,661	\$32,573		\$0			\$0			\$0
30528244		-\$1,277			\$6,642			-\$6,642			\$0			\$0			\$0
30533492	\$801	-\$1,100	\$102	\$153,228	\$0	\$19,443	\$5,937	\$0	\$753	\$2,945	\$0	\$374		\$0			\$0

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2013 through 2016 Activity and Audit Period Totals															
Order	2013				2014				2015				2016		Grand Total
	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 426.5 / SAP 9426500	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	
30348512			\$0			\$0				\$0			\$0		\$10,639
30354147			\$0			\$0				\$0			\$0		\$17,462
30354297			\$0			\$0				\$0			\$0		-\$7,240
30354298	\$18,519	\$27,372	\$0	\$759		\$0			\$63,160	\$0	\$1,746		\$0		\$4,289,812
30366845			\$0			\$0				\$0			\$0		\$331,719
30367124			\$0			\$0				\$0			\$0		-\$4,503
30367568			\$0		-\$834,563	\$0	-\$35,136	\$869,699		\$0			\$0		\$2,005,640
30368404	-\$91,366		\$0			\$0				\$0			\$0		-\$230,537
30376352			\$0			\$0				\$0			\$0		\$520,325
30377230			\$0			\$0				\$0			\$0		-\$3,632
30377300			\$0			\$0				\$0			\$0		-\$541
30381109			\$0			\$0				\$0			\$0		\$29,193
30383452			\$0			\$0				\$0			\$0		\$3,252,937
30383780	\$20,493	\$60,927	\$0	-\$18,652	\$1,235	\$0	\$40			\$0			\$0		\$794,214
30384129			\$0			\$0				\$0			\$0		\$853,536
30384525			\$0			\$0				\$0			\$0		\$1,570
30387770	\$1,483	-\$20,785	\$0	-\$2,449		\$0			-\$6,328	\$0	-\$742		\$0		\$3,226,105
30391234															\$1,457
30393476	\$111,067	\$509	\$0	\$71		\$0			-\$36,396	\$0	-\$4,531		\$0		\$4,056,131
30395065	-\$11		\$0			\$0				\$0			\$0		\$2,578,999
30397444	-\$15,175	\$0	\$0			\$0				\$0			\$0		-\$53,318
30400105			\$0			\$0				\$0			\$0		\$385,507
30400280			\$0			\$0				\$0			\$0		\$631,285
30401677			\$0			\$0				\$0			\$0		-\$43,846
30402155			\$0			\$0				\$0			\$0		\$613,751
30403106			\$0			\$0				\$0			\$0		\$129,872
30406159			\$130,253	\$15,080	\$3,476,753	-\$323,563	\$161,462		\$173	\$0	-\$2	\$0	\$0	\$0	\$3,638,675
30406410			\$0			\$0				\$0			\$0		\$0
30406567			\$0			\$0				\$0			\$0		\$394,636
30406568	-\$43,451	\$311,287	\$0	\$27,288	-\$1,424,152	-\$12,515	-\$119,103	\$1,555,770	-\$12,515	\$12,515			\$0		\$2,818,835
30408801			\$0			\$0				\$0			\$0		\$271,242
30410006			\$0			\$0				\$0			\$0		\$497,242
30410007			\$0			\$0				\$0			\$0		\$664,790
30411405	\$16,814	\$38,758	\$0	\$612	-\$1,307	\$0	-\$91			\$0			\$0		\$1,489,566
30411562			\$0			\$0				\$0			\$0		\$2,378,963
30415847															-\$26,219
30417989			\$0			\$0				\$0			\$0		-\$531
30418943			\$0			\$0				\$0			\$0		\$18,021
30419337			\$0			\$0				\$0			\$0		\$464,671
30421018			\$0			\$0				\$0			\$0		\$1,956,825
30425691			\$998			\$1,046				-\$14,240			\$0		-\$3,505
30431045	\$90,250	\$13,767	\$0	-\$8,045	\$6,199	\$0	\$328		-\$7,390	\$0	-\$390		\$0		\$3,363,164
30442255	\$27,345	\$9,347	\$0	-\$9,347		\$0				\$0			\$0		\$1,312,878
30443282			\$0			\$0				\$0			\$0		\$22,509
30443283			\$0			\$0				\$0			\$0		\$32,182
30444989	\$0		\$0			\$0				\$0			\$0		\$1,141,711
30444991			\$0			\$0				\$0			\$0		\$793,436
30449755			\$0			\$0				\$0			\$0		\$770,810
30450302			\$0			\$0				\$0			\$0		\$1,061,622
30454611			\$0			\$0				\$0			\$0		\$1,008,343
30454814			\$0		\$31,419	\$0	\$1,934		\$120	\$0	\$7		\$0		\$5,000,158
30455085			\$0			\$0				\$0			\$0		-\$7,826
30456370			\$0			\$0				\$0			\$0		-\$35
30459828			\$0			\$0				\$0			\$0		-\$2,151
30467134			\$0			\$0				\$0			\$0		\$609,209
30469953			\$0			\$0				\$0			\$0		\$966,566
30472856			\$0			\$0				\$0			\$0		\$286,155
30475687			\$0			\$0				\$0			\$0		-\$5,045
30482073			\$0			\$0				\$0			\$0		-\$55,944
30483968			\$0			\$0				\$0			\$0		-\$57
30485630			\$666			\$698				\$817			\$823		\$10,877
30487832			-\$13,308			\$0				\$0			\$0		-\$9,021
30487833			-\$9,649			\$0				\$0			\$0		-\$6,511
30488767			\$0			\$0				\$0			\$0		\$82,886
30492230	\$4,597	-\$1,525	\$0	-\$3,029		\$0				\$0			\$0		\$2,264,964
30500792			\$0			\$0				\$0			\$0		-\$4,132
30513231			\$0			\$0				\$0			\$0		\$1,072,563
30514516		\$0	\$0			\$0				\$0			\$0		\$918,938
30519332			\$143,157			\$69,733				-\$366,847			\$0		-\$130
30520215	-\$39,227	\$28,832	\$0	\$822		\$0				\$0			\$0		\$3,178,317
30526916			\$0			\$0				\$0			\$0		\$1,116,527
30528244			\$0			\$0				\$0			\$0		-\$1,277
30533492			\$0			\$0				\$0			\$0		\$182,482

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2007 through 2012 Activity																	
Order	2007			2008			2009			2010			2011			2012	
	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010
30541127		-\$3,167			\$0			\$0			\$0			\$0			\$0
30547671		\$242,382	\$1,038	\$1,961,066	-\$242,382	\$42,116	-\$343,371	\$0	-\$8,696	\$70,350	-\$148	\$1,784	\$11,073	\$148	\$337		\$0
30550905		\$0	\$1,198		\$0	\$50,559		\$0			\$0	-\$97,819		\$0			\$0
30551919		\$5,156			\$8,882			\$58,323			\$22,890			\$26,452			\$16,597
30558119		\$0		\$190,602		\$24,138	-\$8,378	\$0	-\$1,262	\$1,150	\$0	\$173		\$0			\$0
30563616		\$0			\$164,647			\$2,200,808	\$109,765		\$1,283,371	\$210,270	\$4,555,230	-\$3,648,826	\$51,653	\$156,153	\$0
30563617		\$0			\$0			\$1,842			\$4,689			\$3,459			\$923
30563618		\$0			\$0			\$1,171			\$104			\$113			\$122
30563619		\$0			\$61,417			\$61,605	\$766		\$154,218	\$12,037		\$407,046	\$15,435	\$973,513	-\$684,286
30563720		\$0			\$47,253			\$97,220			\$36,166			\$96,199		\$2,054,998	-\$276,839
30566254		\$0		\$119,221	\$0	\$4,783	\$308,478	\$0	\$22,756	\$398	\$0	\$29		\$0			\$0
30567652		\$96,992			\$345,993	\$13,481		\$3,415,657	\$155,889	\$4,187,856	-\$3,858,936	\$15,574	\$269,336	\$294	\$13,700	\$14,148	\$0
30575460		\$117,433			\$140,527	\$219		\$90,784	\$3,212	\$412,090	-\$361,936	\$19,775	\$3,155	\$521,664	\$1,840		\$138,595
30576193		\$666,138	\$83,836		\$2,711,715	\$156,893	\$4,718,126	-\$3,377,852	\$65,025	\$12,908	\$0	\$826	\$4,454	\$0	\$301	\$0	\$0
30579877		\$0		\$144,993	\$0	\$2,968	\$139,444	\$0	\$7,929	\$1,271	\$0	\$72		\$0			\$0
30613816		\$0			\$208,358			\$1,104,353	\$36,776	\$2,962,681	-\$1,299,737	\$66,412	\$368,112	-\$12,975	\$14,435	-\$6,165	\$0
30614607		\$0			\$124,151		\$1,549,361	-\$124,151	\$73,347	\$175,602	\$0	\$9,298	\$6,493	\$0	\$1,793		\$0
30615999		\$0			\$207,536	\$10,130		\$978,263	\$45,855	\$1,395,040	-\$1,185,801	\$11,362	-\$2,600	\$2	-\$140		\$0
30616100		\$0			\$3,087			\$34,816			\$6,211			\$4,344			\$6,106
30616106		\$0			\$298			\$17,443			\$15,108			\$2,961			\$5,806
30616108		\$0			\$0			\$33,758			\$25,587			\$17,747			\$53,278
30616111		\$0			\$0			\$2,489			\$11,027			\$30,970			\$10,485
30616113		\$0			\$88,089	\$387	\$1,474,833	-\$88,089	\$55,797	-\$2,540	\$0	-\$104		\$0		\$3,424	\$0
30616114		\$0			\$60,303			\$493,596	\$17,032	\$1,289,009	-\$554,014	\$19,162	\$15,999	\$115		\$738	\$0
30616115		\$0			\$33,288			\$40,100	\$600		\$12,553	\$719		\$13,100	\$663		\$1,136,557
30618074		\$0			\$0			\$125			-\$125			\$0			\$0
30618075		\$0			\$249			\$147			-\$395			\$0			\$0
30618077		\$0			\$106,947	\$5,159		\$16,099	\$317		\$17,018	\$354		\$33,164	\$1,349		\$78,242
30618097		\$0			\$172,998			\$137,766			\$78,432			\$987,317			\$5,981,709
30629323		\$0			\$110,635			\$60,938	\$2,223		\$926,090	\$89,948	\$2,207,747	-\$1,097,663	\$84,247	-\$2,828	\$0
30629431		\$0			\$42,138		\$646,523	-\$42,138	\$21,110	\$112,134	\$0	\$4,279		\$0			\$0
30631393		\$0			\$51,816			\$126,498			\$27,451			\$27,402			\$49,387
30633334		\$0			\$30,327			\$3,964			\$5,161			\$3,515			\$4,671
30636534		\$0			\$86,286		\$1,075,791	-\$86,286	\$20,975	-\$28,299	\$0	-\$899	\$0	\$0			\$0
30641242		\$0		\$5,429	\$0	\$2,439	\$210,543	\$0	\$26,470	-\$907	\$0	-\$74		\$0			\$0
30642311		\$0			\$27,895		\$1,430,740	-\$27,895	\$52,488	\$59,109	-\$10	\$2,392	-\$10	\$10	-\$124		\$0
30644207		\$0			\$540			\$87,403			\$74,347			\$50,515			\$64,701
30647110		\$0			\$2,742			\$85,640			\$8,885			\$11,868			\$22,266
30647467		\$0			\$62,610			\$14,233			\$8,352			\$13,317			\$10,871
30648282		\$0			\$44,524			\$59,165	\$110,829		\$187,977	\$38,263		\$62,497	\$8,310		\$51,307
30649669		\$0			\$501			\$882			\$1,108			\$365			\$258
30650716		\$0			\$3,923			\$1,165			\$1,575			\$1,563			\$784
30656093		\$0			\$260,611	\$27,607	\$1,335,314	-\$260,611	\$118,433	\$7,978	\$0	\$890	\$0	\$0			\$0
30657289		\$0			\$1,059			\$9,195			\$4,867			\$1,361			\$1,471
30657421		\$0			\$15,631			\$68,406			\$39,475			\$13,507			\$17,643
30657510		\$0			\$2,897			\$4,264			\$14,187			\$42,522			\$62,816
30658732		\$0			\$2,016	\$399		\$1,158	\$186		\$281			\$307			\$12,809
30660879		\$0			\$90			\$56,155			\$36,355			\$14,948			\$25,325
30665355		\$0			\$1,854			\$81,723			\$8,864			\$8,414			\$59,669
30669061		\$0			\$175			\$143,086			\$48,124			\$29,556			\$66,514
30674762		\$0			\$0			\$491			\$2,523			\$999			\$365
30675529		\$0			\$0			\$3,300			\$2,321			\$19,955			\$74,790
30675530		\$0			\$0			\$297,376		\$2,546,406	-\$305,635	\$68,279	\$170,047	\$8,260	\$40,795	\$25,768	\$0
30675531		\$0			\$0			\$1,059			\$94			\$263			\$128
30675532		\$0			\$0			\$4,862			\$10,419			\$1,395			\$1,508
30675657		\$0			\$0			\$335			\$434			\$5,413			\$9,701
30675659		\$0			\$0			\$814			\$1,552			\$2,234			\$20,532
30676927		\$0			\$0			\$16,193			\$89,029	\$6,614	\$562,887	-\$105,223	\$28,434	-\$3,962	\$0
30676928		\$0			\$0			\$8,156			\$11,230			\$11,831			\$25,212
30676929		\$0			\$0			\$9,502			\$11,083			\$24,016			\$49,544
30676930		\$0			\$0			\$798			\$71			\$2,484			\$294
30676931		\$0			\$0			\$798			\$71			\$77			\$83
30676932		\$0			\$0			\$661			\$59			\$2,470			\$279
30676933		\$0			\$0			\$1,831			\$7,437			\$3,424			\$1,155
30676934		\$0			\$0			\$14,109			\$3,155			\$568,645	\$38,175	\$4,171,868	-\$585,909
30676935		\$0			\$0			\$935			\$83			\$2,497			\$308
30677172		\$0			\$0			\$16,867			\$17,986			\$11,058			\$8,979
30677482		\$0			\$3,810			\$70,839			\$14,590			\$25,858			\$2,501,240
30677628		\$0			\$0			\$175,869			\$1,539,171			\$181,742	\$72,892	\$5,096,149	-\$1,896,782
30677630		\$0			\$0			\$495			\$44			\$743			-\$1,282
30677789		\$0			\$0			\$224,954			\$1,815,614			\$402,693	\$144,952	\$6,523,569	-\$2,443,262
30678560		\$0			\$0			\$6,357			\$4,455			\$3,165			\$1,245
30679601		\$0			\$0			\$55,489		\$1,478,768	-\$55,569	\$96,671	\$1,135	\$80	\$83	\$18,461	\$0

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2013 through 2016 Activity and Audit Period Totals															
	2013				2014				2015			2016			
Order	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 426.5 / SAP 9426500	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	Grand Total
30541127			\$0			\$0				\$0			\$0		-\$3,167
30547671			\$0		-\$234,904	-\$46,372	-\$7,123	\$254,700	-\$46,372	\$46,372			\$0		\$1,701,999
30550905			\$0			\$0				\$0			\$0		-\$46,062
30551919			\$19,000			\$25,365				\$51,737		\$1,008	-\$234,401		\$1,008
30558119			\$0			\$0				\$0			\$0		\$206,424
30563616	\$9,551	\$139,539		-\$98,405	-\$820,876	-\$39,688	-\$52,162	\$912,727	-\$39,688	\$39,688			\$0		\$5,133,757
30563617			\$6,048			\$28,646				\$55,153	\$7,323		\$819,928	\$62,242	\$990,252
30563618			\$8,557			\$19,289				\$1,067,333	\$43,098	\$1,980,716	-\$1,096,690	\$34,639	\$2,058,453
30563619	\$11,989	\$564	\$0	-\$825		\$0				\$0			\$0		\$1,013,479
30563720	\$21,813	\$2,368	\$0	\$29		\$0				\$0			\$0		\$2,079,207
30566254			\$0			\$0				\$0			\$0		\$455,665
30567652	\$704	\$0	\$0			\$0				\$0			\$0		\$4,670,688
30575460	\$18,321	\$6,177,813	-\$647,068	\$227,930	\$116,053	\$0	\$4,327		\$14,483	\$0	\$588	\$7,214	\$0	\$319	\$7,007,339
30576193		\$71	\$0	\$5		\$0				\$0			\$0		\$5,042,443
30579877			\$0			\$0				\$0			\$0		\$296,677
30613816	-\$243		\$0			\$0				\$0			\$0		\$3,442,007
30614607			\$0			\$0				\$0			\$0		\$1,815,895
30615999		\$0	\$0		\$476	\$0	\$27			\$0			\$0		\$1,460,151
30616100			\$58,932			\$83,832			\$2,726,739	-\$197,327	\$231,579	\$22,694	\$0	\$1,999	\$2,983,011
30616106			\$15,464			\$331,418				\$3,115,509	\$256,272	\$3,950,323	-\$3,504,006	\$33,187	\$4,239,782
30616108			\$52,526			\$59,460				\$39,824	\$92,966		\$375,145		\$375,145
30616111			\$32,350			\$28,153				\$567,048	\$116,276	\$2,162,704	-\$682,521	\$273,513	\$2,552,494
30616113	\$140	\$6,867	\$0	\$280		\$0				\$0			\$0		\$1,539,085
30616114			\$0			\$0				\$0			\$0		\$1,341,941
30616115	\$89,941	\$2,531,727	-\$1,235,598	\$92,713		\$0				\$0			\$0		\$2,716,361
30618074			\$0			\$0				\$0			\$0		\$0
30618075			\$0			\$0				\$0			\$0		\$0
30618077	\$3,706		\$27,028	\$369		\$54,690	\$10,606			\$37,838	\$1,405	\$2,194,580	-\$371,026	\$157,285	\$2,375,131
30618097	\$152,149	\$13,086,618	-\$7,358,223	\$119,565	\$375,511	\$0	\$8,043		\$46,166	\$0	\$1,017	\$17,515	\$0	\$387	\$13,806,971
30629323	-\$186	\$7,693	\$0	-\$7,741		\$0			-\$1,471	\$0	-\$114	\$0	\$0	\$0	\$2,379,519
30629431			\$0			\$0				\$0			\$0		\$784,045
30631393			\$475,684	\$53,366	\$4,205,017	-\$758,238	\$262,374		-\$452	\$0	-\$36	\$37,146	\$0	\$2,945	\$4,560,360
30633334			\$3,901			-\$51,540				\$0			\$0		\$0
30636534			\$0			\$0				\$0			\$0		\$1,067,568
30641242			\$0		-\$31,492	\$31,492	\$0	\$33,699	\$31,492	-\$31,492			\$0		\$277,599
30642311	\$60		\$0			\$0				\$0			\$0		\$1,544,655
30644207		\$3,154,503	-\$277,506	\$129,025	-\$1,884,977	\$0	-\$80,540	\$2,013,853	-\$204	\$0	-\$9		\$0		\$3,331,651
30647110			\$12,366			-\$143,768				\$0			\$0		\$0
30647467			\$42,417			\$48,789			\$2,800,434	-\$200,590	\$412,206	\$1,297	\$0	\$192	\$3,214,129
30648282	\$4,164		\$538,578	\$108,730	\$6,073,934	-\$944,048	\$57,741		-\$629,346	\$0	-\$34,205		\$0		\$5,738,420
30649669			\$261			\$273				\$350			\$324		\$4,321
30650716			\$46,525			\$1,285,577	\$93,030		\$2,890,503	-\$1,341,111	\$105,857		\$0		\$3,089,390
30656093			\$0			\$0				\$0			\$0		\$1,490,221
30657289			\$1,486			\$1,557				-\$20,996			\$0		\$0
30657421			\$23,319			\$24,557				\$18,425			\$17,786		\$238,749
30657510			\$32,370			\$23,570				\$45,219			-\$227,845		\$0
30658732	\$2,449	\$424	-\$16,569	-\$3,457		\$0				\$0			\$0		\$0
30660879	\$10,553	\$3,103,251	-\$132,872	\$278,507	-\$870,537	-\$19,845	-\$84,673	\$872,739	-\$24,836	\$19,845	-\$474		\$0		\$3,284,530
30665355			\$27,001			\$53,785				\$532,327		\$2,929,212	-\$773,638	\$55,740	\$2,984,952
30669061			\$45,263	\$12,685	\$5,414,611	-\$332,718	\$237,107		\$620,233	\$0	\$30,318	\$0	\$0		\$6,314,953
30674762			\$369			\$386				\$474			\$457		\$6,065
30675529		\$2,248,346	-\$100,367	\$120,583	-\$908,971	\$0	-\$49,989	\$988,173	\$83	\$0	\$4		\$0		\$2,398,229
30675530	\$1,024	\$0	\$0		-\$12,131	\$0	-\$502			\$0			\$0		\$2,839,688
30675531			-\$1,545			\$0				\$0			\$0		\$0
30675532			\$1,523			\$1,596				\$1,806			\$1,876		\$24,984
30675657			\$21,376			\$22,859				\$19,566		\$415,752	\$19,955		\$515,391
30675659		\$964,994	-\$25,131	\$70,244	-\$411,783	-\$32,586	-\$33,152	\$411,800	-\$32,586	\$32,586			\$0		\$969,517
30676927	-\$263		\$0			\$0				\$0			\$0		\$593,710
30676928			\$21,958			\$18,247				\$21,314			\$155,354	\$4,021	\$277,324
30676929	\$3,400	\$827,704	-\$94,146	\$30,571	-\$240,471	-\$17,858	-\$10,847	\$269,959	-\$17,858	\$17,858			\$0		\$862,458
30676930			\$297			\$311				\$391			\$50,829		\$55,474
30676931			\$84			\$6,802				\$66,314			\$5,246,090	\$304,558	\$5,624,877
30676932			\$282			\$296				\$375			\$842		\$5,265
30676933			\$22,283	\$2,901	\$1,171,485	-\$36,129	\$98,230		\$4,934	\$0	\$392	\$0	\$0		\$1,277,942
30676934	\$206,614	\$1,105,962	\$0	\$66,308	\$1,033	\$0	\$57			\$0		\$0	\$0		\$5,590,017
30676935			-\$3,823			\$0				\$0			\$0		\$0
30677172			\$13,405			\$21,739				\$17,047			\$196,828		\$303,909
30677482	\$82,434	\$3,307,968	-\$2,616,338	\$21,376		\$0				\$0			\$0		\$3,411,778
30677628	\$135,666	-\$407,844	\$0	-\$17,661	-\$8,462	-\$76,472	-\$3,659	\$88,592	-\$76,472	\$76,472			\$0		\$4,879,202
30677630			\$0			\$0				\$0			\$0		\$0
30677789	\$259,803	\$125,838	\$0	\$8,323	\$0	\$0				\$0			\$0		\$7,062,485
30678560			\$1,257			\$1,318				-\$17,796			\$0		\$0
30679601	\$1,282	-\$5,839	\$0	-\$409		\$0				\$0			\$0		\$1,590,151

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2007 through 2012 Activity																	
	2007			2008			2009			2010			2011			2012	
Order	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010
30679737		\$0			\$0			\$94,996			\$539,174	\$53,447	\$1,232,908	-\$634,170	\$49,451	\$129,586	\$0
30692249		\$0			\$0			\$10,354			\$8,373			\$30,498			\$665,653
30692251		\$0			\$0			\$327			\$29			\$32			\$34
30692635		\$0			\$0			\$743			\$2,247			\$289			\$313
30695568		\$0			\$0			\$0			\$0						\$18,048
30699814		\$0			\$0			\$42,182			\$17,019	\$1,495		\$11,874	\$3,630		\$199,499
30700370		\$0			\$0			\$525			\$47			\$8,086			\$385,942
30702292		\$0			\$0			\$300			\$27			\$29		\$5	-\$356
30702293		\$0			\$0			\$2,065			\$2,925			\$1,009			\$2,428
30706328		\$0			\$0			\$123,200			\$694,442		\$2,220,930	-\$817,642	\$79,473	-\$1,360	\$0
30707682		\$0			\$0			\$100			\$9			\$10			\$35
30708926		\$0			\$0			\$1,002			\$5,416			\$4,714			\$1,006
30709622		\$0			\$0			\$4,730			\$13,897			\$2,938			-\$21,380
30709856		\$0			\$0			\$99			\$1,305			\$960			\$210
30720578		\$0			\$0			\$0			\$7,983			\$24,375			\$196,872
30721669		\$0			\$0			\$563			\$10,728			\$4,469			\$7,076
30721972		\$0			\$0			\$4,431			\$3,326			\$1,117			\$3,155
30726360		\$0			\$0			\$188			\$7,228		\$575,113	-\$7,416	\$19,256	\$17,115	\$0
30733248		\$0			\$0			\$1,376			\$1,630			\$2,969			\$4,154
30746198		\$0			\$0			\$0			\$2,858			\$259			\$281
30746199		\$0			\$0			\$0			\$3,047			\$276		-\$78	-\$3,323
30746320		\$0			\$0			\$0			\$5,327			\$10,655			\$5,099
30754659		\$0			\$0			\$0			\$0			\$0			\$31
30758037		\$0			\$0			\$0			\$4,289			\$526			\$432
30762469		\$0			\$0			\$0			\$5,598			\$754			\$572
30762587		\$0			\$0			\$0			\$3,742			\$7,833			\$1,333,357
30764510		\$0			\$0			\$0			\$0			\$0			\$0
30764513		\$0			\$0			\$0			\$0			\$13,971			\$583,778
30766533		\$0			\$0			\$0			\$2,689			\$17,917		-\$104	-\$20,606
30766668		\$0			\$0			\$0			\$4,112			\$378			\$409
30767366		\$0			\$0			\$0			\$0			\$0			\$3,733
30767420		\$0			\$0			\$0			\$0			\$0			\$0
30767869		\$0			\$0			\$0			\$81,611			\$127,633	\$13,547	\$651,321	-\$209,244
30768527		\$0			\$0			\$0			\$0			\$0			\$0
30769201		\$0			\$0			\$0			\$0			\$6,691			\$15,443
30771373		\$0			\$0			\$0			\$3,498			\$11,953			\$21,673
30771756		\$0			\$0			\$0			\$0			\$0			\$0
30776251		\$0			\$0			\$0			\$1,191			\$250			\$134
30776258		\$0			\$0			\$0			\$1,266			\$258			\$143
30780266		\$0			\$0			\$0			\$214,342			\$22,828			\$22,210
30794479		\$0			\$0			\$0			\$2,528			\$242			\$262
30794540		\$0			\$0			\$0			\$2,297			\$219			\$237
30794542		\$0			\$0			\$0			\$1,862			\$178			\$193
30809002		\$0			\$0			\$0			\$1,588			\$351,550	\$27,251	\$380,450	-\$353,139
30817973		\$0			\$0			\$0			\$0			\$0			\$4,657
30817975		\$0			\$0			\$0			\$1,191			\$113			\$122
30827391		\$0			\$0			\$0			\$0			\$0			\$1,545,594
30835217		\$0			\$0			\$0			\$0			\$0			\$2,384
30837018		\$0			\$0			\$0			\$0			\$0			\$5,527
30855361																	
30864665		\$0			\$0			\$0			\$0			\$2,045			\$4,170
30884776		\$0			\$0			\$0			\$0			\$92,828			-\$90,067
30884777		\$0			\$0			\$0			\$0			\$193,171			-\$184,951
30899832		\$0			\$0			\$0			\$0			\$0			\$54
30899980		\$0			\$0			\$0			\$0			\$0			\$0
30906266		\$0			\$0			\$0			\$0			\$0			\$23,858
30909576		\$0			\$0			\$0			\$0			\$0			\$57,567
30917227		\$0			\$0			\$0			\$0			\$0			\$38,386
30918673		\$0			\$0			\$0			\$0			\$0			\$42
30920922		\$0			\$0			\$0			\$0			\$0			\$199,571
30922578		\$0			\$0			\$0			\$0			\$0			\$0
30937191		\$0			\$0			\$0			\$0			\$0			\$1,984
30937193		\$0			\$0			\$0			\$0			\$0			\$0
30938105		\$0			\$0			\$0			\$0			\$0			\$0
30944298		\$0			\$0			\$0			\$0			\$0			\$234,765
30944299		\$0			\$0			\$0			\$0			\$0			\$113,815
30959427		\$0			\$0			\$0			\$0			\$0			\$302
30959525		\$0			\$0			\$0			\$0			\$0			\$0
30959527		\$0			\$0			\$0			\$0			\$0			\$0
30975304		\$0			\$0			\$0			\$0			\$0			\$0
30992944		\$0			\$0			\$0			\$0			\$0			\$0
30999900																	
31001028		\$0			\$0			\$0			\$0			\$0			\$0

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2013 through 2016 Activity and Audit Period Totals																
Order	2013				2014				2015				2016			Grand Total
	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 426.5 / SAP 9426500	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110		
30679737	\$10,979	\$257,952	\$0	\$22,309		\$0			-\$5,272	\$0	-\$443		\$0		\$1,750,917	
30692249	\$18,768	\$1,706,340	-\$714,878	\$26,022	\$720	\$0	\$20		\$0	\$0			\$0		\$1,751,871	
30692251			\$34			\$36				\$40			\$42		\$574	
30692635			\$316			\$2,842				\$5,318			\$116,655	\$6,043	\$134,766	
30695568			\$39,090			\$20,311				\$23,911			\$110,942		\$212,302	
30699814	\$14,494	\$942,486	-\$270,573	\$53,233	\$0	\$0				\$0			\$0		\$1,015,339	
30700370		\$4,969,378	-\$394,600	\$257,386	-\$187,052	\$0	-\$10,418	\$363,332	\$1,300	\$0	\$67		\$0		\$5,393,993	
30702292			\$0			\$0				\$0			\$0		\$5	
30702293			\$33,820		\$1,642,595	-\$42,248	\$138,996		-\$10,034	\$0	-\$818	\$0	\$0		\$1,770,738	
30706328	-\$54	\$0	\$0			\$0				\$0			\$0		\$2,298,990	
30707682			\$11			\$12				\$62			\$18		\$257	
30708926			\$1,016			\$1,065				-\$14,219			\$0		\$0	
30709622			-\$186			\$0				\$0			\$0		\$0	
30709856			\$213			\$223				\$294			\$265		\$3,569	
30720578	\$10,913	\$5,792,148	-\$229,230	\$279,813	-\$2,754,725	\$0	-\$141,550	\$2,902,526	\$97,767	\$0	\$5,264				\$6,192,157	
30721669			\$68,566			\$36,738				\$38,059			-\$166,199		\$0	
30721972			\$257,520			\$111,426			\$4,501,641	-\$380,974	\$265,384	\$190,484	\$0	\$11,853	\$4,969,363	
30726360	\$496		\$0			\$0				\$0			\$0		\$611,981	
30733248			\$61,901			\$43,866			\$1,500,844	-\$115,897	\$52,052	\$14,325	\$0	\$518	\$1,567,739	
30746198			\$283			\$297				\$10,578			-\$14,557		\$0	
30746199			\$0			\$0				\$0			\$0		-\$78	
30746320			\$19,618		\$1,438,110	-\$40,699	\$106,381		-\$622	\$0	-\$53	-\$491	\$0	-\$37	\$1,543,288	
30754659			\$40,099			\$636,243				\$83,356			\$126,071		\$885,800	
30758037			\$436			\$11,461				\$43,503			-\$60,647		\$0	
30762469			\$6,299			\$1,808				\$1,322			\$1,517		\$17,870	
30762587	\$71,180	\$1,789,524	-\$1,344,932	\$20,283	\$1,188	\$0	\$63		\$0	\$0			\$0		\$1,882,238	
30764510			\$0			\$3,058				\$33,167	\$3,008	\$3,049,609	-\$36,225	\$258,878	\$3,311,495	
30764513	\$38,709	\$849,976	-\$597,749	\$16,957	\$0	\$0			-\$592	\$0	-\$41		\$0		\$905,008	
30766533	-\$116		\$0			\$0				\$0			\$0		-\$220	
30766668			\$413			\$612				\$584			\$530		\$7,037	
30767366			\$299			\$314				\$6,569			\$779		\$11,695	
30767420			\$0			\$0				\$49			-\$49		\$0	
30767869	\$30,809	\$18,698	\$0	\$1,358		\$0				\$0			\$0		\$715,733	
30768527			\$0			\$0				\$0			\$5,743		\$5,743	
30769201		\$1,926,368	-\$22,135	\$137,006	\$61,870	\$0	\$4,320		\$44,722	\$0	\$3,279		\$0		\$2,177,564	
30771373			\$257,636			\$25,381	\$14,284		\$6,814,591	-\$320,140	\$321,222	\$96,213	\$0	\$4,953	\$7,251,263	
30771756			\$22,663			\$37,482				\$18,955			-\$79,099		\$0	
30776251			\$135			\$41,963	\$2,688		\$399,031	-\$43,673	\$23,882		\$0		\$425,601	
30776258			\$144			\$151				\$264			\$184		\$2,410	
30780266			\$22,431			\$23,510				\$25,924			\$27,576		\$358,820	
30794479			\$14,092			\$1,254,680	\$95,546		\$2,438,503	-\$1,271,803	\$84,144	\$0	\$0		\$2,618,193	
30794540			\$239			\$251				\$457			\$12,107		\$15,806	
30794542			\$194			\$204				-\$2,631			\$0		\$0	
30809002	\$1,199	\$0	\$0		-\$231,829	\$0	-\$16,320	\$248,150		\$0			\$0		\$408,899	
30817973			\$13,957			\$34,242				\$42,298			-\$95,145		\$7	
30817975			\$45,511			\$15,605				-\$62,542			\$0		\$0	
30827391			\$155,583			\$138,783				\$215,091			\$387,259		\$2,442,310	
30835217			\$31,669			\$116,081	\$11,442		\$1,577,175	-\$150,134	\$109,065		\$0		\$1,697,682	
30837018			\$461			\$483				\$5,263			\$346,896		\$358,631	
30855361	-\$140	-\$297,867		-\$7,025											-\$305,032	
30864665			-\$6,215			\$0				\$0			\$0		\$0	
30884776		-\$213	-\$2,761			\$0				\$0			\$0		-\$213	
30884777			-\$8,220			\$0				\$0			\$0		\$0	
30899832			\$5,739			\$1,036				\$647			\$804		\$8,281	
30899980			\$0			\$17,478				\$37,975			\$1,456,158	\$78,646	\$1,590,258	
30906266			\$456,902	\$69,322	\$2,642,342	-\$480,760	\$310,039		\$13,145	\$0	\$1,836	\$0	\$0		\$3,036,684	
30909576	\$4,320	\$2,613,551	-\$57,567	\$193,307	-\$11,227	\$0	-\$857		\$0	\$0			\$0		\$2,799,094	
30917227			\$180,236		\$1,625,604	-\$218,621	\$46,840		\$3,024	\$0	\$83	\$0	\$0		\$1,675,551	
30918673			\$9,277			\$37,083				\$58,676			\$546,864		\$651,941	
30920922		\$2,241,470	-\$199,571	\$164,236	\$414,848	\$0	\$30,884		-\$2,658	\$0	-\$231		\$0		\$2,848,548	
30922578			\$7,394			\$177,794				-\$184,511			-\$676		\$0	
30937191			\$33,959			\$81,506				\$76,184			-\$193,633		\$0	
30937193			\$0			\$8,533				\$25,057			\$1,442,035	\$66,040	\$1,541,665	
30938105			\$0			\$0				\$49			\$4		\$53	
30944298			\$25,090			\$22,310				\$33,553			-\$315,718		\$0	
30944299			\$21,946	\$18,703	\$714,616	-\$135,761	\$81,867		-\$2,345	\$0	-\$330		\$0		\$812,512	
30959427			\$92,095			\$902,085	\$34,016		\$4,468,266	-\$994,483	\$118,565	\$2,545	\$0	\$90	\$4,623,481	
30959525			\$4,421			\$5,839				\$13,305			\$11,930		\$35,494	
30959527			\$0			\$0				\$8,136			\$31,062		\$39,199	
30975304			\$13,378			\$54,430	\$4,356		\$616,800	-\$67,808	\$36,194	\$1,322	\$0	\$90	\$658,762	
30992944			\$5,582			\$26,377				\$12,622			\$4,168		\$48,749	
30999900		\$146,112		\$51,172	-\$6,712		-\$2,301								\$188,271	
31001028			\$6,038			\$19,664	\$3,419			\$57,335	\$7,399	\$1,329,343	-\$83,036	\$171,641	\$1,511,803	

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2007 through 2012 Activity																	
Order	2007			2008			2009			2010			2011			2012	
	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010
31013453		\$0			\$0			\$0			\$0			\$0			\$0
31038742		\$0			\$0			\$0			\$0			\$0			\$0
31046929		\$0			\$0			\$0			\$0			\$0			\$0
31051957																	
31052180		\$0			\$0			\$0			\$0			\$0			\$0
31056750		\$0			\$0			\$0			\$0			\$0			\$0
31059557		\$0			\$0			\$0			\$0			\$0			\$0
31059780		\$0			\$0			\$0			\$0			\$0			\$0
31064287		\$0			\$0			\$0			\$0			\$0			\$0
31066255		\$0			\$0			\$0			\$0			\$0			\$0
31068171																	
31081023		\$0			\$0			\$0			\$0			\$0			\$0
31081035		\$0			\$0			\$0			\$0			\$0			\$0
31085930		\$0			\$0			\$0			\$0			\$0			\$0
31085931		\$0			\$0			\$0			\$0			\$0			\$0
31089395		\$0			\$0			\$0			\$0			\$0			\$0
31099111		\$0			\$0			\$0			\$0			\$0			\$0
31106363		\$0			\$0			\$0			\$0			\$0			\$0
31106773		\$0			\$0			\$0			\$0			\$0			\$0
31138175		\$0			\$0			\$0			\$0			\$0			\$0
31144652		\$0			\$0			\$0			\$0			\$0			\$0
31150408		\$0			\$0			\$0			\$0			\$0			\$0
31159070																	
31160895		\$0			\$0			\$0			\$0			\$0			\$0
31160902		\$0			\$0			\$0			\$0			\$0			\$0
31172652		\$0			\$0			\$0			\$0			\$0			\$0
31218473		\$0			\$0			\$0			\$0			\$0			\$0
31221681		\$0			\$0			\$0			\$0			\$0			\$0
31242522		\$0			\$0			\$0			\$0			\$0			\$0
31269303		\$0			\$0			\$0			\$0			\$0			\$0
31269308		\$0			\$0			\$0			\$0			\$0			\$0
31271654		\$0			\$0			\$0			\$0			\$0			\$0
74001485		\$0			\$0			\$0			\$0			\$0			\$0
74001486		\$0			\$0			\$0			\$0			\$0			\$0
74001549		\$0			\$0			\$0			\$0			\$0			\$0
74001550		\$0			\$0			\$0			\$0			\$0			\$0
74001551		\$0			\$0			\$0			\$0			\$0			\$0
74001552		\$0			\$0			\$0			\$0			\$0			\$0
74001553		\$0			\$0			\$0			\$0			\$0			\$0
74001554		\$0			\$0			\$0			\$0			\$0			\$0
74001555		\$0			\$0			\$0			\$0			\$0			\$0
74001556		\$0			\$0			\$0			\$0			\$0			\$0
74001557		\$0			\$0			\$0			\$0			\$0			\$0
74001558		\$0			\$0			\$0			\$0			\$0			\$0
74001642		\$0			\$0			\$0			\$0			\$0			\$0
74001800		\$0			\$0			\$0			\$0			\$0			\$0
74003380		\$0			\$0			\$0			\$0			\$0			\$0
74003532		\$0			\$0			\$0			\$0			\$0			\$0
74003533		\$0			\$0			\$0			\$0			\$0			\$0
74003981		\$0			\$0			\$0			\$0			\$0			\$0
74004300		\$0			\$0			\$0			\$0			\$0			\$0
74004302		\$0			\$0			\$0			\$0			\$0			\$0
74004303		\$0			\$0			\$0			\$0			\$0			\$0
74005712		\$0			\$0			\$0			\$0			\$0			\$0
74008524		\$0			\$0			\$0			\$0			\$0			\$0
74009301		\$0			\$0			\$0			\$0			\$0			\$0
74009342		\$0			\$0			\$0			\$0			\$0			\$0
80000007	\$1,889			-\$1,889				\$0			\$0			\$0			\$0
80000008	\$103,450			\$108			\$0	-\$103,558			\$0			\$0			\$0
80000009	\$89,919		\$0	-\$89,919				\$0			\$0			\$0			\$0
80000010	\$8,710			-\$8,710				\$0			\$0			\$0			\$0
80000012	-\$10,005			\$10,005				\$0			\$0			\$0			\$0
80000013	\$175,775			-\$175,775				\$0			\$0			\$0			\$0
80000014	\$211,757		-\$14,008	-\$211,757				\$0			\$0			\$0			\$0
80000015	\$142,357		-\$13,167	-\$142,357				\$0			\$0			\$0			\$0
80000020	\$28,345		-\$1	-\$28,345				\$0			\$0			\$0			\$0
80000023	\$599		-\$8,819	-\$599				\$0			\$0			\$0			\$0
80000024	\$57,919			-\$57,919				\$0			\$0			\$0			\$0
80000025	\$11,700			\$108			\$0	-\$11,808			\$0			\$0			\$0
80000026	\$112,220			-\$2,113				-\$110,107			\$0			\$0			\$0
80000027	\$21,354			\$479			\$0	-\$21,833			\$0			\$0			\$0
80000028	\$23,698			\$215			\$0	-\$23,913			\$0			\$0			\$0
80000029	\$4,764			\$108				-\$4,871			\$0			\$0			\$0

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2013 through 2016 Activity and Audit Period Totals															
Order	2013				2014				2015			2016			Grand Total
	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 426.5 / SAP 9426500	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	
31013453			\$0			\$16,873				\$15,901			-\$32,774		\$0
31038742			\$0			\$26,686			\$644,604	-\$26,686	\$99,456	\$0	\$0		\$744,060
31046929			\$0			\$179				\$148			-\$327		\$0
31051957					\$410,132		\$9,726		-\$106,247		-\$2,510				\$311,102
31052180			\$0			\$0				\$27,760			\$21,376		\$49,136
31056750			\$0			\$0				\$0			\$4,634		\$4,634
31059557			\$0			\$24,687			\$1,919,988	-\$24,687	\$91,090	-\$84,893	\$0	-\$4,183	\$1,922,002
31059780			\$0			\$18,926				\$39,855			\$639,485		\$698,266
31064287			\$0			\$17,351				\$49,041			\$857,427		\$923,820
31066255			\$0			\$14,333				\$16,109			\$99,229		\$129,672
31068171					\$29,398				\$1,281,855		\$70,283	\$0			\$1,381,536
31081023			\$0			\$0				\$8,668			-\$8,668		\$0
31081035			\$0			\$0				\$7,130			\$38,273		\$45,403
31085930			\$0			\$0				\$49			\$4		\$53
31085931			\$0			\$10				\$50			\$4		\$64
31089395			\$0			\$1,616				-\$1,372			-\$244		\$0
31099111			\$0			\$44				\$48			-\$93		\$0
31106363			\$0			\$3,703				\$720,679	\$87,901	\$716,811	-\$724,383	-\$1,267	\$803,445
31106773			\$0			\$381				-\$381			\$0		\$0
31138175			\$0			\$0				\$49			-\$49		\$0
31144652			\$0			\$0				\$4,985			\$393,677		\$398,661
31150408			\$0			\$0				\$49			\$198,971		\$199,020
31159070									\$237,602		\$7,995	-\$2,760		-\$96	\$242,742
31160895			\$0			\$0				\$5,829			-\$5,829		\$0
31160902			\$0			\$0				\$15,039			\$1,038,029	\$52,852	\$1,105,920
31172652			\$0			\$0				\$49			\$2,193		\$2,242
31218473			\$0			\$0				\$0			\$126,364		\$126,364
31221681			\$0			\$0				\$0			\$356		\$356
31242522			\$0			\$0				\$0			\$63,120		\$63,120
31269303			\$0			\$0				\$0			\$2,759		\$2,759
31269308			\$0			\$0				\$0			\$314		\$314
31271654			\$0			\$0				\$0			\$17,930		\$17,930
74001485			\$0			\$0				\$0			\$254,522		\$254,522
74001486			\$0			\$0				\$0			\$485,037		\$485,037
74001549			\$0			\$0				\$212,264			\$49,976		\$262,240
74001550			\$0			\$0				\$0			\$85,283		\$85,283
74001551			\$0			\$0				\$531			\$184,173		\$184,704
74001552			\$0			\$0				\$354			\$194,973		\$195,327
74001553			\$0			\$0				\$79,163			\$102,427		\$181,590
74001554			\$0			\$0				\$0			\$272,427		\$272,427
74001555			\$0			\$0				\$0			\$100,141		\$100,141
74001556			\$0			\$0				\$0			\$232,387		\$232,387
74001557			\$0			\$0				\$0			\$353,241		\$353,241
74001558			\$0			\$0				\$0			\$89,032		\$89,032
74001642			\$0			\$0				\$0			\$280,838		\$280,838
74001800			\$0			\$0				\$354			\$322,803		\$323,156
74003380			\$0			\$0				\$0			\$2,724		\$2,724
74003532			\$0			\$0				\$0			\$69,654		\$69,654
74003533			\$0			\$0				\$0			\$109,662		\$109,662
74003981			\$0			\$0				\$0			\$54,726		\$54,726
74004300			\$0			\$0				\$0			\$238,595		\$238,595
74004302			\$0			\$0				\$0			\$443,611		\$443,611
74004303			\$0			\$0				\$0			\$595,352		\$595,352
74005712			\$0			\$0				\$0			\$130		\$130
74008524			\$0			\$0				\$0			\$45,875		\$45,875
74009301			\$0			\$0				\$0			\$523		\$523
74009342			\$0			\$0				\$0			\$329		\$329
80000007			\$0			\$0				\$0			\$0		\$0
80000008			\$0			\$0				\$0			\$0		\$0
80000009			\$0			\$0				\$0			\$0		\$0
80000010			\$0			\$0				\$0			\$0		\$0
80000012			\$0			\$0				\$0			\$0		\$0
80000013			\$0			\$0				\$0			\$0		\$0
80000014			\$0			\$0				\$0			\$0		-\$14,008
80000015			\$0			\$0				\$0			\$0		-\$13,167
80000020			\$0			\$0				\$0			\$0		-\$1
80000023			\$0			\$0				\$0			\$0		-\$8,819
80000024			\$0			\$0				\$0			\$0		\$0
80000025			\$0			\$0				\$0			\$0		\$0
80000026			\$0			\$0				\$0			\$0		\$0
80000027			\$0			\$0				\$0			\$0		\$0
80000028			\$0			\$0				\$0			\$0		\$0
80000029			\$0			\$0				\$0			\$0		\$0

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2007 through 2012 Activity																	
	2007			2008			2009			2010			2011			2012	
Order	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010
80000030		\$13,068			-\$13,068			\$0			\$0			\$0			\$0
80000031		\$99,150			-\$99,150			\$0			\$0			\$0			\$0
80000082		\$76,261			\$0			\$0			\$0			\$0			\$0
80000083		\$101,865			-\$101,865			\$0			\$0			\$0			\$0
80000508		\$55,675			-\$55,675			\$0			\$0			\$0			\$0
80000517		\$196,542			-\$196,542			\$0			\$0			\$0			\$0
80000843		\$53,038		-\$7,883	-\$53,038			\$0			\$0			\$0			\$0
80000947		\$1,380			-\$1,380			\$0			\$0			\$0			\$0
80001026		\$14,100			-\$14,100			\$0			\$0			\$0			\$0
80001207		\$1,720		\$152	-\$1,720			\$0			\$0			\$0			\$0
80001618		\$1,572			-\$1,572			\$0			\$0			\$0			\$0
80001643		\$18,601			\$805		\$0	-\$19,406			\$0			\$0			\$0
80001647		\$10,016			-\$10,016			\$0			\$0			\$0			\$0
80001759		\$2,749			-\$2,749			\$0			\$0			\$0			\$0
80002191		\$3,988			-\$3,988			\$0			\$0			\$0			\$0
80002896		\$105,815		-\$517	-\$105,815			\$0			\$0			\$0			\$0
80003092		\$4,290			-\$4,290			\$0			\$0			\$0			\$0
80003095		\$27,172			-\$27,172			\$0			\$0			\$0			\$0
80003374		\$894			\$361			-\$1,255			\$0			\$0			\$0
80004308		\$378			\$0			\$0			-\$378			\$0			\$0
80004381		\$13,848			-\$13,848			\$0			\$0			\$0			\$0
80004875		\$2,797			-\$2,797			\$0			\$0			\$0			\$0
80005706		\$6,771			\$0			-\$6,771			\$0			\$0			\$0
80006843		\$61			\$486			-\$547			\$0			\$0			\$0
80007041		\$416			\$0			-\$416			\$0			\$0			\$0
80007225		\$9,581			\$0			-\$9,581			\$0			\$0			\$0
80007228		\$6,915			\$0			-\$6,915			\$0			\$0			\$0
80013414		\$1,566			-\$1,566			\$0			\$0			\$0			\$0
80013546		\$3,623			-\$3,623			\$0			\$0			\$0			\$0
80030566		\$460			-\$460			\$0			\$0			\$0			\$0
80031784		\$230			-\$73			-\$216			\$0			\$0			\$58
80033277		\$115			-\$115			\$0			\$0			\$0			\$0
80033278		\$115			-\$115			\$0			\$0			\$0			\$0
Grand Total	\$48,522,423	-\$6,128,227	\$2,440,366	\$36,617,624	\$580,204	\$2,340,094	\$31,506,102	\$6,441,589	\$2,760,351	\$34,845,037	-\$310,336	\$2,048,134	\$40,599,860	-\$5,940,356	\$1,666,647	\$41,088,564	\$8,989,580

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-006-013, Att. 1

AzP Exhibit B. Actual Expenditures by FERC and SAP Account - 2013 through 2016 Activity and Audit Period Totals															
Order	2013				2014			2015			2016			Grand Total	
	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 426.5 / SAP 9426500	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010	FERC 108* / SAP 1080110	FERC 101* / SAP 1010010	FERC 107 / SAP 1070010		FERC 108* / SAP 1080110
80000030			\$0			\$0				\$0			\$0		\$0
80000031			\$0			\$0				\$0			\$0		\$0
80000082			\$0			\$0				\$0			\$0		-\$696
80000083			\$0			\$0				\$0			\$0		\$0
80000508			\$0			\$0				\$0			\$0		\$0
80000517			\$0			\$0				\$0			\$0		\$0
80000843			\$0			\$0				\$0			\$0		-\$7,883
80000947			\$0			\$0				\$0			\$0		\$0
80001026			\$0			\$0				\$0			\$0		\$0
80001207			\$0			\$0				\$0			\$0		\$152
80001618			\$0			\$0				\$0			\$0		\$0
80001643			\$0			\$0				\$0			\$0		\$0
80001647			\$0			\$0				\$0			\$0		\$0
80001759			\$0			\$0				\$0			\$0		\$0
80002191			\$0			\$0				\$0			\$0		\$0
80002896			\$0			\$0				\$0			\$0		-\$517
80003092			\$0			\$0				\$0			\$0		\$0
80003095			\$0			\$0				\$0			\$0		\$0
80003374			\$0			\$0				\$0			\$0		\$0
80004308			\$0			\$0				\$0			\$0		\$0
80004381			\$0			\$0				\$0			\$0		\$0
80004875			\$0			\$0				\$0			\$0		\$0
80005706			\$0			\$0				\$0			\$0		\$0
80006843			\$0			\$0				\$0			\$0		\$0
80007041			\$0			\$0				\$0			\$0		\$0
80007225			\$0			\$0				\$0			\$0		\$0
80007228			\$0			\$0				\$0			\$0		\$0
80013414			\$0			\$0				\$0			\$0		\$0
80013546			\$0			\$0				\$0			\$0		\$0
80030566			\$0			\$0				\$0			\$0		\$0
80031784			\$0			\$0				\$0			\$0		\$0
80033277			\$0			\$0				\$0			\$0		\$0
80033278			\$0			\$0				\$0			\$0		\$0
Grand Total	\$2,213,030	\$90,341,065	-\$23,697,614	\$2,710,987	\$7,577,235	\$7,809,037	\$1,291,319	\$24,439,743	\$42,870,884	-\$3,765,454	\$2,779,447	\$18,268,698	\$11,274,600	\$1,579,981	\$433,760,614

Source: GRC 2017

AzP Exhibit C

AzP Exhibit C. Electric Capital Major Work Category Over/Under-Spending Variances During Audit Period			
MWC Number	MWC Name	Variance Type	Number of Occurrences During Audit Period ¹
5	Tools and Equipment	Underspending	7
		Overspending	3
6	Electric Distribution Line and Equipment Capacity	Underspending	1
		Overspending	9
7	Pole Replacement	Underspending	4
		Overspending	6
8	Base Reliability Program	Underspending	6
		Overspending	4
9	Electric Distribution Automation and Protection	Underspending	5
		Overspending	5
10	Electric Work at the Request of Others	Underspending	1
		Overspending	9
16	Electric Distribution Customer Connect	Underspending	4
		Overspending	6
17	Electric Distribution Routine Emergency	Overspending	10
19	Special Programs, Workforce Reduction Program	Overspending	5
30	Electric Distribution Work at the Request by Others	Underspending	10
46	Electric Distribution Substation Capacity	Underspending	5
		Overspending	5
48	Electric Distribution Replace Substation Equipment	Underspending	9
		Overspending	1
49	Targeted Reliability Program	Underspending	3
		Overspending	7
50	Gas Distribution Reliability	Overspending	1
54	Electric Distribution Substation Transformer Replacements	Underspending	7
		Overspending	3
56	Electric Distribution Underground Asset Replacement	Underspending	5
		Overspending	5
57	Electric Distribution Preventive Maintenance	Underspending	1
		Overspending	6
58	Electric Distribution Substation Safety and Security	Underspending	9
		Overspending	1
59	Electric Distribution Substation Emergency Replacement	Underspending	2
		Overspending	8
63	Electric Operations Control Center Facility	Underspending	2
		Overspending	8
67	ET Automation / SCADA	Underspending	1
		Overspending	1
78	Manage Buildings	Underspending	6
		Overspending	4
89	Other Balance Sheet	Underspending	1
		Overspending	1
95	Electric Distribution Major Emergency	Underspending	1
		Overspending	9
96	Separately Funded Capital	Underspending	2
		Overspending	6
2A	Electric Distribution Preventive Maintenance, Overhead	Underspending	4
		Overspending	6
2B	Electric Distribution Preventive Maintenance, Underground	Overspending	10
2C	Electric Distribution Preventive Maintenance, Network	Underspending	3
		Overspending	7
2F	Build IT Applications & Infrastructure	Underspending	3
		Overspending	3
3M	Install/Replace Var Bal Acct	Overspending	4
Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery AzP-004-016, Att. 1 and AzP-006-024, Att. 1			
Note ¹ : Some MWCs did not have charges during every year of the audit period.			

Exhibit D-1. Sample Rule 20A Questionnaire for Work Credit Allocation Recipients (General Management of Program)**Agency Contact Information**

Responding Agency:	
Project Name:	
PG&E Job/Project Number:	
Name and Title of Staff Responding to this Questionnaire:	
Phone Number of Staff Responding to this Questionnaire:	
Email of Staff Responding to this Questionnaire:	

*The term "local agency" in this questionnaire refers to the city or county you represent.

1) Responsiveness of PG&E Rule 20A Staff (Including Rule 20A Liaisons and Rule 20A Program Manager)

- ☐ a. Very satisfied
☐ b. Satisfied
☐ c. Neutral
☐ d. Dissatisfied
☐ e. Very dissatisfied
☐ f. Not applicable (My agency has had no interaction with PG&E Rule 20A Staff)
☐ g. Additional Comments (if applicable)

2) Technical Competence of PG&E Rule 20A Staff (Including Rule 20A Liaisons and Rule 20A Program Manager)

- ☐ a. Very satisfied
☐ b. Satisfied
☐ c. Neutral
☐ d. Dissatisfied
☐ e. Very dissatisfied
☐ f. Not applicable (My agency has had no interaction with PG&E Rule 20A Staff)
☐ g. Additional Comments (if applicable)

3) Overall Satisfaction with PG&E Rule 20A Staff (Including Rule 20A Liaisons and Rule 20A Program Manager)

- ☐ a. Very Satisfied
☐ b. Satisfied
☐ c. Neutral
☐ d. Dissatisfied
☐ e. Very Dissatisfied
☐ f. Additional Comments (if applicable)

Exhibit D-2. Sample Rule 20A Questionnaire for Work Credit Allocation Recipients (Management of Individual Rule 20A Projects)	
Agency Contact Information	
Responding Agency:	
Project Name:	
PG&E Job/Project Number:	
Name and Title of Staff Responding to this Questionnaire:	
Phone Number of Staff Responding to this Questionnaire:	
Email of Staff Responding to this Questionnaire:	

*The term "local agency" in this questionnaire refers to the city or county you represent.

- 1) What was/were the project's funding source(s)? (check all that apply)

☐	a. Rule 20A work credits	
☐	b. Local agency contributions for costs related to other joint trench participants	
☐	c. Other funding sources (please describe)	

- 2) Who was the design lead agency for the project?

☐	a. PG&E	
☐	b. Local agency	
☐	c. Other joint trench participant (if this applies, please indicate)	

- 3) Who was the construction lead agency for the project?

☐	a. PG&E	
☐	b. Local Agency	
☐	c. Other joint trench participant (please list participant(s))	

- 4) Have there been changes to the project boundaries since adoption of your governing body's resolution? If you answered "Yes," please indicate the reason(s) for the

☐	a. Boundary change requested by PG&E	
☐	b. Boundary change requested by local agency	
☐	c. Rule 20A work allocation was not sufficient and required reduction in project boundary	
☐	d. Other (please indicate)	

- 5) Was the project completed or canceled? (if canceled, proceed to Question 19)

☐	a. Completed	
☐	b. Canceled	

- 6) Was the project completed on time?

☐	a. Yes	
☐	b. No	

- 7) Was the project completed on budget?

☐	a. Yes	
☐	b. No	

- 8) If the project experienced delays, at which stage was the project delayed?

☐	a. Planning stage	
☐	b. Engineering design phase	
☐	c. Construction phase	
☐	d. Closeout phase	

- 9) If project was delayed, please check the appropriate reasons for the delay.

☐	a. Project placed on hold or delayed at the request of the local agency	
☐	b. Delay in signing the General Conditions Agreement or other agreements with PG&E	
☐	c. Delays related to participation by other joint trench utilities such as AT&T or Comcast	
☐	d. Delays related to joint trench design request by the local agency	
☐	e. Delays related to insufficient work credits to allow the project to proceed further	
☐	f. Soil contamination found during design/construction	
☐	g. Archeologically sensitive areas	
☐	h. Environmentally sensitive areas	
☐	i. Delays related to obtaining encroachment permits or rights-of-way from CalTrans, railroad or other	
☐	j. Delays in obtaining easements on private property to accommodate PG&E required vaults, riser poles, etc.	
☐	k. Delays in obtaining easements on private property to accommodate facilities owned by other joint trench participants	
☐	l. Delays as a result of private property owners not converting to new underground services	
☐	m. Delays by the following utilities not removing overhead facilities:	
☐	o PG&E	
☐	o Telephone	
☐	o Cable	
☐	o Other (please indicate)	
☐	n. N/A - project did not experience delay	

- 10) Where Rule 20A work credit allocations used to fund all or some of the costs for the installation of underground service laterals on private property?

☐	a. Yes	
☐	b. No	

Exhibit D-2. Sample Rule 20A Questionnaire for Work Credit Allocation Recipients (Management of Individual Rule 20A Projects)

11) Where Rule 20A work credit allocations used to fund modifications to property owner's meter panels in order to receive service from the undergrounding project?

- ☐ a. Yes
☐ b. No

12) When project was completed, did your city/county receive a final accounting of project costs from PG&E?

- ☐ a. Yes
☐ b. No

13) If you answered "Yes" to question 13 above, did the final accounting provide sufficient detail to document the Rule 20A work credits deduction?

- ☐ a. Yes
☐ b. No

14) If you answered "No" to question 14 above, please identify below the additional information you would have liked to have received.

- ☐ a. Credits/payments received by PG&E from other utilities
☐ b. Cost of labor, materials, and equipment
☐ c. PG&E's overhead cost charged to the project
☐ d. Other (please specify)

15) What was the initial design cost estimate for this project in dollars?

16) What was the estimated project duration (in months) for this project at the initial design stage?

17) What was the actual cost of the project completed (i.e., work credit allocation cost to your agency)?

18) What was the actual duration (in months) of the project from the initial design stage to completion?

19) Responsiveness of PG&E regarding issues related to this project

- ☐ a. Very satisfied
☐ b. Satisfied
☐ c. Neutral
☐ d. Dissatisfied
☐ e. Very dissatisfied
☐ f. Not applicable (My agency has had no interaction with PG&E Rule 20A Staff)
☐ g. Additional Comments (if applicable)

20) Technical competence of PG&E regarding issues related to this project

- ☐ a. Very satisfied
☐ b. Satisfied
☐ c. Neutral
☐ d. Dissatisfied
☐ e. Very dissatisfied
☐ f. Not applicable (My agency has had no interaction with PG&E Rule 20A Staff)
☐ g. Additional Comments (if applicable)

21) Overall satisfaction with PG&E's management of this project

- ☐ a. Very Satisfied
☐ b. Satisfied
☐ c. Neutral
☐ d. Dissatisfied
☐ e. Very Dissatisfied
☐ f. Additional Comments (if applicable)

AzP Exhibit E. Work Credit Allocation By Community By Year 2007-2016 (Nominal Dollars)												
	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	Stanislaus	Patterson	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	Sacramento	Folsom	\$0	\$0	\$9	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	Shasta	Shasta Lake	\$424	\$430	\$427	\$426	\$531	\$541	\$539	\$515	\$512	\$507
4	Siskiyou	Siskiyou County (Unincorporated)	\$1,311	\$1,317	\$1,314	\$1,314	\$503	\$513	\$500	\$467	\$464	\$470
5	Butte	Biggs	\$0	\$0	\$135	\$134	\$173	\$238	\$248	\$175	\$12,774	\$183
6	Placer	Roseville	\$0	\$0	\$254	\$260	\$328	\$109	\$152	\$231	\$17,029	\$231
7	Amador	Amador City	\$2,970	\$2,962	\$2,955	\$2,989	\$1,312	\$1,369	\$1,375	\$1,378	\$1,363	\$1,367
8	Humboldt	Trinidad	\$4,584	\$4,577	\$4,591	\$4,594	\$2,040	\$2,022	\$2,041	\$2,020	\$2,006	\$1,865
9	Tehama	Tehama	\$5,313	\$5,328	\$5,325	\$5,328	\$2,444	\$2,405	\$2,427	\$2,368	\$2,344	\$2,320
10	Alpine	Alpine County (Unincorporated)	\$5,499	\$5,504	\$5,561	\$5,562	\$2,846	\$2,876	\$2,873	\$2,924	\$2,899	\$2,862
11	Mendocino	Point Arena	\$6,844	\$6,867	\$6,864	\$6,880	\$2,866	\$2,914	\$2,959	\$2,935	\$2,928	\$2,919
12	Monterey	Sand City	\$8,268	\$8,255	\$8,236	\$8,259	\$4,181	\$4,201	\$4,190	\$4,155	\$4,157	\$4,157
13	Amador	Plymouth	\$8,637	\$8,700	\$8,704	\$8,702	\$4,715	\$4,941	\$4,969	\$4,438	\$4,389	\$4,322
14	San Mateo	Colma	\$11,371	\$11,202	\$11,160	\$11,142	\$5,093	\$4,463	\$4,578	\$4,391	\$4,346	\$4,290
15	Sacramento	Isleton	\$11,461	\$11,498	\$11,480	\$11,471	\$5,148	\$5,134	\$4,983	\$4,831	\$4,807	\$4,703
16	Kern	Maricopa	\$12,097	\$12,114	\$12,114	\$12,143	\$5,760	\$5,788	\$5,772	\$5,714	\$5,683	\$5,615
17	Humboldt	Blue Lake	\$13,566	\$13,543	\$13,558	\$13,566	\$6,757	\$6,779	\$6,735	\$6,542	\$6,482	\$6,485
18	Napa	Yountville	\$14,088	\$14,045	\$14,037	\$14,064	\$7,520	\$7,640	\$7,491	\$7,263	\$7,279	\$7,275
19	Fresno	San Joaquin	\$13,720	\$13,924	\$13,951	\$13,964	\$8,033	\$7,902	\$7,989	\$7,854	\$7,808	\$7,693
20	Santa Barbara	Buellton	\$9,306	\$9,166	\$9,196	\$9,325	\$11,223	\$11,216	\$11,213	\$11,185	\$11,120	\$10,930
21	Monterey	Del Rey Oaks	\$15,939	\$15,895	\$15,856	\$15,855	\$7,296	\$7,280	\$7,334	\$7,418	\$7,385	\$7,316
22	San Benito	San Juan Bautista	\$15,838	\$15,976	\$15,875	\$15,882	\$7,961	\$7,667	\$7,657	\$7,691	\$7,673	\$7,570
23	Sonoma	Healdsburg	\$0	\$0	\$1,785	\$1,889	\$2,283	\$1,986	\$1,987	\$2,049	\$98,554	\$1,798
24	Marin	Belvedere	\$19,560	\$19,486	\$19,190	\$18,782	\$7,529	\$7,395	\$6,470	\$6,158	\$6,108	\$6,035
25	Placer	Colfax	\$16,904	\$16,943	\$16,872	\$17,062	\$9,296	\$9,451	\$9,454	\$9,463	\$9,387	\$9,356
26	Humboldt	Ferndale	\$18,980	\$18,932	\$18,954	\$18,963	\$9,009	\$8,973	\$9,001	\$9,088	\$9,036	\$8,987
27	Yuba	Wheatland	\$17,156	\$17,224	\$17,218	\$17,244	\$9,943	\$10,015	\$10,267	\$10,350	\$10,295	\$10,317
28	Lassen	Lassen County (Unincorporated)	\$20,970	\$20,664	\$20,652	\$20,706	\$9,699	\$9,696	\$9,723	\$9,458	\$9,467	\$9,468
29	Marin	Ross	\$21,468	\$21,432	\$21,462	\$21,483	\$10,027	\$10,137	\$10,120	\$9,868	\$9,837	\$9,734
30	Fresno	Huron	\$18,897	\$18,860	\$19,354	\$19,388	\$11,824	\$11,796	\$11,617	\$11,654	\$11,565	\$11,397
31	Amador	Ione	\$24,443	\$24,548	\$24,557	\$24,575	\$14,018	\$12,870	\$13,107	\$14,002	\$13,904	\$13,797
32	Santa Clara	Monte Sereno	\$26,771	\$26,775	\$26,843	\$26,909	\$12,496	\$12,442	\$12,509	\$11,845	\$11,692	\$11,596
33	Colusa	Williams	\$24,626	\$24,622	\$24,615	\$24,669	\$14,451	\$13,782	\$13,776	\$13,827	\$13,917	\$13,717
34	Sierra	Sierra County (Unincorporated)	\$27,172	\$27,136	\$27,143	\$27,162	\$12,344	\$12,412	\$12,413	\$12,390	\$12,313	\$12,239
35	Kern	Mcfarland	\$24,800	\$25,260	\$25,321	\$25,546	\$14,797	\$15,205	\$15,419	\$15,597	\$16,015	\$16,048
36	Amador	Sutter Creek	\$27,569	\$27,622	\$27,600	\$27,642	\$14,451	\$14,020	\$14,080	\$14,220	\$14,143	\$14,069
37	Humboldt	Rio Dell	\$30,971	\$30,946	\$30,898	\$30,970	\$14,712	\$14,762	\$14,821	\$14,900	\$14,857	\$14,705
38	Monterey	Gonzales	\$29,497	\$29,556	\$29,624	\$29,440	\$15,785	\$15,755	\$15,947	\$16,002	\$15,897	\$15,752
39	San Mateo	Portola Valley	\$31,390	\$31,336	\$31,374	\$31,420	\$15,404	\$15,345	\$15,185	\$15,074	\$14,893	\$14,721
40	Fresno	Fowler	\$28,925	\$29,254	\$29,387	\$29,512	\$16,789	\$16,768	\$16,758	\$16,357	\$16,400	\$16,337
41	Santa Barbara	Guadalupe	\$30,384	\$30,392	\$30,334	\$30,332	\$15,921	\$15,893	\$16,173	\$15,998	\$15,927	\$15,794
42	Fresno	Firebaugh	\$28,912	\$28,969	\$28,967	\$29,071	\$16,955	\$17,119	\$17,958	\$17,749	\$17,587	\$17,516
43	Calaveras	Angels Camp	\$32,004	\$32,065	\$32,017	\$32,030	\$16,571	\$16,255	\$16,241	\$16,175	\$16,083	\$16,271
44	Yolo	Winters	\$30,695	\$30,571	\$30,630	\$30,641	\$17,244	\$17,528	\$17,354	\$17,239	\$17,143	\$16,981
45	Merced	Dos Palos	\$34,132	\$34,257	\$34,312	\$34,359	\$17,692	\$17,196	\$17,117	\$17,101	\$16,987	\$16,803
46	Contra Costa	Clayton	\$29,631	\$29,521	\$29,489	\$29,478	\$21,034	\$21,043	\$21,034	\$21,185	\$20,992	\$20,732
47	San Joaquin	Escalon	\$33,685	\$33,602	\$33,536	\$33,535	\$18,773	\$18,637	\$18,593	\$18,488	\$18,329	\$18,103
48	Sutter	Live Oak	\$33,231	\$33,359	\$33,383	\$33,384	\$18,698	\$18,994	\$19,363	\$18,966	\$18,774	\$18,541
49	Merced	Livingston	\$34,015	\$33,887	\$33,845	\$33,842	\$18,598	\$18,854	\$18,834	\$18,939	\$18,805	\$18,682
50	Fresno	Mendota	\$32,547	\$32,985	\$33,174	\$33,201	\$19,675	\$19,738	\$20,104	\$20,008	\$20,003	\$19,780
51	Nevada	Nevada City	\$35,974	\$36,072	\$36,052	\$36,090	\$19,085	\$18,720	\$18,724	\$18,970	\$18,945	\$18,817
52	San Mateo	Brisbane	\$37,003	\$37,005	\$37,034	\$37,071	\$19,074	\$19,099	\$19,152	\$19,267	\$19,312	\$19,261
53	Merced	Gustine	\$37,337	\$37,262	\$37,265	\$37,306	\$19,384	\$19,403	\$19,468	\$19,580	\$19,468	\$19,240
54	Napa	Calistoga	\$37,958	\$37,953	\$38,064	\$38,198	\$19,488	\$19,646	\$19,640	\$19,574	\$19,415	\$19,510
55	Santa Barbara	Solvang	\$38,664	\$38,674	\$38,690	\$38,704	\$19,811	\$19,946	\$19,896	\$20,008	\$20,025	\$19,918
56	Fresno	Orange Cove	\$36,754	\$37,666	\$37,612	\$37,665	\$20,821	\$20,941	\$20,996	\$20,971	\$20,888	\$20,661
57	Sonoma	Cotati	\$38,591	\$38,573	\$38,494	\$38,473	\$20,953	\$20,824	\$20,838	\$20,769	\$20,670	\$20,440
58	Napa	American Canyon	\$24,454	\$25,008	\$25,229	\$25,351	\$30,727	\$30,611	\$30,648	\$30,778	\$30,497	\$30,140

AzP Exhibit E. Work Credit Allocation By Community By Year 2007-2016 (Nominal Dollars)												
	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
59	Amador	Jackson	\$40,977	\$41,038	\$40,974	\$41,021	\$22,195	\$21,576	\$21,549	\$21,232	\$21,320	\$21,234
60	Stanislaus	Newman	\$39,117	\$39,324	\$39,354	\$39,295	\$23,666	\$23,906	\$23,769	\$23,183	\$23,048	\$22,901
61	Fresno	Parlier	\$39,861	\$40,334	\$40,358	\$40,532	\$24,222	\$24,446	\$24,702	\$24,664	\$24,471	\$24,134
62	Mendocino	Willits	\$43,920	\$44,027	\$44,073	\$44,156	\$23,243	\$23,308	\$23,353	\$22,961	\$22,813	\$22,591
63	Placer	Loomis	\$43,283	\$43,266	\$43,203	\$43,258	\$23,666	\$23,876	\$23,855	\$23,893	\$23,862	\$23,637
64	Kings	Avenal	\$44,185	\$44,136	\$44,468	\$44,540	\$23,229	\$23,563	\$23,532	\$23,491	\$23,410	\$23,239
65	Monterey	Soledad	\$39,714	\$39,974	\$40,041	\$40,426	\$26,325	\$26,330	\$26,800	\$26,708	\$26,509	\$26,220
66	Sonoma	Cloverdale	\$43,033	\$43,180	\$43,090	\$43,124	\$24,794	\$25,068	\$25,056	\$25,181	\$24,950	\$24,631
67	Sacramento	Sacramento County (Unincorporated)	\$50,997	\$50,821	\$50,693	\$50,734	\$20,328	\$20,332	\$20,568	\$20,120	\$19,995	\$19,670
68	San Mateo	Woodside	\$47,931	\$47,821	\$47,850	\$47,906	\$22,709	\$22,670	\$22,544	\$22,326	\$22,149	\$21,904
69	Colusa	Colusa	\$46,708	\$46,656	\$46,856	\$46,861	\$23,425	\$23,114	\$23,034	\$23,145	\$23,572	\$23,304
70	Fresno	Kerman	\$41,948	\$42,210	\$42,617	\$42,793	\$27,338	\$27,346	\$27,832	\$27,669	\$27,504	\$27,217
71	Monterey	Greenfield	\$43,504	\$44,067	\$44,422	\$44,433	\$26,116	\$26,043	\$26,748	\$26,623	\$26,665	\$26,541
72	San Joaquin	Ripon	\$47,426	\$47,291	\$47,466	\$47,525	\$27,004	\$27,288	\$27,220	\$26,581	\$26,370	\$26,132
73	San Joaquin	Lathrop	\$41,661	\$42,156	\$42,629	\$42,796	\$28,208	\$30,759	\$31,097	\$33,743	\$33,446	\$33,656
74	Monterey	King City	\$48,988	\$49,405	\$49,403	\$49,380	\$27,231	\$27,205	\$27,182	\$27,168	\$27,303	\$27,093
75	Solano	Rio Vista	\$46,559	\$46,851	\$46,981	\$47,071	\$28,649	\$28,660	\$28,730	\$28,919	\$29,167	\$29,351
76	Glenn	Willows	\$53,313	\$53,374	\$53,273	\$53,297	\$25,673	\$25,900	\$25,826	\$25,955	\$25,757	\$25,636
77	Glenn	Orland	\$52,431	\$53,099	\$53,149	\$53,286	\$28,162	\$28,753	\$28,671	\$28,434	\$28,240	\$27,988
78	Napa	St Helena	\$55,245	\$55,129	\$55,197	\$55,261	\$28,482	\$28,627	\$28,701	\$28,275	\$27,853	\$27,682
79	Santa Clara	Los Altos Hills	\$56,571	\$56,560	\$57,266	\$57,406	\$28,734	\$28,378	\$28,512	\$27,642	\$27,473	\$27,315
80	Lake	Lakeport	\$57,177	\$57,339	\$57,820	\$57,823	\$28,174	\$27,592	\$27,527	\$27,609	\$27,685	\$27,402
81	Tehama	Corning	\$57,136	\$57,242	\$57,525	\$57,592	\$29,584	\$29,325	\$29,280	\$29,356	\$29,242	\$28,875
82	Kern	Taft	\$58,058	\$58,134	\$58,267	\$58,282	\$29,759	\$28,987	\$28,953	\$28,584	\$28,452	\$28,138
83	San Mateo	Atherton	\$63,852	\$63,780	\$63,535	\$63,597	\$27,040	\$27,065	\$27,033	\$25,855	\$25,658	\$25,441
84	Sonoma	Windsor	\$37,743	\$37,744	\$37,676	\$37,673	\$44,612	\$45,046	\$44,949	\$44,715	\$44,379	\$43,935
85	Tuolumne	Sonora	\$59,709	\$59,617	\$59,520	\$59,526	\$30,438	\$30,530	\$30,516	\$30,327	\$30,175	\$29,843
86	Fresno	Kingsburg	\$57,408	\$57,236	\$57,432	\$57,554	\$33,935	\$34,000	\$33,992	\$33,505	\$33,343	\$33,300
87	Sonoma	Sebastopol	\$59,455	\$59,310	\$59,224	\$60,335	\$32,509	\$32,451	\$32,291	\$32,341	\$32,248	\$31,971
88	Kern	Arvin	\$58,487	\$59,130	\$59,233	\$59,322	\$33,490	\$33,556	\$33,768	\$33,446	\$33,702	\$33,758
89	Stanislaus	Riverbank	\$57,401	\$57,315	\$57,199	\$57,040	\$35,853	\$35,819	\$35,626	\$35,429	\$35,173	\$34,816
90	San Mateo	Hillsborough	\$65,732	\$65,654	\$65,586	\$65,478	\$30,919	\$30,787	\$30,701	\$30,343	\$30,130	\$29,807
91	Marin	Tiburon	\$66,577	\$64,688	\$64,576	\$64,659	\$31,774	\$31,614	\$31,635	\$30,926	\$29,654	\$29,341
92	Contra Costa	Hercules	\$61,953	\$61,778	\$61,679	\$61,673	\$33,112	\$32,984	\$32,727	\$32,691	\$35,562	\$35,174
93	Santa Cruz	Scotts Valley	\$62,930	\$62,796	\$62,625	\$62,673	\$33,284	\$33,284	\$33,267	\$33,709	\$33,545	\$33,117
94	San Mateo	Half Moon Bay	\$62,337	\$62,404	\$62,151	\$62,263	\$36,380	\$34,741	\$34,673	\$34,395	\$33,733	\$33,660
95	Madera	Chowchilla	\$61,975	\$62,132	\$62,276	\$62,320	\$34,330	\$35,785	\$35,394	\$35,085	\$35,006	\$34,461
96	Kings	Corcoran	\$63,621	\$64,257	\$64,411	\$64,762	\$35,575	\$39,726	\$39,646	\$39,246	\$39,016	\$38,577
97	Fresno	Coalinga	\$70,978	\$71,474	\$71,414	\$71,493	\$36,526	\$36,467	\$36,420	\$36,405	\$36,187	\$36,114
98	Mendocino	Fort Bragg	\$74,190	\$74,168	\$74,108	\$74,176	\$37,234	\$36,881	\$36,829	\$36,728	\$36,697	\$36,309
99	Alameda	Emeryville	\$68,677	\$69,392	\$69,458	\$69,700	\$37,813	\$37,499	\$40,641	\$41,472	\$41,342	\$41,783
100	Trinity	Trinity County (Unincorporated)	\$100,742	\$100,802	\$100,761	\$101,035	\$19,487	\$19,602	\$19,581	\$19,287	\$19,261	\$19,100
101	Solano	Dixon	\$69,083	\$68,927	\$68,785	\$68,803	\$41,848	\$40,429	\$40,373	\$40,738	\$40,812	\$40,630
102	San Luis Obispo	Pismo Beach	\$73,210	\$73,160	\$73,298	\$73,424	\$40,790	\$40,915	\$41,054	\$40,084	\$39,897	\$39,746
103	Shasta	Anderson	\$73,422	\$73,385	\$73,637	\$73,680	\$40,665	\$40,671	\$40,643	\$40,594	\$40,014	\$39,410
104	Marin	Fairfax	\$81,173	\$81,012	\$80,880	\$80,935	\$36,608	\$36,600	\$36,292	\$36,330	\$36,158	\$35,900
105	Kern	Shafter	\$71,985	\$72,551	\$73,075	\$73,274	\$44,345	\$43,628	\$43,601	\$42,940	\$42,922	\$42,622
106	Monterey	Carmel	\$83,075	\$83,136	\$83,142	\$83,299	\$39,135	\$37,375	\$37,351	\$36,006	\$35,803	\$35,417
107	Sonoma	Sonoma	\$75,786	\$76,144	\$76,116	\$76,161	\$42,504	\$41,910	\$41,573	\$41,649	\$41,454	\$40,905
108	Alameda	Piedmont	\$87,816	\$87,572	\$87,373	\$87,423	\$37,266	\$37,094	\$36,726	\$37,209	\$37,026	\$36,584
109	Marin	Corte Madera	\$83,283	\$83,139	\$82,824	\$82,865	\$40,623	\$40,403	\$40,299	\$40,486	\$40,276	\$40,462
110	El Dorado	Placerville	\$78,255	\$78,284	\$78,168	\$78,197	\$41,451	\$46,414	\$46,341	\$46,440	\$46,132	\$45,663
111	Solano	Suisun City	\$83,384	\$83,296	\$83,799	\$83,887	\$44,362	\$43,795	\$43,587	\$43,746	\$43,473	\$42,954
112	Contra Costa	Oakley	\$50,280	\$51,499	\$53,273	\$53,756	\$64,469	\$65,484	\$65,897	\$65,831	\$65,855	\$65,485
113	Contra Costa	Moraga	\$91,595	\$91,263	\$91,004	\$90,995	\$44,348	\$43,829	\$43,701	\$44,092	\$43,800	\$43,183
114	Kern	Wasco	\$87,790	\$88,728	\$89,375	\$89,488	\$49,754	\$48,516	\$48,759	\$48,147	\$47,915	\$47,548
115	Marin	Sausalito	\$96,949	\$96,943	\$96,867	\$96,927	\$45,296	\$45,420	\$45,389	\$44,863	\$44,625	\$44,000
116	Santa Cruz	Capitola	\$93,873	\$93,661	\$93,572	\$93,839	\$47,498	\$47,671	\$47,634	\$47,250	\$46,982	\$46,538

AzP Exhibit E. Work Credit Allocation By Community By Year 2007-2016 (Nominal Dollars)												
	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
117	Humboldt	Fortuna	\$92,853	\$93,126	\$93,047	\$93,185	\$48,292	\$47,534	\$47,426	\$47,963	\$47,726	\$47,448
118	Marin	Larkspur	\$95,833	\$95,515	\$95,370	\$95,510	\$47,789	\$47,806	\$47,705	\$47,659	\$47,574	\$47,159
119	Nevada	Grass Valley	\$92,193	\$92,846	\$92,971	\$93,039	\$54,094	\$54,610	\$54,629	\$54,933	\$54,736	\$54,194
120	Tulare	Dinuba	\$94,812	\$94,453	\$95,028	\$95,295	\$52,957	\$54,941	\$54,464	\$54,303	\$54,249	\$54,299
121	Stanislaus	Oakdale	\$97,962	\$99,185	\$98,999	\$99,049	\$56,529	\$56,281	\$56,390	\$55,862	\$55,487	\$54,933
122	Placer	Auburn	\$102,393	\$102,592	\$102,921	\$102,922	\$56,595	\$55,874	\$55,687	\$56,293	\$56,272	\$55,759
123	Fresno	Reedley	\$102,694	\$103,205	\$103,242	\$103,473	\$57,431	\$57,288	\$57,534	\$57,074	\$57,318	\$56,656
124	Fresno	Selma	\$102,779	\$102,764	\$102,786	\$102,808	\$58,405	\$58,422	\$58,596	\$58,087	\$57,581	\$57,063
125	Kings	Lemoore	\$100,815	\$101,272	\$101,354	\$101,284	\$59,586	\$59,918	\$60,528	\$60,846	\$60,755	\$60,334
126	Fresno	Sanger	\$105,818	\$106,406	\$106,387	\$106,505	\$58,190	\$58,079	\$57,578	\$57,725	\$57,686	\$57,681
127	Monterey	Marina	\$108,040	\$108,021	\$107,824	\$107,857	\$57,396	\$57,325	\$57,209	\$57,457	\$57,691	\$57,330
128	Contra Costa	Pinole	\$110,439	\$110,219	\$109,944	\$109,939	\$56,361	\$56,283	\$56,202	\$56,550	\$56,184	\$55,563
129	Tehama	Red Bluff	\$109,345	\$109,492	\$109,515	\$109,906	\$56,575	\$57,271	\$57,191	\$56,850	\$56,296	\$55,682
130	San Mateo	Foster City	\$114,877	\$114,318	\$113,915	\$0	\$0	\$0	\$0	\$0	\$0	\$437,189
131	Yuba	Marysville	\$115,919	\$115,983	\$115,857	\$115,975	\$54,278	\$54,099	\$54,092	\$53,662	\$53,384	\$52,793
132	San Luis Obispo	Arroyo Grande	\$113,886	\$113,979	\$113,868	\$113,884	\$63,270	\$61,049	\$60,885	\$60,462	\$60,360	\$59,794
133	San Luis Obispo	Grover Beach	\$116,428	\$116,421	\$116,541	\$116,648	\$59,609	\$59,507	\$59,451	\$59,452	\$59,141	\$58,608
134	San Benito	Hollister	\$115,678	\$115,443	\$115,273	\$115,449	\$66,954	\$68,238	\$68,205	\$68,682	\$68,672	\$68,232
135	Merced	Atwater	\$118,439	\$118,669	\$118,834	\$119,195	\$65,594	\$68,019	\$67,872	\$68,134	\$67,675	\$66,955
136	Butte	Oroville	\$120,252	\$120,290	\$120,933	\$124,402	\$65,818	\$65,776	\$64,981	\$66,732	\$66,475	\$65,708
137	Placer	Lincoln	\$90,632	\$92,986	\$93,589	\$94,002	\$84,356	\$84,748	\$84,906	\$85,810	\$86,262	\$85,976
138	Humboldt	Arcata	\$126,055	\$126,199	\$126,187	\$126,306	\$69,878	\$69,921	\$70,418	\$71,122	\$71,011	\$70,633
139	Marin	Mill Valley	\$138,039	\$138,097	\$138,120	\$138,291	\$62,732	\$63,229	\$63,166	\$62,419	\$62,100	\$61,601
140	Marin	San Anselmo	\$141,249	\$141,036	\$140,676	\$140,814	\$61,482	\$61,010	\$61,084	\$61,250	\$60,959	\$60,470
141	Contra Costa	Brentwood	\$93,245	\$95,235	\$96,471	\$96,493	\$92,563	\$91,164	\$91,686	\$90,937	\$92,269	\$92,647
142	San Luis Obispo	Morro Bay	\$134,863	\$134,931	\$135,105	\$135,331	\$68,033	\$67,922	\$67,855	\$67,296	\$66,986	\$66,429
143	Santa Clara	Morgan Hill	\$126,889	\$127,637	\$128,071	\$128,247	\$75,125	\$75,508	\$76,345	\$76,786	\$77,679	\$77,838
144	Colusa	Colusa County (Unincorporated)	\$146,045	\$146,385	\$146,615	\$147,472	\$71,389	\$72,544	\$72,899	\$71,821	\$71,963	\$71,826
145	Merced	Los Banos	\$131,579	\$132,215	\$132,557	\$132,945	\$83,144	\$83,167	\$82,940	\$82,786	\$82,240	\$81,879
146	Contra Costa	Orinda	\$151,084	\$150,630	\$150,459	\$150,366	\$71,227	\$71,156	\$71,047	\$71,527	\$71,778	\$71,228
147	Alameda	Albany	\$154,519	\$154,256	\$153,943	\$153,991	\$71,653	\$71,561	\$71,666	\$72,384	\$72,008	\$71,268
148	San Mateo	East Palo Alto	\$162,265	\$161,969	\$161,853	\$161,915	\$66,058	\$65,905	\$66,827	\$67,259	\$67,016	\$66,246
149	Solano	Benicia	\$147,328	\$147,335	\$146,943	\$147,089	\$77,539	\$77,248	\$77,027	\$77,190	\$76,683	\$75,862
150	Sonoma	Rohnert Park	\$150,512	\$150,235	\$149,741	\$149,688	\$78,590	\$78,453	\$78,180	\$78,987	\$78,414	\$78,323
151	San Luis Obispo	Paso Robles	\$145,417	\$145,443	\$145,416	\$145,612	\$85,812	\$85,322	\$85,452	\$84,816	\$84,623	\$83,605
152	San Mateo	Millbrae	\$164,583	\$164,621	\$164,708	\$164,824	\$78,446	\$78,375	\$78,141	\$78,951	\$78,776	\$77,959
153	San Benito	San Benito County (Unincorporated)	\$167,700	\$167,552	\$167,163	\$167,256	\$83,231	\$82,909	\$82,709	\$81,865	\$81,510	\$80,688
154	Lake	Clearlake	\$167,992	\$169,487	\$170,055	\$170,310	\$87,333	\$87,896	\$87,823	\$86,644	\$86,186	\$84,923
155	Monterey	Pacific Grove	\$189,528	\$189,336	\$188,977	\$189,135	\$85,032	\$84,924	\$84,742	\$85,073	\$84,720	\$83,966
156	Contra Costa	Danville	\$177,706	\$177,126	\$176,988	\$177,027	\$96,298	\$96,376	\$96,162	\$96,418	\$96,068	\$94,776
157	Monterey	Seaside	\$176,679	\$176,175	\$175,746	\$175,779	\$100,050	\$99,164	\$98,887	\$95,322	\$94,829	\$93,801
158	Placer	Rocklin	\$147,758	\$149,550	\$150,458	\$151,173	\$114,788	\$114,552	\$114,714	\$115,799	\$115,957	\$116,037
159	Contra Costa	San Pablo	\$187,405	\$187,522	\$187,588	\$187,684	\$91,213	\$91,166	\$92,029	\$92,506	\$91,995	\$91,319
160	Alameda	Dublin	\$160,993	\$162,822	\$164,780	\$165,476	\$102,283	\$103,680	\$108,716	\$112,684	\$115,041	\$116,263
161	Stanislaus	Stanislaus County (Unincorporated)	\$205,181	\$204,264	\$204,333	\$204,909	\$85,910	\$86,385	\$86,964	\$85,473	\$85,580	\$85,435
162	Santa Clara	Saratoga	\$192,740	\$193,276	\$193,199	\$193,269	\$98,334	\$97,893	\$97,729	\$96,426	\$96,009	\$95,044
163	Santa Clara	Gilroy	\$183,355	\$183,434	\$183,538	\$183,842	\$105,739	\$106,098	\$104,963	\$104,993	\$105,106	\$105,351
164	Glenn	Glenn County (Unincorporated)	\$203,124	\$203,155	\$203,513	\$204,089	\$95,906	\$95,786	\$96,065	\$94,843	\$95,155	\$94,515
165	Plumas	Plumas County (Unincorporated)	\$199,486	\$200,087	\$200,039	\$200,293	\$101,797	\$101,727	\$101,708	\$101,605	\$101,065	\$100,194
166	Santa Cruz	Watsonville	\$198,408	\$197,935	\$197,508	\$197,639	\$112,602	\$112,512	\$114,323	\$114,978	\$114,619	\$113,612
167	Alameda	Union City	\$206,509	\$206,876	\$206,625	\$208,087	\$111,771	\$112,408	\$112,065	\$112,288	\$111,429	\$110,084
168	Contra Costa	Martinez	\$211,365	\$210,814	\$210,540	\$210,580	\$110,600	\$109,647	\$109,051	\$110,576	\$110,126	\$109,114
169	Contra Costa	San Ramon	\$186,741	\$188,658	\$190,472	\$191,688	\$124,534	\$124,456	\$125,907	\$127,053	\$126,862	\$126,322
170	Alameda	Newark	\$217,194	\$216,574	\$215,996	\$216,093	\$108,638	\$108,413	\$108,088	\$109,014	\$108,266	\$107,285
171	Contra Costa	Lafayette	\$227,126	\$226,433	\$226,196	\$226,392	\$103,374	\$103,568	\$103,414	\$104,213	\$103,839	\$102,907
172	San Mateo	Belmont	\$226,423	\$225,837	\$225,445	\$225,314	\$105,500	\$105,374	\$105,052	\$106,391	\$105,801	\$104,673
173	San Luis Obispo	Atascadero	\$217,248	\$217,764	\$217,721	\$217,710	\$113,454	\$113,234	\$113,191	\$113,634	\$113,971	\$113,357
174	Mariposa	Mariposa County (Unincorporated)	\$210,130	\$211,157	\$211,592	\$212,264	\$120,323	\$119,995	\$120,331	\$120,767	\$120,528	\$119,710

AzP Exhibit E. Work Credit Allocation By Community By Year 2007-2016 (Nominal Dollars)												
	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
175	Kings	Kings County (Unincorporated)	\$239,254	\$239,968	\$240,584	\$242,535	\$110,616	\$105,594	\$106,160	\$102,848	\$102,544	\$102,835
176	Contra Costa	Pleasant Hill	\$237,268	\$236,824	\$236,099	\$236,170	\$113,430	\$114,543	\$114,399	\$115,216	\$114,487	\$112,630
177	Madera	Madera	\$215,834	\$217,308	\$218,501	\$218,634	\$130,676	\$130,211	\$130,488	\$130,028	\$129,714	\$129,118
178	Yolo	Yolo County (Unincorporated)	\$236,492	\$237,919	\$239,141	\$240,228	\$114,329	\$116,717	\$117,260	\$117,376	\$117,503	\$116,764
179	Solano	Solano County (Unincorporated)	\$242,163	\$241,819	\$241,468	\$241,977	\$113,583	\$116,188	\$117,795	\$114,756	\$114,326	\$113,348
180	Contra Costa	El Cerrito	\$255,333	\$254,635	\$254,034	\$254,242	\$116,063	\$115,869	\$114,964	\$116,093	\$115,352	\$114,404
181	Contra Costa	Pittsburg	\$242,361	\$242,659	\$242,477	\$241,612	\$127,100	\$127,125	\$127,592	\$127,275	\$127,157	\$126,754
182	Santa Clara	Los Altos	\$250,890	\$251,908	\$252,400	\$253,159	\$122,886	\$123,774	\$124,297	\$118,914	\$118,704	\$118,505
183	Santa Clara	Los Gatos	\$250,776	\$251,679	\$251,743	\$251,749	\$123,879	\$123,536	\$123,681	\$122,490	\$121,932	\$120,604
184	Santa Clara	Milpitas	\$239,626	\$240,398	\$241,598	\$242,240	\$132,083	\$132,168	\$133,204	\$136,029	\$138,754	\$139,317
185	Amador	Amador County (Unincorporated)	\$248,906	\$249,551	\$249,599	\$250,079	\$135,025	\$136,912	\$136,742	\$136,664	\$136,094	\$134,794
186	Butte	Paradise	\$264,777	\$264,440	\$264,100	\$264,353	\$131,014	\$129,545	\$129,335	\$130,326	\$129,632	\$128,485
187	San Joaquin	Manteca	\$240,166	\$242,274	\$244,550	\$245,380	\$149,728	\$149,304	\$151,096	\$151,180	\$151,641	\$151,334
188	Monterey	Monterey	\$272,804	\$272,597	\$271,994	\$272,238	\$132,796	\$132,613	\$131,521	\$132,293	\$131,444	\$130,098
189	Alameda	Pleasanton	\$257,106	\$256,409	\$255,985	\$256,346	\$143,904	\$143,662	\$143,465	\$144,544	\$143,609	\$142,966
190	Yolo	West Sacramento	\$258,813	\$260,076	\$259,677	\$260,008	\$140,892	\$142,072	\$142,076	\$142,518	\$142,356	\$142,416
191	San Joaquin	Tracy	\$246,411	\$246,717	\$246,685	\$246,714	\$160,636	\$158,559	\$158,105	\$157,497	\$156,903	\$155,837
192	Yolo	Woodland	\$265,204	\$266,654	\$266,828	\$267,529	\$146,614	\$145,196	\$145,018	\$145,708	\$145,074	\$144,253
193	San Mateo	San Carlos	\$285,524	\$285,056	\$284,683	\$285,101	\$135,269	\$135,314	\$135,131	\$136,458	\$135,233	\$133,771
194	San Mateo	Menlo Park	\$289,479	\$286,539	\$286,701	\$287,012	\$134,760	\$134,674	\$134,089	\$134,412	\$133,624	\$132,250
195	San Mateo	Pacifica	\$289,946	\$289,428	\$288,871	\$288,931	\$139,382	\$139,153	\$138,870	\$140,624	\$138,915	\$137,392
196	San Mateo	Burlingame	\$294,772	\$294,325	\$294,059	\$293,773	\$139,499	\$139,502	\$139,387	\$140,657	\$139,900	\$138,755
197	Sutter	Yuba City	\$260,121	\$259,849	\$260,253	\$260,337	\$170,969	\$170,086	\$169,733	\$169,910	\$170,458	\$168,644
198	Humboldt	Eureka	\$310,708	\$310,315	\$309,883	\$310,124	\$145,755	\$145,358	\$145,238	\$146,054	\$145,363	\$144,056
199	Yolo	Davis	\$290,894	\$290,202	\$289,417	\$289,440	\$160,441	\$159,697	\$160,609	\$160,137	\$159,183	\$157,406
200	Sonoma	Petaluma	\$293,156	\$293,608	\$293,558	\$293,588	\$161,652	\$161,213	\$161,324	\$162,080	\$161,271	\$159,905
201	Marin	Novato	\$306,858	\$305,814	\$305,021	\$304,770	\$157,809	\$157,453	\$157,366	\$158,332	\$157,413	\$155,630
202	Santa Clara	Campbell	\$301,242	\$303,144	\$302,932	\$303,043	\$156,103	\$157,462	\$158,543	\$161,948	\$161,322	\$160,993
203	San Mateo	San Bruno	\$321,988	\$322,372	\$321,796	\$322,106	\$149,710	\$150,030	\$149,833	\$150,731	\$150,412	\$148,852
204	Sutter	Sutter County (Unincorporated)	\$344,761	\$344,670	\$344,151	\$344,704	\$139,842	\$140,439	\$140,485	\$137,433	\$135,707	\$134,899
205	Santa Clara	Cupertino	\$297,158	\$297,370	\$297,331	\$297,572	\$170,267	\$170,459	\$171,809	\$169,208	\$169,347	\$167,465
206	Napa	Napa County (Unincorporated)	\$359,648	\$359,648	\$359,486	\$359,980	\$166,062	\$164,813	\$165,125	\$156,889	\$155,792	\$154,128
207	San Luis Obispo	San Luis Obispo	\$331,812	\$332,379	\$333,935	\$334,515	\$180,092	\$180,126	\$179,164	\$178,543	\$177,877	\$176,639
208	Solano	Vacaville	\$323,229	\$323,624	\$324,044	\$324,849	\$186,853	\$185,654	\$185,379	\$186,557	\$186,386	\$185,147
209	Tulare	Tulare County (Unincorporated)	\$354,026	\$355,194	\$356,263	\$357,549	\$170,914	\$169,639	\$170,928	\$166,115	\$165,526	\$164,106
210	Fresno	Clovis	\$314,614	\$316,383	\$317,496	\$318,961	\$200,392	\$201,004	\$202,469	\$201,931	\$203,241	\$202,914
211	Merced	Merced	\$358,637	\$358,760	\$358,440	\$358,600	\$185,724	\$188,745	\$187,812	\$186,210	\$185,148	\$182,718
212	Contra Costa	Antioch	\$361,979	\$361,216	\$360,867	\$361,191	\$211,861	\$211,807	\$212,117	\$213,413	\$212,247	\$209,671
213	Alameda	Livermore	\$376,829	\$376,366	\$376,267	\$377,085	\$210,200	\$209,967	\$210,015	\$212,072	\$210,986	\$209,717
214	Santa Barbara	Santa Maria	\$380,752	\$381,012	\$381,988	\$382,276	\$210,994	\$208,585	\$208,228	\$209,373	\$208,278	\$207,595
215	Yuba	Yuba County (Unincorporated)	\$391,342	\$393,207	\$393,887	\$395,167	\$209,553	\$209,835	\$209,526	\$207,558	\$207,470	\$205,343
216	San Mateo	South San Francisco	\$405,201	\$404,880	\$404,868	\$404,824	\$203,364	\$202,963	\$202,764	\$204,829	\$203,736	\$201,686
217	Solano	Fairfield	\$386,283	\$385,681	\$385,426	\$385,839	\$219,923	\$219,948	\$220,102	\$219,528	\$219,528	\$218,306
218	Santa Cruz	Santa Cruz	\$421,758	\$421,805	\$421,739	\$422,687	\$208,918	\$208,740	\$207,916	\$208,452	\$207,854	\$206,488
219	Tehama	Tehama County (Unincorporated)	\$417,243	\$419,255	\$419,900	\$421,077	\$231,845	\$231,623	\$231,789	\$229,546	\$229,259	\$228,279
220	Santa Barbara	Santa Barbara County (Unincorporated)	\$439,983	\$439,761	\$438,460	\$439,296	\$220,899	\$223,300	\$223,098	\$222,004	\$221,374	\$219,735
221	Contra Costa	Walnut Creek	\$450,199	\$449,608	\$449,325	\$449,923	\$221,877	\$223,244	\$222,450	\$224,543	\$222,223	\$220,459
222	Marin	San Rafael	\$463,804	\$462,507	\$460,766	\$461,044	\$229,723	\$228,943	\$228,403	\$229,355	\$228,106	\$225,761
223	Butte	Chico	\$389,090	\$402,637	\$401,986	\$402,381	\$280,903	\$281,810	\$286,722	\$289,457	\$288,674	\$286,872
224	Napa	Napa	\$466,232	\$465,611	\$464,841	\$465,252	\$243,533	\$243,754	\$243,503	\$244,577	\$243,840	\$241,418
225	Calaveras	Calaveras County (Unincorporated)	\$487,495	\$489,184	\$489,827	\$490,733	\$277,589	\$277,840	\$277,653	\$278,043	\$277,096	\$274,331
226	San Mateo	Daly City	\$533,646	\$532,123	\$531,280	\$532,013	\$266,308	\$266,646	\$265,780	\$269,405	\$267,470	\$264,222
227	Marin	Marin County (Unincorporated)	\$567,546	\$566,202	\$565,631	\$565,706	\$271,364	\$271,579	\$271,140	\$271,068	\$269,903	\$267,285
228	San Mateo	San Mateo County (Unincorporated)	\$610,138	\$612,099	\$611,576	\$612,398	\$245,692	\$248,091	\$247,215	\$247,501	\$246,564	\$243,992
229	Santa Clara	Mountain View	\$568,043	\$567,579	\$566,305	\$566,698	\$283,569	\$283,381	\$281,309	\$283,025	\$280,758	\$278,496
230	Lake	Lake County (Unincorporated)	\$557,631	\$559,061	\$559,532	\$560,546	\$291,100	\$290,878	\$290,964	\$289,968	\$288,873	\$286,240
231	San Mateo	Redwood City	\$580,148	\$579,021	\$577,985	\$578,222	\$278,745	\$279,077	\$278,232	\$281,970	\$282,577	\$281,090
232	Tuolumne	Tuolumne County (Unincorporated)	\$599,900	\$600,219	\$600,324	\$601,195	\$310,527	\$311,232	\$311,036	\$311,432	\$309,838	\$307,179

AzP Exhibit E. Work Credit Allocation By Community By Year 2007-2016 (Nominal Dollars)												
	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
233	Merced	Merced County (Unincorporated)	\$615,272	\$616,912	\$618,710	\$621,262	\$310,685	\$306,312	\$307,860	\$298,996	\$299,491	\$298,996
234	Mendocino	Mendocino County (Unincorporated)	\$623,573	\$623,944	\$624,361	\$625,673	\$319,219	\$319,754	\$319,170	\$317,422	\$316,463	\$313,783
235	Alameda	San Leandro	\$665,844	\$664,487	\$664,029	\$664,563	\$313,059	\$312,397	\$310,821	\$314,420	\$312,667	\$309,451
236	Monterey	Salinas	\$645,361	\$643,929	\$643,626	\$644,653	\$337,230	\$337,133	\$334,955	\$337,849	\$335,480	\$332,217
237	Nevada	Nevada County (Unincorporated)	\$641,756	\$641,779	\$641,811	\$642,773	\$337,523	\$337,262	\$337,038	\$339,608	\$338,420	\$335,761
238	Shasta	Shasta County (Unincorporated)	\$664,846	\$665,009	\$665,117	\$665,997	\$334,520	\$334,844	\$334,564	\$331,609	\$329,464	\$325,749
239	Solano	Vallejo	\$684,035	\$682,852	\$681,785	\$681,836	\$348,049	\$347,652	\$346,348	\$349,126	\$346,975	\$343,226
240	Humboldt	Humboldt County (Unincorporated)	\$693,054	\$693,502	\$693,877	\$695,279	\$346,528	\$348,581	\$348,939	\$345,108	\$342,985	\$343,624
241	Placer	Placer County (Unincorporated)	\$697,465	\$697,876	\$698,040	\$698,717	\$376,882	\$377,192	\$377,391	\$376,915	\$375,822	\$373,027
242	Contra Costa	Richmond	\$742,860	\$742,082	\$741,025	\$741,524	\$365,701	\$365,886	\$364,211	\$363,707	\$361,628	\$358,302
243	Santa Clara	Santa Clara County (Unincorporated)	\$937,096	\$928,969	\$926,806	\$909,382	\$296,481	\$277,038	\$273,985	\$266,397	\$264,682	\$262,007
244	Madera	Madera County (Unincorporated)	\$733,201	\$735,637	\$737,230	\$740,454	\$410,571	\$410,385	\$411,611	\$402,775	\$402,209	\$399,267
245	San Mateo	San Mateo	\$786,491	\$784,672	\$783,798	\$784,457	\$373,953	\$372,951	\$372,295	\$377,296	\$377,400	\$374,484
246	Contra Costa	Concord	\$775,532	\$773,074	\$772,561	\$772,486	\$384,139	\$382,615	\$381,399	\$385,800	\$383,477	\$379,392
247	Monterey	Monterey County (Unincorporated)	\$852,568	\$852,552	\$852,205	\$852,486	\$427,715	\$428,545	\$427,863	\$423,979	\$421,497	\$418,223
248	Alameda	Hayward	\$844,835	\$845,507	\$845,117	\$843,692	\$438,530	\$438,862	\$437,605	\$440,309	\$437,779	\$434,681
249	Santa Clara	Sunnyvale	\$876,203	\$874,198	\$873,340	\$873,630	\$437,018	\$438,392	\$439,655	\$443,179	\$442,372	\$438,284
250	Sonoma	Santa Rosa	\$838,586	\$840,103	\$840,029	\$841,024	\$466,594	\$466,552	\$467,442	\$470,210	\$467,789	\$463,956
251	Butte	Butte County (Unincorporated)	\$981,542	\$969,085	\$968,155	\$966,184	\$433,930	\$435,227	\$430,800	\$427,581	\$426,109	\$422,412
252	San Luis Obispo	San Luis Obispo County (Unincorporated)	\$907,068	\$909,120	\$910,292	\$912,408	\$502,749	\$507,342	\$508,992	\$507,156	\$506,657	\$502,724
253	Alameda	Fremont	\$967,916	\$964,928	\$964,651	\$965,503	\$493,216	\$491,967	\$491,637	\$496,072	\$493,411	\$487,872
254	El Dorado	El Dorado County (Unincorporated)	\$908,413	\$910,310	\$911,247	\$912,553	\$543,779	\$538,300	\$538,274	\$543,753	\$541,885	\$538,454
255	Alameda	Alameda County (Unincorporated)	\$1,105,993	\$1,105,958	\$1,105,742	\$1,108,460	\$517,719	\$514,863	\$506,576	\$508,753	\$506,109	\$501,297
256	Santa Cruz	Santa Cruz County (Unincorporated)	\$1,141,654	\$1,141,103	\$1,140,482	\$1,141,318	\$542,154	\$542,157	\$541,147	\$541,259	\$538,275	\$533,060
257	Contra Costa	Contra Costa County (Unincorporated)	\$1,159,369	\$1,158,531	\$1,157,209	\$1,157,792	\$531,194	\$530,364	\$530,427	\$529,822	\$527,963	\$523,635
258	Alameda	Berkeley	\$1,180,746	\$1,179,826	\$1,177,533	\$1,178,755	\$527,937	\$527,648	\$526,707	\$530,368	\$528,394	\$523,888
259	San Joaquin	San Joaquin County (Unincorporated)	\$1,334,991	\$1,333,778	\$1,330,754	\$1,328,190	\$629,924	\$630,296	\$630,463	\$613,918	\$612,481	\$606,796
260	San Joaquin	Stockton	\$1,311,312	\$1,312,310	\$1,310,112	\$1,315,945	\$718,192	\$718,243	\$716,639	\$711,280	\$705,525	\$697,933
261	Kern	Bakersfield	\$1,289,015	\$1,301,998	\$1,310,352	\$1,314,636	\$799,248	\$800,939	\$803,233	\$807,147	\$807,748	\$806,548
262	Sonoma	Sonoma County (Unincorporated)	\$1,568,290	\$1,567,615	\$1,566,912	\$1,568,165	\$741,632	\$742,462	\$741,536	\$740,235	\$736,876	\$730,565
263	Kern	Kern County (Unincorporated)	\$1,809,689	\$1,807,690	\$1,805,172	\$1,809,519	\$823,411	\$825,808	\$827,088	\$804,605	\$800,758	\$794,625
264	Fresno	Fresno County (Unincorporated)	\$2,029,737	\$2,031,132	\$2,031,370	\$2,035,676	\$892,903	\$889,307	\$897,548	\$876,874	\$874,928	\$868,584
265	Fresno	Fresno	\$2,415,549	\$2,420,307	\$2,423,347	\$2,431,211	\$1,315,765	\$1,323,473	\$1,316,399	\$1,312,961	\$1,307,627	\$1,296,133
266	Alameda	Oakland	\$3,608,685	\$3,603,831	\$3,606,321	\$3,608,897	\$1,698,864	\$1,696,854	\$1,696,405	\$1,702,757	\$1,696,872	\$1,682,000
267	Santa Clara	San Jose	\$4,250,301	\$4,249,033	\$4,249,962	\$4,274,044	\$2,237,828	\$2,252,630	\$2,255,869	\$2,276,539	\$2,275,014	\$2,263,875
268	San Francisco	San Francisco	\$6,103,134	\$6,074,339	\$6,065,515	\$6,072,752	\$3,069,182	\$3,068,101	\$3,071,904	\$3,107,572	\$3,109,290	\$3,089,938
Total Allocations			\$80,988,306	\$80,988,301	\$80,988,298	\$80,988,300	\$41,300,000	\$41,300,000	\$41,300,000	\$41,300,000	\$41,300,000	\$41,300,000
Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-074.												

Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-074.

AzP Exhibit F. Work Credit Allocation Rank By Community - Smallest to Largest Recipients During 2007-2016 (Nominal Dollars)															
Rank by WCA	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total Work Credits Allocated by PG&E to Community During Audit	Percentage of Total	
1	Stanislaus	Patterson	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.00%
2	Sacramento	Folsom	\$0	\$0	\$9	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9	\$9	0.00%
3	Shasta	Shasta Lake	\$424	\$430	\$427	\$426	\$531	\$541	\$539	\$515	\$512	\$507	\$4,852	\$4,852	0.00%
4	Siskiyou	Siskiyou County (Unincorporated)	\$1,311	\$1,317	\$1,314	\$1,314	\$503	\$513	\$500	\$467	\$464	\$470	\$8,173	\$8,173	0.00%
5	Butte	Biggs	\$0	\$0	\$135	\$134	\$173	\$238	\$248	\$175	\$12,774	\$183	\$14,060	\$14,060	0.00%
6	Placer	Roseville	\$0	\$0	\$254	\$260	\$328	\$109	\$152	\$231	\$17,029	\$231	\$18,594	\$18,594	0.00%
7	Amador	Amador City	\$2,970	\$2,962	\$2,955	\$2,989	\$1,312	\$1,369	\$1,375	\$1,378	\$1,363	\$1,367	\$20,040	\$20,040	0.00%
8	Humboldt	Trinidad	\$4,584	\$4,577	\$4,591	\$4,594	\$2,040	\$2,022	\$2,041	\$2,020	\$2,006	\$1,865	\$30,340	\$30,340	0.01%
9	Tehama	Tehama	\$5,313	\$5,328	\$5,325	\$5,328	\$2,444	\$2,405	\$2,427	\$2,368	\$2,344	\$2,320	\$35,602	\$35,602	0.01%
10	Alpine	Alpine County (Unincorporated)	\$5,499	\$5,504	\$5,561	\$5,562	\$2,846	\$2,876	\$2,873	\$2,924	\$2,899	\$2,862	\$39,406	\$39,406	0.01%
11	Mendocino	Point Arena	\$6,844	\$6,867	\$6,864	\$6,880	\$2,866	\$2,914	\$2,959	\$2,935	\$2,928	\$2,919	\$44,976	\$44,976	0.01%
12	Monterey	Sand City	\$8,268	\$8,255	\$8,236	\$8,259	\$4,181	\$4,201	\$4,190	\$4,155	\$4,157	\$4,157	\$58,059	\$58,059	0.01%
13	Amador	Plymouth	\$8,637	\$8,700	\$8,704	\$8,702	\$4,715	\$4,941	\$4,969	\$4,438	\$4,389	\$4,322	\$62,517	\$62,517	0.01%
14	San Mateo	Colma	\$11,371	\$11,202	\$11,160	\$11,142	\$5,093	\$4,463	\$4,578	\$4,391	\$4,346	\$4,290	\$72,036	\$72,036	0.01%
15	Sacramento	Isleton	\$11,461	\$11,498	\$11,480	\$11,471	\$5,148	\$5,134	\$4,983	\$4,831	\$4,807	\$4,703	\$55,516	\$55,516	0.01%
16	Kern	Maricopa	\$12,097	\$12,114	\$12,114	\$12,143	\$5,760	\$5,788	\$5,772	\$5,714	\$5,683	\$5,615	\$82,800	\$82,800	0.01%
17	Humboldt	Blue Lake	\$13,566	\$13,543	\$13,558	\$13,566	\$6,757	\$6,779	\$6,735	\$6,542	\$6,482	\$6,485	\$94,013	\$94,013	0.02%
18	Napa	Yountville	\$14,088	\$14,045	\$14,037	\$14,064	\$7,520	\$7,640	\$7,491	\$7,263	\$7,279	\$7,275	\$100,702	\$100,702	0.02%
19	Fresno	San Joaquin	\$13,720	\$13,924	\$13,951	\$13,964	\$8,033	\$7,902	\$7,989	\$7,854	\$7,808	\$7,693	\$102,838	\$102,838	0.02%
20	Santa Barbara	Buellton	\$9,306	\$9,166	\$9,196	\$9,325	\$11,223	\$11,216	\$11,213	\$11,185	\$11,120	\$10,930	\$103,880	\$103,880	0.02%
21	Monterey	Del Rey Oaks	\$15,939	\$15,895	\$15,856	\$15,855	\$7,296	\$7,280	\$7,334	\$7,418	\$7,385	\$7,316	\$107,574	\$107,574	0.02%
22	San Benito	San Juan Bautista	\$15,838	\$15,976	\$15,875	\$15,882	\$7,961	\$7,667	\$7,657	\$7,691	\$7,673	\$7,570	\$109,790	\$109,790	0.02%
23	Sonoma	Healdsburg	\$0	\$0	\$1,785	\$1,889	\$2,283	\$1,986	\$1,987	\$2,049	\$98,554	\$1,798	\$112,331	\$112,331	0.02%
24	Marin	Belvedere	\$19,560	\$19,486	\$19,190	\$18,782	\$7,529	\$7,395	\$6,470	\$6,158	\$6,108	\$6,035	\$116,713	\$116,713	0.02%
25	Placer	Colfax	\$16,904	\$16,943	\$16,872	\$17,062	\$9,296	\$9,451	\$9,454	\$9,463	\$9,387	\$9,356	\$124,188	\$124,188	0.02%
26	Humboldt	Ferndale	\$18,980	\$18,932	\$18,954	\$18,963	\$9,009	\$8,973	\$9,001	\$9,088	\$9,036	\$8,987	\$129,923	\$129,923	0.02%
27	Yuba	Wheatland	\$17,156	\$17,224	\$17,218	\$17,244	\$9,943	\$10,015	\$10,267	\$10,350	\$10,295	\$10,317	\$130,029	\$130,029	0.02%
28	Lassen	Lassen County (Unincorporated)	\$20,970	\$20,664	\$20,652	\$20,706	\$9,699	\$9,696	\$9,723	\$9,458	\$9,467	\$9,468	\$140,503	\$140,503	0.02%
29	Marin	Ross	\$21,468	\$21,432	\$21,462	\$21,483	\$10,027	\$10,137	\$10,120	\$9,868	\$9,837	\$9,734	\$145,568	\$145,568	0.03%
30	Fresno	Huron	\$18,897	\$18,860	\$19,354	\$19,388	\$11,824	\$11,796	\$11,617	\$11,654	\$11,565	\$11,397	\$146,352	\$146,352	0.03%
31	Amador	Ione	\$24,443	\$24,548	\$24,557	\$24,575	\$14,018	\$12,870	\$13,107	\$14,002	\$13,904	\$13,797	\$179,821	\$179,821	0.03%
32	Santa Clara	Monte Sereno	\$26,771	\$26,775	\$26,843	\$26,909	\$12,496	\$12,442	\$12,509	\$11,845	\$11,692	\$11,596	\$179,878	\$179,878	0.03%
33	Colusa	Williams	\$24,626	\$24,622	\$24,615	\$24,669	\$14,451	\$13,782	\$13,776	\$13,827	\$13,917	\$13,717	\$182,002	\$182,002	0.03%
34	Sierra	Sierra County (Unincorporated)	\$27,172	\$27,136	\$27,143	\$27,162	\$12,344	\$12,412	\$12,413	\$12,390	\$12,313	\$12,239	\$182,724	\$182,724	0.03%
35	Kern	Mcfarland	\$24,800	\$25,260	\$25,321	\$25,546	\$14,797	\$15,205	\$15,419	\$15,597	\$16,015	\$16,048	\$194,008	\$194,008	0.03%
36	Amador	Sutter Creek	\$27,569	\$27,622	\$27,600	\$27,642	\$14,451	\$14,020	\$14,080	\$14,220	\$14,143	\$14,069	\$195,416	\$195,416	0.03%
37	Humboldt	Rio Dell	\$30,971	\$30,946	\$30,898	\$30,970	\$14,712	\$14,762	\$14,821	\$14,900	\$14,857	\$14,705	\$212,542	\$212,542	0.04%
38	Monterey	Gonzales	\$29,497	\$29,556	\$29,624	\$29,440	\$15,785	\$15,755	\$15,947	\$16,002	\$15,897	\$15,752	\$213,255	\$213,255	0.04%
39	San Mateo	Portola Valley	\$31,390	\$31,336	\$31,374	\$31,420	\$15,404	\$15,345	\$15,185	\$15,074	\$14,893	\$14,721	\$216,142	\$216,142	0.04%
40	Fresno	Fowler	\$28,925	\$29,254	\$29,387	\$29,512	\$16,789	\$16,768	\$16,758	\$16,357	\$16,400	\$16,337	\$216,487	\$216,487	0.04%
41	Santa Barbara	Guadalupe	\$30,384	\$30,392	\$30,334	\$30,332	\$15,921	\$15,893	\$16,173	\$15,998	\$15,927	\$15,794	\$217,148	\$217,148	0.04%
42	Fresno	Firebaugh	\$28,912	\$28,969	\$28,967	\$29,071	\$16,955	\$17,119	\$17,958	\$17,749	\$17,587	\$17,516	\$220,803	\$220,803	0.04%
43	Calaveras	Angels Camp	\$32,004	\$32,065	\$32,017	\$32,030	\$16,571	\$16,255	\$16,241	\$16,175	\$16,083	\$16,271	\$225,712	\$225,712	0.04%
44	Yolo	Winters	\$30,695	\$30,571	\$30,630	\$30,641	\$17,244	\$17,528	\$17,354	\$17,239	\$17,143	\$16,981	\$226,026	\$226,026	0.04%
45	Merced	Dos Palos	\$34,132	\$34,257	\$34,312	\$34,359	\$17,692	\$17,196	\$17,117	\$17,101	\$16,987	\$16,803	\$239,956	\$239,956	0.04%
46	Contra Costa	Clayton	\$29,631	\$29,521	\$29,489	\$29,478	\$21,034	\$21,043	\$21,034	\$21,185	\$20,992	\$20,732	\$244,139	\$244,139	0.04%
47	San Joaquin	Escalon	\$33,685	\$33,602	\$33,536	\$33,535	\$18,773	\$18,637	\$18,593	\$18,488	\$18,329	\$18,103	\$245,281	\$245,281	0.04%
48	Sutter	Live Oak	\$33,231	\$33,359	\$33,383	\$33,384	\$18,698	\$18,994	\$19,363	\$18,966	\$18,774	\$18,541	\$246,693	\$246,693	0.04%
49	Merced	Livingston	\$34,015	\$33,887	\$33,845	\$33,842	\$18,598	\$18,854	\$18,834	\$18,939	\$18,805	\$18,682	\$248,301	\$248,301	0.04%
50	Fresno	Mendota	\$32,547	\$32,985	\$33,174	\$33,201	\$19,675	\$19,738	\$20,104	\$20,008	\$20,003	\$19,780	\$251,215	\$251,215	0.04%
51	Nevada	Nevada City	\$35,974	\$36,072	\$36,052	\$36,090	\$19,085	\$18,720	\$18,724	\$18,870	\$18,945	\$18,817	\$257,449	\$257,449	0.05%
52	San Mateo	Brisbane	\$37,003	\$37,005	\$37,034	\$37,071	\$19,074	\$19,099	\$19,152	\$19,267	\$19,312	\$19,261	\$263,278	\$263,278	0.05%
53	Merced	Gustine	\$37,337	\$37,262	\$37,265	\$37,306	\$19,384	\$19,403	\$19,468	\$19,580	\$19,468	\$19,240	\$265,713	\$265,713	0.05%
54	Napa	Calistoga	\$37,958	\$37,953	\$38,064	\$38,198	\$19,488	\$19,646	\$19,640	\$19,574	\$19,415	\$19,510	\$269,446	\$269,446	0.05%
55	Santa Barbara	Solvang	\$38,664	\$38,674	\$38,690	\$38,704	\$19,811	\$19,946	\$19,896	\$20,008	\$20,025	\$19,918	\$274,336	\$274,336	0.05%
56	Fresno	Orange Cove	\$36,754	\$37,666	\$37,612	\$37,665	\$20,821	\$20,941	\$20,996	\$20,971	\$20,888	\$20,661	\$274,975	\$274,975	0.05%
57	Sonoma	Cotati	\$38,591	\$38,573	\$38,494	\$38,473	\$20,953	\$20,824	\$20,838	\$20,769	\$20,670	\$20,440	\$278,625	\$278,625	0.05%
58	Napa	American Canyon	\$24,454	\$25,008	\$25,229	\$25,351	\$30,727	\$30,611	\$30,648	\$30,778	\$30,497	\$30,140	\$283,443	\$283,443	0.05%
59	Amador	Jackson	\$40,977	\$41,038	\$40,974	\$41,021	\$22,195	\$21,576	\$21,549	\$21,232	\$21,320	\$21,234	\$293,116	\$293,116	0.05%
60	Stanislaus	Newman	\$39,117	\$39,324	\$39,354	\$39,295	\$23,666	\$23,906	\$23,769	\$23,183	\$23,048	\$22,901	\$297,563	\$297,563	0.05%
61	Fresno	Parlier	\$39,861	\$40,334	\$40,358	\$40,532	\$24,222	\$24,446	\$24,702	\$24,664	\$24,471	\$24,134	\$307,724	\$307,724	0.05%
62	Mendocino	Willits	\$43,920	\$44,027	\$44,073	\$44,156	\$23,243	\$23,308	\$23,353	\$22,961	\$22,813	\$22,591	\$314,445	\$314,445	0.05%
63	Placer	Loomis	\$43,283	\$43,266	\$43,203	\$43,258	\$23,666	\$23,876	\$23,855	\$23,893	\$23,862	\$23,637	\$315,799	\$315,799	0.06%
64	Kings	Avenal	\$44,185	\$44,136	\$44,468	\$44,540	\$23,229	\$23,563	\$23,532	\$23,491	\$23,410	\$23,239	\$317,793	\$317,793	0.06%
65	Monterey	Soledad	\$39,714	\$39,974	\$40,041	\$40,426	\$26,325	\$26,330	\$26,800	\$26,708	\$26,509	\$26,220	\$319,047	\$319,047	0.06%
66	Sonoma	Cloverdale	\$43,033	\$43,180	\$43,090	\$43,124	\$24,794	\$25,068	\$25,056	\$25,181	\$24,950	\$24,631	\$322,107	\$322,107	0.06%
67	Sacramento	Sacramento County (Unincorporated)	\$50,997	\$50,821	\$50,693	\$50,734	\$20,332	\$20,332	\$20,568	\$20,120	\$19,995	\$19,670	\$324,258	\$324,258	0.06%
68	San Mateo	Woodside	\$47,931	\$47,821	\$47,850	\$47,906	\$22,709	\$22,670	\$22,544	\$22,326	\$22,149	\$21,904	\$325,810	\$325,810	0.06%
69	Colusa	Colusa	\$46,708	\$46,656	\$46,856	\$46,861	\$23,425	\$23,114	\$23,034	\$23,145	\$23,572	\$23,304	\$326,675	\$326,675	0.06%

AzP Exhibit F. Work Credit Allocation Rank By Community - Smallest to Largest Recipients During 2007-2016 (Nominal Dollars)															
Rank by WCA	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total Work Credits Allocated by PG&E to Community During Audit	Percentage of Total	
70	Fresno	Kerman	\$41,948	\$42,210	\$42,617	\$42,793	\$27,338	\$27,346	\$27,832	\$27,669	\$27,504	\$27,217	\$334,474	0.06%	
71	Monterey	Greenfield	\$43,504	\$44,067	\$44,422	\$44,433	\$26,116	\$26,043	\$26,748	\$26,623	\$26,665	\$26,541	\$335,162	0.06%	
72	San Joaquin	Ripon	\$47,426	\$47,291	\$47,466	\$47,525	\$27,004	\$27,288	\$27,220	\$26,581	\$26,370	\$26,132	\$350,303	0.06%	
73	San Joaquin	Lathrop	\$41,661	\$42,156	\$42,629	\$42,796	\$28,208	\$30,759	\$31,097	\$33,743	\$33,446	\$33,656	\$360,151	0.06%	
74	Monterey	King City	\$48,988	\$49,405	\$49,403	\$49,380	\$27,231	\$27,205	\$27,182	\$27,168	\$27,303	\$27,093	\$360,358	0.06%	
75	Solano	Rio Vista	\$46,559	\$46,851	\$46,981	\$47,071	\$28,649	\$28,660	\$28,730	\$28,919	\$29,167	\$29,351	\$360,938	0.06%	
76	Glenn	Willows	\$53,313	\$53,374	\$53,273	\$53,297	\$25,673	\$25,900	\$25,826	\$25,955	\$25,757	\$25,636	\$368,004	0.06%	
77	Glenn	Orland	\$52,431	\$53,099	\$53,149	\$53,286	\$28,162	\$28,753	\$28,671	\$28,434	\$28,240	\$27,988	\$382,213	0.07%	
78	Napa	St Helena	\$55,245	\$55,129	\$55,197	\$55,261	\$28,482	\$28,627	\$28,701	\$28,275	\$27,853	\$27,682	\$390,452	0.07%	
79	Santa Clara	Los Altos Hills	\$56,571	\$56,560	\$57,266	\$57,406	\$28,734	\$28,378	\$28,512	\$27,642	\$27,473	\$27,315	\$395,857	0.07%	
80	Lake	Lakeport	\$57,177	\$57,339	\$57,820	\$57,823	\$28,174	\$27,592	\$27,527	\$27,609	\$27,685	\$27,402	\$396,148	0.07%	
81	Tehama	Corning	\$57,136	\$57,242	\$57,525	\$57,592	\$29,584	\$29,325	\$29,280	\$29,356	\$29,242	\$28,875	\$405,157	0.07%	
82	Kern	Taft	\$58,058	\$58,134	\$58,267	\$58,282	\$29,759	\$28,987	\$28,953	\$28,584	\$28,452	\$28,138	\$405,614	0.07%	
83	San Mateo	Atherton	\$63,852	\$63,780	\$63,535	\$63,597	\$27,040	\$27,065	\$27,033	\$25,855	\$25,658	\$25,441	\$412,856	0.07%	
84	Sonoma	Windsor	\$37,743	\$37,744	\$37,676	\$37,673	\$44,612	\$45,046	\$44,949	\$44,715	\$44,379	\$43,935	\$418,472	0.07%	
85	Tuolumne	Sonora	\$59,709	\$59,617	\$59,520	\$59,526	\$30,438	\$30,530	\$30,516	\$30,327	\$30,175	\$29,843	\$420,201	0.07%	
86	Fresno	Kingsburg	\$57,408	\$57,236	\$57,432	\$57,554	\$33,935	\$34,000	\$33,992	\$33,505	\$33,343	\$33,300	\$431,705	0.08%	
87	Sonoma	Sebastopol	\$59,455	\$59,310	\$59,224	\$60,335	\$32,509	\$32,451	\$32,291	\$32,341	\$32,248	\$31,971	\$432,135	0.08%	
88	Kern	Arvin	\$58,487	\$59,130	\$59,233	\$59,322	\$33,490	\$33,556	\$33,768	\$33,446	\$33,702	\$33,758	\$437,892	0.08%	
89	Stanislaus	Riverbank	\$57,401	\$57,315	\$57,199	\$57,040	\$35,853	\$35,819	\$35,626	\$35,429	\$35,173	\$34,816	\$441,671	0.08%	
90	San Mateo	Hillsborough	\$65,732	\$65,654	\$65,586	\$65,478	\$30,919	\$30,787	\$30,701	\$30,343	\$30,130	\$29,807	\$445,137	0.08%	
91	Marin	Tiburon	\$66,577	\$64,688	\$64,576	\$64,659	\$31,774	\$31,614	\$31,635	\$30,926	\$29,654	\$29,341	\$445,444	0.08%	
92	Contra Costa	Hercules	\$61,953	\$61,778	\$61,679	\$61,673	\$33,112	\$32,984	\$32,727	\$32,691	\$35,562	\$35,174	\$449,333	0.08%	
93	Santa Cruz	Scotts Valley	\$62,930	\$62,796	\$62,625	\$62,673	\$33,284	\$33,284	\$33,267	\$33,709	\$33,545	\$33,117	\$451,230	0.08%	
94	San Mateo	Half Moon Bay	\$62,337	\$62,404	\$62,151	\$62,263	\$36,380	\$34,741	\$34,673	\$34,395	\$33,733	\$33,660	\$456,737	0.08%	
95	Madera	Chowchilla	\$61,975	\$62,132	\$62,276	\$62,320	\$34,330	\$35,785	\$35,394	\$35,085	\$35,006	\$34,461	\$458,764	0.08%	
96	Kings	Corcoran	\$63,621	\$64,257	\$64,411	\$64,762	\$35,575	\$39,726	\$39,646	\$39,246	\$39,016	\$38,577	\$488,837	0.09%	
97	Fresno	Coalinga	\$70,978	\$71,474	\$71,414	\$71,493	\$36,526	\$36,467	\$36,420	\$36,405	\$36,187	\$36,114	\$503,478	0.09%	
98	Mendocino	Fort Bragg	\$74,190	\$74,168	\$74,108	\$74,176	\$37,234	\$36,881	\$36,829	\$36,728	\$36,697	\$36,309	\$517,320	0.09%	
99	Alameda	Emeryville	\$68,677	\$69,392	\$69,458	\$69,700	\$37,813	\$37,499	\$40,641	\$41,472	\$41,342	\$41,783	\$517,777	0.09%	
100	Trinity	Trinity County (Unincorporated)	\$100,742	\$100,802	\$100,761	\$101,035	\$19,487	\$19,602	\$19,581	\$19,287	\$19,261	\$19,100	\$519,658	0.09%	
101	Solano	Dixon	\$69,083	\$68,927	\$68,785	\$68,803	\$41,848	\$40,429	\$40,373	\$40,738	\$40,812	\$40,630	\$520,428	0.09%	
102	San Luis Obispo	Pismo Beach	\$73,210	\$73,160	\$73,298	\$73,424	\$40,790	\$40,915	\$41,054	\$40,084	\$39,897	\$39,746	\$535,578	0.09%	
103	Shasta	Anderson	\$73,422	\$73,385	\$73,637	\$73,680	\$40,665	\$40,671	\$40,643	\$40,594	\$40,014	\$39,410	\$536,121	0.09%	
104	Marin	Fairfax	\$81,173	\$81,012	\$80,880	\$80,935	\$36,608	\$36,600	\$36,292	\$36,330	\$36,158	\$35,900	\$541,888	0.09%	
105	Kern	Shafter	\$71,985	\$72,551	\$73,075	\$73,274	\$44,345	\$43,628	\$43,601	\$42,940	\$42,922	\$42,622	\$550,943	0.10%	
106	Monterey	Carmel	\$83,075	\$83,136	\$83,142	\$83,299	\$39,135	\$37,375	\$37,351	\$36,006	\$35,803	\$35,417	\$553,739	0.10%	
107	Sonoma	Sonoma	\$75,786	\$76,144	\$76,116	\$76,161	\$42,504	\$41,910	\$41,573	\$41,649	\$41,454	\$40,905	\$554,202	0.10%	
108	Alameda	Piedmont	\$87,816	\$87,572	\$87,373	\$87,423	\$37,266	\$37,094	\$36,726	\$37,209	\$37,026	\$36,584	\$572,089	0.10%	
109	Marin	Corte Madera	\$83,283	\$83,139	\$82,824	\$82,865	\$40,623	\$40,403	\$40,299	\$40,486	\$40,276	\$40,462	\$574,660	0.10%	
110	El Dorado	Placerville	\$78,255	\$78,284	\$78,168	\$78,197	\$41,451	\$46,414	\$46,341	\$46,440	\$46,132	\$45,663	\$585,345	0.10%	
111	Solano	Suisun City	\$83,384	\$83,296	\$83,799	\$83,887	\$44,362	\$43,795	\$43,587	\$43,746	\$43,473	\$42,954	\$596,283	0.10%	
112	Contra Costa	Oakley	\$50,280	\$51,499	\$53,273	\$53,756	\$64,469	\$65,484	\$65,897	\$65,831	\$65,855	\$65,485	\$601,829	0.11%	
113	Contra Costa	Moraga	\$91,595	\$91,263	\$91,004	\$90,995	\$44,348	\$43,829	\$43,701	\$44,092	\$43,800	\$43,183	\$627,810	0.11%	
114	Kern	Wasco	\$87,790	\$88,728	\$89,375	\$89,488	\$49,754	\$48,516	\$48,759	\$48,147	\$47,915	\$47,548	\$646,020	0.11%	
115	Marin	Sausalito	\$96,949	\$96,943	\$96,867	\$96,927	\$45,296	\$45,420	\$45,389	\$44,863	\$44,625	\$44,000	\$657,279	0.11%	
116	Santa Cruz	Capitola	\$93,873	\$93,661	\$93,572	\$93,839	\$47,498	\$47,671	\$47,634	\$47,250	\$46,982	\$46,538	\$658,518	0.12%	
117	Humboldt	Fortuna	\$92,853	\$93,126	\$93,047	\$93,185	\$48,292	\$47,534	\$47,426	\$47,963	\$47,726	\$47,448	\$658,600	0.12%	
118	Marin	Larkspur	\$95,833	\$95,515	\$95,370	\$95,510	\$47,789	\$47,806	\$47,705	\$47,659	\$47,574	\$47,159	\$667,920	0.12%	
119	Nevada	Grass Valley	\$92,193	\$92,846	\$92,971	\$93,039	\$54,094	\$54,610	\$54,629	\$54,933	\$54,736	\$54,194	\$698,245	0.12%	
120	Tulare	Dinuba	\$94,812	\$94,453	\$95,028	\$95,295	\$52,957	\$54,941	\$54,464	\$54,303	\$54,249	\$54,299	\$704,801	0.12%	
121	Stanislaus	Oakdale	\$97,962	\$99,185	\$98,999	\$99,049	\$56,529	\$56,281	\$56,390	\$55,862	\$55,487	\$55,933	\$730,677	0.13%	
122	Placer	Auburn	\$102,393	\$102,592	\$102,921	\$102,922	\$56,595	\$55,874	\$55,687	\$56,293	\$56,272	\$55,759	\$747,308	0.13%	
123	Fresno	Reedley	\$102,694	\$103,205	\$103,242	\$103,473	\$57,431	\$57,288	\$57,534	\$57,074	\$57,318	\$56,656	\$755,915	0.13%	
124	Fresno	Selma	\$102,779	\$102,764	\$102,786	\$102,808	\$58,405	\$58,422	\$58,596	\$58,087	\$57,581	\$57,063	\$759,291	0.13%	
125	Kings	Lemoore	\$100,815	\$101,272	\$101,354	\$101,284	\$59,586	\$59,918	\$60,528	\$60,846	\$60,755	\$60,334	\$766,692	0.13%	
126	Fresno	Sanger	\$105,818	\$106,406	\$106,387	\$106,505	\$58,190	\$58,079	\$57,578	\$57,725	\$57,686	\$57,681	\$772,055	0.14%	
127	Monterey	Marina	\$108,040	\$108,021	\$107,824	\$107,857	\$57,396	\$57,325	\$57,209	\$57,457	\$57,691	\$57,330	\$776,150	0.14%	
128	Contra Costa	Pinole	\$110,439	\$110,219	\$109,944	\$109,939	\$56,361	\$56,283	\$56,202	\$56,550	\$56,184	\$55,563	\$777,684	0.14%	
129	Tehama	Red Bluff	\$109,345	\$109,492	\$109,515	\$109,906	\$56,575	\$57,271	\$57,191	\$56,850	\$56,296	\$55,682	\$778,123	0.14%	
130	San Mateo	Foster City	\$114,877	\$114,318	\$113,915	\$0	\$0	\$0	\$0	\$0	\$0	\$437,189	\$780,299	0.14%	
131	Yuba	Marysville	\$115,919	\$115,983	\$115,857	\$115,975	\$54,278	\$54,099	\$54,092	\$53,662	\$53,384	\$52,793	\$786,042	0.14%	
132	San Luis Obispo	Arroyo Grande	\$113,886	\$113,979	\$113,868	\$113,884	\$63,270	\$61,049	\$60,885	\$60,462	\$60,360	\$59,794	\$821,437	0.14%	
133	San Luis Obispo	Grover Beach	\$116,428	\$116,421	\$116,541	\$116,648	\$59,609	\$59,507	\$59,451	\$59,452	\$59,141	\$58,608	\$821,806	0.14%	
134	San Benito	Hollister	\$115,678	\$115,443	\$115,273	\$115,449	\$66,954	\$68,238	\$68,205	\$68,682	\$68,672	\$68,232	\$870,826	0.15%	
135	Merced	Atwater	\$118,439	\$118,669	\$118,834	\$119,195	\$65,594	\$68,019	\$67,872	\$68,134	\$67,675	\$66,955	\$879,386	0.15%	
136	Butte	Oroville	\$120,252	\$120,290	\$120,933	\$124,402	\$65,818	\$65,776	\$64,981	\$66,732	\$66,475	\$65,708	\$881,367	0.15%	
137	Placer	Lincoln	\$90,632	\$92,986	\$93,589	\$94,002	\$84,356	\$84,748	\$84,906	\$85,810	\$86,262	\$85,976	\$883,267	0.15%	
138	Humboldt	Arcata	\$126,055	\$126,199	\$126,187	\$126,306	\$69,878	\$69,921	\$70,4						

AzP Exhibit F. Work Credit Allocation Rank By Community - Smallest to Largest Recipients During 2007-2016 (Nominal Dollars)																
Rank by WCA	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total Work Credits Allocated by PG&E to Community During Audit	Percentage of Total		
139	Marin	Mill Valley	\$138,039	\$138,097	\$138,120	\$138,291	\$62,732	\$63,229	\$63,166	\$62,419	\$62,100	\$61,601	\$927,794	0.16%		
140	Marin	San Anselmo	\$141,249	\$141,036	\$140,676	\$140,814	\$61,482	\$61,010	\$61,084	\$61,250	\$60,959	\$60,470	\$930,030	0.16%		
141	Contra Costa	Brentwood	\$93,245	\$95,235	\$96,471	\$96,493	\$92,563	\$91,164	\$91,686	\$90,937	\$92,269	\$92,647	\$932,710	0.16%		
142	San Luis Obispo	Morro Bay	\$134,863	\$134,931	\$135,105	\$135,331	\$68,033	\$67,922	\$67,855	\$67,296	\$66,986	\$66,429	\$944,751	0.17%		
143	Santa Clara	Morgan Hill	\$126,889	\$127,637	\$128,071	\$128,247	\$75,125	\$75,508	\$76,345	\$76,786	\$77,679	\$77,838	\$970,125	0.17%		
144	Colusa	Colusa County (Unincorporated)	\$146,045	\$146,385	\$146,615	\$147,472	\$71,389	\$72,544	\$72,899	\$71,821	\$71,963	\$71,826	\$1,018,959	0.18%		
145	Merced	Los Banos	\$131,579	\$132,215	\$132,557	\$132,945	\$83,144	\$83,167	\$82,940	\$82,786	\$82,240	\$81,879	\$1,025,452	0.18%		
146	Contra Costa	Orinda	\$151,084	\$150,630	\$150,459	\$150,366	\$71,227	\$71,156	\$71,047	\$71,527	\$71,778	\$71,228	\$1,030,502	0.18%		
147	Alameda	Albany	\$154,519	\$154,256	\$153,943	\$153,991	\$71,653	\$71,561	\$71,666	\$72,384	\$72,008	\$71,268	\$1,047,249	0.18%		
148	San Mateo	East Palo Alto	\$162,265	\$161,969	\$161,853	\$161,915	\$66,058	\$65,905	\$66,827	\$67,259	\$67,016	\$66,246	\$1,047,313	0.18%		
149	Solano	Benicia	\$147,328	\$147,335	\$146,943	\$147,089	\$77,539	\$77,248	\$77,027	\$77,190	\$76,683	\$75,862	\$1,050,244	0.18%		
150	Sonoma	Rohnert Park	\$150,512	\$150,235	\$149,741	\$149,688	\$78,590	\$78,453	\$78,180	\$78,987	\$78,414	\$78,323	\$1,071,123	0.19%		
151	San Luis Obispo	Paso Robles	\$145,417	\$145,443	\$145,416	\$145,612	\$85,812	\$85,322	\$85,452	\$84,816	\$84,623	\$83,605	\$1,091,518	0.19%		
152	San Mateo	Millbrae	\$164,583	\$164,621	\$164,708	\$164,824	\$78,446	\$78,375	\$78,141	\$78,951	\$78,776	\$77,959	\$1,129,384	0.20%		
153	San Benito	San Benito County (Unincorporated)	\$167,700	\$167,552	\$167,163	\$167,256	\$83,231	\$82,909	\$82,709	\$81,865	\$81,510	\$80,688	\$1,162,583	0.20%		
154	Lake	Clearlake	\$167,992	\$169,487	\$170,055	\$170,310	\$87,333	\$87,896	\$87,823	\$86,644	\$86,186	\$84,923	\$1,198,649	0.21%		
155	Monterey	Pacific Grove	\$189,528	\$189,336	\$188,977	\$189,135	\$85,032	\$84,924	\$84,742	\$85,073	\$84,720	\$83,966	\$1,265,433	0.22%		
156	Contra Costa	Danville	\$177,706	\$177,126	\$176,988	\$177,027	\$96,298	\$96,376	\$96,162	\$96,418	\$96,068	\$94,776	\$1,284,945	0.22%		
157	Monterey	Seaside	\$176,679	\$176,175	\$175,746	\$175,779	\$100,050	\$99,164	\$98,887	\$95,322	\$94,829	\$93,801	\$1,286,432	0.22%		
158	Placer	Rocklin	\$147,758	\$149,550	\$150,458	\$151,173	\$114,788	\$114,552	\$114,714	\$115,799	\$115,957	\$116,037	\$1,290,786	0.23%		
159	Contra Costa	San Pablo	\$187,405	\$187,522	\$187,588	\$187,684	\$91,213	\$91,166	\$92,029	\$92,506	\$91,995	\$91,319	\$1,300,427	0.23%		
160	Alameda	Dublin	\$160,993	\$162,822	\$164,780	\$165,476	\$102,283	\$103,680	\$108,716	\$112,684	\$115,041	\$116,263	\$1,312,738	0.23%		
161	Stanislaus	Stanislaus County (Unincorporated)	\$205,181	\$204,264	\$204,333	\$204,909	\$85,910	\$86,385	\$86,964	\$85,473	\$85,580	\$85,435	\$1,334,434	0.23%		
162	Santa Clara	Saratoga	\$192,740	\$193,276	\$193,199	\$193,269	\$98,334	\$97,893	\$97,729	\$96,426	\$96,009	\$95,044	\$1,353,919	0.24%		
163	Santa Clara	Gilroy	\$183,355	\$183,434	\$183,538	\$183,842	\$105,739	\$106,098	\$104,963	\$104,993	\$105,106	\$105,351	\$1,366,419	0.24%		
164	Glenn	Glenn County (Unincorporated)	\$203,124	\$203,155	\$203,513	\$204,089	\$95,906	\$95,786	\$96,065	\$94,843	\$95,155	\$94,515	\$1,386,151	0.24%		
165	Plumas	Plumas County (Unincorporated)	\$199,486	\$200,087	\$200,039	\$200,293	\$101,797	\$101,727	\$101,708	\$101,605	\$101,065	\$100,194	\$1,408,001	0.25%		
166	Santa Cruz	Watsonville	\$198,408	\$197,935	\$197,508	\$197,639	\$112,602	\$112,512	\$114,323	\$114,978	\$114,129	\$113,612	\$1,474,136	0.26%		
167	Alameda	Union City	\$206,509	\$206,876	\$206,625	\$208,087	\$111,771	\$112,408	\$112,065	\$112,288	\$111,429	\$110,084	\$1,498,142	0.26%		
168	Contra Costa	Martinez	\$211,365	\$210,814	\$210,540	\$210,580	\$110,600	\$109,647	\$109,051	\$110,576	\$110,126	\$109,114	\$1,502,413	0.26%		
169	Contra Costa	San Ramon	\$186,741	\$188,658	\$190,472	\$191,688	\$124,534	\$124,456	\$125,907	\$127,053	\$126,862	\$126,322	\$1,512,693	0.26%		
170	Alameda	Newark	\$217,194	\$216,574	\$215,996	\$216,093	\$108,638	\$108,413	\$108,088	\$109,014	\$108,266	\$107,285	\$1,515,561	0.27%		
171	Contra Costa	Lafayette	\$227,126	\$226,433	\$226,196	\$226,392	\$103,374	\$103,568	\$103,414	\$104,213	\$103,839	\$102,907	\$1,527,462	0.27%		
172	San Mateo	Belmont	\$226,423	\$225,837	\$225,445	\$225,314	\$105,500	\$105,374	\$105,052	\$106,391	\$105,801	\$104,673	\$1,535,810	0.27%		
173	San Luis Obispo	Atascadero	\$217,248	\$217,764	\$217,721	\$217,710	\$113,454	\$113,234	\$113,191	\$113,634	\$113,971	\$113,357	\$1,551,284	0.27%		
174	Mariposa	Mariposa County (Unincorporated)	\$210,130	\$211,157	\$211,592	\$212,264	\$120,323	\$119,995	\$120,331	\$120,767	\$120,528	\$119,710	\$1,566,797	0.27%		
175	Kings	Kings County (Unincorporated)	\$239,254	\$239,968	\$240,584	\$242,535	\$110,616	\$105,594	\$106,160	\$102,848	\$102,544	\$102,835	\$1,592,938	0.28%		
176	Contra Costa	Pleasant Hill	\$237,268	\$236,824	\$236,099	\$236,170	\$113,430	\$114,543	\$114,399	\$115,216	\$114,487	\$112,630	\$1,631,066	0.29%		
177	Madera	Madera	\$215,834	\$217,308	\$218,501	\$218,634	\$130,676	\$130,211	\$130,488	\$130,028	\$129,714	\$129,118	\$1,650,512	0.29%		
178	Yolo	Yolo County (Unincorporated)	\$236,492	\$237,919	\$239,141	\$240,228	\$114,329	\$116,717	\$117,260	\$117,376	\$117,503	\$116,764	\$1,653,729	0.29%		
179	Solano	Solano County (Unincorporated)	\$242,163	\$241,819	\$241,468	\$241,977	\$113,583	\$116,188	\$117,795	\$114,756	\$114,326	\$113,348	\$1,657,423	0.29%		
180	Contra Costa	El Cerrito	\$255,333	\$254,635	\$254,034	\$254,242	\$116,063	\$115,869	\$114,964	\$116,093	\$115,352	\$114,404	\$1,710,989	0.30%		
181	Contra Costa	Pittsburg	\$242,361	\$242,659	\$242,477	\$241,612	\$127,100	\$127,125	\$127,592	\$127,275	\$127,157	\$126,754	\$1,732,112	0.30%		
182	Santa Clara	Los Altos	\$250,890	\$251,908	\$252,400	\$253,159	\$122,886	\$123,774	\$124,297	\$118,914	\$118,704	\$118,505	\$1,735,437	0.30%		
183	Santa Clara	Los Gatos	\$250,776	\$251,679	\$251,743	\$251,749	\$123,879	\$123,536	\$123,681	\$122,490	\$121,932	\$120,604	\$1,742,069	0.30%		
184	Santa Clara	Milpitas	\$239,626	\$240,398	\$241,598	\$242,240	\$132,083	\$132,168	\$133,204	\$136,029	\$138,754	\$139,317	\$1,775,417	0.31%		
185	Amador	Amador County (Unincorporated)	\$248,906	\$249,551	\$249,599	\$250,079	\$135,025	\$136,912	\$136,742	\$136,664	\$136,094	\$134,794	\$1,814,366	0.32%		
186	Butte	Paradise	\$264,777	\$264,440	\$264,100	\$264,353	\$131,014	\$129,545	\$129,335	\$130,326	\$129,632	\$128,485	\$1,836,007	0.32%		
187	San Joaquin	Manteca	\$240,166	\$242,274	\$244,550	\$245,380	\$149,728	\$149,304	\$151,096	\$151,180	\$151,641	\$151,334	\$1,876,653	0.33%		
188	Monterey	Monterey	\$272,804	\$272,597	\$271,994	\$272,238	\$132,796	\$132,613	\$131,521	\$132,293	\$131,444	\$130,098	\$1,880,398	0.33%		
189	Alameda	Pleasanton	\$257,106	\$256,409	\$255,985	\$256,346	\$143,904	\$143,662	\$143,465	\$144,544	\$143,609	\$142,966	\$1,887,996	0.33%		
190	Yolo	West Sacramento	\$258,813	\$260,076	\$259,677	\$260,008	\$140,892	\$142,072	\$142,076	\$142,518	\$142,359	\$142,416	\$1,890,904	0.33%		
191	San Joaquin	Tracy	\$246,411	\$246,717	\$246,685	\$246,714	\$160,636	\$158,559	\$158,105	\$157,497	\$156,903	\$155,837	\$1,934,064	0.34%		
192	Yolo	Woodland	\$265,204	\$266,654	\$266,828	\$267,529	\$146,614	\$145,196	\$145,018	\$145,708	\$145,074	\$144,253	\$1,938,078	0.34%		
193	San Mateo	San Carlos	\$285,524	\$285,056	\$284,683	\$285,101	\$135,269	\$135,314	\$135,131	\$136,458	\$135,233	\$133,771	\$1,951,540	0.34%		
194	San Mateo	Menlo Park	\$289,479	\$286,539	\$286,701	\$287,012	\$134,760	\$134,674	\$134,089	\$134,412	\$133,624	\$132,250	\$1,953,540	0.34%		
195	San Mateo	Pacifica	\$289,946	\$289,428	\$288,871	\$288,931	\$139,382	\$139,153	\$138,870	\$140,624	\$138,915	\$137,392	\$1,991,512	0.35%		
196	San Mateo	Burlingame	\$294,772	\$294,325	\$294,059	\$293,773	\$139,499	\$139,502	\$139,387	\$140,657	\$139,900	\$138,755	\$2,014,629	0.35%		
197	Sutter	Yuba City	\$260,121	\$259,849	\$260,253	\$260,337	\$170,969	\$170,086	\$169,733	\$169,910	\$170,458	\$168,644	\$2,060,360	0.36%		
198	Humboldt	Eureka	\$310,708	\$310,315	\$309,883	\$310,124	\$145,755	\$145,358	\$145,238	\$146,054	\$145,336	\$144,056	\$2,112,854	0.37%		
199	Yolo	Davis	\$290,894	\$290,202	\$289,417	\$289,440	\$160,441	\$159,697	\$160,609	\$160,137	\$159,183	\$157,406	\$2,117,426	0.37%		
200	Sonoma	Petaluma	\$293,156	\$293,608	\$293,558	\$293,588	\$161,652	\$161,213	\$161,324	\$162,080	\$161,271	\$159,905	\$2,141,355	0.37%		
201	Marin	Novato	\$306,858	\$305,814	\$305,021	\$304,770	\$157,809	\$157,453	\$157,366	\$158,332	\$157,433	\$156,630	\$2,166,466	0.38%		
202	Santa Clara	Campbell	\$301,242	\$303,144	\$302,932	\$303,043	\$156,103	\$157,462	\$158,543	\$161,948	\$161,322	\$160,993	\$2,166,732	0.38		

AzP Exhibit F. Work Credit Allocation Rank By Community - Smallest to Largest Recipients During 2007-2016 (Nominal Dollars)															
Rank by WCA	County	Community	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total Work Credits Allocated by PG&E to Community During Audit	Percentage of Total	
208	Solano	Vacaville	\$323,229	\$323,624	\$324,044	\$324,849	\$186,853	\$185,654	\$185,379	\$186,557	\$186,386	\$185,147	\$2,411,722	0.42%	
209	Tulare	Tulare County (Unincorporated)	\$354,026	\$355,194	\$356,263	\$357,549	\$170,914	\$169,639	\$170,928	\$166,115	\$165,526	\$164,106	\$2,430,260	0.43%	
210	Fresno	Clovis	\$314,614	\$316,383	\$317,496	\$318,961	\$200,392	\$201,004	\$202,469	\$201,931	\$203,241	\$202,914	\$2,479,405	0.43%	
211	Merced	Merced	\$358,637	\$358,760	\$358,440	\$358,600	\$185,724	\$188,745	\$187,812	\$186,210	\$185,148	\$182,718	\$2,550,794	0.45%	
212	Contra Costa	Antioch	\$361,979	\$361,216	\$360,867	\$361,191	\$211,861	\$211,807	\$212,117	\$213,413	\$212,247	\$209,671	\$2,716,369	0.48%	
213	Alameda	Livermore	\$376,829	\$376,366	\$376,267	\$377,085	\$210,200	\$209,967	\$210,015	\$212,072	\$210,986	\$209,717	\$2,769,504	0.48%	
214	Santa Barbara	Santa Maria	\$380,752	\$381,012	\$381,988	\$382,276	\$210,994	\$208,585	\$208,228	\$209,373	\$208,278	\$207,595	\$2,779,081	0.49%	
215	Yuba	Yuba County (Unincorporated)	\$391,342	\$393,207	\$393,887	\$395,167	\$209,553	\$209,835	\$209,526	\$207,558	\$207,470	\$205,343	\$2,822,888	0.49%	
216	San Mateo	South San Francisco	\$405,201	\$404,880	\$404,868	\$404,824	\$203,364	\$202,963	\$202,764	\$204,829	\$203,736	\$201,686	\$2,839,115	0.50%	
217	Solano	Fairfield	\$386,283	\$385,681	\$385,426	\$385,839	\$219,923	\$219,948	\$219,193	\$220,102	\$219,528	\$218,306	\$2,860,229	0.50%	
218	Santa Cruz	Santa Cruz	\$421,758	\$421,805	\$421,739	\$422,687	\$208,918	\$208,740	\$207,916	\$208,452	\$207,854	\$206,488	\$2,936,357	0.51%	
219	Tehama	Tehama County (Unincorporated)	\$417,243	\$419,255	\$419,900	\$421,077	\$231,845	\$231,623	\$231,789	\$229,546	\$229,259	\$228,279	\$3,059,816	0.54%	
220	Santa Barbara	Santa Barbara County (Unincorporated)	\$439,983	\$439,761	\$438,460	\$439,296	\$220,899	\$223,300	\$223,098	\$222,004	\$221,374	\$219,735	\$3,087,910	0.54%	
221	Contra Costa	Walnut Creek	\$450,199	\$449,608	\$449,325	\$449,923	\$221,877	\$223,244	\$222,450	\$224,543	\$222,223	\$220,459	\$3,133,851	0.55%	
222	Marin	San Rafael	\$463,804	\$462,507	\$460,766	\$461,044	\$229,723	\$228,943	\$228,403	\$229,355	\$228,106	\$225,761	\$3,218,412	0.56%	
223	Butte	Chico	\$389,090	\$402,637	\$401,986	\$402,381	\$280,903	\$281,810	\$286,722	\$289,457	\$288,674	\$286,872	\$3,310,532	0.58%	
224	Napa	Napa	\$466,232	\$465,611	\$464,841	\$465,252	\$243,533	\$243,754	\$243,503	\$244,577	\$243,840	\$241,418	\$3,322,561	0.58%	
225	Calaveras	Calaveras County (Unincorporated)	\$487,495	\$489,184	\$489,827	\$490,733	\$277,589	\$277,840	\$277,653	\$278,043	\$277,096	\$274,331	\$3,619,791	0.63%	
226	San Mateo	Daly City	\$533,646	\$532,123	\$531,280	\$532,013	\$266,308	\$266,646	\$265,780	\$269,405	\$267,470	\$264,222	\$3,728,893	0.65%	
227	Marin	Marin County (Unincorporated)	\$567,546	\$566,202	\$565,631	\$565,706	\$271,364	\$271,579	\$271,140	\$271,068	\$269,903	\$267,285	\$3,887,424	0.68%	
228	San Mateo	San Mateo County (Unincorporated)	\$610,138	\$612,099	\$611,576	\$612,398	\$245,962	\$248,091	\$247,215	\$247,501	\$246,564	\$243,992	\$3,925,266	0.69%	
229	Santa Clara	Mountain View	\$568,043	\$567,579	\$566,305	\$566,698	\$283,569	\$283,381	\$281,309	\$283,025	\$280,758	\$278,496	\$3,959,163	0.69%	
230	Lake	Lake County (Unincorporated)	\$557,631	\$559,061	\$559,532	\$560,546	\$291,100	\$290,878	\$290,964	\$289,968	\$288,873	\$286,240	\$3,974,793	0.70%	
231	San Mateo	Redwood City	\$580,148	\$579,021	\$577,985	\$578,222	\$278,745	\$279,077	\$278,232	\$281,970	\$282,577	\$281,090	\$3,997,067	0.70%	
232	Tuolumne	Tuolumne County (Unincorporated)	\$599,900	\$600,219	\$600,324	\$601,195	\$310,527	\$311,232	\$311,036	\$311,432	\$309,838	\$307,179	\$4,262,882	0.75%	
233	Merced	Merced County (Unincorporated)	\$615,272	\$616,912	\$618,710	\$621,262	\$310,685	\$306,312	\$307,860	\$298,996	\$299,491	\$298,996	\$4,294,496	0.75%	
234	Mendocino	Mendocino County (Unincorporated)	\$623,573	\$623,944	\$624,361	\$625,673	\$319,219	\$319,754	\$319,170	\$317,422	\$316,463	\$313,783	\$4,403,362	0.77%	
235	Alameda	San Leandro	\$665,844	\$664,487	\$664,029	\$664,563	\$313,059	\$312,397	\$310,821	\$314,420	\$312,667	\$309,451	\$4,531,738	0.79%	
236	Monterey	Salinas	\$645,361	\$643,929	\$643,626	\$644,653	\$337,230	\$337,133	\$334,955	\$337,849	\$335,480	\$332,217	\$4,592,433	0.80%	
237	Nevada	Nevada County (Unincorporated)	\$641,756	\$641,779	\$641,811	\$642,773	\$337,523	\$337,262	\$337,038	\$339,608	\$338,420	\$335,761	\$4,593,731	0.80%	
238	Shasta	Shasta County (Unincorporated)	\$664,846	\$665,009	\$665,117	\$665,997	\$334,520	\$334,844	\$334,564	\$331,609	\$329,944	\$325,749	\$4,651,719	0.81%	
239	Solano	Vallejo	\$684,035	\$682,852	\$681,785	\$681,836	\$348,049	\$347,652	\$346,348	\$349,126	\$346,975	\$343,226	\$4,811,884	0.84%	
240	Humboldt	Humboldt County (Unincorporated)	\$693,054	\$693,502	\$693,877	\$695,279	\$346,528	\$348,581	\$348,939	\$345,108	\$342,985	\$343,624	\$4,851,477	0.85%	
241	Placer	Placer County (Unincorporated)	\$697,465	\$697,876	\$698,040	\$698,717	\$376,882	\$377,192	\$377,391	\$376,915	\$375,822	\$373,027	\$5,049,327	0.88%	
242	Contra Costa	Richmond	\$742,860	\$742,082	\$741,025	\$741,524	\$365,701	\$365,886	\$364,211	\$363,707	\$361,628	\$358,302	\$5,146,926	0.90%	
243	Santa Clara	Santa Clara County (Unincorporated)	\$937,096	\$928,969	\$926,806	\$909,382	\$296,481	\$277,038	\$273,985	\$266,397	\$264,682	\$262,007	\$5,342,843	0.93%	
244	Madera	Madera County (Unincorporated)	\$733,201	\$735,637	\$737,230	\$740,454	\$410,571	\$410,385	\$411,611	\$402,775	\$402,209	\$399,267	\$5,383,340	0.94%	
245	San Mateo	San Mateo	\$786,491	\$784,672	\$783,798	\$784,457	\$373,953	\$372,951	\$372,295	\$377,296	\$377,400	\$374,484	\$5,387,797	0.94%	
246	Contra Costa	Concord	\$775,532	\$773,074	\$772,561	\$772,486	\$384,139	\$382,615	\$381,399	\$385,800	\$383,477	\$379,392	\$5,390,475	0.94%	
247	Monterey	Monterey County (Unincorporated)	\$852,568	\$852,552	\$852,205	\$852,486	\$427,715	\$428,545	\$427,863	\$423,979	\$421,497	\$418,223	\$5,957,633	1.04%	
248	Alameda	Hayward	\$844,835	\$845,507	\$845,117	\$843,692	\$438,530	\$438,862	\$437,605	\$440,309	\$437,779	\$434,681	\$6,006,917	1.05%	
249	Santa Clara	Sunnyvale	\$876,203	\$874,198	\$873,340	\$873,630	\$437,018	\$438,392	\$439,655	\$443,179	\$442,372	\$438,284	\$6,136,271	1.07%	
250	Sonoma	Santa Rosa	\$838,586	\$840,103	\$840,029	\$841,024	\$466,594	\$466,552	\$467,442	\$470,210	\$467,789	\$463,956	\$6,162,285	1.08%	
251	Butte	Butte County (Unincorporated)	\$981,542	\$969,085	\$968,155	\$966,184	\$433,930	\$435,227	\$430,800	\$427,581	\$426,109	\$422,412	\$6,461,025	1.13%	
252	San Luis Obispo	San Luis Obispo County (Unincorporated)	\$907,068	\$909,120	\$910,292	\$912,408	\$502,749	\$507,342	\$508,992	\$507,156	\$506,657	\$502,724	\$6,674,508	1.17%	
253	Alameda	Fremont	\$967,916	\$964,928	\$964,651	\$965,503	\$493,216	\$491,967	\$491,637	\$496,072	\$493,411	\$487,872	\$6,817,173	1.19%	
254	El Dorado	El Dorado County (Unincorporated)	\$908,413	\$910,310	\$911,247	\$912,553	\$543,779	\$538,300	\$538,274	\$543,753	\$541,885	\$538,454	\$6,886,968	1.20%	
255	Alameda	Alameda County (Unincorporated)	\$1,105,993	\$1,105,958	\$1,105,742	\$1,108,460	\$517,719	\$514,863	\$506,576	\$508,753	\$506,109	\$501,297	\$7,481,470	1.31%	
256	Santa Cruz	Santa Cruz County (Unincorporated)	\$1,141,654	\$1,141,103	\$1,140,482	\$1,141,318	\$542,154	\$542,157	\$541,147	\$541,259	\$538,275	\$533,060	\$7,802,609	1.36%	
257	Contra Costa	Contra Costa County (Unincorporated)	\$1,159,369	\$1,158,531	\$1,157,209	\$1,157,792	\$531,194	\$530,364	\$530,427	\$529,822	\$527,963	\$523,635	\$7,806,306	1.37%	
258	Alameda	Berkeley	\$1,180,746	\$1,179,826	\$1,177,533	\$1,178,755	\$527,937	\$527,648	\$526,707	\$530,368	\$528,394	\$523,888	\$7,881,802	1.38%	
259	San Joaquin	San Joaquin County (Unincorporated)	\$1,334,991	\$1,333,778	\$1,330,754	\$1,328,190	\$629,924	\$630,296	\$630,463	\$613,918	\$612,481	\$606,796	\$9,051,591	1.58%	
260	San Joaquin	Stockton	\$1,311,312	\$1,312,310	\$1,310,112	\$1,315,945	\$718,192	\$718,243	\$716,639	\$711,280	\$705,525	\$697,933	\$9,517,491	1.66%	
261	Kern	Bakersfield	\$1,289,015	\$1,301,998	\$1,310,352	\$1,314,636	\$799,248	\$800,939	\$803,233	\$807,147	\$807,748	\$806,548	\$10,040,864	1.76%	
262	Sonoma	Sonoma County (Unincorporated)	\$1,568,290	\$1,567,615	\$1,566,912	\$1,568,165	\$741,632	\$742,462	\$741,536	\$740,235	\$736,876	\$730,565	\$10,704,288	1.87%	
263	Kern	Kern County (Unincorporated)	\$1,809,689	\$1,807,690	\$1,805,172	\$1,809,519	\$823,411	\$825,808	\$827,088	\$804,605	\$800,758	\$794,625	\$12,108,365	2.12%	
264	Fresno	Fresno County (Unincorporated)	\$2,029,372	\$2,031,132	\$2,031,370	\$2,035,676	\$892,903	\$889,307	\$897,548	\$876,874	\$874,928	\$868,584	\$13,428,059	2.35%	
265	Fresno	Fresno	\$2,415,549	\$2,420,307	\$2,423,347	\$2,431,211	\$1,315,765	\$1,323,473	\$1,316,399	\$1,312,961	\$1,307,627	\$1,296,133	\$17,562,772	3.07%	
266	Alameda	Oakland	\$3,608,685	\$3,603,831	\$3,606,321	\$3,608,897	\$1,698,864	\$1,696,854	\$1,696,405	\$1,702,757	\$1,696,872	\$1,682,000	\$24,601,486	4.30%	
267	Santa Clara	San Jose	\$4,250,301	\$4,249,033	\$4,249,962	\$4,274,044	\$2,237,828	\$2,252,630	\$2,255,869	\$2,276,539	\$2,275,014	\$2,263,875	\$30,585,095	5.35%	
268	San Francisco	San Francisco	\$6,103,134	\$6,074,339	\$6,065,515	\$6,072,752	\$3,069,182	\$3,068,101	\$3,071,904	\$3,107,572	\$3,109,290	\$3,089,938	\$42,831,727	7.49%	
Total Allocations			\$80,988,306	\$80,988,301	\$80,988,298	\$80,988,300	\$41,300,004	\$41,300,000	\$41,300,000	\$41,300,000	\$41,300,000	\$41,300,000	\$571,753,205	100.00%	

AzP Exhibit G. Year-End Work Credit Allocation Balances By Community 2007-2016 (Nominal Dollars)												
	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance
1	Alameda	Alameda County (Unincorporated)	\$11,522,412	\$12,634,328	\$13,740,070	\$14,848,530	\$15,366,249	\$15,881,112	\$13,026,607	\$13,501,208	\$14,007,317	\$5,890,249
2	Alameda	Albany	\$2,072,187	\$2,227,277	\$2,381,220	\$2,535,211	\$2,606,864	\$2,678,425	\$2,750,091	\$2,822,475	\$2,894,483	\$2,965,751
3	Alameda	Berkeley	\$5,829,176	\$7,015,125	\$8,192,658	\$9,371,413	\$9,899,350	\$5,308,776	\$5,835,483	\$6,365,851	\$6,894,245	\$7,418,133
4	Alameda	Dublin	\$629,438	(\$422,137)	(\$257,357)	(\$91,881)	\$10,402	\$114,082	\$222,798	\$335,482	\$450,523	\$566,786
5	Alameda	Emeryville	\$364,127	\$433,950	\$503,408	\$573,108	\$610,921	\$648,420	\$689,061	\$730,533	\$771,875	\$813,658
6	Alameda	Fremont	\$8,457,575	\$8,340,434	\$7,388,304	\$8,353,807	\$7,578,319	\$8,070,286	\$8,561,923	\$9,057,995	\$6,050,124	\$6,537,996
7	Alameda	Hayward	\$8,894,281	\$9,744,877	\$10,589,994	\$11,433,686	\$11,872,216	\$8,939,655	\$9,377,260	(\$2,369,436)	(\$837,280)	(\$236,463)
8	Alameda	Livermore	\$2,136,950	\$2,515,736	\$2,892,003	\$3,269,088	\$3,489,288	\$3,699,255	\$3,909,270	\$4,017,607	\$4,228,593	\$4,438,310
9	Alameda	Newark	\$1,092,205	\$1,310,046	\$1,526,042	\$1,742,135	\$1,850,773	\$1,959,186	\$2,067,274	\$2,176,288	\$2,284,554	\$2,391,839
10	Alameda	Oakland	\$24,708,126	\$28,331,581	\$31,937,902	\$35,546,799	\$37,246,663	\$25,638,826	\$27,335,231	\$29,037,988	\$30,734,860	\$32,416,860
11	Alameda	Piedmont	\$465,873	\$425,576	\$512,949	\$600,372	\$303,064	\$340,158	\$376,884	\$414,093	\$597,144	\$633,728
12	Alameda	Pleasanton	\$2,678,051	\$2,936,129	\$557,403	\$813,749	\$957,653	\$1,101,315	\$1,244,780	\$1,389,324	\$1,532,933	\$1,675,899
13	Alameda	San Leandro	\$6,555,278	\$7,223,392	\$6,897,756	\$7,562,319	\$7,884,378	\$8,196,775	\$8,507,596	\$5,642,506	\$5,955,173	\$6,264,624
14	Alameda	Union City	\$1,885,303	\$2,093,454	\$2,300,079	\$2,508,166	\$2,619,937	\$2,732,345	\$2,844,410	\$2,956,698	\$3,068,127	\$3,178,211
15	Alpine	Alpine County (Unincorporated)	(\$21,310)	(\$15,774)	(\$10,213)	(\$4,651)	(\$1,805)	\$1,071	\$3,944	\$6,868	\$9,767	\$12,629
16	Amador	Amador City	\$30,254	\$33,231	\$36,186	\$39,175	\$40,487	\$41,856	\$43,231	\$44,609	\$45,972	\$47,339
17	Amador	Amador County (Unincorporated)	\$2,751,949	\$3,003,053	\$2,061,420	\$2,311,499	\$2,476,825	\$2,613,737	\$2,750,479	\$2,887,143	\$3,023,237	\$3,158,031
18	Amador	Ione	\$324,905	\$349,614	\$374,171	\$398,746	\$422,764	\$435,634	\$448,741	\$462,743	\$476,647	\$490,444
19	Amador	Jackson	\$33,731	\$75,027	\$116,001	\$157,022	\$179,217	\$200,793	\$222,342	\$243,574	\$264,894	\$286,128
20	Amador	Plymouth	\$161,157	\$169,912	\$178,616	\$187,318	\$192,033	\$196,974	\$201,943	\$206,381	\$210,770	\$215,092
21	Amador	Sutter Creek	\$384,190	\$411,979	\$439,579	\$467,221	\$500,972	\$514,992	\$529,072	\$543,292	\$557,435	\$571,504
22	Butte	Biggs			\$135	\$269	\$442	\$680	\$928	\$1,103	\$13,877	\$14,060
23	Butte	Butte County (Unincorporated)	\$9,762,950	\$10,737,096	\$10,211,826	\$11,178,010	\$11,611,940	\$12,047,167	\$12,477,967	\$12,905,548	\$13,331,657	\$11,312,069
24	Butte	Chico	\$1,557,922	\$1,963,803	\$401,986	\$804,367	\$1,085,270	\$1,367,080	\$1,653,802	\$1,943,259	\$2,231,933	\$4,960,805
25	Butte	Oroville	\$229,629	\$350,622	\$471,555	\$595,957	\$661,775	\$727,551	\$792,532	\$859,264	\$925,739	\$991,447
26	Butte	Paradise	\$2,768,496	\$3,034,454	\$3,298,554	\$3,562,907	\$3,693,921	\$3,823,466	\$3,952,801	\$4,083,127	\$4,212,759	\$4,341,244
27	Calaveras	Angels Camp	(\$868,289)	(\$836,032)	(\$804,015)	(\$771,985)	(\$755,414)	(\$739,159)	(\$722,918)	(\$706,743)	(\$690,660)	(\$674,389)
28	Calaveras	Calaveras County (Unincorporated)	\$5,144,404	\$5,636,775	\$6,126,602	\$6,617,335	\$6,894,924	\$7,172,764	\$7,450,417	\$7,728,460	\$8,005,556	\$8,279,887
29	Colusa	Colusa	\$657,750	\$704,674	\$751,530	\$798,391	\$821,816	\$844,930	\$867,964	\$891,109	\$914,681	\$937,985
30	Colusa	Colusa County (Unincorporated)	\$2,129,611	\$2,276,803	\$2,423,418	\$2,570,890	\$2,642,279	\$2,714,823	\$2,787,722	\$2,859,543	\$2,931,506	\$3,003,332
31	Colusa	Williams	\$313,531	\$338,318	\$362,933	\$387,602	\$402,053	\$415,835	\$429,611	\$443,438	\$457,355	\$471,072
32	Contra Costa	Antioch	\$1,186,963	\$1,550,630	\$1,911,497	\$2,200,384	\$2,412,245	\$2,624,052	\$532,611	(\$263,070)	(\$50,823)	\$158,848
33	Contra Costa	Brentwood	\$474,506	\$570,787	\$667,258	\$763,751	\$856,314	\$947,478	\$1,039,164	\$1,130,101	\$1,222,370	\$1,315,017
34	Contra Costa	Clayton	\$84,659	\$114,425	\$143,914	\$173,392	\$194,426	\$215,469	\$236,503	\$257,688	\$278,680	\$299,412
35	Contra Costa	Concord	\$5,868,232	\$6,645,768	\$7,418,329	\$6,340,165	\$6,724,304	\$7,106,919	\$7,488,318	\$7,874,118	\$6,790,504	\$7,169,896
36	Contra Costa	Contra Costa County (Unincorporated)	\$11,542,050	\$12,706,726	\$13,863,935	\$12,761,003	\$13,292,197	\$13,822,561	\$14,352,988	\$14,882,810	\$15,371,163	\$15,894,798
37	Contra Costa	Danville	\$1,846,068	\$2,024,312	\$2,201,300	\$6,330	\$102,628	\$199,004	\$295,166	\$391,584	\$487,652	\$582,428
38	Contra Costa	El Cerrito	\$817,234	\$1,073,219	\$1,327,253	\$1,581,495	\$1,697,558	\$1,813,427	\$1,928,391	\$2,044,484	\$2,159,836	\$2,274,240
39	Contra Costa	Hercules	\$615,083	\$677,247	\$738,926	\$800,599	\$833,711	\$866,695	\$899,422	\$932,113	\$967,675	\$1,002,849
40	Contra Costa	Lafayette	\$285,923	\$513,563	\$739,759	\$966,151	\$20,134	\$123,702	\$227,116	\$331,329	\$435,168	\$538,075
41	Contra Costa	Martinez	\$1,553,129	\$1,765,227	\$1,975,767	\$2,186,347	\$2,381,536	\$2,491,183	\$2,600,234	\$2,710,810	\$992,602	\$1,101,716
42	Contra Costa	Moraga	\$1,047,363	\$1,139,144	\$1,230,148	\$1,321,143	\$1,365,491	\$1,409,320	\$1,453,021	\$1,497,113	\$1,540,913	\$1,584,096
43	Contra Costa	Oakley	\$240,965	\$293,171	\$346,444	\$400,200	\$464,669	\$530,153	\$596,050	\$661,881	\$727,736	\$793,221
44	Contra Costa	Orinda	\$1,472,289	\$1,623,747	\$1,774,206	\$1,924,572	\$1,995,799	\$2,066,955	\$2,138,002	\$2,209,529	\$2,159,307	\$2,230,535
45	Contra Costa	Pinole	\$756,773	\$867,648	\$977,592	\$1,087,531	\$1,143,892	\$1,200,175	\$1,256,377	\$1,312,927	\$1,369,111	\$1,424,674
46	Contra Costa	Pittsburg	\$1,029,385	\$1,273,517	\$1,515,994	\$1,757,606	\$1,884,706	\$2,011,831	\$2,139,423	\$2,266,698	\$2,393,855	\$2,520,609
47	Contra Costa	Pleasant Hill	\$2,841,508	\$3,079,655	\$3,315,754	\$3,551,924	\$3,665,354	\$3,779,897	\$3,894,296	\$1,942,357	\$2,008,843	\$2,121,473
48	Contra Costa	Richmond	\$5,334,592	\$6,080,908	\$6,821,933	\$7,563,457	\$8,035,063	\$8,400,949	\$8,765,160	\$9,128,867	\$9,490,495	\$9,848,797
49	Contra Costa	San Pablo	\$523,031	\$711,608	\$899,196	\$1,086,880	\$1,178,093	\$1,269,259	\$1,361,288	\$1,453,794	\$1,545,789	\$1,637,108
50	Contra Costa	San Ramon	\$179,292	\$369,337	\$559,809	\$751,497	\$876,031	\$1,000,487	\$1,126,394	\$1,253,447	\$1,380,309	\$1,506,631
51	Contra Costa	Walnut Creek	\$859,557	\$1,311,735	\$1,761,060	\$2,210,983	\$2,432,860	\$2,656,104	\$2,878,554	\$3,103,097	\$3,325,320	\$3,545,779
52	El Dorado	El Dorado County (Unincorporated)	\$9,851,473	\$10,768,040	\$11,679,287	\$12,591,840	\$13,135,619	\$13,673,919	\$14,212,193	\$14,755,946	\$15,297,831	\$15,836,285
53	El Dorado	Placerville	\$1,083,497	\$1,162,265	\$1,240,433	\$1,318,630	\$1,360,081	\$1,380,476	\$1,426,817	(\$520,117)	(\$473,985)	(\$428,322)
54	Fresno	Clovis	\$2,298,848	\$2,617,498	(\$567,045)	(\$248,084)	(\$47,692)	\$153,312	\$355,781	\$557,712	\$760,953	\$963,867
55	Fresno	Coalinga	\$606,509	\$678,406	\$749,820	\$821,313	\$857,839	\$894,306	\$930,726	\$967,131	\$1,003,318	\$1,039,432
56	Fresno	Firebaugh	\$439,494	\$468,656	\$497,623	\$526,694	\$543,649	\$560,768	\$578,726	\$1,346,475	(\$1,059,413)	(\$1,041,897)
57	Fresno	Fowler	(\$78,274)	(\$48,832)	(\$19,445)	\$10,067	\$26,856	\$43,624	\$60,382	(\$352,527)	(\$336,127)	(\$319,790)
58	Fresno	Fresno	\$11,142,753	\$13,578,086	\$16,001,433	\$13,888,146	\$16,103,187	\$17,426,660	\$17,170,206	\$18,483,167	\$19,790,794	\$13,360,972
59	Fresno	Fresno County (Unincorporated)	\$13,184,563	\$15,225,946	\$17,257,316	\$15,795,779	\$16,699,282	\$17,588,589	\$17,154,443	\$12,061,317	\$12,786,245	\$13,755,299
60	Fresno	Huron	\$29,716	\$48,706	\$68,060	\$87,448	\$99,272	\$111,068	\$122,685	\$134,339	\$145,904	\$157,301
61	Fresno	Kerman	\$563,319	\$605,835	\$648,452	\$691,245	(\$378,689)	(\$351,343)	\$406,489	\$434,158	\$461,662	\$488,879
62	Fresno	Kingsburg	\$285,819	\$343,442	\$400,874	\$458,428	\$492,363	\$526,363	\$560,355	\$1,093,860	\$1,127,203	\$1,160,503
63	Fresno	Mendota	\$502,194	\$535,403	\$568,577	\$601,778	\$710,386	\$730,124	\$750,228	\$770,236	\$790,239	\$810,019
64	Fresno	Orange Cove	\$599,350	\$637,256	\$674,868	\$712,533	\$822,023	\$842,964	\$863,960	\$884,931	\$905,819	\$926,480

AzP Exhibit G. Year-End Work Credit Allocation Balances By Community 2007-2016 (Nominal Dollars)												
	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance
65	Fresno	Parlier	\$154,300	\$194,910	\$235,268	\$275,800	\$300,022	\$324,468	\$349,170	\$2,043,834	\$2,218,305	\$2,141,969
66	Fresno	Reedley	\$781,434	\$885,296	\$988,538	\$1,092,011	\$1,149,442	\$617,911	\$675,445	\$3,332,519	\$3,389,837	\$3,446,493
67	Fresno	San Joaquin	\$244,068	\$258,083	\$272,034	\$285,998	\$310,731	\$318,633	\$326,622	\$334,476	\$342,284	\$349,977
68	Fresno	Sanger	\$910,611	\$1,017,693	\$1,124,080	\$1,230,585	\$1,288,775	\$1,346,854	\$878,524	\$936,249	\$993,935	\$1,051,616
69	Fresno	Selma	\$896,714	\$1,000,152	\$1,102,938	\$1,205,746	\$1,264,151	\$1,322,573	\$1,381,169	\$1,439,256	\$1,496,837	\$1,553,900
70	Glenn	Glenn County (Unincorporated)	\$2,018,704	\$2,222,955	\$2,426,468	\$2,630,557	\$2,726,463	\$2,822,249	\$2,918,314	\$3,013,157	\$3,108,312	\$3,202,827
71	Glenn	Orland	\$729,528	\$782,950	\$836,099	\$889,385	\$917,547	\$946,300	\$974,971	\$1,003,405	\$1,031,645	\$1,059,633
72	Glenn	Willows	\$420,751	\$474,424	\$527,697	\$580,994	\$606,667	\$632,567	\$658,393	\$684,348	\$710,105	\$735,741
73	Humboldt	Arcata	\$721,513	\$848,520	\$974,707	\$1,101,013	\$1,170,891	\$1,240,812	\$1,311,230	\$1,382,352	\$1,453,363	\$1,523,996
74	Humboldt	Blue Lake	\$193,685	\$207,306	\$220,864	\$234,430	\$315,587	\$322,366	\$329,101	\$335,643	\$342,125	\$348,610
75	Humboldt	Eureka	\$2,822,891	\$3,134,895	\$3,444,778	\$3,754,902	\$3,900,657	\$4,046,015	\$4,191,253	\$4,337,307	\$4,482,670	\$3,972,029
76	Humboldt	Ferndale	\$305,984	\$325,020	\$343,974	\$362,937	\$441,846	\$450,819	\$459,820	\$468,908	\$2,874,944	\$2,883,931
77	Humboldt	Fortuna	\$593,787	\$687,471	\$780,518	\$873,703	\$921,995	\$969,529	\$1,016,955	\$2,167,719	\$3,586,990	\$3,634,438
78	Humboldt	Humboldt County (Unincorporated)	\$6,756,484	\$7,453,963	\$8,022,840	\$8,718,119	\$9,064,647	\$9,413,228	\$9,162,167	\$8,534,474	\$1,550,059	\$1,893,683
79	Humboldt	Rio Dell	\$230,616	\$261,729	\$292,627	\$323,597	\$338,309	\$353,071	\$367,892	\$382,792	\$397,649	\$412,354
80	Humboldt	Trinidad	\$65,847	\$70,447	(\$49,839)	(\$45,245)	(\$41,205)	(\$41,183)	(\$39,142)	(\$37,122)	(\$10,116)	(\$8,251)
81	Kern	Arvin	\$347,185	\$406,696	\$465,929	\$525,251	\$558,741	\$592,297	\$626,065	\$659,511	\$693,213	\$726,971
82	Kern	Bakersfield	\$7,927,587	\$9,238,840	\$10,549,192	\$11,076,430	\$10,352,199	\$10,465,129	\$11,268,362	\$11,142,617	\$9,089,655	\$9,896,203
83	Kern	Kern County (Unincorporated)	\$19,412,521	\$21,229,476	\$23,034,648	\$22,686,986	\$23,510,397	\$24,336,205	\$22,428,942	\$23,233,547	\$21,034,305	\$21,828,930
84	Kern	Maricopa	\$234,721	\$246,901	\$259,015	\$271,158	\$276,918	\$282,706	\$288,478	\$294,192	\$299,875	\$305,490
85	Kern	McFarland	\$306,244	\$331,666	\$356,987	\$382,533	\$397,330	\$412,535	\$427,954	\$443,551	\$3,459,566	\$3,475,614
86	Kern	Shafter	\$759,614	\$832,664	\$905,739	\$979,013	\$1,023,358	\$1,066,986	\$1,110,587	\$1,153,527	\$1,196,449	\$1,239,071
87	Kern	Taft	\$806,835	\$865,311	\$923,578	\$981,860	\$1,011,619	\$1,040,606	\$1,069,559	\$1,098,143	\$1,126,595	\$1,154,733
88	Kern	Wasco	\$1,089,027	\$1,178,363	\$1,267,738	\$1,357,226	\$1,406,980	\$1,455,496	\$1,504,255	\$1,552,402	\$1,600,317	\$1,647,865
89	Kings	Avenal	\$476,812	\$521,211	\$565,679	\$610,219	\$633,448	\$657,011	\$680,543	\$704,034	\$727,444	\$750,683
90	Kings	Corcoran	\$707,334	\$771,995	\$836,406	\$901,168	\$936,743	\$976,469	\$1,016,115	\$1,055,361	\$0	\$0
91	Kings	Kings County (Unincorporated)	\$3,156,476	\$3,397,681	\$3,638,265	\$3,880,800	\$3,991,416	\$1,747,010	\$1,853,170	\$1,956,018	\$2,058,562	\$2,161,397
92	Kings	Lemoore	\$662,431	\$764,389	\$865,743	\$967,027	\$1,026,613	(\$853,842)	(\$793,314)	(\$732,468)	(\$671,713)	(\$611,379)
93	Lake	Clearlake	\$2,031,026	\$2,201,513	\$2,371,568	\$2,541,878	\$2,539,406	\$2,627,302	\$2,715,125	\$2,801,769	\$2,887,955	\$2,972,878
94	Lake	Lake County (Unincorporated)	\$6,987,172	\$7,549,580	\$7,165,432	\$6,941,696	\$7,232,796	\$7,523,674	\$7,005,803	\$7,295,771	\$7,584,644	\$7,870,884
95	Lake	Lakeport	\$565,611	\$623,269	\$681,089	\$738,912	\$767,086	\$794,678	\$822,205	\$849,814	\$877,499	\$904,901
96	Lassen	Lassen County (Unincorporated)	\$271,924	\$292,699	\$313,351	\$334,057	\$343,756	\$353,452	\$363,175	\$372,633	\$382,100	\$391,568
97	Madera	Chowchilla	\$883,980	\$946,503	\$1,008,779	\$1,071,099	\$1,105,429	\$1,141,214	\$1,176,608	\$2,211,693	\$2,246,699	\$2,281,160
98	Madera	Madera	\$675,145	\$893,945	\$1,112,446	\$1,331,080	\$1,555,466	\$1,685,677	\$1,816,165	(\$1,037,393)	(\$407,679)	(\$278,561)
99	Madera	Madera County (Unincorporated)	\$7,370,325	\$8,110,626	\$8,841,600	\$9,582,054	\$9,906,703	\$10,317,088	\$7,346,141	\$6,748,916	\$6,651,125	\$5,516,842
100	Marin	Belvedere	\$207,711	\$227,295	\$124,356	\$143,138	\$150,667	\$158,062	(\$298,795)	(\$292,637)	(\$286,529)	(\$280,494)
101	Marin	Corte Madera	\$884,298	\$967,912	(\$180,854)	(\$97,989)	(\$57,366)	(\$16,963)	\$23,336	\$63,822	\$104,098	\$144,560
102	Marin	Fairfax	\$77,880	\$159,317	\$240,197	\$321,132	\$357,740	\$394,340	\$430,632	\$466,962	\$503,120	\$539,020
103	Marin	Larkspur	\$759,570	\$855,638	\$951,008	\$1,046,518	\$1,094,307	\$1,142,113	\$1,189,818	\$1,237,477	\$1,285,051	\$1,332,210
104	Marin	Marin County (Unincorporated)	\$5,958,530	\$6,527,881	\$2,683,901	\$1,705,419	\$1,976,783	\$2,248,362	\$2,519,502	\$2,790,570	\$3,060,473	\$3,327,758
105	Marin	Mill Valley	\$1,350,386	(\$1,511,380)	(\$1,373,260)	(\$1,234,969)	(\$1,172,237)	(\$1,109,008)	(\$1,045,842)	(\$983,423)	(\$921,323)	(\$859,722)
106	Marin	Novato	\$2,101,798	\$2,409,455	\$2,714,476	\$3,019,246	\$3,173,071	\$3,330,524	\$3,487,890	\$3,646,222	\$3,803,635	\$3,959,265
107	Marin	Ross	\$106,747	\$128,294	\$149,756	\$171,239	\$181,266	\$191,403	\$201,523	\$211,391	\$221,228	\$230,962
108	Marin	San Anselmo	\$1,296,543	\$1,438,298	\$1,578,974	\$1,719,788	\$1,781,270	\$1,842,280	\$434,611	\$495,861	\$556,820	\$617,290
109	Marin	San Rafael	\$2,112,802	\$2,133,315	\$2,594,081	\$3,055,125	\$3,284,848	\$3,513,791	\$3,742,194	\$3,971,549	\$4,199,655	\$4,425,416
110	Marin	Sausalito	\$1,226,668	\$1,324,136	\$1,421,003	\$1,517,930	\$1,563,226	\$1,608,646	\$1,654,035	\$1,698,898	\$1,743,523	\$1,787,523
111	Marin	Tiburon	\$325,330	\$390,387	\$454,963	\$519,622	\$551,396	\$583,010	\$614,645	\$645,571	\$675,225	\$704,566
112	Mariposa	Mariposa County (Unincorporated)	\$1,655,028	\$1,867,558	\$2,079,150	\$2,291,414	\$2,441,737	\$2,531,732	\$2,652,663	\$2,772,830	\$2,893,358	\$3,013,068
113	Mendocino	Fort Bragg	\$698,864	\$773,462	\$847,570	\$921,746	\$958,980	\$995,861	\$1,032,690	\$1,069,418	\$1,106,115	\$1,142,424
114	Mendocino	Mendocino County (Unincorporated)	\$7,476,748	\$8,104,358	\$8,728,719	\$9,354,392	\$9,673,611	\$9,993,365	\$6,244,815	\$6,562,237	\$6,878,700	\$7,192,483
115	Mendocino	Point Arena	\$97,299	\$104,199	\$111,063	\$117,943	\$120,809	\$123,723	\$126,682	\$129,617	\$132,545	\$135,464
116	Mendocino	Willits	\$477,481	\$521,775	\$565,848	\$610,004	\$633,247	\$656,555	\$679,908	\$702,869	\$725,682	\$748,273
117	Merced	Atwater	\$1,446,432	\$1,565,850	\$1,684,684	\$1,803,879	\$1,869,473	\$1,937,492	\$2,005,364	(\$1,213,409)	(\$1,145,734)	(\$1,078,779)
118	Merced	Dos Palos	\$508,179	\$542,640	\$576,952	\$611,311	\$629,003	\$646,199	\$663,316	\$680,417	\$697,404	\$714,207
119	Merced	Gustine	\$89,867	\$127,351	\$164,616	\$201,922	\$221,306	\$240,709	\$260,177	\$279,757	\$299,225	\$318,465
120	Merced	Livingston	\$488,939	\$523,041	\$556,886	\$590,728	\$609,326	\$628,180	\$647,014	\$665,953	\$684,758	\$703,440
121	Merced	Los Banos	\$391,560	\$524,723	\$657,280	\$790,225	\$873,369	\$956,536	\$1,039,476	\$1,122,262	\$1,204,502	\$1,286,381
122	Merced	Merced	\$1,292,898	\$1,653,815	\$2,012,255	\$2,370,855	\$2,556,579	\$2,745,324	\$765,436	\$951,646	(\$433,096)	(\$250,378)
123	Merced	Merced County (Unincorporated)	\$7,569,709	\$8,190,139	\$8,808,849	\$9,430,111	\$9,740,796	\$8,021,014	\$8,328,874	\$8,627,870	\$8,927,361	\$9,226,357
124	Monterey	Carmel	\$306,413	\$390,000	\$473,142	\$556,441	\$595,576	\$632,951	\$670,302	\$706,308	\$742,111	\$777,528
125	Monterey	Del Rey Oaks	\$268,217	\$284,197	\$300,053	\$315,908	\$323,204	\$330,484	\$337,818	\$345,236	\$352,621	\$359,937
126	Monterey	Gonzales	\$267,170	\$296,910	\$326,534	\$355,974	\$371,759	\$387,514	\$403,461	\$419,463	\$435,360	\$451,112
127	Monterey	Greenfield	\$569,115	\$613,477	\$657,899	\$702,332	\$728,448	\$754,491	\$781,239	\$807,862	\$834,527	\$861,068
128	Monterey	King City	\$440,462	\$490,183	\$539,586	\$588,966	\$616,197	\$643,402	\$670,584	\$697,752	\$725,055	\$0

AzP Exhibit G. Year-End Work Credit Allocation Balances By Community 2007-2016 (Nominal Dollars)												
	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance
129	Monterey	Marina	\$881,363	\$990,051	\$1,097,875	\$1,205,732	\$1,263,128	\$1,320,453	\$1,377,662	\$1,435,119	\$1,492,810	\$1,550,140
130	Monterey	Monterey	\$2,437,396	\$2,711,535	\$2,983,529	\$3,255,767	\$3,388,563	\$3,521,176	\$3,652,697	\$3,784,990	\$3,916,434	\$3,951,913
131	Monterey	Monterey County (Unincorporated)	\$7,002,857	\$7,860,360	\$8,712,565	\$9,565,051	\$10,903,844	\$11,332,389	\$11,760,252	\$12,184,231	\$12,605,728	\$13,023,951
132	Monterey	Pacific Grove	\$1,673,417	\$1,112,350	\$1,301,327	\$1,490,462	\$1,575,494	\$1,660,418	\$1,745,160	\$1,830,233	\$1,914,953	\$1,998,919
133	Monterey	Salinas	\$4,754,584	\$5,402,411	\$6,046,037	\$6,690,690	\$7,027,920	\$7,365,053	\$7,700,008	\$8,037,857	\$8,373,337	\$8,705,554
134	Monterey	Sand City	\$146,992	\$155,295	\$163,531	\$171,790	\$175,971	\$180,172	\$184,362	\$188,517	\$192,674	\$196,831
135	Monterey	Seaside	\$1,662,388	\$1,839,712	\$2,015,458	\$2,191,237	\$2,291,287	(\$287,999)	(\$189,112)	(\$93,790)	\$1,039	\$94,840
136	Monterey	Soledad	\$417,066	\$457,338	\$497,379	\$537,805	\$564,130	\$590,460	\$617,260	\$643,968	\$670,477	\$696,697
137	Napa	American Canyon	\$159,800	\$185,156	\$210,385	\$235,736	\$266,463	\$297,074	\$327,722	\$358,500	\$388,997	\$419,137
138	Napa	Calistoga	\$497,737	\$535,912	\$573,976	\$612,174	\$631,662	\$651,308	\$670,948	\$690,522	\$709,937	\$729,447
139	Napa	Napa	\$5,602,891	\$6,071,321	\$6,536,162	\$7,001,414	\$7,244,947	\$7,488,701	\$7,732,204	\$7,976,781	\$8,220,621	\$8,462,039
140	Napa	Napa County (Unincorporated)	\$5,065,526	\$5,427,092	\$5,786,578	\$3,138,475	\$3,304,537	\$3,469,350	\$3,634,475	\$3,791,364	(\$11,947,778)	(\$11,793,650)
141	Napa	St Helena	\$732,527	\$787,984	\$843,181	\$898,442	\$926,924	\$955,551	\$984,252	\$1,012,527	(\$113,522)	(\$85,840)
142	Napa	Yountville	\$65,654	\$79,785	\$93,822	\$107,886	\$115,406	\$123,046	\$130,537	\$137,800	\$145,079	\$152,354
143	Nevada	Grass Valley	(\$23,895)	\$69,574	\$162,545	\$255,584	\$309,678	\$364,288	\$418,917	\$473,850	\$528,586	\$582,780
144	Nevada	Nevada City	\$365,996	\$402,287	\$438,339	\$474,429	\$493,514	\$512,234	\$530,958	\$549,928	\$568,873	\$587,690
145	Nevada	Nevada County (Unincorporated)	\$7,083,889	\$7,729,558	\$8,371,369	\$9,014,142	\$9,351,665	\$9,688,927	\$10,025,965	\$10,365,573	\$10,703,993	\$11,039,754
146	Placer	Auburn	\$739,021	\$842,263	\$945,184	\$1,048,106	\$1,104,701	\$1,160,575	\$1,216,262	\$1,272,555	(\$215,857)	(\$160,098)
147	Placer	Colfax	\$78,948	\$95,996	\$112,868	\$129,930	\$139,226	\$148,677	\$158,131	\$167,594	\$177,046	\$186,500
148	Placer	Lincoln	\$141,714	\$235,658	\$329,247	\$423,249	\$507,605	\$592,353	\$677,259	\$763,069	\$849,331	\$935,307
149	Placer	Loomis	\$642,497	\$686,037	\$729,240	\$772,498	\$796,164	\$820,040	\$843,895	\$867,788	\$891,650	\$915,287
150	Placer	Placer County (Unincorporated)	\$5,784,166	\$6,486,385	\$7,184,425	\$7,883,142	\$8,260,024	\$8,637,216	\$9,014,408	\$9,391,600	\$9,768,792	\$10,145,984
151	Placer	Rocklin	\$1,051,973	\$1,202,815	\$1,353,273	\$1,504,446	\$1,619,234	\$1,733,786	\$1,848,500	\$1,964,299	\$2,080,256	\$2,196,293
152	Placer	Roseville		\$254	\$454	\$654	\$854	\$1,054	\$1,254	\$1,454	\$1,654	\$1,854
153	Plumas	Plumas County (Unincorporated)	\$1,286,721	\$1,487,982	\$1,688,021	\$1,888,314	\$1,990,111	\$2,091,838	\$2,193,546	\$2,295,151	\$2,396,216	\$2,497,281
154	Sacramento	Folsom		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
155	Sacramento	Isleton	\$226,070	\$237,628	\$249,108	\$260,579	\$265,727	\$270,861	\$275,844	\$280,675	\$285,482	\$290,185
156	Sacramento	Sacramento County (Unincorporated)	\$731,612	\$782,670	\$833,372	\$884,106	\$904,434	\$924,766	\$945,334	\$965,454	\$985,449	\$1,005,119
157	San Benito	Hollister	(\$295,931)	(\$179,715)	(\$64,442)	\$51,007	\$117,961	\$186,199	\$254,404	\$323,086	\$391,758	\$459,990
158	San Benito	San Benito County (Unincorporated)	\$2,380,117	\$2,548,637	\$2,715,800	\$2,883,056	\$2,966,287	\$3,049,196	\$3,131,905	\$3,213,770	\$3,295,280	\$3,375,968
159	San Benito	San Juan Bautista	\$258,178	\$274,247	\$290,122	\$306,004	\$313,965	\$321,632	\$329,289	\$336,980	\$344,653	\$352,223
160	San Francisco	San Francisco	\$49,726,996	\$26,396,589	\$21,365,017	(\$33,353,383)	(\$16,203,662)	(\$55,952,485)	(\$52,880,581)	(\$56,870,072)	(\$53,760,782)	(\$50,670,844)
161	San Joaquin	Escalon	\$394,970	\$428,790	\$462,326	\$495,861	\$514,634	\$533,271	\$551,864	\$570,352	\$588,681	\$606,784
162	San Joaquin	Lathrop	(\$19,516)	\$22,948	\$65,577	\$108,373	\$136,581	\$167,340	\$198,437	\$232,180	\$265,626	\$299,282
163	San Joaquin	Manteca	\$2,065,173	\$2,309,121	\$2,553,671	\$2,799,051	\$2,948,779	\$3,098,083	\$3,249,179	\$3,400,359	\$3,552,000	\$3,703,334
164	San Joaquin	Ripon	\$525,228	(\$293,263)	(\$245,797)	(\$198,272)	(\$171,268)	(\$143,980)	(\$116,760)	(\$90,179)	(\$63,809)	(\$37,677)
165	San Joaquin	San Joaquin County (Unincorporated)	\$15,542,336	\$16,883,482	\$18,214,236	\$18,547,927	\$19,164,032	\$19,794,328	\$20,424,791	\$21,038,709	\$21,651,190	\$22,257,986
166	San Joaquin	Stockton	\$10,146,782	\$10,980,396	\$8,905,547	\$10,221,492	\$11,145,526	\$8,457,728	\$9,174,367	\$9,885,647	\$10,591,172	\$11,289,105
167	San Joaquin	Tracy	\$1,682,602	\$1,931,180	\$2,177,865	\$2,424,579	\$2,585,215	\$2,743,774	\$2,151,904	\$2,309,401	\$2,466,304	\$2,622,141
168	San Luis Obispo	Arroyo Grande	\$432,116	\$546,829	\$660,697	\$774,581	\$837,851	\$898,900	\$959,785	\$1,020,247	\$1,080,709	\$1,141,171
169	San Luis Obispo	Atascadero	\$1,958,775	\$2,177,853	\$2,395,574	\$2,613,284	\$2,726,738	\$2,839,972	\$2,953,163	\$3,066,354	\$3,179,545	\$3,292,736
170	San Luis Obispo	Grover Beach	\$1,314,735	\$1,431,841	\$1,548,382	\$1,665,030	\$1,724,639	\$1,784,248	\$1,843,857	\$1,903,466	\$1,963,075	\$2,022,684
171	San Luis Obispo	Morro Bay	\$1,549,318	\$1,685,031	\$1,820,136	\$1,955,467	\$2,023,500	\$2,091,422	\$2,159,277	\$2,226,573	\$2,293,559	\$2,359,988
172	San Luis Obispo	Paso Robles	\$946,387	\$1,092,819	\$1,238,235	\$1,383,847	\$1,469,659	\$1,554,981	\$1,640,433	\$1,725,885	\$1,811,337	\$1,896,789
173	San Luis Obispo	Pismo Beach	\$867,776	\$941,403	\$1,014,701	\$1,088,125	\$1,128,915	\$1,169,830	\$1,210,884	\$1,251,938	\$1,292,992	\$1,334,046
174	San Luis Obispo	San Luis Obispo	\$514,832	\$849,258	\$1,183,193	\$1,517,708	\$3,380,218	\$3,560,344	\$1,517,931	(\$1,767,848)	(\$1,589,971)	(\$1,413,332)
175	San Luis Obispo	San Luis Obispo County (Unincorporated)	\$8,705,109	\$9,619,977	\$10,530,269	\$11,442,677	\$11,134,474	\$10,704,539	\$10,168,083	\$4,044,970	\$4,551,627	\$2,969,145
176	San Mateo	Atherton	\$976,528	\$1,040,622	\$1,104,157	\$1,167,754	\$1,194,794	\$1,221,859	\$1,248,892	\$1,274,747	\$1,300,405	\$1,325,846
177	San Mateo	Belmont	\$2,347,726	\$2,574,794	\$4,635,865	\$4,861,179	\$4,966,679	\$5,072,053	\$5,177,105	\$5,283,496	\$5,389,297	\$5,495,097
178	San Mateo	Brisbane	\$258,216	\$295,441	\$332,475	\$369,546	\$388,620	\$407,719	\$426,818	(\$93,862)	(\$74,550)	(\$55,289)
179	San Mateo	Burlingame	\$3,606,570	\$3,902,520	\$4,196,579	\$4,490,352	\$4,629,851	\$4,769,353	\$4,908,740	\$5,049,397	\$5,189,297	\$5,328,052
180	San Mateo	Colma	\$158,289	\$169,547	\$180,707	\$191,849	(\$28,615)	(\$24,152)	(\$19,574)	(\$15,183)	(\$10,837)	(\$6,547)
181	San Mateo	Daly City	\$4,232,032	\$4,767,244	\$5,298,524	\$5,830,537	\$5,029,925	\$5,296,571	\$5,537,984	\$5,807,389	\$6,074,859	\$6,342,329
182	San Mateo	East Palo Alto	\$1,650,884	\$1,813,620	\$1,975,473	\$2,137,388	\$2,203,446	\$2,269,351	\$2,336,178	\$2,403,437	\$2,470,453	\$2,536,699
183	San Mateo	Foster City	\$1,606,761	\$1,721,711	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
184	San Mateo	Half Moon Bay	\$665,442	\$728,268	\$790,419	\$852,682	\$43,325	\$78,066	\$112,739	\$147,134	\$180,867	\$213,600
185	San Mateo	Hillsborough	\$730,228	\$796,243	\$861,829	\$927,307	\$958,226	(\$1,069,761)	(\$1,039,060)	(\$1,008,717)	(\$978,587)	(\$948,780)
186	San Mateo	Menlo Park	\$3,983,787	\$4,271,880	\$4,558,581	\$4,845,593	\$4,980,353	\$5,115,027	\$5,249,116	\$5,383,528	\$5,517,152	\$5,649,402
187	San Mateo	Millbrae	\$2,138,077	\$2,303,597	\$2,468,305	\$2,633,129	\$2,711,575	\$2,789,950	\$2,868,091	\$2,947,042	\$3,025,818	\$3,103,777
188	San Mateo	Pacific	\$3,109,083	\$3,400,133	\$3,523,516	\$3,812,447	\$3,951,829	\$4,090,982	\$4,229,852	\$4,370,476	\$4,509,391	\$4,646,783
189	San Mateo	Portola Valley	\$283,884	\$315,397	\$346,771	\$378,191	\$393,595	\$408,940	\$424,125	\$439,199	\$454,092	\$468,813
190	San Mateo	Redwood City	\$4,357,823	\$4,940,076	\$5,518,061	\$6,096,283	\$6,375,028	\$6,654,105	\$6,932,337	\$7,214,307	\$7,496,884	\$7,779,974
191	San Mateo	San Bruno	\$3,797,223	\$4,121,324	\$4,443,120	\$4,765,226	\$4,914,936	\$5,064,966	\$5,214,799	\$5,365,530	\$5,515,942	\$5,664,794
192	San Mateo	San Carlos	\$2,968,833	\$320,561	\$605,244	\$890,345	\$1,025,614	\$1,160,928	\$2,296,059	\$2,442,517	\$2,447,750	(\$490,929)

AzP Exhibit G. Year-End Work Credit Allocation Balances By Community 2007-2016 (Nominal Dollars)												
	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance
193	San Mateo	San Mateo	\$7,609,048	\$8,398,053	\$9,181,851	\$9,966,308	\$9,870,261	\$10,243,212	\$10,615,507	\$10,992,803	\$11,370,203	\$11,744,687
194	San Mateo	San Mateo County (Unincorporated)	\$5,739,817	\$6,354,758	\$6,966,334	\$7,578,732	\$6,878,287	\$7,126,378	\$7,373,593	\$7,621,094	\$7,033,999	\$7,277,991
195	San Mateo	South San Francisco	\$3,938,862	\$4,346,098	\$4,750,966	\$5,155,790	\$5,359,154	\$5,562,117	\$5,764,881	\$5,969,710	\$6,173,446	\$6,375,132
196	San Mateo	Woodside	\$574,926	\$623,009	\$670,859	\$718,765	\$741,474	\$764,144	\$786,688	\$809,014	\$831,163	\$853,067
197	Santa Barbara	Buellton	\$51,499	\$60,792	\$69,988	\$79,313	\$90,536	\$101,752	\$112,965	\$124,150	\$135,270	\$146,200
198	Santa Barbara	Guadalupe	\$172,074	\$202,650	\$232,984	\$263,316	\$279,237	\$295,130	\$311,303	\$327,301	\$343,228	\$359,022
199	Santa Barbara	Santa Barbara County (Unincorporated)	\$4,074,271	\$4,516,590	\$4,955,050	\$5,394,346	\$5,615,245	\$5,838,545	\$4,724,580	\$4,946,584	\$5,167,958	\$5,387,693
200	Santa Barbara	Santa Maria	\$3,705,770	\$4,089,209	\$4,471,197	\$4,853,473	\$5,064,467	\$5,273,052	\$5,481,280	\$5,690,653	\$5,898,931	\$6,106,526
201	Santa Barbara	Solvang	\$308,683	\$347,586	\$386,276	\$424,980	\$444,791	\$464,737	\$484,633	\$504,641	\$524,666	\$544,584
202	Santa Clara	Campbell	\$1,164,753	\$1,469,707	\$1,772,639	\$2,075,682	\$2,231,785	\$2,389,247	\$2,547,790	\$2,709,738	(\$3,558,670)	(\$3,397,677)
203	Santa Clara	Cupertino	\$3,261,350	\$3,560,686	\$3,858,017	\$4,155,589	\$4,325,856	\$4,496,315	\$3,684,860	\$3,854,068	\$4,023,415	\$4,190,880
204	Santa Clara	Gilroy	\$1,651,296	\$1,835,944	\$2,019,482	\$2,203,324	\$2,309,063	\$2,415,161	\$2,520,124	\$2,625,117	\$2,730,223	\$2,835,574
205	Santa Clara	Los Altos	\$2,716,562	\$2,969,867	\$3,222,267	\$3,475,426	\$3,598,312	\$3,722,086	\$1,596,219	\$1,715,133	\$1,833,837	\$1,952,342
206	Santa Clara	Los Altos Hills	\$643,761	\$700,641	(\$57,993)	(\$587)	\$28,147	\$56,525	\$85,037	\$112,679	\$140,152	\$167,467
207	Santa Clara	Los Gatos	\$2,005,299	\$2,258,410	\$2,510,153	\$2,761,902	\$2,885,781	\$3,009,317	\$3,132,998	\$3,255,488	\$3,377,420	\$3,498,024
208	Santa Clara	Milpitas	\$2,504,461	\$2,746,357	\$2,987,955	\$3,230,195	\$3,362,278	\$3,494,446	\$3,627,650	\$3,763,679	\$3,902,433	\$4,041,750
209	Santa Clara	Monte Sereno	\$321,550	\$348,467	\$375,310	\$402,219	\$414,715	\$427,157	\$439,666	\$451,511	\$463,203	\$474,799
210	Santa Clara	Morgan Hill	\$1,538,159	\$1,666,655	\$1,794,726	\$1,922,973	\$1,998,098	\$2,073,606	\$2,149,951	\$2,226,737	\$2,304,416	\$2,382,254
211	Santa Clara	Mountain View	\$2,911,681	\$3,482,550	\$4,048,855	\$4,615,553	\$4,899,122	\$5,182,503	\$5,463,812	\$5,746,837	\$3,040,879	\$3,319,375
212	Santa Clara	San Jose	\$38,908,051	\$42,535,235	\$46,544,323	\$50,818,367	\$53,783,062	\$51,043,100	\$47,098,969	\$45,304,662	\$34,746,386	\$27,120,471
213	Santa Clara	Santa Clara County (Unincorporated)	\$12,300,876	\$13,233,668	\$14,160,474	\$15,069,856	\$15,690,853	\$16,247,891	\$16,508,273	\$16,508,273	\$16,772,955	\$16,159,500
214	Santa Clara	Saratoga	\$2,507,886	\$2,702,300	\$2,895,499	\$3,088,768	\$3,187,102	\$3,284,995	\$3,382,724	\$3,479,150	\$3,575,159	\$3,670,203
215	Santa Clara	Sunnyvale	\$9,310,517	\$10,189,781	\$11,063,121	\$11,936,751	\$12,373,769	\$12,812,161	\$13,251,816	\$13,694,995	\$14,137,367	\$14,575,651
216	Santa Cruz	Capitola	\$1,392,118	\$1,486,322	\$1,579,894	\$1,673,733	\$1,721,231	\$1,768,902	\$1,816,536	\$1,863,786	\$1,910,768	\$1,957,306
217	Santa Cruz	Santa Cruz	\$1,939,922	\$2,364,134	\$2,785,873	\$3,208,560	\$3,333,029	(\$355,572)	(\$147,656)	\$60,796	\$3,268,650	\$3,267,138
218	Santa Cruz	Santa Cruz County (Unincorporated)	\$10,634,008	\$11,781,381	\$12,921,863	\$14,063,181	\$14,685,335	\$15,227,492	\$15,768,639	\$16,309,898	\$16,848,173	\$17,381,233
219	Santa Cruz	Scotts Valley	\$710,345	\$773,527	\$836,152	\$898,825	\$932,109	\$965,393	\$998,660	\$1,032,369	\$1,065,914	\$1,099,031
220	Santa Cruz	Watsonville	\$1,611,495	\$1,810,734	\$2,008,242	\$2,205,881	\$2,318,483	\$2,430,995	\$2,545,318	\$2,660,296	\$2,774,915	\$2,888,527
221	Shasta	Anderson	\$233,424	\$307,274	\$380,911	\$454,591	\$495,256	\$535,927	\$576,570	\$1,117,164	(\$2,176,117)	(\$2,136,707)
222	Shasta	Shasta County (Unincorporated)	\$5,369,403	\$5,763,069	\$6,428,186	\$6,900,344	\$7,234,784	\$7,569,628	\$7,904,192	\$7,735,801	\$8,065,265	\$8,391,014
223	Shasta	Shasta Lake	\$2,116	\$2,552	\$2,979	\$3,405	\$3,936	\$4,477	\$5,016	\$5,531	\$6,043	\$6,550
224	Sierra	Sierra County (Unincorporated)	\$258,808	\$286,087	\$313,230	\$340,392	\$352,736	\$365,148	\$377,561	\$389,951	\$402,264	\$414,503
225	Siskiyou	Siskiyou County (Unincorporated)	\$30,820	\$32,143	\$33,457	\$34,771	\$35,274	\$35,787	\$36,287	\$36,754	\$37,218	\$37,688
226	Solano	Benicia	\$1,282,719	\$1,430,955	\$1,577,898	\$1,724,987	\$1,802,526	\$1,879,774	\$1,956,801	\$2,033,991	\$2,110,674	\$2,186,536
227	Solano	Dixon	\$165,263	\$234,674	\$303,459	\$372,262	\$414,110	\$454,539	\$494,912	\$535,650	\$576,462	\$617,092
228	Solano	Fairfield	\$2,816,973	\$3,205,186	\$3,590,612	\$3,976,451	\$4,196,374	\$4,416,322	\$4,635,515	\$4,855,617	\$5,075,145	\$5,293,451
229	Solano	Rio Vista	\$326,642	\$373,821	\$420,802	\$467,873	\$496,522	\$525,182	\$553,912	\$582,831	\$611,998	\$641,349
230	Solano	Solano County (Unincorporated)	\$2,239,791	\$2,482,925	\$2,724,393	\$2,966,370	\$3,079,953	\$3,196,141	\$3,313,936	\$3,428,692	\$3,543,018	\$3,656,366
231	Solano	Suisun City	\$468,764	\$552,566	\$636,365	\$720,252	\$764,614	\$808,409	\$851,996	\$895,742	\$939,215	\$982,169
232	Solano	Vacaville	\$2,237,455	\$2,563,213	\$2,887,257	\$3,118,182	\$3,305,035	\$3,490,689	\$3,676,068	\$3,862,625	\$4,049,011	\$3,525,822
233	Solano	Vallejo	\$8,116,944	\$8,803,842	\$9,485,627	\$9,675,970	\$10,024,019	\$10,371,671	\$10,718,019	\$11,067,145	\$8,414,120	\$8,965,346
234	Sonoma	Cloverdale	\$495,947	\$539,415	\$582,505	\$625,629	\$650,423	\$675,491	\$700,547	\$725,728	\$750,678	\$775,309
235	Sonoma	Cotati	\$312,288	\$351,105	\$389,599	\$428,072	\$449,025	\$469,849	\$490,687	\$511,456	\$532,126	\$552,566
236	Sonoma	Healdsburg		\$1,785	\$3,674	\$5,957	\$7,943	\$9,930	\$11,979	\$110,533	\$30,986	
237	Sonoma	Petaluma	\$3,739,562	\$4,035,047	\$4,328,605	\$4,622,193	\$4,783,845	\$2,322,962	\$2,484,286	\$2,646,366	\$1,039,643	\$1,199,548
238	Sonoma	Rohnert Park	\$1,435,531	\$1,586,685	\$1,736,426	\$1,886,114	\$1,964,704	\$2,043,157	\$2,121,337	\$2,200,324	\$2,278,738	\$1,365,253
239	Sonoma	Santa Rosa	\$6,235,920	\$7,081,418	\$7,921,447	\$8,762,471	\$9,229,065	\$9,695,617	\$10,163,059	\$10,633,269	\$11,101,058	\$2,711,566
240	Sonoma	Sebastopol	\$524,404	\$584,075	\$643,299	\$703,634	\$736,143	\$768,594	\$800,885	\$833,226	\$865,474	\$897,445
241	Sonoma	Sonoma	\$998,043	\$1,074,683	\$1,150,799	\$1,226,960	\$1,269,464	(\$430,423)	(\$388,850)	(\$347,201)	(\$305,747)	(\$264,842)
242	Sonoma	Sonoma County (Unincorporated)	\$12,203,512	\$13,779,696	\$15,346,608	\$16,914,773	\$18,371,071	\$18,713,533	\$12,083,391	\$12,823,626	\$13,560,502	\$14,291,067
243	Sonoma	Windor	\$137,197	\$175,458	\$213,134	\$250,807	\$295,419	\$340,465	\$385,414	\$430,129	\$474,508	\$518,443
244	Stanislaus	Newman	\$379,081	\$418,679	\$458,962	\$498,257	\$538,923	\$579,617	\$620,311	\$661,005	\$701,699	\$742,393
245	Stanislaus	Oakdale	(\$351,459)	(\$251,618)	(\$152,619)	(\$53,570)	\$2,959	\$59,240	\$115,630	\$1,321,492	\$1,376,979	\$1,431,912
246	Stanislaus	Patterson	\$476,464	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
247	Stanislaus	Riverbank	\$308,139	\$365,870	\$423,069	\$480,109	\$515,962	\$551,781	\$587,407	(\$1,828,697)	(\$1,793,524)	(\$1,758,708)
248	Stanislaus	Stanislaus County (Unincorporated)	\$2,274,238	\$2,479,484	\$2,683,817	\$2,888,726	\$2,974,636	\$3,061,021	\$3,147,985	\$1,524,958	\$832,538	\$917,973
249	Sutter	Live Oak	\$409,491	\$443,065	\$476,448	\$509,832	\$528,530	\$547,524	\$566,887	\$585,853	\$604,627	\$623,168
250	Sutter	Sutter County (Unincorporated)	\$4,914,637	\$5,260,923	\$5,605,074	\$5,949,778	\$6,089,620	\$6,230,059	\$6,370,544	\$3,707,977	\$3,843,684	\$3,978,583
251	Sutter	Yuba City	\$1,648,498	\$1,910,321	\$2,170,574	\$2,430,911	\$2,601,880	\$2,771,966	\$2,941,699	\$5,911,609	\$6,082,067	\$6,250,711
252	Tehama	Corning	(\$23,692)	\$33,888	\$91,413	\$149,005	\$178,589	\$207,914	\$237,194	\$266,550	\$295,792	\$324,667
253	Tehama	Red Bluff	\$707,821	\$817,960	\$927,475	\$1,037,381	\$1,093,956	\$1,151,227	\$1,208,418	\$1,265,268	\$1,321,564	\$1,377,246
254	Tehama	Tehama	\$31,320	\$36,676	\$42,001	\$47,329	\$49,773	\$52,178	\$54,605	\$56,973	\$59,317	\$61,637
255	Tehama	Tehama County (Unincorporated)	\$5,366,885	\$5,788,792	\$6,208,692	\$6,629,769	\$6,807,690	\$7,039,313	\$7,271,102	\$7,500,648	\$7,729,907	\$7,958,186
256	Trinity	Trinity County (Unincorporated)	\$588,795	\$689,820	\$790,581	\$891,616	\$911,103	\$930,705	\$950,286	\$969,573	\$988,834	\$1,007,934

AzP Exhibit G. Year-End Work Credit Allocation Balances By Community 2007-2016 (Nominal Dollars)												
County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance	
257	Tulare	Dinuba	\$444,469	\$539,517	\$634,545	\$729,840	\$782,797	\$837,738	\$892,202	\$946,505	\$1,000,754	\$1,055,053
258	Tulare	Tulare County (Unincorporated)	\$4,285,686	\$4,642,818	\$4,999,081	\$5,356,630	\$5,527,544	\$5,697,183	\$5,868,111	\$6,034,226	\$6,199,752	\$6,363,858
259	Tuolumne	Sonora	\$835,447	\$895,417	\$954,937	\$1,014,463	\$1,044,901	\$1,075,431	\$1,105,947	\$1,136,274	\$1,166,449	\$1,196,292
260	Tuolumne	Tuolumne County (Unincorporated)	\$6,869,058	\$7,472,854	\$8,073,178	\$8,674,373	\$8,984,900	\$9,296,132	\$7,553,840	\$7,865,272	\$8,175,110	\$8,482,289
261	Yolo	Davis	\$2,972,693	\$3,264,763	\$3,554,180	\$3,843,620	\$4,004,061	\$4,324,367	\$4,484,504	\$4,643,687	\$4,803,900	\$4,963,083
262	Yolo	West Sacramento	\$1,255,378	\$1,517,081	\$1,776,758	\$2,036,766	\$2,177,658	\$484,385	\$626,461	\$768,979	\$911,335	\$1,053,751
263	Yolo	Winters	\$242,941	\$273,710	\$304,340	\$334,981	\$352,225	\$369,753	\$387,107	\$404,346	\$421,489	\$438,470
264	Yolo	Woodland	\$1,811,785	\$2,080,119	\$2,346,947	\$2,614,476	\$2,764,010	\$2,909,206	\$3,047,542	\$3,193,250	\$2,045,560	\$2,189,813
265	Yolo	Yolo County (Unincorporated)	\$3,259,199	\$3,498,399	\$3,737,540	\$3,977,768	\$4,092,097	\$4,208,814	\$4,326,074	\$4,443,450	\$2,669,449	\$2,786,213
266	Yuba	Marysville	\$1,766,224	\$1,882,836	\$1,998,693	\$2,114,668	\$2,168,946	\$2,223,045	\$2,277,137	\$2,330,799	\$2,384,183	\$2,436,976
267	Yuba	Wheatland	\$242,178	\$259,517	\$276,735	\$293,979	\$303,922	\$313,937	\$324,204	\$334,554	\$344,849	\$355,166
268	Yuba	Yuba County (Unincorporated)	\$3,692,146	\$4,087,746	\$4,481,633	\$4,876,800	\$5,086,353	\$5,296,188	\$5,505,714	\$5,713,272	\$5,920,742	\$6,126,085
Total Year-End Ledger Balances			\$697,715,570	\$737,424,966	\$781,742,085	\$777,286,960	\$828,957,384	\$772,287,310	\$763,123,535	\$756,494,325	\$728,134,613	\$702,719,652
Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-075.												

AzP Exhibit H. Year-End Work Credit Allocation Balances By Community As of December 31, 2016 (Nominal Dollars)													
Rank by WCA	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance	Percentage of Total
1	San Francisco	San Francisco	\$49,726,996	\$26,396,589	\$21,365,017	(\$33,353,383)	(\$16,203,662)	(\$55,952,485)	(\$52,880,581)	(\$56,870,072)	(\$53,760,782)	(\$50,670,844)	-7.21%
2	Napa	Napa County (Unincorporated)	\$5,065,526	\$5,427,092	\$5,786,578	\$3,138,475	\$3,304,537	\$3,469,350	\$3,634,475	\$3,791,364	(\$11,947,778)	(\$11,793,650)	-1.68%
3	Santa Clara	Campbell	\$1,164,753	\$1,469,707	\$1,772,639	\$2,075,682	\$2,231,785	\$2,389,247	\$2,547,790	\$2,709,738	(\$3,558,670)	(\$3,397,677)	-0.48%
4	Placer	Placer County (Unincorporated)	\$5,784,166	\$6,486,385	\$7,184,425	\$7,883,142	\$8,260,024	\$8,637,216	\$6,252,715	\$6,629,630	\$7,005,452	(\$2,274,227)	-0.32%
5	Shasta	Anderson	\$233,424	\$307,274	\$380,911	\$454,591	\$495,256	\$535,927	\$576,570	\$1,117,164	(\$2,176,117)	(\$2,136,707)	-0.30%
6	Stanislaus	Riverbank	\$308,139	\$365,870	\$423,069	\$480,109	\$515,962	\$551,781	\$587,407	(\$1,828,697)	(\$1,793,524)	(\$1,758,708)	-0.25%
7	San Luis Obispo	San Luis Obispo	\$514,832	\$849,258	\$1,183,193	\$1,517,708	\$3,380,218	\$3,560,344	\$1,517,931	(\$1,767,848)	(\$1,589,971)	(\$1,413,332)	-0.20%
8	Merced	Atwater	\$1,446,432	\$1,565,850	\$1,684,684	\$1,803,879	\$1,869,473	\$1,937,492	\$2,005,364	(\$1,213,409)	(\$1,145,734)	(\$1,078,779)	-0.15%
9	Fresno	Firebaugh	\$439,494	\$468,656	\$497,623	\$526,694	\$543,649	\$560,768	\$578,726	\$1,346,475	(\$1,059,413)	(\$1,041,897)	-0.15%
10	San Mateo	Hillsborough	\$730,228	\$796,243	\$861,829	\$927,307	\$958,226	(\$1,069,761)	(\$1,039,060)	(\$1,008,717)	(\$978,587)	(\$948,780)	-0.14%
11	Marin	Mill Valley	\$1,350,386	(\$1,511,380)	(\$1,373,260)	(\$1,234,969)	(\$1,172,237)	(\$1,109,008)	(\$1,045,842)	(\$983,423)	(\$921,323)	(\$859,722)	-0.12%
12	Calaveras	Angels Camp	(\$868,289)	(\$836,032)	(\$804,015)	(\$771,985)	(\$755,414)	(\$739,159)	(\$722,918)	(\$706,743)	(\$690,660)	(\$674,389)	-0.10%
13	Kings	Lemoore	\$662,431	\$764,389	\$865,743	\$967,027	\$1,026,613	(\$853,842)	(\$793,314)	(\$732,468)	(\$671,713)	(\$611,379)	-0.09%
14	San Mateo	San Carlos	\$2,968,833	\$320,561	\$605,244	\$890,345	\$1,025,614	\$1,160,928	\$2,296,059	\$2,442,517	\$2,447,750	(\$490,929)	-0.07%
15	El Dorado	Placerville	\$1,083,497	\$1,162,265	\$1,240,433	\$1,318,630	\$1,360,081	\$1,380,476	\$1,426,817	(\$520,117)	(\$473,985)	(\$428,322)	-0.06%
16	San Luis Obispo	Paso Robles	\$946,387	\$1,092,819	\$1,238,235	\$1,383,847	\$1,469,659	\$1,554,981	\$1,640,433	\$2,225,249	\$2,309,872	(\$412,029)	-0.06%
17	Fresno	Fowler	(\$78,274)	(\$48,832)	(\$19,445)	\$10,067	\$26,856	\$43,624	\$60,382	(\$352,527)	(\$336,127)	(\$319,790)	-0.05%
18	Marin	Belvedere	\$207,711	\$227,295	\$124,356	\$143,138	\$150,667	\$158,062	(\$298,795)	(\$292,637)	(\$286,529)	(\$280,494)	-0.04%
19	Madera	Madera	\$675,145	\$893,945	\$1,112,446	\$1,331,080	\$1,555,466	\$1,685,677	\$1,816,165	(\$1,037,393)	(\$407,679)	(\$278,561)	-0.04%
20	Sonoma	Sonoma	\$998,043	\$1,074,683	\$1,150,799	\$1,226,960	\$1,269,464	(\$430,423)	(\$388,850)	(\$347,201)	(\$305,747)	(\$264,842)	-0.04%
21	Merced	Merced	\$1,292,898	\$1,653,815	\$2,012,255	\$2,370,855	\$2,556,579	\$2,745,324	\$765,436	\$951,646	(\$433,096)	(\$250,378)	-0.04%
22	Alameda	Hayward	\$8,894,281	\$9,744,877	\$10,589,994	\$11,433,686	\$11,872,216	\$8,939,655	\$9,377,260	(\$2,369,436)	(\$837,280)	(\$236,463)	-0.03%
23	Placer	Auburn	\$739,021	\$842,263	\$945,184	\$1,048,106	\$1,104,701	\$1,160,575	\$1,216,262	\$1,272,555	(\$215,857)	(\$160,098)	-0.02%
24	Napa	St Helena	\$732,527	\$787,984	\$843,181	\$898,442	\$926,924	\$955,551	\$984,252	\$1,012,527	(\$113,522)	(\$85,840)	-0.01%
25	San Mateo	Brisbane	\$258,216	\$295,441	\$332,475	\$369,546	\$388,620	\$407,719	\$26,871	(\$93,862)	(\$74,550)	(\$55,289)	-0.01%
26	San Joaquin	Ripon	\$525,228	(\$293,263)	(\$245,797)	(\$198,272)	(\$171,268)	(\$143,980)	(\$116,760)	(\$90,179)	(\$63,809)	(\$37,677)	-0.01%
27	Humboldt	Trinidad	\$65,847	\$70,447	(\$49,839)	(\$45,245)	(\$43,205)	(\$41,183)	(\$39,142)	(\$37,122)	(\$10,116)	(\$8,251)	0.00%
28	San Mateo	Colma	\$158,289	\$169,547	\$180,707	\$191,849	(\$28,615)	(\$24,152)	(\$19,574)	(\$15,183)	(\$10,837)	(\$6,547)	0.00%
29	Kings	Corcoran	\$707,334	\$771,995	\$836,406	\$901,168	\$936,743	\$976,469	\$1,016,115	\$1,055,361	\$0	\$0	0.00%
30	Monterey	King City	\$440,462	\$490,183	\$539,586	\$588,966	\$616,197	\$643,402	\$670,584	\$697,752	\$725,055	\$0	0.00%
31	Sacramento	Folsom			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.00%
32	San Mateo	Foster City	\$1,606,761	\$1,721,711	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.00%
33	Stanislaus	Patterson	\$476,464	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.00%
34	Shasta	Shasta Lake	\$2,116	\$2,552	\$2,979	\$3,405	\$3,936	\$4,477	\$5,016	\$5,531	\$6,043	\$6,550	0.00%
35	Alpine	Alpine County (Unincorporated)	(\$21,310)	(\$15,774)	(\$10,213)	(\$4,651)	(\$1,805)	\$1,071	\$3,944	\$6,868	\$9,767	\$12,629	0.00%
36	Butte	Biggs			\$135	\$269	\$442	\$680	\$928	\$1,103	\$13,877	\$14,060	0.00%
37	Placer	Roseville			\$254	\$514	\$842	\$951	\$1,103	\$1,334	\$18,363	\$18,594	0.00%
38	Sonoma	Healdsburg			\$1,785	\$3,674	\$5,957	\$7,943	\$9,930	\$11,979	\$110,533	\$30,986	0.00%
39	Siskiyou	Siskiyou County (Unincorporated)	\$30,820	\$32,143	\$33,457	\$34,771	\$35,274	\$35,787	\$36,287	\$36,754	\$37,218	\$37,688	0.01%
40	Amador	Amador City	\$30,254	\$33,231	\$36,186	\$39,175	\$40,487	\$41,856	\$43,231	\$44,609	\$45,972	\$47,339	0.01%
41	Tehama	Tehama	\$31,320	\$36,676	\$42,001	\$47,329	\$49,773	\$52,178	\$54,605	\$56,973	\$59,317	\$61,637	0.01%
42	Monterey	Seaside	\$1,662,388	\$1,839,712	\$2,015,458	\$2,191,237	\$2,291,287	(\$287,999)	(\$189,112)	(\$93,790)	\$1,039	\$94,840	0.01%
43	Mendocino	Point Arena	\$97,299	\$104,199	\$111,063	\$117,943	\$120,809	\$123,723	\$126,682	\$129,617	\$132,545	\$135,464	0.02%
44	Marin	Corte Madera	\$884,298	\$967,912	(\$180,854)	(\$97,989)	(\$57,366)	(\$16,963)	\$23,336	\$63,822	\$104,098	\$144,560	0.02%
45	Santa Barbara	Buellton	\$51,499	\$60,792	\$69,988	\$79,313	\$90,536	\$101,752	\$112,965	\$124,150	\$135,270	\$146,200	0.02%
46	Napa	Yountville	\$65,654	\$79,785	\$93,822	\$107,886	\$115,406	\$123,046	\$130,537	\$137,800	\$145,079	\$152,354	0.02%
47	Fresno	Huron	\$29,716	\$48,706	\$68,060	\$87,448	\$99,272	\$111,068	\$122,685	\$134,339	\$145,904	\$157,301	0.02%
48	Contra Costa	Antioch	\$1,186,963	\$1,550,630	\$1,911,497	\$2,200,384	\$2,412,245	\$2,624,052	\$532,611	(\$263,070)	(\$50,823)	\$158,848	0.02%
49	Santa Clara	Los Altos Hills	\$643,761	\$700,641	(\$57,993)	(\$587)	\$28,147	\$56,525	\$85,037	\$112,679	\$140,152	\$167,467	0.02%
50	Placer	Colfax	\$78,948	\$95,996	\$112,868	\$129,930	\$139,226	\$148,677	\$158,131	\$167,594	\$177,046	\$179,802	0.03%
51	Monterey	Sand City	\$146,992	\$155,295	\$163,531	\$171,790	\$175,971	\$180,172	\$184,362	\$188,517	\$192,674	\$196,831	0.03%
52	Amador	Plymouth	\$161,157	\$169,912	\$178,616	\$187,318	\$192,033	\$196,974	\$201,943	\$206,381	\$210,770	\$215,092	0.03%
53	Marin	Ross	\$106,747	\$128,294	\$149,756	\$171,239	\$181,266	\$191,403	\$201,523	\$211,391	\$221,228	\$230,962	0.03%
54	Amador	Jackson	\$33,731	\$75,027	\$116,001	\$157,022	\$179,217	\$200,793	\$222,342	\$243,574	\$264,894	\$286,128	0.04%
55	Sacramento	Isleton	\$226,070	\$237,628	\$249,108	\$260,579	\$275,727	\$270,861	\$275,844	\$280,675	\$285,482	\$290,185	0.04%
56	San Joaquin	Lathrop	(\$19,516)	\$22,948	\$65,577	\$108,373	\$136,581	\$167,340	\$198,437	\$232,180	\$265,626	\$299,282	0.04%
57	Contra Costa	Clayton	\$84,659	\$114,425	\$143,914	\$173,392	\$194,426	\$215,469	\$236,503	\$257,688	\$278,680	\$299,412	0.04%
58	Kern	Maricopa	\$234,721	\$246,901	\$259,015	\$271,158	\$276,918	\$282,706	\$288,478	\$294,192	\$299,875	\$305,490	0.04%
59	Merced	Gustine	\$89,867	\$127,351	\$164,616	\$201,922	\$221,306	\$240,709	\$260,177	\$279,757	\$299,225	\$318,465	0.05%
60	Tehama	Corning	(\$23,692)	\$33,888	\$91,413	\$149,005	\$178,589	\$207,914	\$237,194	\$266,550	\$295,792	\$324,667	0.05%
61	San Mateo	Daly City	\$4,232,032	\$4,767,244	\$5,298,524	\$5,830,537	\$5,029,925	\$5,296,571	\$5,537,984	\$5,807,389	\$6,074,859	\$6,328,051	0.05%
62	Humboldt	Blue Lake	\$193,685	\$207,306	\$220,864	\$234,430	\$315,587	\$322,366	\$329,101	\$335,643	\$342,125	\$348,610	0.05%

AzP Exhibit H. Year-End Work Credit Allocation Balances By Community As of December 31, 2016 (Nominal Dollars)														
Rank by WCA	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance	Percentage of Total	
63	Fresno	San Joaquin	\$244,068	\$258,083	\$272,034	\$285,998	\$310,731	\$318,633	\$326,622	\$334,476	\$342,284	\$349,977	0.05%	
64	San Benito	San Juan Bautista	\$258,178	\$274,247	\$290,122	\$306,004	\$313,965	\$321,632	\$329,289	\$336,980	\$344,653	\$352,223	0.05%	
65	Yuba	Wheatland	\$242,178	\$259,517	\$276,735	\$293,979	\$303,922	\$313,937	\$324,204	\$334,554	\$344,849	\$355,166	0.05%	
66	Santa Barbara	Guadalupe	\$172,074	\$202,650	\$232,984	\$263,316	\$279,237	\$295,130	\$311,303	\$327,301	\$343,228	\$359,022	0.05%	
67	Monterey	Del Rey Oaks	\$268,217	\$284,197	\$300,053	\$315,908	\$323,204	\$330,484	\$337,818	\$345,236	\$352,621	\$359,937	0.05%	
68	Lassen	Lassen County (Unincorporated)	\$271,924	\$292,699	\$313,351	\$334,057	\$343,756	\$353,452	\$363,175	\$372,633	\$382,100	\$391,568	0.06%	
69	Humboldt	Rio Dell	\$230,616	\$261,729	\$292,627	\$323,597	\$338,309	\$353,071	\$367,892	\$382,792	\$397,649	\$412,354	0.06%	
70	Sierra	Sierra County (Unincorporated)	\$258,808	\$286,087	\$313,230	\$340,392	\$352,736	\$365,148	\$377,561	\$389,951	\$402,264	\$414,503	0.06%	
71	Napa	American Canyon	\$159,800	\$185,156	\$210,385	\$235,736	\$266,463	\$297,074	\$327,722	\$358,500	\$388,997	\$419,137	0.06%	
72	Yolo	Winters	\$242,941	\$273,710	\$304,340	\$334,981	\$352,225	\$369,753	\$387,107	\$404,346	\$421,489	\$438,470	0.06%	
73	Monterey	Gonzales	\$267,170	\$296,910	\$326,534	\$355,974	\$371,759	\$387,514	\$403,461	\$419,463	\$435,360	\$451,112	0.06%	
74	San Benito	Hollister	(\$295,931)	(\$179,715)	(\$64,442)	\$51,007	\$117,961	\$186,199	\$254,404	\$323,086	\$391,758	\$459,990	0.07%	
75	San Mateo	Portola Valley	\$283,884	\$315,397	\$346,771	\$378,191	\$393,595	\$408,940	\$424,125	\$439,199	\$454,092	\$468,813	0.07%	
76	Colusa	Williams	\$313,531	\$338,318	\$362,933	\$387,602	\$402,053	\$415,835	\$429,611	\$443,438	\$457,355	\$471,072	0.07%	
77	Santa Clara	Monte Sereno	\$321,550	\$348,467	\$375,310	\$402,219	\$414,715	\$427,157	\$439,666	\$451,511	\$463,203	\$474,799	0.07%	
78	Fresno	Kerman	\$563,319	\$605,835	\$648,452	\$691,245	(\$378,689)	(\$351,343)	\$406,489	\$434,158	\$461,662	\$488,879	0.07%	
79	Amador	Ione	\$324,905	\$349,614	\$374,171	\$398,746	\$422,764	\$435,634	\$448,741	\$462,743	\$476,647	\$490,444	0.07%	
80	Sonoma	Windsor	\$137,197	\$175,458	\$213,134	\$250,807	\$295,419	\$340,465	\$385,414	\$430,129	\$474,508	\$518,443	0.07%	
81	Contra Costa	Lafayette	\$285,923	\$513,563	\$739,759	\$966,151	\$20,134	\$123,702	\$227,116	\$331,329	\$435,168	\$538,075	0.08%	
82	Marin	Fairfax	\$77,880	\$159,317	\$240,197	\$321,132	\$357,740	\$394,340	\$430,632	\$466,962	\$503,120	\$539,020	0.08%	
83	Santa Barbara	Solvang	\$308,683	\$347,586	\$386,276	\$424,980	\$444,791	\$464,737	\$484,633	\$504,641	\$524,666	\$544,584	0.08%	
84	Sonoma	Cotati	\$312,288	\$351,105	\$389,599	\$428,072	\$449,025	\$469,849	\$490,687	\$511,456	\$532,126	\$552,566	0.08%	
85	Alameda	Dublin	\$629,438	(\$422,137)	(\$257,357)	(\$91,881)	\$10,402	\$114,082	\$222,798	\$335,482	\$450,523	\$566,786	0.08%	
86	Amador	Sutter Creek	\$384,190	\$411,979	\$439,579	\$467,221	\$500,972	\$514,992	\$529,072	\$543,292	\$557,435	\$571,504	0.08%	
87	Contra Costa	Danville	\$1,846,068	\$2,024,312	\$2,201,300	\$6,330	\$102,628	\$199,004	\$295,166	\$391,584	\$487,652	\$582,428	0.08%	
88	Nevada	Grass Valley	(\$23,895)	\$69,574	\$162,545	\$255,584	\$309,678	\$364,288	\$418,917	\$473,850	\$528,586	\$582,780	0.08%	
89	Nevada	Nevada City	\$365,996	\$402,287	\$438,339	\$474,429	\$493,514	\$512,234	\$530,958	\$549,928	\$568,873	\$587,690	0.08%	
90	San Joaquin	Escalon	\$394,970	\$428,790	\$462,326	\$495,861	\$514,634	\$533,271	\$551,864	\$570,352	\$588,681	\$606,784	0.09%	
91	Solano	Dixon	\$165,263	\$234,674	\$303,459	\$372,262	\$414,110	\$454,539	\$494,912	\$535,650	\$576,462	\$617,092	0.09%	
92	Marin	San Anselmo	\$1,296,543	\$1,438,298	\$1,578,974	\$1,719,788	\$1,781,270	\$1,842,280	\$434,611	\$495,861	\$556,820	\$617,290	0.09%	
93	Sutter	Live Oak	\$409,491	\$443,065	\$476,448	\$509,832	\$528,530	\$547,524	\$566,887	\$585,853	\$604,627	\$623,168	0.09%	
94	Alameda	Piedmont	\$465,873	\$425,576	\$512,949	\$600,372	\$303,064	\$340,158	\$376,884	\$414,093	\$597,144	\$633,728	0.09%	
95	Solano	Rio Vista	\$326,642	\$373,821	\$420,802	\$467,873	\$496,522	\$525,182	\$553,912	\$582,831	\$611,998	\$641,349	0.09%	
96	San Mateo	Half Moon Bay	\$665,442	\$728,268	\$790,419	\$852,682	\$43,325	\$78,066	\$112,739	\$180,867	\$261,716	\$342,584	0.09%	
97	Monterey	Soledad	\$417,066	\$457,338	\$497,379	\$537,805	\$564,130	\$590,460	\$617,260	\$643,968	\$670,477	\$696,697	0.10%	
98	Merced	Livingston	\$488,939	\$523,041	\$556,886	\$590,728	\$609,326	\$628,180	\$647,014	\$665,953	\$684,758	\$703,440	0.10%	
99	Marin	Tiburon	\$325,330	\$390,387	\$454,963	\$519,622	\$551,396	\$583,010	\$614,645	\$645,571	\$675,225	\$704,566	0.10%	
100	Merced	Dos Palos	\$508,179	\$542,640	\$576,952	\$611,311	\$629,003	\$646,199	\$663,316	\$680,417	\$697,404	\$714,207	0.10%	
101	Kern	Arvin	\$347,185	\$406,696	\$465,929	\$525,251	\$558,741	\$592,297	\$626,065	\$659,511	\$693,213	\$726,971	0.10%	
102	Napa	Calistoga	\$497,737	\$535,912	\$573,976	\$612,174	\$631,662	\$651,308	\$670,948	\$690,522	\$709,937	\$729,447	0.10%	
103	Glenn	Willows	\$420,751	\$474,424	\$527,697	\$580,994	\$606,667	\$632,567	\$658,393	\$684,348	\$710,105	\$735,741	0.10%	
104	Mendocino	Willits	\$477,481	\$521,775	\$565,848	\$610,004	\$633,247	\$656,555	\$679,908	\$702,869	\$725,682	\$748,273	0.11%	
105	Kings	Avenal	\$476,812	\$521,211	\$565,679	\$610,219	\$633,448	\$657,011	\$680,543	\$704,034	\$727,444	\$750,683	0.11%	
106	Sonoma	Cloverdale	\$495,947	\$539,415	\$582,505	\$625,629	\$650,423	\$675,491	\$700,547	\$725,728	\$750,678	\$775,309	0.11%	
107	Monterey	Carmel	\$306,413	\$390,000	\$473,142	\$556,441	\$595,576	\$632,951	\$670,302	\$706,308	\$742,111	\$777,528	0.11%	
108	Contra Costa	Oakley	\$240,965	\$293,171	\$346,444	\$400,200	\$464,669	\$530,153	\$596,050	\$661,881	\$727,736	\$793,221	0.11%	
109	Fresno	Mendota	\$502,194	\$535,403	\$568,577	\$601,778	\$710,386	\$730,124	\$750,228	\$770,236	\$790,239	\$810,019	0.12%	
110	Alameda	Emeryville	\$364,127	\$433,950	\$503,408	\$573,108	\$610,921	\$648,420	\$689,061	\$730,533	\$771,875	\$813,658	0.12%	
111	San Luis Obispo	Grover Beach	\$1,314,735	\$1,431,841	\$1,548,382	\$1,665,030	\$1,724,639	\$614,360	\$673,811	\$733,263	\$792,404	\$851,012	0.12%	
112	San Mateo	Woodside	\$574,926	\$623,009	\$670,859	\$718,765	\$741,474	\$764,144	\$786,688	\$809,014	\$831,163	\$853,067	0.12%	
113	Monterey	Greenfield	\$569,115	\$613,477	\$657,899	\$702,332	\$728,448	\$754,491	\$781,239	\$807,862	\$834,527	\$861,068	0.12%	
114	Sonoma	Sebastopol	\$524,404	\$584,075	\$643,299	\$703,634	\$736,143	\$768,594	\$800,885	\$833,226	\$865,474	\$897,445	0.13%	
115	Lake	Lakeport	\$565,611	\$623,269	\$681,089	\$738,912	\$767,086	\$794,678	\$822,205	\$849,814	\$877,499	\$904,901	0.13%	
116	Placer	Loomis	\$642,497	\$686,037	\$729,240	\$772,498	\$796,164	\$820,040	\$843,895	\$867,788	\$891,650	\$915,287	0.13%	
117	Stanislaus	Stanislaus County (Unincorporated)	\$2,274,238	\$2,479,484	\$2,683,817	\$2,888,726	\$2,974,636	\$3,061,021	\$3,147,985	\$1,524,958	\$832,538	\$917,973	0.13%	
118	Fresno	Orange Cove	\$599,350	\$637,256	\$674,868	\$712,533	\$822,023	\$842,964	\$863,960	\$884,931	\$905,819	\$926,480	0.13%	
119	Placer	Lincoln	\$141,714	\$235,658	\$329,247	\$423,249	\$507,605	\$592,353	\$677,259	\$763,069	\$849,331	\$935,307	0.13%	
120	Colusa	Colusa	\$657,750	\$704,674	\$751,530	\$798,391	\$821,816	\$844,930	\$867,964	\$891,109	\$914,681	\$937,985	0.13%	
121	Plumas	Plumas County (Unincorporated)	\$1,286,721	\$1,487,982	\$1,688,021	\$1,888,314	\$1,990,111	\$2,091,838	\$2,193,546	\$2,295,151	\$2,396,216	\$940,539	0.13%	
122	Fresno	Clovis	\$2,298,848	\$2,617,498	(\$567,045)	(\$248,084)	(\$47,692)	\$153,312	\$355,781	\$557,712	\$760,953	\$963,867	0.14%	
123	Solano	Suisun City	\$468,764	\$552,566	\$636,365	\$720,252	\$764,614	\$808,409	\$851,996	\$895,742	\$939,215	\$982,169	0.14%	
124	Butte	Oroville	\$229,629	\$350,622	\$471,555	\$595,957	\$661,775	\$727,551	\$792,532	\$859,264	\$925,739	\$991,447	0.14%	

AzP Exhibit H. Year-End Work Credit Allocation Balances By Community As of December 31, 2016 (Nominal Dollars)													
Rank by WCA	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance	Percentage of Total
125	Contra Costa	Hercules	\$615,083	\$677,247	\$738,926	\$800,599	\$833,711	\$866,695	\$899,422	\$932,113	\$967,675	\$1,002,849	0.14%
126	Sacramento	Sacramento County (Unincorporated)	\$731,612	\$782,670	\$833,372	\$884,106	\$904,434	\$924,766	\$945,334	\$965,454	\$985,449	\$1,005,119	0.14%
127	Trinity	Trinity County (Unincorporated)	\$588,795	\$689,820	\$790,581	\$891,616	\$911,103	\$930,705	\$950,286	\$969,573	\$988,834	\$1,007,934	0.14%
128	Fresno	Coalinga	\$606,509	\$678,406	\$749,820	\$821,313	\$857,839	\$894,306	\$930,726	\$967,131	\$1,003,318	\$1,039,432	0.15%
129	Fresno	Sanger	\$910,611	\$1,017,693	\$1,124,080	\$1,230,585	\$1,288,775	\$1,346,854	\$878,524	\$936,249	\$993,935	\$1,051,616	0.15%
130	Yolo	West Sacramento	\$1,255,378	\$1,517,081	\$1,776,758	\$2,036,766	\$2,177,658	\$484,385	\$626,461	\$768,979	\$911,335	\$1,053,751	0.15%
131	Tulare	Dinuba	\$444,469	\$539,517	\$634,545	\$729,840	\$782,797	\$837,738	\$892,202	\$946,505	\$1,000,754	\$1,055,053	0.15%
132	Glenn	Orland	\$729,528	\$782,950	\$836,099	\$889,385	\$917,547	\$946,300	\$974,971	\$1,003,405	\$1,031,645	\$1,059,633	0.15%
133	Santa Cruz	Scotts Valley	\$710,345	\$773,527	\$836,152	\$898,825	\$932,109	\$965,393	\$998,660	\$1,032,369	\$1,065,914	\$1,099,031	0.16%
134	Contra Costa	Martinez	\$1,553,129	\$1,765,227	\$1,975,767	\$2,186,347	\$2,381,536	\$2,491,183	\$2,600,234	\$2,710,810	\$992,602	\$1,101,716	0.16%
135	Stanislaus	Newman	\$379,081	\$418,679	\$465,962	\$515,257	\$208,923	\$232,829	\$256,598	\$279,781	\$1,080,829	\$1,103,730	0.16%
136	Mendocino	Fort Bragg	\$698,864	\$773,462	\$847,570	\$921,746	\$958,980	\$995,861	\$1,032,690	\$1,069,418	\$1,106,115	\$1,142,424	0.16%
137	Kern	Taft	\$806,835	\$865,311	\$923,578	\$981,860	\$1,011,619	\$1,040,606	\$1,069,559	\$1,098,143	\$1,126,595	\$1,154,733	0.16%
138	Fresno	Kingsburg	\$285,819	\$343,442	\$400,874	\$458,428	\$492,363	\$526,363	\$560,355	\$1,093,860	\$1,127,203	\$1,160,503	0.17%
139	Tuolumne	Sonora	\$835,447	\$895,417	\$954,937	\$1,014,463	\$1,044,901	\$1,075,431	\$1,105,947	\$1,136,274	\$1,166,449	\$1,196,292	0.17%
140	Sonoma	Petaluma	\$3,739,562	\$4,035,047	\$4,328,605	\$4,622,193	\$4,783,845	\$2,322,962	\$2,484,286	\$2,646,366	\$1,039,643	\$1,199,548	0.17%
141	Kern	Shafter	\$759,614	\$832,664	\$905,739	\$979,013	\$1,023,358	\$1,066,986	\$1,110,587	\$1,153,527	\$1,196,449	\$1,239,071	0.18%
142	Merced	Los Banos	\$391,560	\$524,723	\$657,280	\$790,225	\$873,369	\$956,536	\$1,039,476	\$1,122,262	\$1,204,502	\$1,286,381	0.18%
143	Contra Costa	Brentwood	\$474,506	\$570,787	\$667,258	\$763,751	\$856,314	\$947,478	\$1,039,164	\$1,130,101	\$1,222,370	\$1,315,017	0.19%
144	San Mateo	Atherton	\$976,528	\$1,040,622	\$1,104,157	\$1,167,754	\$1,194,794	\$1,221,859	\$1,248,892	\$1,274,747	\$1,300,405	\$1,325,846	0.19%
145	Marin	Larkspur	\$759,570	\$855,638	\$951,008	\$1,046,518	\$1,142,113	\$1,094,307	\$1,142,113	\$1,189,818	\$1,237,477	\$1,285,051	0.19%
146	Sonoma	Rohnert Park	\$1,435,531	\$1,586,685	\$1,736,426	\$1,886,114	\$1,964,704	\$2,043,157	\$2,121,337	\$2,200,324	\$2,278,738	\$1,365,253	0.19%
147	Tehama	Red Bluff	\$707,821	\$817,960	\$927,475	\$1,037,381	\$1,093,956	\$1,151,227	\$1,208,418	\$1,265,268	\$1,321,564	\$1,377,246	0.20%
148	Contra Costa	Pinole	\$756,773	\$867,648	\$977,592	\$1,087,531	\$1,143,892	\$1,200,175	\$1,256,377	\$1,312,927	\$1,369,111	\$1,424,674	0.20%
149	Stanislaus	Oakdale	(\$351,459)	(\$251,618)	(\$152,619)	(\$53,570)	\$2,959	\$59,240	\$115,630	\$1,321,492	\$1,376,979	\$1,431,912	0.20%
150	Contra Costa	San Ramon	\$179,292	\$369,337	\$559,809	\$751,497	\$876,031	\$1,000,487	\$1,126,394	\$1,253,447	\$1,380,309	\$1,506,631	0.21%
151	Humboldt	Arcata	\$721,513	\$848,520	\$974,707	\$1,101,013	\$1,170,891	\$1,240,812	\$1,311,230	\$1,382,352	\$1,453,363	\$1,523,996	0.22%
152	Monterey	Marina	\$881,363	\$990,051	\$1,097,875	\$1,205,732	\$1,263,128	\$1,320,453	\$1,377,662	\$1,435,119	\$1,492,810	\$1,550,140	0.22%
153	Fresno	Selma	\$896,714	\$1,000,152	\$1,102,938	\$1,205,746	\$1,264,151	\$1,322,573	\$1,381,169	\$1,439,256	\$1,496,837	\$1,553,900	0.22%
154	Contra Costa	Moraga	\$1,047,363	\$1,139,144	\$1,230,148	\$1,321,143	\$1,365,491	\$1,409,320	\$1,453,021	\$1,497,113	\$1,540,913	\$1,584,096	0.23%
155	Contra Costa	San Pablo	\$523,031	\$711,608	\$899,196	\$1,086,880	\$1,178,093	\$1,269,259	\$1,361,288	\$1,453,794	\$1,545,789	\$1,637,108	0.23%
156	Kern	Wasco	\$1,089,072	\$1,178,363	\$1,267,738	\$1,357,226	\$1,406,980	\$1,455,496	\$1,504,255	\$1,552,402	\$1,600,317	\$1,647,865	0.23%
157	Alameda	Pleasanton	\$2,678,051	\$2,936,129	\$557,403	\$813,749	\$957,653	\$1,101,315	\$1,244,780	\$1,389,324	\$1,532,933	\$1,675,899	0.24%
158	Marin	Sausalito	\$1,226,668	\$1,324,136	\$1,421,003	\$1,517,930	\$1,563,226	\$1,608,646	\$1,654,035	\$1,698,898	\$1,743,523	\$1,787,523	0.25%
159	San Luis Obispo	Arroyo Grande	\$432,116	\$546,829	\$660,697	\$774,581	\$837,851	\$898,900	\$959,785	\$4,020,247	\$1,768,127	\$1,827,921	0.26%
160	Humboldt	Humboldt County (Unincorporated)	\$6,756,484	\$7,453,963	\$8,022,840	\$8,718,119	\$9,064,647	\$9,413,228	\$9,162,167	\$8,534,474	\$1,550,059	\$1,893,683	0.27%
161	Santa Clara	Los Altos	\$2,716,562	\$2,969,867	\$3,222,267	\$3,475,426	\$3,598,312	\$3,722,086	\$1,596,219	\$1,715,133	\$1,833,837	\$1,952,342	0.28%
162	Santa Cruz	Capitola	\$1,392,118	\$1,486,322	\$1,579,894	\$1,673,733	\$1,721,231	\$1,768,902	\$1,816,536	\$1,863,786	\$1,910,768	\$1,957,306	0.28%
163	Monterey	Pacific Grove	\$1,673,417	\$1,112,350	\$1,301,327	\$1,490,462	\$1,575,494	\$1,660,418	\$1,745,160	\$1,830,233	\$1,914,953	\$1,998,919	0.28%
164	Contra Costa	Pleasant Hill	\$2,841,508	\$3,079,655	\$3,315,754	\$3,551,924	\$3,665,354	\$3,779,897	\$3,894,296	\$1,942,357	\$2,008,843	\$2,121,473	0.30%
165	Fresno	Parlier	\$154,300	\$194,910	\$235,268	\$275,800	\$300,022	\$324,468	\$349,170	\$2,043,834	\$2,218,305	\$2,141,969	0.30%
166	Kings	Kings County (Unincorporated)	\$3,156,476	\$3,397,681	\$3,638,265	\$3,880,800	\$3,991,416	\$1,747,010	\$1,853,170	\$1,956,018	\$2,058,562	\$2,161,397	0.31%
167	Solano	Benicia	\$1,282,719	\$1,430,955	\$1,577,898	\$1,724,987	\$1,802,526	\$1,879,774	\$1,956,801	\$2,033,991	\$2,110,674	\$2,186,536	0.31%
168	Yolo	Woodland	\$1,811,785	\$2,080,119	\$2,346,947	\$2,614,476	\$2,764,010	\$2,909,206	\$3,047,542	\$3,193,250	\$2,045,560	\$2,189,813	0.31%
169	Placer	Rocklin	\$1,051,973	\$1,202,815	\$1,353,273	\$1,504,446	\$1,619,234	\$1,733,786	\$1,848,500	\$1,964,299	\$2,080,256	\$2,196,293	0.31%
170	Contra Costa	Orinda	\$1,472,289	\$1,623,747	\$1,774,206	\$1,924,572	\$1,995,799	\$2,066,955	\$2,138,002	\$2,209,529	\$2,159,307	\$2,230,535	0.32%
171	Contra Costa	El Cerrito	\$817,234	\$1,073,219	\$1,327,253	\$1,581,495	\$1,697,558	\$1,813,427	\$1,928,391	\$2,044,484	\$2,159,836	\$2,274,240	0.32%
172	Madera	Chowchilla	\$883,980	\$946,503	\$1,008,779	\$1,071,099	\$1,105,429	\$1,141,214	\$1,176,608	\$2,211,693	\$2,246,699	\$2,281,160	0.32%
173	San Luis Obispo	Morro Bay	\$1,549,318	\$1,685,031	\$1,820,136	\$1,955,467	\$2,023,500	\$2,091,422	\$2,159,277	\$2,226,573	\$2,293,559	\$2,359,988	0.34%
174	Santa Clara	Morgan Hill	\$1,538,159	\$1,666,655	\$1,794,726	\$1,922,973	\$1,998,098	\$2,073,606	\$2,149,951	\$2,226,737	\$2,304,416	\$2,382,254	0.34%
175	Alameda	Newark	\$1,092,205	\$1,310,046	\$1,526,042	\$1,742,135	\$1,850,773	\$1,959,186	\$2,067,274	\$2,176,288	\$2,284,554	\$2,391,839	0.34%
176	Yuba	Marysville	\$1,766,224	\$1,882,836	\$1,998,693	\$2,114,668	\$2,168,946	\$2,223,045	\$2,277,137	\$2,330,799	\$2,384,183	\$2,436,976	0.35%
177	Contra Costa	Pittsburg	\$1,029,385	\$1,273,517	\$1,515,994	\$1,757,606	\$1,884,706	\$2,011,831	\$2,139,423	\$2,266,698	\$2,393,855	\$2,520,609	0.36%
178	San Mateo	East Palo Alto	\$1,650,884	\$1,813,620	\$1,975,473	\$2,137,388	\$2,203,446	\$2,269,351	\$2,336,178	\$2,403,437	\$2,470,453	\$2,536,699	0.36%
179	San Joaquin	Tracy	\$1,682,602	\$1,931,180	\$2,177,865	\$2,424,579	\$2,585,215	\$2,743,774	\$2,151,904	\$2,466,304	\$2,622,141	\$2,622,141	0.37%
180	Sonoma	Santa Rosa	\$6,235,920	\$7,081,418	\$7,921,447	\$8,762,471	\$9,229,065	\$9,695,617	\$10,163,059	\$10,633,269	\$11,101,058	\$2,711,566	0.39%
181	Yolo	Yolo County (Unincorporated)	\$3,259,199	\$3,498,399	\$3,737,540	\$3,977,768	\$4,092,097	\$4,208,814	\$4,326,074	\$2,669,449	\$2,786,213	\$2,786,213	0.40%
182	Santa Clara	Gilroy	\$1,651,296	\$1,835,944	\$2,019,482	\$2,203,324	\$2,309,063	\$2,415,161	\$2,520,124	\$2,625,117	\$2,730,223	\$2,835,574	0.40%
183	San Luis Obispo	Atascadero	\$1,958,775	\$2,177,853	\$2,395,574	\$2,613,284	\$2,726,738	\$2,839,972	\$2,953,163	\$2,566,797	\$2,680,768	\$2,878,941	0.41%
184	Humboldt	Ferrdale	\$305,984	\$325,020	\$343,974	\$362,937	\$441,846	\$450,819	\$459,820	\$468,908	\$2,874,944	\$2,883,931	0.41%
185	Santa Cruz	Watsonville	\$1,611,495	\$1,810,734	\$2,008,242	\$2,205,881	\$2,318,483	\$2,430,995	\$2,545,318	\$2,660,296	\$2,774,915	\$2,888,527	0.41%
186	Alameda	Albany	\$2,072,187	\$2,227,277	\$2,381,220	\$2,535,211	\$2,606,864	\$2,678,425	\$2,750,091	\$2,822,475	\$2,894,483	\$2,965,751	0.42%

AzP Exhibit H. Year-End Work Credit Allocation Balances By Community As of December 31, 2016 (Nominal Dollars)													
Rank by WCA	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance	Percentage of Total
187	San Luis Obispo	San Luis Obispo County (Unincorporated)	\$8,705,109	\$9,619,977	\$10,530,269	\$11,442,677	\$11,134,474	\$10,704,539	\$10,168,083	\$4,044,970	\$4,551,627	\$2,969,145	0.42%
188	Lake	Clearlake	\$2,031,026	\$2,201,513	\$2,371,568	\$2,541,788	\$2,539,406	\$2,627,302	\$2,715,125	\$2,801,769	\$2,887,955	\$2,972,878	0.42%
189	Colusa	Colusa County (Unincorporated)	\$2,129,611	\$2,276,803	\$2,423,418	\$2,570,890	\$2,642,279	\$2,714,823	\$2,787,722	\$2,859,543	\$2,931,506	\$3,003,332	0.43%
190	Mariposa	Mariposa County (Unincorporated)	\$1,655,028	\$1,867,558	\$2,079,150	\$2,291,414	\$2,411,737	\$2,531,732	\$2,652,063	\$2,772,830	\$2,893,358	\$3,013,068	0.43%
191	Yolo	Davis	\$2,972,693	\$3,264,763	\$3,554,180	\$3,843,620	\$4,004,061	\$4,163,758	\$4,324,367	\$4,484,504	\$4,643,687	\$3,083,900	0.44%
192	San Mateo	Millbrae	\$2,138,077	\$2,303,597	\$2,468,305	\$2,633,129	\$2,711,575	\$2,789,950	\$2,868,091	\$2,947,042	\$3,025,818	\$3,103,777	0.44%
193	Amador	Amador County (Unincorporated)	\$2,751,949	\$3,003,053	\$2,061,420	\$2,311,499	\$2,476,825	\$2,613,737	\$2,750,479	\$2,887,143	\$3,023,237	\$3,158,031	0.45%
194	Alameda	Union City	\$1,885,303	\$2,093,454	\$2,300,079	\$2,508,166	\$2,619,937	\$2,732,345	\$2,844,410	\$2,956,698	\$3,068,127	\$3,178,211	0.45%
195	Glenn	Glenn County (Unincorporated)	\$2,018,704	\$2,222,955	\$2,426,468	\$2,630,557	\$2,726,463	\$2,822,249	\$2,918,314	\$3,013,157	\$3,108,312	\$3,202,827	0.46%
196	Santa Cruz	Santa Cruz	\$1,939,922	\$2,364,134	\$2,785,873	\$3,208,560	\$3,333,029	\$3,555,572	\$3,777,656	\$60,796	\$3,268,650	\$3,267,138	0.46%
197	Santa Clara	Mountain View	\$2,911,681	\$3,482,550	\$4,048,855	\$4,615,553	\$4,899,122	\$5,182,503	\$5,463,812	\$5,746,837	\$3,040,879	\$3,319,375	0.47%
198	Marin	Marin County (Unincorporated)	\$5,958,530	\$6,527,881	\$2,683,901	\$1,705,419	\$1,976,783	\$2,248,362	\$2,519,502	\$2,790,570	\$3,060,473	\$3,327,758	0.47%
199	San Benito	San Benito County (Unincorporated)	\$2,380,117	\$2,548,637	\$2,715,800	\$2,883,056	\$2,966,287	\$3,049,196	\$3,131,905	\$3,213,770	\$3,295,280	\$3,375,968	0.48%
200	Fresno	Reedley	\$781,434	\$885,296	\$988,538	\$1,092,011	\$1,149,442	\$617,911	\$675,445	\$3,332,519	\$3,389,837	\$3,446,493	0.49%
201	Kern	Mcfarland	\$306,244	\$331,666	\$356,987	\$382,533	\$397,330	\$412,535	\$427,954	\$443,551	\$3,459,566	\$3,475,614	0.49%
202	Santa Clara	Los Gatos	\$2,005,299	\$2,258,410	\$2,510,153	\$2,761,902	\$2,885,781	\$3,009,317	\$3,132,998	\$3,255,488	\$3,377,420	\$3,498,024	0.50%
203	Solano	Vacaville	\$2,237,455	\$2,563,213	\$2,887,257	\$3,118,182	\$3,305,035	\$3,490,689	\$3,676,068	\$3,862,625	\$4,049,011	\$3,525,822	0.50%
204	Contra Costa	Walnut Creek	\$859,557	\$1,311,735	\$1,761,060	\$2,210,983	\$2,432,860	\$2,656,104	\$2,878,554	\$3,103,097	\$3,325,320	\$3,545,779	0.50%
205	Humboldt	Fortuna	\$593,787	\$687,471	\$780,518	\$873,703	\$921,995	\$969,529	\$1,016,955	\$2,167,719	\$3,586,990	\$3,634,438	0.52%
206	Solano	Solano County (Unincorporated)	\$2,239,791	\$2,482,925	\$2,724,393	\$2,966,370	\$3,079,953	\$3,196,141	\$3,313,936	\$3,428,692	\$3,543,018	\$3,656,366	0.52%
207	Santa Clara	Saratoga	\$2,507,886	\$2,702,300	\$2,895,499	\$3,088,768	\$3,187,102	\$3,284,995	\$3,382,724	\$3,479,150	\$3,575,159	\$3,670,203	0.52%
208	San Joaquin	Manteca	\$2,065,173	\$2,309,121	\$2,553,671	\$2,799,051	\$2,948,779	\$3,098,083	\$3,249,179	\$3,400,359	\$3,552,000	\$3,703,334	0.53%
209	Monterey	Monterey	\$2,437,396	\$2,711,535	\$2,983,529	\$3,255,767	\$3,388,563	\$3,521,176	\$3,652,697	\$3,784,990	\$3,916,434	\$3,951,913	0.56%
210	Marin	Novato	\$2,101,798	\$2,409,455	\$2,714,476	\$3,019,246	\$3,173,071	\$3,330,524	\$3,487,890	\$3,646,222	\$3,803,635	\$3,959,265	0.56%
211	Humboldt	Eureka	\$2,822,891	\$3,134,895	\$3,444,778	\$3,754,902	\$3,900,657	\$4,046,015	\$4,191,253	\$4,337,307	\$4,482,670	\$3,972,029	0.57%
212	Sutter	Sutter County (Unincorporated)	\$4,914,637	\$5,260,923	\$5,605,074	\$5,949,778	\$6,089,620	\$6,230,059	\$6,370,544	\$3,707,977	\$3,843,684	\$3,978,583	0.57%
213	Santa Clara	Milpitas	\$2,504,461	\$2,746,357	\$2,987,955	\$3,230,195	\$3,362,278	\$3,494,446	\$3,627,650	\$3,763,679	\$3,902,433	\$4,041,750	0.58%
214	San Luis Obispo	Pismo Beach	\$867,776	\$941,403	\$1,014,701	\$1,088,125	\$1,128,915	\$1,169,830	\$1,210,884	\$3,250,968	\$3,290,865	\$4,082,759	0.58%
215	Santa Clara	Cupertino	\$3,261,350	\$3,560,686	\$3,858,017	\$4,155,589	\$4,325,856	\$4,496,315	\$3,684,860	\$3,854,068	\$4,023,415	\$4,190,880	0.60%
216	Butte	Paradise	\$2,768,496	\$3,034,454	\$3,298,554	\$3,562,907	\$3,693,921	\$3,823,466	\$3,952,801	\$4,083,127	\$4,212,759	\$4,341,244	0.62%
217	Marin	San Rafael	\$2,112,802	\$2,133,315	\$2,594,081	\$3,055,125	\$3,284,848	\$3,513,791	\$3,742,194	\$3,971,549	\$4,199,655	\$4,425,416	0.63%
218	Alameda	Livermore	\$2,136,950	\$2,515,736	\$2,892,003	\$3,269,088	\$3,489,288	\$3,699,255	\$3,909,270	\$4,017,607	\$4,228,593	\$4,438,310	0.63%
219	San Mateo	Pacifica	\$3,109,083	\$3,400,133	\$3,523,516	\$3,812,447	\$3,951,829	\$4,090,982	\$4,229,852	\$4,370,476	\$4,509,391	\$4,646,783	0.66%
220	Butte	Chico	\$1,557,922	\$1,963,803	\$2,01,986	\$804,367	\$1,085,270	\$1,367,080	\$1,653,802	\$1,943,259	\$2,231,933	\$4,960,805	0.71%
221	Solano	Fairfield	\$2,816,973	\$3,205,186	\$3,590,612	\$3,976,451	\$4,196,374	\$4,416,322	\$4,635,515	\$4,855,617	\$5,075,145	\$5,293,451	0.75%
222	San Mateo	Burlingame	\$3,606,570	\$3,902,520	\$4,196,579	\$4,490,352	\$4,629,851	\$4,769,353	\$4,908,740	\$5,049,397	\$5,189,297	\$5,328,052	0.76%
223	Santa Barbara	Santa Barbara County (Unincorporated)	\$4,074,271	\$4,516,590	\$4,955,050	\$5,394,346	\$5,615,245	\$5,838,545	\$4,724,580	\$4,946,584	\$5,167,958	\$5,387,693	0.77%
224	San Mateo	Belmont	\$2,347,726	\$2,574,794	\$4,635,865	\$4,861,179	\$4,966,679	\$5,072,053	\$5,177,105	\$5,283,496	\$5,389,297	\$5,493,970	0.78%
225	Madera	Madera County (Unincorporated)	\$7,370,325	\$8,110,626	\$8,841,600	\$9,582,054	\$9,906,703	\$10,317,088	\$7,346,141	\$6,748,916	\$6,651,125	\$5,516,842	0.79%
226	San Mateo	Menlo Park	\$3,983,787	\$4,271,880	\$4,558,581	\$4,845,593	\$4,980,353	\$5,115,027	\$5,249,116	\$5,383,528	\$5,517,152	\$5,649,402	0.80%
227	San Mateo	San Bruno	\$3,797,223	\$4,121,324	\$4,443,120	\$4,765,226	\$4,914,936	\$5,064,966	\$5,214,799	\$5,365,530	\$5,515,942	\$5,664,794	0.81%
228	Alameda	Alameda County (Unincorporated)	\$11,522,412	\$12,634,328	\$13,740,070	\$14,848,530	\$15,366,249	\$15,881,112	\$13,026,607	\$13,501,208	\$14,007,317	\$5,890,249	0.84%
229	Santa Barbara	Santa Maria	\$3,705,770	\$4,089,209	\$4,471,197	\$4,853,473	\$5,064,467	\$5,273,052	\$5,481,280	\$5,690,653	\$5,898,931	\$6,106,526	0.87%
230	Yuba	Yuba County (Unincorporated)	\$3,692,146	\$4,087,746	\$4,481,633	\$4,876,800	\$5,086,353	\$5,296,188	\$5,505,714	\$5,713,272	\$5,920,742	\$6,126,085	0.87%
231	Sutter	Yuba City	\$1,648,498	\$1,910,321	\$2,170,574	\$2,430,911	\$2,601,880	\$2,771,966	\$2,941,699	\$5,911,609	\$6,082,067	\$6,250,711	0.89%
232	Alameda	San Leandro	\$6,555,278	\$7,223,392	\$6,997,756	\$7,562,319	\$7,884,378	\$8,196,775	\$8,507,596	\$5,642,506	\$5,955,173	\$6,264,624	0.89%
233	Tulare	Tulare County (Unincorporated)	\$4,285,686	\$4,642,818	\$4,999,081	\$5,356,630	\$5,527,544	\$5,697,183	\$5,868,111	\$6,034,226	\$6,199,752	\$6,363,858	0.91%
234	San Mateo	South San Francisco	\$3,938,862	\$4,346,098	\$4,750,966	\$5,155,790	\$5,359,154	\$5,562,117	\$5,764,881	\$5,969,710	\$6,173,446	\$6,375,132	0.91%
235	Alameda	Fremont	\$8,457,575	\$8,340,434	\$7,388,304	\$8,353,807	\$7,578,319	\$8,070,286	\$8,561,923	\$9,057,995	\$6,050,124	\$6,537,996	0.93%
236	Contra Costa	Concord	\$5,868,232	\$6,645,768	\$7,418,329	\$6,340,165	\$6,724,304	\$7,106,919	\$7,488,318	\$7,874,118	\$6,790,504	\$7,169,896	1.02%
237	Mendocino	Mendocino County (Unincorporated)	\$7,476,748	\$8,104,358	\$8,728,719	\$9,354,392	\$9,673,611	\$9,993,365	\$6,244,815	\$6,562,237	\$6,878,700	\$7,192,483	1.02%
238	San Mateo	San Mateo County (Unincorporated)	\$5,739,817	\$6,354,758	\$6,966,334	\$7,578,732	\$6,878,287	\$7,126,378	\$7,373,593	\$7,621,094	\$7,033,999	\$7,277,991	1.04%
239	Alameda	Berkeley	\$5,829,176	\$7,015,125	\$8,192,658	\$9,371,413	\$9,899,350	\$5,308,776	\$5,835,483	\$6,365,851	\$6,894,245	\$7,418,133	1.06%
240	San Mateo	Redwood City	\$4,357,823	\$4,940,076	\$5,518,061	\$6,096,283	\$6,375,028	\$6,654,105	\$6,932,337	\$7,214,307	\$7,496,884	\$7,777,974	1.11%
241	Lake	Lake County (Unincorporated)	\$6,987,172	\$7,549,580	\$7,165,432	\$6,941,696	\$7,232,796	\$7,523,674	\$7,005,803	\$7,295,771	\$7,584,644	\$7,870,884	1.12%
242	Tehama	Tehama County (Unincorporated)	\$5,366,885	\$5,788,792	\$6,208,692	\$6,629,769	\$6,807,690	\$7,039,313	\$7,271,102	\$7,500,648	\$7,729,907	\$7,958,186	1.13%
243	Calaveras	Calaveras County (Unincorporated)	\$5,144,404	\$5,636,775	\$6,126,602	\$6,617,335	\$6,894,924	\$7,172,764	\$7,450,417	\$7,728,460	\$8,005,556	\$8,279,887	1.18%
244	Shasta	Shasta County (Unincorporated)	\$5,369,403	\$5,763,069	\$6,428,186	\$6,900,344	\$7,234,784	\$7,569,628	\$7,904,192	\$7,735,801	\$8,065,265	\$8,391,014	1.19%
245	Napa	Napa	\$5,602,891	\$6,071,321	\$6,536,162	\$7,001,414	\$7,244,947	\$7,488,701	\$7,732,204	\$7,976,781	\$8,220,621	\$8,462,039	1.20%
246	Tuolumne	Tuolumne County (Unincorporated)	\$6,869,058	\$7,472,854	\$8,073,178	\$8,674,373	\$8,984,900	\$9,296,132	\$7,553,840	\$7,865,272	\$8,175,110	\$8,482,289	1.21%
247	Monterey	Salinas	\$4,754,584	\$5,402,411	\$6,046,037	\$6,690,690	\$7,027,920	\$7,365,053	\$7,700,008	\$8,037,857	\$8,373,337	\$8,705,554	1.24%
248	Solano	Vallejo	\$8,116,944	\$8,803,842	\$9,485,627	\$9,675,970	\$10,024,019	\$10,371,671	\$10,718,019	\$11,067,145	\$8,414,120	\$8,965,346	1.28%

AzP Exhibit H. Year-End Work Credit Allocation Balances By Community As of December 31, 2016 (Nominal Dollars)													
Rank by WCA	County	Community	12-31-2007 Balance	12-31-2008 Balance	12-31-2009 Balance	12-31-2010 Balance	12-31-2011 Balance	12-31-2012 Balance	12-31-2013 Balance	12-31-2014 Balance	12-31-2015 Balance	12-31-2016 Balance	Percentage of Total
249	Merced	Merced County (Unincorporated)	\$7,569,709	\$8,190,139	\$8,808,849	\$9,430,111	\$9,740,796	\$8,021,014	\$8,328,874	\$8,627,870	\$8,927,361	\$9,226,357	1.31%
250	Contra Costa	Richmond	\$5,334,592	\$6,080,908	\$6,821,933	\$7,563,457	\$8,035,063	\$8,400,949	\$8,765,160	\$9,128,867	\$9,490,495	\$9,848,797	1.40%
251	Kern	Bakersfield	\$7,927,587	\$9,238,840	\$10,549,192	\$11,076,430	\$10,352,199	\$10,465,129	\$11,268,362	\$11,142,617	\$9,089,655	\$9,896,203	1.41%
252	Nevada	Nevada County (Unincorporated)	\$7,083,889	\$7,729,558	\$8,371,369	\$9,014,142	\$9,351,665	\$9,688,927	\$10,025,965	\$10,365,573	\$10,703,993	\$11,039,754	1.57%
253	San Joaquin	Stockton	\$10,146,782	\$10,980,396	\$8,905,547	\$10,221,492	\$11,145,526	\$8,457,728	\$9,174,367	\$9,885,647	\$10,591,172	\$11,289,105	1.61%
254	Butte	Butte County (Unincorporated)	\$9,762,950	\$10,737,096	\$10,211,826	\$11,178,010	\$11,611,940	\$12,047,167	\$12,477,967	\$12,905,548	\$13,331,657	\$11,312,069	1.61%
255	San Mateo	San Mateo	\$7,609,048	\$8,398,053	\$9,181,851	\$9,966,308	\$9,870,261	\$10,243,212	\$10,615,507	\$10,992,803	\$11,370,203	\$11,744,687	1.67%
256	Monterey	Monterey County (Unincorporated)	\$7,002,857	\$7,860,360	\$8,712,565	\$9,565,051	\$10,903,844	\$11,332,389	\$11,760,252	\$12,184,231	\$12,605,728	\$13,023,951	1.85%
257	Fresno	Fresno	\$11,142,753	\$13,578,086	\$16,001,433	\$13,888,146	\$16,103,187	\$17,426,660	\$17,170,206	\$18,483,167	\$19,790,794	\$13,360,972	1.90%
258	Fresno	Fresno County (Unincorporated)	\$13,184,563	\$15,225,946	\$17,257,316	\$15,795,779	\$16,699,282	\$17,588,589	\$17,154,443	\$12,061,317	\$12,786,245	\$13,755,299	1.96%
259	Sonoma	Sonoma County (Unincorporated)	\$12,203,512	\$13,779,696	\$15,346,608	\$16,914,773	\$18,371,071	\$18,713,533	\$12,083,391	\$12,823,626	\$13,560,502	\$14,291,067	2.03%
260	Santa Clara	Sunnyvale	\$9,310,517	\$10,189,781	\$11,063,121	\$11,936,751	\$12,373,769	\$12,812,161	\$13,251,816	\$13,694,995	\$14,137,367	\$14,575,651	2.07%
261	El Dorado	El Dorado County (Unincorporated)	\$9,851,473	\$10,768,040	\$11,679,287	\$12,591,840	\$13,135,619	\$13,673,919	\$14,212,193	\$14,755,946	\$15,297,831	\$15,836,285	2.25%
262	Contra Costa	Contra Costa County (Unincorporated)	\$11,542,050	\$12,706,726	\$13,863,935	\$12,761,003	\$13,292,197	\$13,822,561	\$14,352,988	\$14,882,810	\$15,371,163	\$15,894,798	2.26%
263	Santa Clara	Santa Clara County (Unincorporated)	\$12,300,876	\$13,233,668	\$14,160,474	\$15,069,856	\$15,690,853	\$15,967,891	\$16,241,876	\$16,508,273	\$16,772,955	\$16,159,500	2.30%
264	Santa Cruz	Santa Cruz County (Unincorporated)	\$10,634,008	\$11,781,381	\$12,921,863	\$14,063,181	\$14,685,335	\$15,227,492	\$15,768,639	\$16,309,898	\$16,848,173	\$17,381,233	2.47%
265	Kern	Kern County (Unincorporated)	\$19,412,521	\$21,229,476	\$23,034,648	\$22,686,986	\$23,510,397	\$24,336,205	\$22,428,942	\$23,233,547	\$21,034,305	\$21,828,930	3.11%
266	San Joaquin	San Joaquin County (Unincorporated)	\$15,542,336	\$16,883,482	\$18,214,236	\$18,547,927	\$19,164,032	\$19,794,328	\$20,424,791	\$21,038,709	\$21,651,190	\$22,257,986	3.17%
267	Santa Clara	San Jose	\$38,908,051	\$42,535,235	\$46,544,323	\$50,818,367	\$53,783,062	\$51,043,100	\$47,098,969	\$45,304,662	\$34,746,386	\$27,120,471	3.86%
268	Alameda	Oakland	\$24,708,126	\$28,331,581	\$31,937,902	\$35,546,799	\$37,246,663	\$25,638,826	\$27,335,231	\$29,037,988	\$30,734,860	\$32,416,860	4.61%
Total Year-End Ledger Balances			\$697,715,570	\$737,424,966	\$781,742,085	\$777,286,960	\$828,957,384	\$772,287,310	\$763,123,535	\$756,494,325	\$728,134,613	\$702,719,652	100.00%

Source: Sum and percentage calculated by AzP based on figures provided by PG&E in GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-075.

AzP Exhibit I. WCA Balance for Communities with No Identified Undergrounding Projects as of September 30, 2018, Organized by County				
No.	County (1)	Community (1)	Ledger Balance (1)	Remaining Work Credit Balance (2)
1	ALAMEDA	EMERYVILLE	898,178	1,108,768
2	ALAMEDA	LIVERMORE	3,081,884	4,146,944
3	ALAMEDA	NEWARK	2,611,127	3,164,337
4	ALAMEDA	PIEDMONT	707,516	892,076
5	ALAMEDA	PLEASANTON	287,948	1,027,773
6	ALAMEDA	UNION CITY	850,783	1,406,603
7	ALPINE	ALPINE COUNTY	18,358	32,648
8	AMADOR	AMADOR CITY	50,097	(1,472,110)
9	AMADOR	AMADOR COUNTY	3,429,588	3,255,247
10	AMADOR	IONE	518,559	589,209
11	AMADOR	JACKSON	328,889	435,789
12	AMADOR	PLYMOUTH	223,697	245,297
13	AMADOR	SUTTER CREEK	599,981	671,031
14	BUTTE	BIGGS	14,498	(2,358,503)
15	CALAVERAS	ANGELS CAMP	(641,510)	(2,418,729)
16	COLUSA	WILLIAMS	498,789	(3,339,831)
17	CONTRA COSTA	ANTIOCH	582,597	1,628,388
18	CONTRA COSTA	CLAYTON	340,852	444,172
19	CONTRA COSTA	EL CERRITO	2,504,925	3,082,050
20	CONTRA COSTA	HERCULES	1,074,526	1,253,321
21	CONTRA COSTA	LAFAYETTE	745,356	1,262,726
22	CONTRA COSTA	MARTINEZ	1,321,300	1,870,185
23	CONTRA COSTA	MORAGA	236,284	452,749
24	CONTRA COSTA	OAKLEY	927,088	1,263,093
25	CONTRA COSTA	ORINDA	2,374,400	2,734,235
26	CONTRA COSTA	PLEASANT HILL	2,347,563	(13,923,672)
27	CONTRA COSTA	RICHMOND	6,235,810	8,041,400
28	CONTRA COSTA	SAN PABLO	569,702	1,029,057
29	CONTRA COSTA	SAN RAMON	1,762,735	2,403,960
30	EL DORADO	PLACERVILLE	(336,005)	(3,452,376)
31	FRESNO	FIREBAUGH	(1,006,836)	(2,125,866)
32	FRESNO	FOWLER	(286,715)	(204,085)
33	FRESNO	FRESNO COUNTY	12,567,180	16,932,115
34	FRESNO	HURON	180,255	237,485
35	FRESNO	KERMAN	543,997	682,047
36	FRESNO	MENDOTA	850,182	(4,302,904)
37	FRESNO	PARLIER	554,810	678,650
38	FRESNO	SAN JOAQUIN	365,227	403,027
39	FRESNO	SANGER	1,168,016	1,459,501
40	FRESNO	SELMA	1,668,789	1,955,349
41	GLENN	GLENN COUNTY	3,394,209	3,872,084
42	GLENN	WILLOWS	787,192	915,277
43	HUMBOLDT	ARCATA	1,666,657	2,023,617
44	HUMBOLDT	BLUE LAKE	361,760	(4,544,724)
45	HUMBOLDT	HUMBOLDT COUNTY	2,586,225	4,315,045
46	HUMBOLDT	RIO DELL	442,263	517,263
47	HUMBOLDT	TRINIDAD	(4,466)	5,004
48	KERN	ARVIN	795,234	965,799
49	KERN	MARICOPA	316,737	344,792
50	KERN	WASCO	1,744,109	1,984,959
51	KINGS	AVENAL	797,783	(702,018)
52	KINGS	CORCORAN	-	(1,009,007)
53	KINGS	KINGS COUNTY	1,697,811	2,212,591
54	KINGS	LEMOORE	(488,464)	(180,599)

AzP Exhibit I. WCA Balance for Communities with No Identified Undergrounding Projects as of September 30, 2018, Organized by County				
No.	County (1)	Community (1)	Ledger Balance (1)	Remaining Work Credit Balance (2)
55	LAKE	CLEARLAKE	3,144,109	3,571,144
56	LAKE	LAKEPORT	960,016	1,097,531
57	LASSEN	LASSEN COUNTY	410,587	458,097
58	MADERA	MADERA	(17,369)	635,691
59	MARIN	BELVEDERE	(268,409)	(238,259)
60	MARIN	CORTE MADERA	226,016	(1,315,458)
61	MARIN	FAIRFAX	611,201	791,341
62	MARIN	MARIN COUNTY	3,865,254	4,646,257
63	MARIN	MILL VALLEY	(736,198)	(427,933)
64	MARIN	ROSS	250,630	299,670
65	MARIN	SAUSALITO	1,875,796	2,095,911
66	MARIPOSA	MARIPOSA COUNTY	3,255,283	3,861,443
67	MENDOCINO	FORT BRAGG	1,215,827	(3,969,213)
68	MENDOCINO	POINT ARENA	141,357	156,037
69	MENDOCINO	WILLITS	793,853	907,833
70	MERCED	ATWATER	(944,338)	(2,307,880)
71	MERCED	DOS PALOS	748,505	(2,570,122)
72	MERCED	GUSTINE	357,320	454,170
73	MERCED	LIVINGSTON	740,979	834,699
74	MERCED	LOS BANOS	1,246,484	1,666,994
75	MERCED	MERCED	116,181	345,113
76	MONTEREY	CARMEL	849,085	1,027,760
77	MONTEREY	DEL REY OAKS	374,637	411,357
78	MONTEREY	GONZALES	482,728	(2,048,314)
79	MONTEREY	KING CITY	27,385	164,310
80	MONTEREY	SAND CITY	205,228	(1,523,274)
81	MONTEREY	SEASIDE	283,396	754,091
82	MONTEREY	SOLEDAD	749,980	884,035
83	NAPA	CALISTOGA	768,751	866,901
84	NAPA	NAPA COUNTY	(11,483,629)	(12,723,556)
85	NAPA	ST HELENA	(30,417)	107,708
86	NAPA	YOUNTVILLE	166,843	203,043
87	NEVADA	GRASS VALLEY	693,340	(766,465)
88	PLACER	AUBURN	(47,890)	(7,173,674)
89	PLACER	COLFAX	198,354	244,384
90	PLACER	PLACER COUNTY	(1,432,355)	445,620
91	PLACER	ROCKLIN	-	(5,114,805)
92	PLACER	ROSEVILLE	19,040	(4,279,910)
93	PLUMAS	PLUMAS COUNTY	1,141,962	(2,551,735)
94	SACRAMENTO	ISLETON	299,799	(3,745,086)
95	SACRAMENTO	SACRAMENTO COUNTY	1,044,533	(6,812,239)
96	SAN BENITO	HOLLISTER	600,747	956,907
97	SAN BENITO	SAN BENITO COUNTY	3,539,154	3,946,819
98	SAN BENITO	SAN JUAN BAUTISTA	367,581	405,941
99	SAN JOAQUIN	ESCALON	643,201	(393,683)
100	SAN JOAQUIN	LATHROP	361,265	(526,276)
101	SAN JOAQUIN	MANTECA	4,011,940	4,788,010
102	SAN JOAQUIN	RIPON	15,719	149,034
103	SAN JOAQUIN	SAN JOAQUIN COUNTY	16,183,721	19,255,481
104	SAN JOAQUIN	TRACY	2,938,784	3,732,834
105	SAN LUIS OBISPO	GROVER BEACH	969,141	1,264,236
106	SAN LUIS OBISPO	MORRO BAY	2,161,548	(1,350,654)
107	SAN LUIS OBISPO	PASO ROBLES	(243,277)	178,498
108	SAN LUIS OBISPO	SAN LUIS OBISPO	(1,056,800)	(165,625)

AzP Exhibit I. WCA Balance for Communities with No Identified Undergrounding Projects as of September 30, 2018, Organized by County				
No.	County (1)	Community (1)	Ledger Balance (1)	Remaining Work Credit Balance (2)
109	SAN MATEO	ATHERTON	1,376,998	1,504,433
110	SAN MATEO	BRISBANE	(16,556)	80,134
111	SAN MATEO	BURLINGAME	5,606,875	6,302,545
112	SAN MATEO	COLMA	2,012	(624,917)
113	SAN MATEO	FOSTER CITY	558	275,498
114	SAN MATEO	HILLSBOROUGH	(889,226)	(740,721)
115	SAN MATEO	MENLO PARK	5,918,820	6,595,620
116	SAN MATEO	MILLBRAE	3,260,562	3,651,867
117	SAN MATEO	SAN BRUNO	5,964,303	6,712,038
118	SAN MATEO	SAN CARLOS	(222,134)	448,896
119	SAN MATEO	WOODSIDE	897,128	1,006,993
120	SANTA BARBARA	BUELLTON	168,676	225,841
121	SANTA CLARA	CAMPBELL	(3,073,722)	(2,264,322)
122	SANTA CLARA	GILROY	3,050,206	3,588,236
123	SANTA CLARA	LOS ALTOS	559,806	1,154,426
124	SANTA CLARA	LOS ALTOS HILLS	222,259	359,084
125	SANTA CLARA	MONTE SERENO	498,119	556,594
126	SANTA CLARA	MORGAN HILL	167,145	562,230
127	SANTA CLARA	SARATOGA	3,861,275	4,338,065
128	SANTA CRUZ	SCOTTS VALLEY	1,165,688	1,332,168
129	SHASTA	ANDERSON	(2,056,986)	(1,857,601)
130	SHASTA	SHASTA LAKE	7,560	(1,777,162)
131	SIERRA	SIERRA COUNTY	439,181	500,791
132	SISKIYOU	SISKIYOU COUNTY	38,624	(5,107,506)
133	SOLANO	BENICIA	2,339,163	2,720,448
134	SOLANO	DIXON	699,605	(5,372,075)
135	SOLANO	SOLANO COUNTY	3,885,502	1,125,268
136	SOLANO	SUISUN CITY	1,068,756	1,284,801
137	SOLANO	VACAVILLE	3,902,306	860,154
138	SOLANO	VALLEJO	9,320,675	9,891,973
139	SONOMA	CLOVERDALE	824,937	(2,239,582)
140	SONOMA	COTATI	593,667	696,392
141	SONOMA	HEALDSBURG	34,571	(6,606,399)
142	SONOMA	SEBASTOPOL	961,920	(20,158,266)
143	SONOMA	SONOMA	(182,489)	(5,267,506)
144	SONOMA	WINDSOR	606,864	(15,597,134)
145	STANISLAUS	OAKDALE	(192,486)	85,819
146	STANISLAUS	RIVERBANK	(1,688,582)	(5,844,445)
147	STANISLAUS	STANISLAUS COUNTY	1,090,506	1,522,841
148	TEHAMA	CORNING	382,662	(5,028,102)
149	TEHAMA	RED BLUFF	1,489,159	(74,413)
150	TEHAMA	TEHAMA	66,337	(2,621,903)
151	TEHAMA	TEHAMA COUNTY	8,419,494	5,500,073
152	TRINITY	TRINITY COUNTY	415,443	(4,995,200)
153	YOLO	DAVIS	3,398,470	4,171,231
154	YOLO	WEST SACRAMENTO	1,341,440	(4,598,239)
155	YOLO	WOODLAND	2,481,459	(1,062,663)
156	YOLO	YOLO COUNTY	3,022,594	(4,685,911)
157	YUBA	MARYSVILLE	2,543,127	752,400
158	YUBA	WHEATLAND	376,077	(4,994,016)
159	YUBA	YUBA COUNTY	1,924,632	(10,857,516)
Total			183,737,027	(1,052,768)

Source 1: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-085, Att.1, tab 1 of 1

Source 2: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-086, Att.1

AzP Exhibit J

AzP Exhibit J. PG&E Rule 20A Communities - Work Credit Balances by Community As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance									
	A	B	C = A + B		D	E	F	G = C + D + E + F	
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance
1	SAN FRANCISCO	SAN FRANCISCO	(45,657,686)	15,706,185	(29,951,501)	-	-	-	(29,951,501)
2	SONOMA	SEBASTOPOL	961,920	161,065	1,122,985	(16,781,251)	(4,500,000)	-	(20,158,266)
3	SONOMA	WINDSOR	606,864	220,975	827,839	(16,424,973)	-	-	(15,597,134)
4	CONTRA COSTA	PLEASANT HILL	2,347,563	563,860	2,911,423	(16,835,095)	-	-	(13,923,672)
5	NAPA	NAPA COUNTY	(11,483,629)	774,610	(10,709,019)	(2,014,537)	-	-	(12,723,556)
6	SOLANO	RIO VISTA	702,013	152,690	854,703	(5,968,607)	(6,500,000)	-	(11,613,904)
7	YUBA	YUBA COUNTY	1,924,632	1,037,405	2,962,037	(2,695,212)	(11,124,340)	-	(10,857,516)
8	SONOMA	SONOMA COUNTY	15,763,349	3,678,880	19,442,229	-	(27,523,519)	-	(8,081,290)
9	PLACER	AUBURN	(47,890)	280,675	232,785	(7,406,459)	-	-	(7,173,674)
10	SACRAMENTO	SACRAMENTO COUNTY	1,044,533	98,155	1,142,688	(4,285,057)	(3,669,870)	-	(6,812,239)
11	PLACER	LOOMIS	963,229	119,815	1,083,044	(7,839,406)	-	-	(6,756,362)
12	SONOMA	HEALDSBURG	34,571	8,815	43,386	(6,649,785)	-	-	(6,606,399)
13	SUTTER	SUTTER COUNTY	2,050,115	678,385	2,728,500	(8,918,811)	-	-	(6,190,311)
14	STANISLAUS	RIVERBANK	(1,688,582)	175,690	(1,512,892)	(4,331,553)	-	-	(5,844,445)
15	SOLANO	DIXON	699,605	206,610	906,215	(5,271,061)	(1,007,229)	-	(5,372,075)
16	SONOMA	SONOMA	(182,489)	205,195	22,706	(5,290,212)	-	-	(5,267,506)
17	PLACER	ROCKLIN	-	614,720	614,720	(5,729,525)	-	-	(5,114,805)
18	SISKIYOU	SISKIYOU COUNTY	38,624	2,335	40,959	(5,148,465)	-	-	(5,107,506)
19	SONOMA	PETALUMA	1,522,314	806,140	2,328,454	(7,384,943)	-	-	(5,056,489)
20	TEHAMA	CORNING	382,662	144,635	527,297	(5,555,399)	-	-	(5,028,102)
21	TRINITY	TRINITY COUNTY	415,443	96,460	511,903	(5,507,103)	-	-	(4,995,200)
22	YUBA	WHEATLAND	376,077	52,075	428,152	(4,142,168)	(1,280,000)	-	(4,994,016)
23	YOLO	YOLO COUNTY	3,022,594	591,495	3,614,089	(8,300,000)	-	-	(4,685,911)
24	YOLO	WEST SACRAMENTO	1,341,440	718,355	2,059,795	(6,717,861)	-	59,827	(4,598,239)
25	HUMBOLDT	BLUE LAKE	361,760	32,855	394,615	(4,970,233)	-	30,894	(4,544,724)
26	FRESNO	MENDOTA	850,182	100,935	951,117	(5,254,021)	-	-	(4,302,904)
27	PLACER	ROSEVILLE	19,040	1,050	20,090	-	(4,300,000)	-	(4,279,910)
28	MENDOCINO	FORT BRAGG	1,215,827	183,255	1,399,082	(5,368,295)	-	-	(3,969,213)
29	SONOMA	ROHNERT PARK	1,523,673	396,795	1,920,468	(5,873,632)	-	-	(3,953,164)
30	SACRAMENTO	ISLETON	299,799	23,970	323,769	(4,068,855)	-	-	(3,745,086)
31	EL DORADO	PLACERVILLE	(336,005)	230,600	(105,405)	(3,346,971)	-	-	(3,452,376)
32	COLUSA	WILLIAMS	498,789	69,440	568,229	(3,908,060)	-	-	(3,339,831)
33	TEHAMA	TEHAMA	66,337	11,760	78,097	-	(2,700,000)	-	(2,621,903)
34	MERCED	DOS PALOS	748,505	85,920	834,425	(3,404,547)	-	-	(2,570,122)

AzP Exhibit J. PG&E Rule 20A Communities - Work Credit Balances by Community As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance									
	A	B	C = A + B	D	E	F	G = C + D + E + F		
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance
35	PLUMAS	PLUMAS COUNTY	1,141,962	503,140	1,645,102	(4,499,086)	-	302,249	(2,551,735)
36	FRESNO	COALINGA	1,787,291	181,675	1,968,966	(4,503,751)	-	-	(2,534,785)
37	CALAVERAS	ANGELS CAMP	(641,510)	82,305	(559,205)	(1,859,524)	-	-	(2,418,729)
38	BUTTE	BIGGS	14,498	1,120	15,618	(2,374,121)	-	-	(2,358,503)
39	MERCED	ATWATER	(944,338)	335,160	(609,178)	-	(1,698,702)	-	(2,307,880)
40	SANTA CLARA	CAMPBELL	(3,073,722)	809,400	(2,264,322)	-	-	-	(2,264,322)
41	SONOMA	CLOVERDALE	824,937	124,100	949,037	(3,188,619)	-	-	(2,239,582)
42	NEVADA	NEVADA CITY	625,468	94,375	719,843	(2,870,082)	-	-	(2,150,239)
43	FRESNO	FIREBAUGH	(1,006,836)	87,475	(919,361)	(1,647,234)	-	440,730	(2,125,866)
44	MONTEREY	GONZALES	482,728	78,885	561,613	(2,609,927)	-	-	(2,048,314)
45	BUTTE	OROVILLE	1,145,212	383,905	1,529,117	(3,521,620)	-	-	(1,992,503)
46	SHASTA	ANDERSON	(2,056,986)	199,385	(1,857,601)	-	-	-	(1,857,601)
47	SHASTA	SHASTA LAKE	7,560	2,495	10,055	(1,787,217)	-	-	(1,777,162)
48	GLENN	ORLAND	1,116,243	141,640	1,257,883	(2,837,018)	-	-	(1,579,135)
49	MONTEREY	SAND CITY	205,228	21,125	226,353	(1,749,627)	-	-	(1,523,274)
50	AMADOR	AMADOR CITY	50,097	6,910	57,007	(1,529,117)	-	-	(1,472,110)
51	SAN LUIS OBISPO	MORRO BAY	2,161,548	335,500	2,497,048	(3,847,702)	-	-	(1,350,654)
52	MARIN	CORTE MADERA	226,016	203,190	429,206	(1,744,665)	-	-	(1,315,458)
53	COLUSA	COLUSA	985,580	118,970	1,104,550	(2,362,509)	-	-	(1,257,959)
54	YOLO	WOODLAND	2,481,459	728,695	3,210,154	(4,272,817)	-	-	(1,062,663)
55	KINGS	CORCORAN	-	194,810	194,810	(1,203,817)	-	-	(1,009,007)
56	NEVADA	GRASS VALLEY	693,340	275,925	969,265	(1,735,731)	-	-	(766,465)
57	SAN MATEO	HILLSBOROUGH	(889,226)	148,505	(740,721)	-	-	-	(740,721)
58	KINGS	AVENAL	797,783	117,515	915,298	(1,617,316)	-	-	(702,018)
59	SAN MATEO	COLMA	2,012	21,450	23,462	(648,379)	-	-	(624,917)
60	SAN JOAQUIN	LATHROP	361,265	155,235	516,500	(1,042,775)	-	-	(526,276)
61	MARIN	MILL VALLEY	(736,198)	308,265	(427,933)	-	-	-	(427,933)
62	SAN JOAQUIN	ESCALON	643,201	90,940	734,141	(1,127,824)	-	-	(393,683)
63	FRESNO	KINGSBURG	1,228,113	169,180	1,397,293	(1,704,658)	-	-	(307,365)
64	CONTRA COSTA	WALNUT CREEK	3,990,212	1,110,290	5,100,502	-	(5,370,000)	-	(269,498)
65	MARIN	BELVEDERE	(268,409)	30,150	(238,259)	-	-	-	(238,259)
66	FRESNO	FOWLER	(286,715)	82,630	(204,085)	-	-	-	(204,085)
67	KINGS	LEMOORE	(488,464)	307,865	(180,599)	-	-	-	(180,599)
68	SAN LUIS OBISPO	SAN LUIS OBISPO	(1,056,800)	891,175	(165,625)	-	-	-	(165,625)

AzP Exhibit J. PG&E Rule 20A Communities - Work Credit Balances by Community As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance									
	A	B	C = A + B		D	E	F	G = C + D + E + F	
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance
69	TEHAMA	RED BLUFF	1,489,159	279,440	1,768,599	(1,843,012)	-	-	(74,413)
70	HUMBOLDT	TRINIDAD	(4,466)	9,470	5,004	-	-	-	5,004
71	ALPINE	ALPINE COUNTY	18,358	14,290	32,648	-	-	-	32,648
72	SAN MATEO	BRISBANE	(16,556)	96,690	80,134	-	-	-	80,134
73	STANISLAUS	OAKDALE	(192,486)	278,305	85,819	-	-	-	85,819
74	NAPA	ST HELENA	(30,417)	138,125	107,708	-	-	-	107,708
75	SAN JOAQUIN	RIPON	15,719	133,315	149,034	-	-	-	149,034
76	MENDOCINO	POINT ARENA	141,357	14,680	156,037	-	-	-	156,037
77	MONTEREY	KING CITY	27,385	136,925	164,310	-	-	-	164,310
78	SAN LUIS OBISPO	PASO ROBLES	(243,277)	421,775	178,498	-	-	-	178,498
79	NAPA	YOUNTVILLE	166,843	36,200	203,043	-	-	-	203,043
80	SANTA BARBARA	BUELLTON	168,676	57,165	225,841	-	-	-	225,841
81	FRESNO	HURON	180,255	57,230	237,485	-	-	-	237,485
82	PLACER	COLFAX	198,354	46,030	244,384	-	-	-	244,384
83	AMADOR	PLYMOUTH	223,697	21,600	245,297	-	-	-	245,297
84	FRESNO	ORANGE COVE	968,088	103,925	1,072,013	(809,648)	-	-	262,365
85	SAN MATEO	FOSTER CITY	558	274,940	275,498	-	-	-	275,498
86	MARIN	ROSS	250,630	49,040	299,670	-	-	-	299,670
87	KERN	MARICOPA	316,737	28,055	344,792	-	-	-	344,792
88	MERCED	MERCED	116,181	915,600	1,031,781	(686,668)	-	-	345,113
89	SANTA CLARA	LOS ALTOS HILLS	222,259	136,825	359,084	-	-	-	359,084
90	FRESNO	SAN JOAQUIN	365,227	37,800	403,027	-	-	-	403,027
91	SAN BENITO	SAN JUAN BAUTISTA	367,581	38,360	405,941	-	-	-	405,941
92	MONTEREY	DEL REY OAKS	374,637	36,720	411,357	-	-	-	411,357
93	AMADOR	JACKSON	328,889	106,900	435,789	-	-	-	435,789
94	CONTRA COSTA	CLAYTON	340,852	103,320	444,172	-	-	-	444,172
95	PLACER	PLACER COUNTY	(1,432,355)	1,877,975	445,620	-	-	-	445,620
96	SAN MATEO	SAN CARLOS	(222,134)	671,030	448,896	-	-	-	448,896
97	CONTRA COSTA	MORAGA	236,284	216,465	452,749	-	-	-	452,749
98	MERCED	GUSTINE	357,320	96,850	454,170	-	-	-	454,170
99	LASSEN	LASSEN COUNTY	410,587	47,510	458,097	-	-	-	458,097
100	SANTA BARBARA	GUADALUPE	390,975	80,300	471,275	-	-	-	471,275
101	KERN	TAFT	1,211,306	141,250	1,352,556	(881,264)	-	-	471,292
102	SIERRA	SIERRA COUNTY	439,181	61,610	500,791	-	-	-	500,791

AzP Exhibit J

AzP Exhibit J. PG&E Rule 20A Communities - Work Credit Balances by Community As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance									
	A	B	C = A + B		D	E	F	G = C + D + E + F	
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance
103	HUMBOLDT	RIO DELL	442,263	75,000	517,263	-	-	-	517,263
104	SANTA CLARA	MONTE SERENO	498,119	58,475	556,594	-	-	-	556,594
105	YOLO	WINTERS	473,005	86,525	559,530	-	-	-	559,530
106	SANTA CLARA	MORGAN HILL	167,145	395,085	562,230	-	-	-	562,230
107	SAN MATEO	PORTOLA VALLEY	498,648	74,705	573,353	-	-	-	573,353
108	CONTRA COSTA	BRENTWOOD	1,505,931	481,265	1,987,196	(1,398,028)	-	-	589,168
109	AMADOR	IONE	518,559	70,650	589,209	-	-	-	589,209
110	MADERA	MADERA	(17,369)	653,060	635,691	-	-	-	635,691
111	NAPA	AMERICAN CANYON	480,713	155,425	636,138	-	-	-	636,138
112	AMADOR	SUTTER CREEK	599,981	71,050	671,031	-	-	-	671,031
113	FRESNO	PARLIER	554,810	123,840	678,650	-	-	-	678,650
114	FRESNO	KERMAN	543,997	138,050	682,047	-	-	-	682,047
115	SONOMA	COTATI	593,667	102,725	696,392	-	-	-	696,392
116	YUBA	MARYSVILLE	2,543,127	264,690	2,807,817	(2,055,417)	-	-	752,400
117	MONTEREY	SEASIDE	283,396	470,695	754,091	-	-	-	754,091
118	MARIN	FAIRFAX	611,201	180,140	791,341	-	-	-	791,341
119	MERCED	LIVINGSTON	740,979	93,720	834,699	-	-	-	834,699
120	SOLANO	VACAVILLE	3,902,306	942,435	4,844,741	(3,984,588)	-	-	860,154
121	NAPA	CALISTOGA	768,751	98,150	866,901	-	-	-	866,901
122	MONTEREY	SOLEDAD	749,980	134,055	884,035	-	-	-	884,035
123	ALAMEDA	PIEDMONT	707,516	184,560	892,076	-	-	-	892,076
124	MENDOCINO	WILLITS	793,853	113,980	907,833	-	-	-	907,833
125	GLENN	WILLOWS	787,192	128,085	915,277	-	-	-	915,277
126	SAN BENITO	HOLLISTER	600,747	356,160	956,907	-	-	-	956,907
127	KERN	ARVIN	795,234	170,565	965,799	-	-	-	965,799
128	TUOLUMNE	SONORA	856,238	149,770	1,006,008	-	-	-	1,006,008
129	SAN MATEO	WOODSIDE	897,128	109,865	1,006,993	-	-	-	1,006,993
130	MONTEREY	CARMEL	849,085	178,675	1,027,760	-	-	-	1,027,760
131	ALAMEDA	PLEASANTON	287,948	739,825	1,027,773	-	-	-	1,027,773
132	CONTRA COSTA	SAN PABLO	569,702	459,355	1,029,057	-	-	-	1,029,057
133	MARIN	SAN ANSELMO	738,931	303,580	1,042,511	-	-	-	1,042,511
134	MONTEREY	GREENFIELD	914,836	134,405	1,049,241	-	-	-	1,049,241
135	LAKE	LAKEPORT	960,016	137,515	1,097,531	-	-	-	1,097,531
136	ALAMEDA	EMERYVILLE	898,178	210,590	1,108,768	-	-	-	1,108,768

AzP Exhibit J. PG&E Rule 20A Communities - Work Credit Balances by Community As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance									
	A	B	C = A + B		D	E	F	G = C + D + E + F	
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance
137	SOLANO	SOLANO COUNTY	3,885,502	573,355	4,458,857	(3,333,589)	-	-	1,125,268
138	SANTA CLARA	LOS ALTOS	559,806	594,620	1,154,426	-	-	-	1,154,426
139	SANTA BARBARA	SOLVANG	1,135,217	101,450	1,236,667	-	-	-	1,236,667
140	CONTRA COSTA	DANVILLE	772,968	475,890	1,248,858	-	-	-	1,248,858
141	CONTRA COSTA	HERCULES	1,074,526	178,795	1,253,321	-	-	-	1,253,321
142	CONTRA COSTA	LAFAYETTE	745,356	517,370	1,262,726	-	-	-	1,262,726
143	CONTRA COSTA	OAKLEY	927,088	336,005	1,263,093	-	-	-	1,263,093
144	SAN LUIS OBISPO	GROVER BEACH	969,141	295,095	1,264,236	-	-	-	1,264,236
145	STANISLAUS	NEWMAN	1,150,461	117,350	1,267,811	-	-	-	1,267,811
146	SOLANO	SUISUN CITY	1,068,756	216,045	1,284,801	-	-	-	1,284,801
147	SANTA CRUZ	SCOTTS VALLEY	1,165,688	166,480	1,332,168	-	-	-	1,332,168
148	MARIN	TIBURON	1,201,429	146,720	1,348,149	-	-	-	1,348,149
149	SAN MATEO	HALF MOON BAY	1,228,550	169,955	1,398,505	-	-	-	1,398,505
150	ALAMEDA	UNION CITY	850,783	555,820	1,406,603	-	-	-	1,406,603
151	TULARE	DINUBA	1,164,806	274,745	1,439,551	-	-	-	1,439,551
152	FRESNO	SANGER	1,168,016	291,485	1,459,501	-	-	-	1,459,501
153	HUMBOLDT	FORTUNA	3,730,846	241,560	3,972,406	(2,510,578)	-	-	1,461,828
154	SAN MATEO	ATHERTON	1,376,998	127,435	1,504,433	-	-	-	1,504,433
155	STANISLAUS	STANISLAUS COUNTY	1,090,506	432,335	1,522,841	-	-	-	1,522,841
156	KERN	SHAFTER	1,326,825	221,000	1,547,825	-	-	-	1,547,825
157	PLACER	LINCOLN	1,110,026	439,150	1,549,176	-	-	-	1,549,176
158	CONTRA COSTA	ANTIOCH	582,597	1,057,430	1,640,027	(11,639)	-	-	1,628,388
159	MARIN	LARKSPUR	1,426,966	236,420	1,663,386	-	-	-	1,663,386
160	MERCED	LOS BANOS	1,246,484	420,510	1,666,994	-	-	-	1,666,994
161	CONTRA COSTA	MARTINEZ	1,321,300	548,885	1,870,185	-	-	-	1,870,185
162	FRESNO	SELMA	1,668,789	286,560	1,955,349	-	-	-	1,955,349
163	MONTEREY	MARINA	1,666,637	292,095	1,958,732	-	-	-	1,958,732
164	KERN	WASCO	1,744,109	240,850	1,984,959	-	-	-	1,984,959
165	HUMBOLDT	ARCATA	1,666,657	356,960	2,023,617	-	-	-	2,023,617
166	MARIN	SAUSALITO	1,875,796	220,115	2,095,911	-	-	-	2,095,911
167	ALAMEDA	DUBLIN	1,560,230	616,145	2,176,375	-	-	-	2,176,375
168	SAN MATEO	DALY CITY	860,469	1,330,685	2,191,154	-	-	-	2,191,154
169	KINGS	KINGS COUNTY	1,697,811	514,780	2,212,591	-	-	-	2,212,591
170	SAN LUIS OBISPO	ARROYO GRANDE	1,948,420	300,735	2,249,155	-	-	-	2,249,155

AzP Exhibit J. PG&E Rule 20A Communities - Work Credit Balances by Community As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance									
			A	B	C = A + B	D	E	F	G = C + D + E + F
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance
171	MONTEREY	PACIFIC GROVE	2,167,634	421,050	2,588,684	(318,436)	-	-	2,270,248
172	SANTA CRUZ	CAPITOLA	2,050,842	233,350	2,284,192	-	-	-	2,284,192
173	SANTA CRUZ	WATSONVILLE	1,747,611	567,265	2,314,876	-	-	-	2,314,876
174	CONTRA COSTA	SAN RAMON	1,762,735	641,225	2,403,960	-	-	-	2,403,960
175	FRESNO	CLOVIS	1,379,242	1,044,970	2,424,212	-	-	-	2,424,212
176	CONTRA COSTA	PINOLE	2,167,433	278,715	2,446,148	-	-	-	2,446,148
177	MADERA	CHOWCHILLA	2,350,807	174,080	2,524,887	-	-	-	2,524,887
178	SUTTER	LIVE OAK	3,960,965	94,560	4,055,525	(1,351,073)	-	-	2,704,452
179	SOLANO	BENICIA	2,339,163	381,285	2,720,448	-	-	-	2,720,448
180	CONTRA COSTA	ORINDA	2,374,400	359,835	2,734,235	-	-	-	2,734,235
181	FRESNO	REEDLEY	3,560,697	285,480	3,846,177	(1,104,550)	-	-	2,741,627
182	HUMBOLDT	FERNDAL	2,902,006	45,115	2,947,121	-	-	-	2,947,121
183	SAN MATEO	EAST PALO ALTO	2,670,282	333,810	3,004,092	-	-	-	3,004,092
184	CONTRA COSTA	EL CERRITO	2,504,925	577,125	3,082,050	-	-	-	3,082,050
185	KERN	MCFARLAND	4,420,179	81,240	4,501,419	(1,397,188)	-	-	3,104,231
186	ALAMEDA	NEWARK	2,611,127	553,210	3,164,337	-	-	-	3,164,337
187	AMADOR	AMADOR COUNTY	3,429,588	678,875	4,108,463	(853,216)	-	-	3,255,247
188	ALAMEDA	ALBANY	3,109,233	358,350	3,467,583	(168,459)	-	-	3,299,124
189	ALAMEDA	HAYWARD	1,215,718	2,197,170	3,412,888	-	-	-	3,412,888
190	CONTRA COSTA	PITTSBURG	2,777,873	643,335	3,421,208	-	-	-	3,421,208
191	LAKE	CLEARLAKE	3,144,109	427,035	3,571,144	-	-	-	3,571,144
192	SANTA CLARA	GILROY	3,050,206	538,030	3,588,236	-	-	-	3,588,236
193	SAN MATEO	MILLBRAE	3,260,562	391,305	3,651,867	-	-	-	3,651,867
194	SAN LUIS OBISPO	ATASCADERO	3,107,860	572,490	3,680,350	-	-	-	3,680,350
195	NEVADA	NEVADA COUNTY	8,690,769	1,696,610	10,387,379	(6,688,513)	-	-	3,698,866
196	SAN JOAQUIN	TRACY	2,938,784	794,050	3,732,834	-	-	-	3,732,834
197	MARIPOSA	MARIPOSA COUNTY	3,255,283	606,160	3,861,443	-	-	-	3,861,443
198	GLENN	GLENN COUNTY	3,394,209	477,875	3,872,084	-	-	-	3,872,084
199	SAN MATEO	PACIFICA	4,922,542	687,830	5,610,372	(1,712,962)	-	-	3,897,410
200	SAN BENITO	SAN BENITO COUNTY	3,539,154	407,665	3,946,819	-	-	-	3,946,819
201	ALAMEDA	LIVERMORE	3,081,884	1,065,060	4,146,944	-	-	-	4,146,944
202	YOLO	DAVIS	3,398,470	779,875	4,178,345	(7,114)	-	-	4,171,231
203	SANTA CRUZ	SANTA CRUZ	3,267,350	1,040,105	4,307,455	-	-	-	4,307,455
204	HUMBOLDT	HUMBOLDT COUNTY	2,586,225	1,728,820	4,315,045	-	-	-	4,315,045

AzP Exhibit J. PG&E Rule 20A Communities - Work Credit Balances by Community As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance									
			A	B	C = A + B	D	E	F	G = C + D + E + F
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5- Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance
205	SANTA CLARA	SARATOGA	3,861,275	476,790	4,338,065	-	-	-	4,338,065
206	SANTA CLARA	LOS GATOS	3,740,630	606,135	4,346,765	-	-	-	4,346,765
207	MARIN	MARIN COUNTY	3,865,254	1,341,690	5,206,944	(560,687)	-	-	4,646,257
208	SAN JOAQUIN	MANTECA	4,011,940	776,070	4,788,010	-	-	-	4,788,010
209	MONTEREY	MONTEREY	4,214,301	656,575	4,870,876	-	-	-	4,870,876
210	HUMBOLDT	EUREKA	4,262,138	724,935	4,987,073	-	-	-	4,987,073
211	SANTA CLARA	MILPITAS	4,324,416	706,045	5,030,461	-	-	-	5,030,461
212	MARIN	NOVATO	4,271,592	779,535	5,051,127	-	-	-	5,051,127
213	SAN LUIS OBISPO	PISMO BEACH	4,860,517	201,345	5,061,862	-	-	-	5,061,862
214	SANTA CLARA	MOUNTAIN VIEW	3,881,398	1,404,360	5,285,758	-	-	-	5,285,758
215	SANTA CLARA	CUPERTINO	4,528,156	842,860	5,371,016	-	-	-	5,371,016
216	TULARE	TULARE COUNTY	6,695,796	830,105	7,525,901	(2,041,646)	-	-	5,484,255
217	TEHAMA	TEHAMA COUNTY	8,419,494	1,153,280	9,572,774	(4,072,701)	-	-	5,500,073
218	COLUSA	COLUSA COUNTY	5,148,230	362,045	5,510,275	-	-	-	5,510,275
219	SONOMA	SANTA ROSA	3,644,023	2,328,015	5,972,038	-	-	-	5,972,038
220	MARIN	SAN RAFAEL	4,879,552	1,133,915	6,013,467	-	-	-	6,013,467
221	SAN MATEO	BELMONT	5,704,507	525,650	6,230,157	-	-	-	6,230,157
222	SAN MATEO	BURLINGAME	5,606,875	695,670	6,302,545	-	-	-	6,302,545
223	SANTA BARBARA	SANTA BARBARA COUNTY	5,280,880	1,107,270	6,388,150	-	-	-	6,388,150
224	SAN LUIS OBISPO	SAN LUIS OBISPO COUNTY	3,985,565	2,541,325	6,526,890	-	-	-	6,526,890
225	SAN MATEO	MENLO PARK	5,918,820	676,800	6,595,620	-	-	-	6,595,620
226	BUTTE	PARADISE	6,000,354	648,610	6,648,964	-	-	-	6,648,964
227	SAN MATEO	SAN BRUNO	5,964,303	747,735	6,712,038	-	-	-	6,712,038
228	SOLANO	FAIRFIELD	5,736,379	1,108,995	6,845,374	-	-	-	6,845,374
229	MADERA	MADERA COUNTY	6,323,766	2,019,755	8,343,521	(1,386,000)	-	-	6,957,521
230	MERCED	MERCED COUNTY	5,582,776	1,508,560	7,091,336	-	-	-	7,091,336
231	SHASTA	SHASTA COUNTY	9,047,610	1,640,610	10,688,220	(3,172,343)	-	-	7,515,877
232	SANTA BARBARA	SANTA MARIA	6,528,107	1,053,505	7,581,612	-	-	-	7,581,612
233	SAN MATEO	SOUTH SAN FRANCISCO	6,780,977	1,013,280	7,794,257	-	-	-	7,794,257
234	CONTRA COSTA	RICHMOND	6,235,810	1,805,590	8,041,400	-	-	-	8,041,400
235	BUTTE	BUTTE COUNTY	6,181,535	2,068,570	8,250,105	-	-	-	8,250,105
236	MONTEREY	SALINAS	6,669,480	1,667,050	8,336,530	-	-	-	8,336,530
237	SUTTER	YUBA CITY	7,490,276	847,465	8,337,741	-	-	-	8,337,741
238	ALAMEDA	SAN LEANDRO	6,888,045	1,556,665	8,444,710	-	-	-	8,444,710

AzP Exhibit J. PG&E Rule 20A Communities - Work Credit Balances by Community As of September 30, 2018									
In Ascending Order by Remaining Work Credit Balance									
	A	B	C = A + B	D	E	F	G = C + D + E + F		
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance
239	TUOLUMNE	TUOLUMNE COUNTY	9,101,808	1,547,915	10,649,723	(1,879,707)	-	-	8,770,016
240	SAN MATEO	SAN MATEO COUNTY	7,769,340	1,226,830	8,996,170	-	-	-	8,996,170
241	MENDOCINO	MENDOCINO COUNTY	7,826,035	1,584,485	9,410,520	-	-	-	9,410,520
242	ALAMEDA	ALAMEDA COUNTY	6,899,982	2,523,430	9,423,412	-	-	-	9,423,412
243	BUTTE	CHICO	8,102,941	1,463,330	9,566,271	-	-	-	9,566,271
244	SAN MATEO	REDWOOD CITY	8,349,928	1,429,655	9,779,583	-	-	-	9,779,583
245	LAKE	LAKE COUNTY	8,431,163	1,400,700	9,831,863	-	-	-	9,831,863
246	CONTRA COSTA	CONCORD	7,932,404	1,903,305	9,835,709	-	-	-	9,835,709
247	SOLANO	VALLEJO	9,320,675	1,719,455	11,040,130	(1,148,157)	-	-	9,891,973
248	ALAMEDA	FREMONT	7,521,430	2,457,810	9,979,240	-	-	-	9,979,240
249	ALAMEDA	BERKELEY	8,477,017	2,647,860	11,124,877	(1,112,507)	-	-	10,012,370
250	NAPA	NAPA	8,947,639	1,212,540	10,160,179	-	-	-	10,160,179
251	CALAVERAS	CALAVERAS COUNTY	8,828,732	1,373,915	10,202,647	-	-	-	10,202,647
252	SAN MATEO	SAN MATEO	9,410,166	1,885,795	11,295,961	-	-	-	11,295,961
253	KERN	BAKERSFIELD	8,103,886	4,083,140	12,187,026	-	-	-	12,187,026
254	SANTA CLARA	SUNNYVALE	10,556,561	2,222,670	12,779,231	-	-	-	12,779,231
255	SAN JOAQUIN	STOCKTON	12,691,623	3,503,950	16,195,573	(3,252,323)	-	-	12,943,250
256	MONTEREY	MONTEREY COUNTY	13,868,313	2,109,680	15,977,993	-	-	-	15,977,993
257	FRESNO	FRESNO COUNTY	12,567,180	4,364,935	16,932,115	-	-	-	16,932,115
258	EL DORADO	EL DORADO COUNTY	16,928,302	2,734,110	19,662,412	(1,812,884)	-	-	17,849,528
259	CONTRA COSTA	CONTRA COSTA COUNTY	16,946,499	2,625,540	19,572,039	-	(1,630,000)	-	17,942,039
260	SANTA CLARA	SANTA CLARA COUNTY	16,675,570	1,315,285	17,990,855	-	-	-	17,990,855
261	SAN JOAQUIN	SAN JOAQUIN COUNTY	16,183,721	3,071,760	19,255,481	-	-	-	19,255,481
262	SANTA CRUZ	SANTA CRUZ COUNTY	18,454,351	2,681,080	21,135,431	-	-	-	21,135,431
263	FRESNO	FRESNO	15,972,148	6,527,160	22,499,308	-	-	-	22,499,308
264	KERN	KERN COUNTY	22,514,166	3,986,720	26,500,886	-	-	-	26,500,886
265	ALAMEDA	OAKLAND	22,065,101	8,463,020	30,528,121	-	-	-	30,528,121
266	SANTA CLARA	SAN JOSE	31,636,193	11,431,760	43,067,953	-	-	-	43,067,953
		Total	712,936,021	206,500,000	919,436,021	(303,232,135)	(71,303,660)	833,700	545,733,927

Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-086, Att.1, tab 1 of 2

AzP Exhibit K. PG&E Rule 20A Communities with Insufficient WCAs for Desired Projects As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance										
			A	B	C = A + B	D	E	F	G = C + D + E + F	
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5-Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance	Additional projects desired but insufficient avail work credits?
1	SAN FRANCISCO	SAN FRANCISCO	(45,657,686)	15,706,185	(29,951,501)	-	-	-	(29,951,501)	Yes
2	SONOMA	SEBASTOPOL	961,920	161,065	1,122,985	(16,781,251)	(4,500,000)	-	(20,158,266)	Yes
3	CONTRA COSTA	PLEASANT HILL	2,347,563	563,860	2,911,423	(16,835,095)	-	-	(13,923,672)	Yes
4	PLACER	LOOMIS	963,229	119,815	1,083,044	(7,839,406)	-	-	(6,756,362)	Yes
5	STANISLAUS	RIVERBANK	(1,688,582)	175,690	(1,512,892)	(4,331,553)	-	-	(5,844,445)	Yes
6	SONOMA	PETALUMA	1,522,314	806,140	2,328,454	(7,384,943)	-	-	(5,056,489)	Yes
7	SONOMA	ROHNERT PARK	1,523,673	396,795	1,920,468	(5,873,632)	-	-	(3,953,164)	Yes
8	COLUSA	WILLIAMS	498,789	69,440	568,229	(3,908,060)	-	-	(3,339,831)	Yes
9	PLUMAS	PLUMAS COUNTY	1,141,962	503,140	1,645,102	(4,499,086)	-	302,249	(2,551,735)	Yes
10	BUTTE	OROVILLE	1,145,212	383,905	1,529,117	(3,521,620)	-	-	(1,992,503)	Yes
11	SHASTA	ANDERSON	(2,056,986)	199,385	(1,857,601)	-	-	-	(1,857,601)	Yes
12	GLENN	ORLAND	1,116,243	141,640	1,257,883	(2,837,018)	-	-	(1,579,135)	Yes
13	AMADOR	AMADOR CITY	50,097	6,910	57,007	(1,529,117)	-	-	(1,472,110)	Yes
14	NEVADA	GRASS VALLEY	693,340	275,925	969,265	(1,735,731)	-	-	(766,465)	Yes
15	SAN MATEO	HILLSBOROUGH	(889,226)	148,505	(740,721)	-	-	-	(740,721)	Yes
16	STANISLAUS	OAKDALE	(192,486)	278,305	85,819	-	-	-	85,819	Yes
17	FRESNO	HURON	180,255	57,230	237,485	-	-	-	237,485	Yes
18	PLACER	COLFAX	198,354	46,030	244,384	-	-	-	244,384	Yes
19	AMADOR	PLYMOUTH	223,697	21,600	245,297	-	-	-	245,297	Yes
20	SANTA CLARA	LOS ALTOS HILLS	222,259	136,825	359,084	-	-	-	359,084	Yes
21	FRESNO	SAN JOAQUIN	365,227	37,800	403,027	-	-	-	403,027	Yes
22	MONTEREY	DEL REY OAKS	374,637	36,720	411,357	-	-	-	411,357	Yes
23	AMADOR	JACKSON	328,889	106,900	435,789	-	-	-	435,789	Yes
24	MERCED	GUSTINE	357,320	96,850	454,170	-	-	-	454,170	Yes
25	SIERRA	SIERRA COUNTY	439,181	61,610	500,791	-	-	-	500,791	Yes
26	HUMBOLDT	RIO DELL	442,263	75,000	517,263	-	-	-	517,263	Yes
27	SANTA CLARA	MONTE SERENO	498,119	58,475	556,594	-	-	-	556,594	Yes
28	CONTRA COSTA	BRENTWOOD	1,505,931	481,265	1,987,196	(1,398,028)	-	-	589,168	Yes
29	AMADOR	IONE	518,559	70,650	589,209	-	-	-	589,209	Yes
30	AMADOR	SUTTER CREEK	599,981	71,050	671,031	-	-	-	671,031	Yes
31	FRESNO	KERMAN	543,997	138,050	682,047	-	-	-	682,047	Yes
32	ALAMEDA	PIEDMONT	707,516	184,560	892,076	-	-	-	892,076	Yes
33	SAN BENITO	HOLLISTER	600,747	356,160	956,907	-	-	-	956,907	Yes
34	MONTEREY	CARMEL	849,085	178,675	1,027,760	-	-	-	1,027,760	Yes
35	MARIN	SAN ANSELMO	738,931	303,580	1,042,511	-	-	-	1,042,511	Yes
36	STANISLAUS	NEWMAN	1,150,461	117,350	1,267,811	-	-	-	1,267,811	Yes

AzP Exhibit K. PG&E Rule 20A Communities with Insufficient WCAs for Desired Projects As of September 30, 2018 In Ascending Order by Remaining Work Credit Balance										
			A	B	C = A + B	D	E	F	G = C + D + E + F	
Rank by Remaining WCA Balance	County	Community	Ledger Balance (as of 9/30/18)	5-Year Borrow	Ledger Balance + 5- Year Borrow (as of 9/30/18)	Projects In The Queue - With Orders (FAC)	Projects In The Queue - Without Orders (FAC)	OH Reloc Credit	Remaining Work Credit Balance	Additional projects desired but insufficient avail work credits?
37	SOLANO	SUISUN CITY	1,068,756	216,045	1,284,801	-	-	-	1,284,801	Yes
38	MARIN	TIBURON	1,201,429	146,720	1,348,149	-	-	-	1,348,149	Yes
39	SAN MATEO	ATHERTON	1,376,998	127,435	1,504,433	-	-	-	1,504,433	Yes
40	CONTRA COSTA	ANTIOCH	582,597	1,057,430	1,640,027	(11,639)	-	-	1,628,388	Yes
41	MONTEREY	MARINA	1,666,637	292,095	1,958,732	-	-	-	1,958,732	Yes
42	MARIN	SAUSALITO	1,875,796	220,115	2,095,911	-	-	-	2,095,911	Yes
43	ALAMEDA	DUBLIN	1,560,230	616,145	2,176,375	-	-	-	2,176,375	Yes
44	SAN LUIS OBISPO	ARROYO GRANDE	1,948,420	300,735	2,249,155	-	-	-	2,249,155	Yes
45	SANTA CRUZ	WATSONVILLE	1,747,611	567,265	2,314,876	-	-	-	2,314,876	Yes
46	CONTRA COSTA	SAN RAMON	1,762,735	641,225	2,403,960	-	-	-	2,403,960	Yes
47	FRESNO	CLOVIS	1,379,242	1,044,970	2,424,212	-	-	-	2,424,212	Yes
48	FRESNO	REEDLEY	3,560,697	285,480	3,846,177	(1,104,550)	-	-	2,741,627	Yes
49	CONTRA COSTA	PITTSBURG	2,777,873	643,335	3,421,208	-	-	-	3,421,208	Yes
50	SAN MATEO	PACIFICA	4,922,542	687,830	5,610,372	(1,712,962)	-	-	3,897,410	Yes
51	SAN MATEO	BELMONT	5,704,507	525,650	6,230,157	-	-	-	6,230,157	Yes
52	SANTA BARBARA	SANTA BARBARA COUNTY	5,280,880	1,107,270	6,388,150	-	-	-	6,388,150	Yes
53	BUTTE	PARADISE	6,000,354	648,610	6,648,964	-	-	-	6,648,964	Yes
54	SAN MATEO	REDWOOD CITY	8,349,928	1,429,655	9,779,583	-	-	-	9,779,583	Yes
Total			25,092,015	33,131,095	58,223,110	(81,303,692)	(4,500,000)	302,249	(27,278,333)	

Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-086, Att.1, tab 1 of 2

AzP Exhibit L. Incomplete PG&E Rule 20A Projects As of September 30, 2018											
Sponsor	Order	Description	Status	Multiple Sponsors?	Resolution Date	Initial Number of Credits Required	Planned Completion Date at Initiation	Planned Completion Date as of September 30, 2018	Column Added by AzP - Number of Days' Difference between Planned Completion Date at Initiation vs. Present	Specific Cause/Reason for Delay	Responsible Party
1	ALAMEDA COUNTY	7.4E+07	HESPERIAN BLVD ALAMEDA CNTY R20A	ENGINEERING PHASE	13-Jan-09	\$3,500,000	01/31/20	01/30/2019	(366)	N/A	N/A
2	ALBANY	7.4E+07	MARIN AVE PH1 ALBANY R20A	CONSTRUCTION PHASE	21-Jun-10	\$2,656,064	12/31/15	10/31/2018	1,035	The project was tied to road improvements and as the City was the Lead they were responsible for the delays.	City of Albany
3	AMERICAN CANYON	3.1E+07	GREEN ISLAND DR AMERICAN CANYON R20A	ENGINEERING PHASE	5-Sep-17	\$588,000	03/31/19	03/31/2019	-	N/A	N/A
4	ARROYO GRANDE	3E+07	GRAND-HALCYON TO ELM ARROYO GRANDE R20A	PLANNING PHASE	13-Dec-05	\$620,000	N/A	12/31/2022	#VALUE!	N/A	N/A
5	BAKERSFIELD	7.4E+07	EP 2019 STINE RD BAKERSFIELD R20A	CONSTRUCTION PHASE	13-Aug-14	\$5,648,479	11/1/2018	05/01/2018	(184)	N/A	N/A
6	BAKERSFIELD	7.4E+07	34TH STREET BAKERSFIELD R20A	ENGINEERING PHASE	13-Aug-14	\$4,574,737	12/1/2020	12/01/2020	-	N/A	N/A
7	BELMONT	3.1E+07	OLD CNTY RD BELMONT PH1 R20A	CLOSING PHASE	27-May-03	\$2,500,000	N/A	12/31/2017	#VALUE!	N/A	N/A
8	BERKELEY	3.1E+07	VISTAMONT AVE BERKELEY R20A	PLANNING PHASE	10-Dec-92	\$1,800,000	12/31/13	04/01/2023	3,378	City of Berkeley requested Grizzly Peak Blvd be prioritized over Vistamont. Due to higher than expected costs for the Grizzly Peak Blvd project, the City has insufficient work credits to move forward with Vistamont.	City of Berkeley
9	BERKELEY	7.4E+07	GRIZZLY PEAK BLVD BERKELEY R20A	ENGINEERING PHASE	27-Apr-93	\$3,500,000	N/A	07/22/2020	#VALUE!	N/A	N/A
10	BRENTWOOD	3.1E+07	FAIRVIEW AVE BRENTWOOD R20A	CLOSING PHASE	22-May-12	\$663,823	12/31/17	09/24/2018	267	Delay due to several factors. City pulled out of the joint trench for their streetlights. Discovery of gas line conflicting with planned trench route. Easement acquisitions. Periodically we had lack of internal estimating resources.	City of Brentwood & PG&E
11	BUTTE COUNTY	3.1E+07	MYERS ST OROVILLE R20A	PLANNING PHASE	22-Nov-11	\$3,353,170	10/30/16	07/01/2022	2,070	Delay due to the City's lack of funds to cover for project costs not covered by the work.	City of Oroville
12	CALAVERAS COUNTY	3.1E+07	MTN RANCH RD PH1 CALAVERAS COUNTY R20A	PLANNING PHASE	25-Nov-05	\$900,000	12/31/2008	12/31/2019	4,017	County has not responded to numerous inquiries about projects.	Calaveras County
13	CALAVERAS COUNTY	3.1E+07	MTN RANCH RD PH2 CALAVERAS COUNTY R20A	ENGINEERING PHASE	25-Nov-05	\$750,000	11/30/2014	12/31/2020	2,223	County has not responded to numerous inquiries about projects.	Calaveras County
14	CALAVERAS COUNTY	3.1E+07	ST CHARLES (HWY 49) SAN ANDREAS R20A	PLANNING PHASE	12-Apr-99	\$786,849	12/31/2021	09/01/2020	(486)	N/A	N/A
15	CAPITOLA	7.4E+07	BAY AVE CAPITOLA R20A	PLANNING PHASE	21-Nov-00	\$1,600,000	2/1/2020	02/01/2020	-	N/A	N/A
16	CHICO	7.4E+07	BRUCE RD CHICO R20A	ENGINEERING PHASE	2-Aug-16	\$4,220,000	12/30/18	06/28/2019	180	Delay due to the 2018 fire in Paradise. The contractor was pulled off due to the unhealthy air quality and evacuation efforts. Inclement weather has also caused delays.	N/A
17	CHICO	7.4E+07	NORTH ESPLANADE CHICO R20A	ENGINEERING PHASE	2-Aug-16	\$2,010,000	12/30/19	01/01/2021	368	The project is tied to road improvements. The City has requested the project be moved out due to their delay in completing their improvement plans.	City of Chico
18	CHICO	7.4E+07	WARNER ST CHICO R20	ENGINEERING PHASE	2-Aug-16	\$2,410,000	12/30/19	12/30/2019	-	N/A	N/A
19	CHOWCHILLA	3.1E+07	R2Z DISTRICT 5 CHOWCHILLA R20A 2ND-6TH	ENGINEERING PHASE	13-Oct-03	\$800,000	12/31/2012	12/29/2019	2,554	YTD Variance due to the easement acquisitions and redesign. Construction now being pushed out and the earliest start date would be	City of Chowchilla
20	COALINGA	7.4E+07	ELM AVE COALINGA R20A	PLANNING PHASE	2-Jul-11	\$3,719,485	4/1/2013	12/01/2019	2,435	Insufficient credits, Base map not ready	City
21	COLUSA	7.4E+07	EP BRIDGE ST COLUSA R20A	CONSTRUCTION PHASE	20-Sep-16	\$2,041,282	12/30/2017	07/31/2019	578	The project costs came in substantially above the current credit allocations for the county and the project was put on hold until enough credits were acquired to start work.	City/County of Colusa
22	COLUSA COUNTY	7.4E+07	EP BRIDGE ST COLUSA R20A	CONSTRUCTION PHASE	20-Sep-16	\$2,041,282	12/30/2017	07/31/2019	578	The project costs came in substantially above the current credit allocations for the county and the project was put on hold until enough credits were acquired to start work.	City/County of Colusa
23	CONCORD	No Order	MARKET ST, CONCORD	PLANNING PHASE	27-Apr-10	\$903,402	05/31/16	N/A	#VALUE!	N/A	N/A
24	CONCORD	No Order	WILLOW PASS RD, CONCORD	PLANNING PHASE	3-Sep-02	\$408,708	08/31/03	N/A	#VALUE!	N/A	N/A
25	CONTRA COSTA COUNTY	7.4E+07	EP BAILEY RD CONTRA COSTA CNTY R20A	ENGINEERING PHASE	10-Sep-13	\$2,314,354	03/31/16	12/30/2019	1,369	Delay due to several factors. Comcast very slow to respond to JT Intent. Discovery of unknown oil line (Shell) and a high-pressured gas line (Calpine). EBMUD aqueduct crossing (easement issue.) Easement acquisitions and expansion of the boundary.	Comcast & Unforeseen Issues
26	CUPERTINO	No Order	STEVENS CREEK BLVD DIST 16, CUPERTINO	PLANNING PHASE	5-Apr-99	\$1,410,000	N/A	N/A	#VALUE!	N/A	N/A
27	DALY CITY	3.1E+07	R7 GENEVA AVE PH2 DALY CITY R20A	PLANNING PHASE	21-Sep-05	\$1,267,000	2/28/2020	02/28/2021	366	City did not sign General Conditions	City of Daly City
28	DANVILLE	No Order	CAMINO TASSAJARA PH 2, DANVILLE	PLANNING PHASE	8-Oct-03	\$3,952,000	12/31/06	N/A	#VALUE!	N/A	N/A
29	DINUBA	3.1E+07	R2 2016 TRANSIT CENTER DINUBA R20A	PLANNING PHASE	22-Nov-11	\$998,514	1/31/2016	09/30/2017	608	Estimating delays, city will not respond to requests for information and authorization	PG&E, City
30	DUBLIN	3.1E+07	EP DUBLIN BLVD DUBLIN R20A	CLOSING PHASE	20-Aug-13	\$625,897	12/31/17	12/31/2017	-	N/A	N/A
31	EAST PALO ALTO	3.1E+07	EP BAY RD EAST PALO ALTO R20A	CLOSING PHASE	6-Jul-13	\$1,006,796	8/30/2015	7/15/2017	685	City was lead. There were City design delays and City bid delays; PG&E Estimating resource issues due to work on Valley Fire restoration; weather and groundwater caused construction	City of East Palo Alto, PG&E
32	EL DORADO COUNTY	3.1E+07	EP DIAM SPRINGS PH1A EL DORADO CNTY R20A	ENGINEERING PHASE	4-Feb-14	\$1,766,000	6/30/2016	02/07/2020	1,317	County had numerous delays with logistics regarding HWY 49 land easements	El Dorado County
33	EL DORADO COUNTY	3.5E+07	MISSOURI FLAT RD EL DORADO CNTY R20A	ENGINEERING PHASE	8-May-18	\$3,900,000	12/31/2019	12/31/2019	-	N/A	N/A
34	EL DORADO COUNTY	7.4E+07	GREEN VALLEY RD EL DORADO CNTY R20A	ENGINEERING PHASE	13-Dec-16	\$2,020,000	3/30/2019	09/30/2019	184	County has worked long process of environmental studies	El Dorado County
35	EL DORADO COUNTY	7.4E+07	DIAMOND SPRINGS 1C, EL DORADO CNTY R20A	ENGINEERING PHASE	4-Feb-14	\$735,437	12/31/2018	12/31/2019	365	County had easement acquisition issues	El Dorado County
36	EUREKA	7.4E+07	R20A - 4TH ST EUREKA	ENGINEERING PHASE	4-Apr-17	\$4,100,000	05/31/20	05/31/2020	-	N/A	N/A
37	FAIRFIELD	3.1E+07	R6 TRAVIS BLVD FAIRFIELD R20A	PLANNING PHASE	19-Sep-06	\$900,000	10/1/2019	10/01/2020	366	City not receptive to original GCA	City of Fairfield
38	FORTUNA	7.4E+07	OP 12TH STREET FORTUNA R20A	ENGINEERING PHASE	15-Apr-13	\$1,979,281	12/31/20	12/01/2017	(1,126)	N/A	N/A

AzP Exhibit L. Incomplete PG&E Rule 20A Projects As of September 30, 2018												
Sponsor	Order	Description	Status	Multiple Sponsors?	Resolution Date	Initial Number of Credits Required	Planned Completion Date at Initiation	Planned Completion Date as of September 30, 2018	Column Added by AzP - Number of Days' Difference between Planned Completion Date at Initiation vs. Present	Specific Cause/Reason for Delay	Responsible Party	
39	FREMONT	No Order	FREMONT BLVD, FREMONT	PLANNING PHASE	17-Apr-18	\$2,400,000	02/20/20	N/A	#VALUE!	N/A	N/A	
40	FREMONT	No Order	PERALTA BLVD, FREMONT	PLANNING PHASE	17-Apr-18	\$1,900,000	02/28/20	N/A	#VALUE!	N/A	N/A	
41	FRESNO	3.1E+07	2017 BELMONT AVE FRESNO R20A	CLOSING PHASE	26-Jun-07	\$3,170,000	N/A	07/30/2017	#VALUE!	N/A	N/A	
42	FRESNO	3.1E+07	VENTURA AVE FRESNO R20A	PLANNING PHASE	27-Mar-07	\$800,000	12/31/2014	05/01/2020	1,948	City prioritized behind various other projects, they are not certain they want to underground this street at all.	City	
43	FRESNO	7.4E+07	BLACKSTONE AVE & ABBY ST FRESNO R20A	ENGINEERING PHASE	25-Sep-07	\$1,200,000	7/15/2020	07/15/2020	-	N/A	N/A	
44	FRESNO	No Order	CHURCH ST, FRESNO	PLANNING PHASE	16-Aug-18	\$4,500,000	11/29/2020	N/A	#VALUE!	N/A	N/A	
45	HALF MOON BAY	3.1E+07	EP CORREAS ST HALF MOON BAY R20A	CONSTRUCTION PHASE	21-Jun-16	\$800,000	12/31/2017	12/31/2017	-	N/A	N/A	
46	HAYWARD	7.4E+07	MISSION BLVD DIST 30 HAYWARD R20A	ENGINEERING PHASE	7-Dec-10	\$2,154,623	06/30/18	06/17/2019	352	The project is a R20A/B Combo. The City is the Lead. PG&E did not agree to the City's accelerated schedule and the City was informed that moving the project forward without finalized drawings was at their risk	City of Hayward	
47	KERN COUNTY	3.5E+07	STATE ROUTE 43 KERN CNTY R20A	ENGINEERING PHASE	20-Mar-18	\$7,445,000	10/6/2020	10/06/2020	-	N/A	N/A	
48	KINGSBURG	3.1E+07	10TH AVE ROOSEVELT SCHOOL KINGSBURG R20A	PLANNING PHASE	3-Mar-10	\$700,000	12/31/2017	04/02/2019	457	Insufficient credits, Base map not ready	City	
49	LAKE COUNTY	7.4E+07	R7 R20A - MAIN ST, SODA BAY	ENGINEERING PHASE	17-Apr-01	\$900,000	N/A	02/28/2019	#VALUE!	N/A	N/A	
50	LARKSPUR	3.5E+07	DOHERTY DR LARKSPUR R20A	ENGINEERING PHASE	5-Apr-17	\$1,258,163	12/31/20	12/31/2020	-	N/A	N/A	
51	LINCOLN	7.4E+07	CIVIC CENTER PLAZA LINCOLN R20A	ENGINEERING PHASE	26-Sep-17	\$631,000	12/31/2019	02/28/2020	59	PG&E resource issues with Project Management and Estimating	PG&E	
52	LIVE OAK	7.4E+07	R6 LIVE OAK BLVD LIVE OAK R20A	ENGINEERING PHASE	16-Aug-17	\$3,300,000	12/1/2020	12/01/2020	-	N/A	N/A	
53	LOOMIS	7.4E+07	SIERRA COLLEGE BLVD LOOMIS R20A	ENGINEERING PHASE	12-Dec-17	\$990,505	12/31/2019	12/31/2019	-	N/A	N/A	
54	LOS GATOS	3.1E+07	EP LOS GATOS BLVD LOS GATOS R20A	ENGINEERING PHASE	1-Mar-16	\$1,670,000	4/30/2019	06/30/2019	61	Town delay providing base map.	Town of Los Gatos	
55	MADERA COUNTY	7.4E+07	ROAD 26 MADERA CNTY R20A	CONSTRUCTION PHASE	19-May-09	\$600,000	11/30/2012	12/30/2018	2,221	Issues with easement acquisition, such as at cell tower	Madera County	
56	MARINA	3.1E+07	RESERVATION RD MARINA R20A	PLANNING PHASE	1-Apr-08	\$1,500,000	N/A	02/02/2020	#VALUE!	N/A	N/A	
57	MCFARLAND	7.4E+07	EP GARZOLI AVE MC FARLAND R20A	CONSTRUCTION PHASE	22-Oct-15	\$2,442,025	12/5/2018	05/01/2019	147	basemap delays, city roadwork drives change to design, credit issues	City	
58	MERCED COUNTY	7.4E+07	EP LOBO AVE MERCED COUNTY R20A	ENGINEERING PHASE	7-Oct-14	\$2,500,000	1/30/2017	02/20/2020	1,116	Delays due to County of Merced not providing their road widening drawings until August, which has pushed out construction to 2019. Easements are currently being attained	County of Merced	
59	MERCED COUNTY	7.4E+07	EP DAN WARD RD MERCED COUNTY R20A	PLANNING PHASE	3-Mar-15	\$2,840,000	7/21/2021	12/31/2020	(202)	N/A	N/A	
60	MILPITAS	3.1E+07	MONTAGUE EXPWY MILPITAS R20A	ENGINEERING PHASE	3-Jan-17	\$800,000	4/30/2019	08/31/2019	123	PG&E Estimating resource issue due to fire restoration.	PG&E	
61	MILPITAS	7.4E+07	SOUTH MAIN ST MILPITAS R20A	ENGINEERING PHASE	3-Jan-17	\$2,238,932	9/30/2019	10/31/2019	31	PG&E Estimating resource issue.	PG&E	
62	MONTEREY COUNTY	7.4E+07	EP MOSS LANDING RD MOSS LANDING R20A	ENGINEERING PHASE	7-Jun-05	\$1,400,000	N/A	12/31/2019	#VALUE!	N/A	N/A	
63	MONTEREY COUNTY	No Order	CARMEL VALLEY RD PH 2, MONTEREY COUNTY	PLANNING PHASE	30-Jul-13	\$7,369,206	5/1/2021	N/A	#VALUE!	N/A	N/A	
64	MOUNTAIN VIEW	3.1E+07	R7 EP CALIFORNIA ST MOUNTAIN VIEW R20A	ENGINEERING PHASE	10-Dec-13	\$1,461,319	7/31/2017	12/31/2018	518	PG&E Estimating resource issue. Some delay due to City not providing base map on time, and unresponsiveness regarding potential scope change	PG&E, City of Mountain View	
65	NAPA	7.4E+07	EP JEFFERSON ST. NAPA R20A	ENGINEERING PHASE	6-May-14	\$2,939,965	12/30/19	06/30/2019	(183)	N/A	N/A	
66	NEVADA CITY	7.4E+07	BROAD ST NEVADA CITY R20A	ENGINEERING PHASE	28-Jun-17	\$437,436	12/31/2019	02/28/2019	(306)	N/A	N/A	
67	NEVADA COUNTY	3.1E+07	R22 COMBIE RD PH3A AUBURN R20A	ENGINEERING PHASE	16-Sep-14	\$2,000,000	12/31/2017	03/31/2019	455	Delays due to the County's schedule in trenching as the County is the lead. Construction now expected to start in Q4. We are not expecting to catch up by YE.	County of Nevada	
68	NEWMAN	3.1E+07	R2 EP NEWMAN RULE 20A PHASE 2	PLANNING PHASE	5-Jun-03	\$500,000	10/30/2015	12/31/2020	1,889	Issues dealing with room in alley to place facilities.	City of Newman	
69	NEWMAN	3.1E+07	E NEWMAN PH3 R20A	PLANNING PHASE	5-Jun-03	\$500,000	10/30/2015	12/31/2020	1,889	Issues dealing with room in alley to place facilities.	City of Newman	
70	NOVATO	3.1E+07	R7 NOVATO BLVD NOVATO R20A	PLANNING PHASE	23-Aug-11	\$1,462,016	12/31/15	11/30/2020	1,796	The City was not ready to move the project forward due to extensive environmental studies and the complexities (3 lanes vs 5 lanes) of the road improvements.	City of Novato	
71	OAKLAND	No Order	PIEDMONT PINES PH 2, OAKLAND	PLANNING PHASE	2-May-00	\$7,650,000	02/27/05	N/A	#VALUE!	N/A	N/A	
72	OAKLAND	No Order	PIEDMONT PINES PH 3, OAKLAND	PLANNING PHASE	2-May-00	\$7,200,000	02/27/05	N/A	#VALUE!	N/A	N/A	
73	ORANGE COVE	3.1E+07	EP ANCHOR AVE ORANGE COVE R20A	PLANNING PHASE	13-Jan-16	\$1,248,620	5/1/2018	11/01/2019	549	Insufficient credits	N/A	
74	OROVILLE	3.1E+07	MYERS ST OROVILLE R20A	PLANNING PHASE	22-Nov-11	\$3,353,170	10/30/16	07/01/2022	2,070	Delay due to the City's lack of funds to cover for project costs not covered by the work	City of Oroville	
75	PACIFICA	3.1E+07	PALMETTO AVE PACIFICA R20A	CLOSING PHASE	24-Nov-08	\$1,350,000	11/1/2015	12/31/2014	(305)	N/A	N/A	
76	PARADISE	7.4E+07	ALMOND ST PARADISE R20A	ENGINEERING PHASE	7-Nov-16	\$3,188,329	07/31/19	07/01/2019	(30)	N/A	N/A	
77	PETALUMA	3.1E+07	R7 BODEGA AVE PH2 PETALUMA R20A	PLANNING PHASE	13-Sep-04	\$3,000,000	07/31/08	10/01/2022	5,175	Delay due to several factors. The City reprioritized another project. They lack funding for streetlight costs and with rising project costs over the years they currently have insufficient work credits.	City of Petaluma	
78	PINOLE	3.1E+07	R7 EP PINOLE VALLEY RD PINOLE R20A	ENGINEERING PHASE	19-Jul-16	\$1,567,747	04/01/18	10/25/2019	572	Delay due to the City's sluggish communication/participation.	City of Pinole	
79	PISMO BEACH	7.4E+07	EP SHELL BEACH RD PISMO BEACH R20A	CONSTRUCTION PHASE	1-May-06	\$500,000	6/3/2007	11/01/2019	4,534	Streetscape design delays, Insufficient credits, Right of way issues	City	
80	PITTSBURG	3.1E+07	R1 WEST LELAND RD PITTSBURG R20A	ENGINEERING PHASE	16-Nov-09	\$3,000,000	07/30/12	05/29/2019	2,494	Delay due to several factors. Comcast very slow to respond. City pulled out of the trench for their streetlights. Insufficient work credits which resulted in a scope reduction.	Comcast & City of Pittsburg	

AzP Exhibit L. Incomplete PG&E Rule 20A Projects As of September 30, 2018												
	Sponsor	Order	Description	Status	Multiple Sponsors?	Resolution Date	Initial Number of Credits Required	Planned Completion Date at Initiation	Planned Completion Date as of September 30, 2018	Column Added by AzP - Number of Days' Difference between Planned Completion Date at Initiation vs. Present	Specific Cause/Reason for Delay	Responsible Party
81	PORTOLA VALLEY	3.1E+07	R1 ALPINE RD PORTOLA VALLEY R20A	ENGINEERING PHASE		23-Jan-13	\$354,067	4/30/2015	07/13/2021	2,266	Insufficient work credits.	N/A
82	REDWOOD CITY	7.4E+07	R1 MIDDLEFIELD ROAD REDWOOD CITY R20A	ENGINEERING PHASE		7-Feb-12	\$5,461,309	7/31/2016	02/07/2020	1,286	Delay by City in completing the design; insufficient credits let to scope reduction and redesign; PG&E Estimating resource issue.	City of Redwood City, PG&E
83	REEDLEY	3.1E+07	REEDLEY SPORTS PARK, DINUBA AVE R20A	PLANNING PHASE		9-Sep-08	\$1,000,000	4/1/2010	12/18/2020	3,914	Insufficient credits, City prioritized Reed Ave as first priority	City
84	REEDLEY	7.4E+07	EP REED AVE REEDLEY R20A	CLOSING PHASE		8-Dec-09	\$3,500,000	8/1/2016	08/01/2018	730	Insufficient credits, basemap delays, easements, road work design	City
85	ROHNERT PARK	3E+07	R7 ADRIAN DR PH2 ROHNERT PARK R20A	PLANNING PHASE		2-Jul-02	\$1,500,000	12/31/03	07/01/2020	6,027	Delay due to several factors. City lacked interest in moving the project forward, reprioritization of two other projects which resulted in the cancellation of Adrian Dr	City of Rohnert Park
86	ROHNERT PARK	3.5E+07	E COTATI AVE ROHNERT PARK R20A	ENGINEERING PHASE		8-May-18	\$1,790,000	04/01/21	01/31/2020	(426)	N/A	N/A
87	SALINAS	3E+07	OC2 +E. MARKET 20A, 101-SANBORN PH1	CLOSING PHASE		20-Jul-04	\$2,000,000	N/A	1/31/2013	#VALUE!	N/A	N/A
88	SALINAS	No Order	WILLIAMS RD PH 1, SALINAS	PLANNING PHASE		4-Jun-13	\$1,907,554	11/25/2023	N/A	#VALUE!	N/A	N/A
89	SAN FRANCISCO	3.1E+07	EP MISSION ST SAN FRANCISCO	CONSTRUCTION PHASE		7-Nov-97	\$4,314,867	N/A	3/31/2018	#VALUE!	N/A	N/A
90	SAN JOSE	3.1E+07	EP GUADALUPE RULE 20A,CITY OF SJ	CLOSING PHASE		14-Jan-03	\$3,000,000	N/A	01/13/2009	#VALUE!	N/A	N/A
91	SAN JOSE	3.1E+07	R2 EP WHITE RD SAN JOSE R20A	CONSTRUCTION PHASE		5-Aug-08	\$450,000	12/31/2010	09/30/2018	2,830	City easement issues; PG&E Land delays; PG&E Estimating resource issues; City paving moratorium.	PG&E, City of San Jose
92	SAN JOSE	3.1E+07	COLEMAN AVE PH 2 SAN JOSE R20A	PLANNING PHASE		16-Jun-09	\$600,000	1/31/2012	12/31/2022	3,987	City has not signed Rule 20A General Conditions and City needs time to procure funding for road widening associated with the	City of San Jose
93	SAN JOSE	3.1E+07	EP LINCOLN AVE SAN JOSE R20A	PLANNING PHASE		8-Jun-10	\$2,791,799	5/31/2017	03/31/2022	1,765	City has not signed Rule 20A General	City of San Jose
94	SAN JOSE	3.1E+07	EP KIRK PARK SAN JOSE R20A	PLANNING PHASE		25-Jan-11	\$1,551,782	2/14/2017	11/30/2021	1,750	City has not signed Rule 20A General	City of San Jose
95	SAN JOSE	7.4E+07	R2 MONTEREY RD SAN JOSE R20A	ENGINEERING PHASE		20-Jun-89	\$3,500,000	1/31/1992	01/24/2020	10,220	City moved project out to avoid paving moratorium; PG&E re-design needed due to discovery of previously unknown communications facilities in street	PG&E, City of San Jose
96	SAN LEANDRO	3.1E+07	R1 RULE 20A E14TH ST N/O BAYFAIR, SL	ENGINEERING PHASE		7-Apr-03	\$1,800,000	N/A	06/30/2020	#VALUE!	N/A	N/A
97	SAN LUIS OBISPO COUNTY	3.1E+07	LOS OSOS VALLEY RD SLO CNTY R20A	CLOSING PHASE		21-Sep-04	\$600,000	6/3/2007	12/31/2017	3,864	City added sidewalk to design after contractor bids received, design re-wrok required	City
98	SAN LUIS OBISPO	No Order	SAN LUIS DRIVE, AVILA BEACH	PLANNING PHASE		27-Aug-14	\$1,043,497	10/2/2019	N/A	#VALUE!	N/A	N/A
99	SAN MATEO	3.1E+07	R1 EP 25TH AVENUE PHASE 2,SAN MATEO,R20A	PLANNING PHASE		6-Apr-87	\$550,000	5/1/1989	09/30/2021	11,840	City waiting for railroad grade separation.	City of San Mateo
100	SAN MATEO COUNTY	3.1E+07	OLD CNTY RD BELMONT PH1 R20A	CLOSING PHASE	Yes	27-Jul-04	\$2,500,000	N/A	12/31/2017	#VALUE!	N/A	N/A
101	SAN MATEO COUNTY	7.4E+07	R7 MIDDLEFIELD RD PH2 S.MATEO CNTY R20A0	ENGINEERING PHASE		8-Oct-02	\$1,000,000	N/A	07/31/2019	#VALUE!	N/A	N/A
102	SANTA BARBARA COUNTY	7.4E+07	BRADLEY RD SANTA MARIA/S.B. CNTY R20A	ENGINEERING PHASE		2-Jun-09	\$2,000,000	6/30/2012	08/05/2019	2,592	Basemap delays, estimating delays, Frontier Design Delayed	City, PG&E, Frontier
103	SANTA CLARA COUNTY	3.1E+07	R7 ALMADEN EXPWY SANTA CLARA CNTY R20A	PLANNING PHASE		13-Nov-07	\$1,875,000	12/30/2008	12/31/2021	4,749	County of Santa Clara and City of San Jose disagree on who owns the street.	City of San Jose and County of Santa Clara
104	SANTA CLARA COUNTY	3.1E+07	MONTAGUE EXPWY MILPITAS R20A	ENGINEERING PHASE	Yes	6-Dec-16	\$800,000	4/30/2019	08/31/2019	123	PG&E Estimating resource issue due to fire restoration.	PG&E
105	SANTA CLARA COUNTY	3.5E+07	LINCOLN PARK LOS ALTOS R20A	ENGINEERING PHASE		14-Feb-17	\$3,400,000	12/31/2019	07/31/2020	213	City base map delay; PG&E Estimating resource issue.	City of Los Altos/County of Santa Clara, PG&E
106	SANTA CRUZ	3.1E+07	R2Z AD EP RIVERSIDE AVE SANTA CRUZ R20A	ENGINEERING PHASE		10-Nov-15	\$1,186,619	1/5/2017	12/30/2020	1,455	City originally placed Mission St as priority then changed direction, associated road work project delayed	City
107	SANTA CRUZ	7.4E+07	R2 MISSION ST PH 3 SANTA CRUZ R20A	PLANNING PHASE		27-Mar-01	\$1,250,000	7/1/1999	12/31/2020	7,854	City prioritized behind Riverside Ave	City
108	SANTA CRUZ COUNTY	3E+07	E SEA CLIFF 20-A, STATE PARK DR.	CLOSING PHASE		18-May-04	\$800,000	N/A	11/30/2017	#VALUE!	N/A	N/A
109	SANTA MARIA	7.4E+07	EP CIVIC CENTER SANTA MARIA R20A	PLANNING PHASE		15-Apr-14	\$2,038,032	7/1/2018	04/05/2020	644	Base map not ready	City
110	SANTA ROSA	7.4E+07	R20A - FULTON RD SANTA ROSA	ENGINEERING PHASE	Yes	14-Feb-17	\$4,700,000	03/31/20	06/30/2020	91	Delay due to AT&T's slow response.	AT&T
111	SOLVANG	3.1E+07	EP MISSION AND FIFTH SOLVANG R20A	ENGINEERING PHASE		12-Nov-13	\$541,750	12/31/2017	10/04/2019	642	Basemap delays, Insufficient credits, delayed design (Frontier Lead)	City/Frontier
112	SONOMA COUNTY	3.1E+07	R7 GRATON RD SONOMA CNTY R20A	PLANNING PHASE		30-Jul-99	\$500,000	03/31/12	01/01/2022	3,563	Delay due to the County's refusal to sign the 2010 General Conditions. The County is moving forward with another project and has put the project on hold.	County of Sonoma
113	SONOMA COUNTY	3.5E+07	FREESTONE SONOMA COUNTY R20A	ENGINEERING PHASE		8-Jun-99	\$500,000	12/31/14	12/31/2021	2,557	Delay due to the County's refusal to sign the 2010 General Conditions.	County of Sonoma
114	SONOMA COUNTY	7.4E+07	R20A - FULTON RD SANTA ROSA	ENGINEERING PHASE	Yes	4-Apr-17	\$4,700,000	03/31/20	06/30/2020	91	Delay due to AT&T's slow response.	AT&T
115	SONOMA COUNTY	No Order	SALMON CREEK, SONOMA COUNTY	PLANNING PHASE		9-Sep-97	\$500,000	N/A	N/A	#VALUE!	N/A	N/A
116	SOUTH SAN FRANCISCO	7.4E+07	SPRUCE AVE SOUTH SAN FRANCISCO	PLANNING PHASE		10-Feb-16	\$2,600,000	1/31/2020	11/30/2022	1,034	City has prioritized another project ahead of this one.	City of South San Francisco
117	SOUTH SAN FRANCISCO	7.4E+07	ANTOINETTE LANE SOUTH SAN FRANCISCO R20A	ENGINEERING PHASE		26-Jul-17	\$1,840,376	8/31/2019	08/31/2019	-	N/A	N/A
118	SOUTH SAN FRANCISCO	No Order	MISSION RD, SOUTH SAN FRANCISCO	PLANNING PHASE		22-Aug-18	\$6,500,000	N/A	N/A	#VALUE!	N/A	N/A
119	STOCKTON	3.5E+07	DOWNTOWN STOCKTON R20A	PLANNING PHASE		7-Nov-17	\$3,416,662	12/31/2020	12/31/2020	-	N/A	N/A
120	SUNNYVALE	7.4E+07	R7 WOLF RD SUNNYVALE R20A	ENGINEERING PHASE		17-Nov-09	\$3,500,000	N/A	08/31/2018	#VALUE!	N/A	N/A
121	SUTTER COUNTY	3.1E+07	ECEIR2Z EP BARRY ROAD SUTTER COUNTY R20A	ENGINEERING PHASE		12-Apr-16	\$806,381	8/31/2017	05/30/2019	637	Issues with easement acquisition	Sutter County
122	TIBURON	3.1E+07	CANCEL -TIBURON BLVD, TIBURON - R20A	CLOSING PHASE		21-May-14	\$706,000	04/01/18	07/01/2018*	#VALUE!	N/A	N/A
123	WALNUT CREEK	3.5E+07	BONANZA ST WALNUT CREEK R20A	PLANNING PHASE		5-Apr-16	\$1,026,058	11/01/19	11/01/2019	-	N/A	N/A
124	WATSONVILLE	No Order	LAKE AVE, WATSONVILLE	PLANNING PHASE		22-Apr-14	\$829,708	2021	N/A	#VALUE!	N/A	N/A
125	WINTERS	3.5E+07	NEWTS EXPRESSWAY WINTERS R20A	PLANNING PHASE		19-Jun-18	\$399,000	12/31/2019	12/31/2019	-	N/A	N/A
126	YUBA CITY	3.1E+07	SECOND ST PH 1 YUBA CITY R20A	CLOSING PHASE		20-Mar-12	\$3,083,554	12/31/2017	12/31/2017	-	N/A	N/A

*Project cancelled.

Source: GRC 2017 Rule 20A Audit. Case No. A 15-091-001, Response to Discovery. AzP-005-027. Att. 1

*Project cancelled.

Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-005-022, Att. J

AzP Exhibit M. PG&E Rule 20A Projects with No Undergrounding District						
	Rule 20A Community	Project Name	Unique Project Identifier (e.g. Work Order No.)	Undergrounding District Name	Identify and Quantify Factors that Contribute to Cost Variances	Value of Work Credits (in USD) used for the Project
1	ALAMEDA COUNTY	*CANC* E14TH ST PH 3	30633334	N/A	N/A, project cancelled	\$ 34,152
2	HAYWARD	*CANC* EP WATKINS ST HAYWARD R20A	30677630	N/A	N/A, project cancelled	N/A
3	LIVERMORE	*CANC* NORTH L ST	30647110	N/A	N/A, project cancelled	\$ 103,735
4	PIEDMONT	CENTRAL PIEDMONT 20B CANCELLATION	30309458	N/A	N/A, project cancelled	\$ 128,309
5	PIEDMONT	HAMPTON & SEAVIEW 20B CANCELLATION	30615956	N/A	N/A, project cancelled	\$ 188,549
6	UNION CITY	C:EP SMITH STREET RULE 20A CITY OF *CANC	30166271	N/A	N/A, project cancelled	\$ 12,542
7	OROVILLE	C:E PC R-20A TBL MT.ST LTS,SUBORDER*CANC	30308489	N/A	N/A, project cancelled	N/A
8	CALAVERAS COUNTY	STATE HWY 49 PH3 SAN ANDREAS R20A	30695972	N/A	N/A, project cancelled	N/A
9	ANTIOCH	*CANC* R1 EP JAMES DONLON BLVD-ANT 20A	30482073	N/A	N/A, project cancelled	\$ 72,304
10	ORINDA	*CANC* MINER RD	30519332	N/A	N/A, project cancelled	\$ 122,000
11	PLACERVILLE	E PLACERVILLE/BLAIRS LANE 20B CANCELLATION	30616046	N/A	N/A, project cancelled	\$ 20,474
12	PLACERVILLE	PLACERVILLE/BLAIRS LANE 20B CANCELLATION	30570693	N/A	N/A, project cancelled	\$ 5,545
13	FRESNO	*CANC* NEES AVE W/O MAPLE R20B	30976327	N/A	N/A, project cancelled	\$ 10,000
14	FRESNO	*CANC* ORANGE AVE	30676935	N/A	N/A, project cancelled	\$ 4,036
15	FRESNO	PEACH AVE - LANE	30225680	N/A	N/A, project cancelled	\$ 45,353
16	FRESNO	PEACH AVE 20A - LYELL	30252291	N/A	N/A, project cancelled	\$ 858
17	FRESNO COUNTY	*CANC* WILLIAMS ST, TRANQUILITY	30675531	N/A	N/A, project cancelled	\$ 1,693
18	KINGSBURG	*CANC* SIERRA AVE KINGSBURG R20A	30708926	N/A	N/A, project cancelled	N/A
19	PARLIER	*CANC* PARLIER AVE, PARLIER R20A	30767369	N/A	N/A, project cancelled	N/A
20	REEDLEY	*CANC* FRANKWOOD AVENUE REEDLEY R20A	30678560	N/A	N/A, project cancelled	N/A
21	EUREKA	EUREKA WATERFRONT RULE 20A *CANC	30232261	N/A	N/A, project cancelled	\$ 3,513
22	BAKERSFIELD	*CANC* EP ASHE ROAD BAKERSFIELD *CANC	80045879	N/A	N/A, project cancelled	N/A
23	BAKERSFIELD	*CANC* EP TAFT HWY BAKERSFIELD *CANC	80045878	N/A	N/A, project cancelled	N/A
24	TAFT	ET CENTER ST. RULE20A -CITYOF TAFT *CANC	30253349	N/A	N/A, project cancelled	\$ 10,088
25	WASCO	EP BECKES ST. RULE 20A *CANC *CANC	30329651	N/A	N/A, project cancelled	\$ 393
26	CLEARLAKE	OLYMPIC DR - CANCELLATION	30058339	N/A	N/A, project cancelled	\$ 89,805
27	MADERA	*CANC* LAKE STREET, MADERA, RULE 20A	30746199	N/A	N/A, project cancelled	N/A
28	MADERA COUNTY	OAKHURST RD 427	30528244	N/A	N/A, project cancelled	\$ 6,256
29	SAUSALITO	R20A - SAN CARLOS, SAUSALITO *CANC*CANC	30309875	N/A	N/A, project cancelled	\$ 98,446
30	MENDOCINO COUNTY	*CANC* GUALALA PH2 MENDOCINO CNTY R20A	30709622	N/A	N/A, project cancelled	N/A
31	MENDOCINO COUNTY	CASPER RULE 20A *CANC	30264707	N/A	N/A, project cancelled	\$ 3,033
32	ATWATER	*CANC* BELLEVUE RD, PHASE 2 ATWATER R20A	30755274	N/A	N/A, project cancelled	N/A
33	LOS BANOS	*CANC* 7TH ST DIST 8 LOS BANOS R20A	30778320	N/A	N/A, project cancelled	N/A
34	LOS BANOS	*CANC* H ST DIST 7B, LOS BANOS R20A	30776761	N/A	N/A, project cancelled	N/A
35	LOS BANOS	EP 7TH ST. FROM H ST TO E ST, *CANC*CANC	30488766	N/A	N/A, project cancelled	N/A
36	KING CITY	C:EP 20 A BROADWAY/ 2ND ST-KC *CANC	30105758	N/A	N/A, project cancelled	\$ 7,623
37	MONTEREY	*CANC* DEL MONTE AVE	30098410	N/A	N/A, project cancelled	\$ 94,619
38	GRASS VALLEY	EAST MAIN ST, GRASS VALLEY	No Order	N/A	N/A, project cancelled	N/A
39	COLFAX	*CANC* MAIN ST	31138035	N/A	N/A, project cancelled	\$ 6,535
40	NEVADA COUNTY	COMBIE RD PHASE II	30027068	N/A	N/A, project cancelled	\$ 88,884
41	PLACER COUNTY	BOWMAN RD PH1 AUBURN PLACER CNTY R20A	30817978	N/A	N/A, project cancelled	N/A
42	PLACER COUNTY	BOWMAN RD PH2 AUBURN PLACER CNTY R20A	30837081	N/A	N/A, project cancelled	N/A
43	PLACER COUNTY	MAIN ST NEWCASTLE PLACER CNTY R20A	30817979	N/A	N/A, project cancelled	N/A
44	PLACER COUNTY	R4 ATWOOD RD AUBURN PLACER CNTY R20A	30817975	N/A	N/A, project cancelled	N/A
45	SAN FRANCISCO	3RD STREET LIGHT RAIL / XING - A	30223280	N/A	N/A, project cancelled	\$ 57,430
46	STOCKTON	*CANC* AIRPORT WAY PH2 STOCKTON R20A	30766533	N/A	N/A, project cancelled	N/A
47	STOCKTON	FREMONT STREET PH2 STOCKTON R20A	30657289	N/A	N/A, project cancelled	N/A
48	STOCKTON	SOUTHSHORE PH2 STOCKTON R20A	30425691	N/A	N/A, project cancelled	N/A
49	GROVER BEACH	*CANC*RAMONA AVE GROVER BEACH R20A	30794542	N/A	N/A, project cancelled	N/A

AzP Exhibit M. PG&E Rule 20A Projects with No Undergrounding District						
Rule 20A Community		Project Name	Unique Project Identifier (e.g. Work Order No.)	Undergrounding District Name	Identify and Quantify Factors that Contribute to Cost Variances	Value of Work Credits (in USD) used for the Project
50	MORRO BAY	C:EP MORRO BAY BLVD, 20A, MORRO BAY	30186000	N/A	N/A, project cancelled	\$ 3,811
51	PASO ROBLES	*CANC*RULE 20A 6TH-9TH & 9TH-10TH, *CANC	80006843	N/A	N/A, project cancelled	N/A
52	SAN LUIS OBISPO COUNTY	SOUTH BAY BLVD, SLO COUNTY	No Order	N/A	N/A, project cancelled	N/A
53	DALY CITY	*CANC* HILLSIDE BLVD PH 1	30487832	N/A	N/A, project cancelled	\$ 14,126
54	DALY CITY	*CANC* HILLSIDE BLVD PH 2	30487833	N/A	N/A, project cancelled	\$ 10,241
55	SAN CARLOS	*CANC*C:EP INDUSTRIAL RULE 20A, S.C.	30417989	N/A	N/A, project cancelled	\$ 451
56	CAPITOLA	C:CAPITOLA RULE 20A *CANC	30125135	N/A	N/A, project cancelled	\$ 11,817
57	SANTA CRUZ	C:GEPC MISSION HILL RULE 20A,SANTA CRUZ	30070717	N/A	N/A, project cancelled	\$ 8,838
58	ANDERSON	NORTH STREET, ANDERSON RULE 20A *CANC	30406410	N/A	N/A, project cancelled	\$ 542
59	VACAVILLE	*CANC* R4 VACAVILLE / BUCK AVE RULE 20A	30550905	N/A	N/A, project cancelled	\$ 93,924
60	SANTA ROSA	*CANC* E-STONY POINT RULE 20A, SANT*CANC	30312923	N/A	N/A, project cancelled	\$ 5,086
61	YUBA CITY	BRIDGE ST, YUBA CITY	30177662	N/A	N/A, project cancelled	\$ 6,763
62	YUBA CITY	SECOND ST YUBA CITY PH II	74010531	N/A	N/A, project cancelled	N/A
63	TEHAMA COUNTY	*CANC* HWY 99 LOS MOLINOS TEHAMA CNTY R2	30258465	N/A	N/A, project cancelled	N/A
64	WOODLAND	*CANC* DEAD CAT ALLEY	30864665	N/A	N/A, project cancelled	\$ 6,682
65	YUBA COUNTY	*CANC* EP YUBA COUNTY RULE 20A MCGO*CANC	30237025	N/A	N/A, project cancelled	N/A
Source: PG&E Response to Energy Division Request (submitted by Jonathan Frost), R.17-05-010 Data Request Tables_PGE_2018.12.31, "Detailed Project information" tab. Filtered by AzP for Undergrounding District Name "N/A".						

AzP Exhibit N. PG&E Rule 20A Completed Projects - Variances Between Earliest Available Cost Estimates and Final Costs - 2007 through 2016														
Line No.	Project Completion Year	Project Initiation Year	Order	Description	Community	Earliest Available Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 5 Estimate Accuracy Range (+100% to -50%) or Insufficient Data Available	Design Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 1 Estimate Accuracy Range (+10% to -5%) or Insufficient Data Available	Testing Selections (Outside of both AACE Class 5 and Class 1 Estimates, or Insufficient Estimate Data Provided)
1	2007	2001	30069477	State Hwy 1 -	Sonoma County	991,000	\$1,007,477	2%		1,219,008	\$1,007,477	-17%	X	
2	2007	2001	30071191	City Of Davenport	Santa Cruz County	1,000,000	\$1,594,313	59%		1,596,667	\$1,594,313	0%		
3	2007	2001	30075639	Carmel Valley Rd, Carmel-by-the-sea	Monterey County	1,700,000	\$1,707,829	0%		1,844,109	\$1,707,829	-7%	X	
4	2007	2001	30155281	Fremont Blvd-Irvington	Fremont	Earliest Estimate Not available		Insufficient Data for Calculation	X	1,487,732	\$1,216,246	-18%	X	X
5	2007	2001	30155323	Mason St. (davis-merchant)	Vacaville	680,000	\$576,143	-15%		681,942	\$576,143	-16%	X	
6	2007	2001	30167443	Cohasset Rd And East Ave, Chico	Butte County	790,991	\$801,892	1%		950,000	\$801,892	-16%	X	
7	2007	2001	30170978	San Ramon Valley Blvd	San Ramon	900,000	\$1,034,453	15%		1,071,945	\$1,034,453	-3%		
8	2007	2001	30171622	G & H Streets, From 7th To 11th Sts.	Arcata	1,058,000	\$1,109,691	5%		1,104,500	\$1,109,691	0%		
9	2007	2001	30178098	3rd And C Streets	West Sacramento	817,000	\$830,239	2%		1,117,294	\$830,239	-26%	X	
10	2007	2001	30195251	San Pedro Creek Phase 1	Pacifica	442,861	\$401,204	-9%		444,599	\$401,204	-10%	X	
11	2007	2001	30223284	3rd Street / Xing 2	San Francisco	314,449	\$214,111	-32%		314,449	\$214,111	-32%	X	
12	2007	2001	30236749	3rd Street / Xing -3	San Francisco	291,198	\$290,630	0%		291,198	\$290,630	0%		
13	2007	2001	30237178	Ocean Ave, Phase II Cabling	San Francisco	982,153	\$989,723	1%		982,153	\$989,723	1%		
14	2007	2002	30239753	Ocean Ave, Phase III b Subst	San Francisco	751,544	\$697,184	-7%		751,544	\$697,184	-7%	X	
15	2007	2002	30267444	Ocean Ave, Phase 3a/b Cbl/oh	San Francisco	1,246,052	\$1,312,088	5%		1,246,052	\$1,312,088	5%		
16	2007	2002	30269575	Clark Rd & Skyway	Paradise	739,900	\$753,334	2%		796,119	\$753,334	-5%	X	
17	2007	2002	30282030	West Steele Lane	Santa Rosa	1,001,000	\$1,019,413	2%		1,130,442	\$1,019,413	-10%	X	
18	2007	2002	30288220	Lovers Lane	Vacaville	258,000	\$258,583	0%		307,306	\$258,583	-16%	X	
19	2007	2003	30306856	Louise Ave	Lathrop	600,000	\$520,569	-13%		521,269	\$520,569	0%		
20	2007	2003	30321001	Parkview Ave, Redding	Shasta County	905,000	\$709,870	-22%		902,111	\$709,870	-21%	X	
21	2007	2003	30328762	Stillman Street	San Francisco	480,896	\$496,270	3%		480,896	\$496,270	3%		
22	2007	2003	30339035	Pershing Street	Stockton	688,935	\$697,055	1%		737,361	\$697,055	-5%	X	
23	2007	2003	30339515	Hwy 108 "F"	Oakdale	1,369,738	\$1,370,321	0%		1,410,474	\$1,370,321	-3%		
24	2007	2003	30348512	Walton Ave	Yuba City	2,600,000	\$207,406	-92%	X	284,060	\$207,406	-27%	X	X
25	2007	2003	30354147	Shaw & Cedar Avenues	Fresno	1,006,722	\$924,177	-8%		926,977	\$924,177	0%		
26	2007	2004	30359162	Southshore Phase 1	Stockton	160,627	\$164,932	3%		206,521	\$164,932	-20%	X	
27	2007	2004	30384525	Concannon	Livermore	700,000	\$637,873	-9%		704,251	\$637,873	-9%	X	
28	2007	2004	30391234	Chinatown Alleys (waverly)	San Francisco	373,468	\$319,527	-14%		373,468	\$319,527	-14%	X	
29	2007	2004	30415847	Civic Center, Phase	San Jose	1,650,000	\$2,174,101	32%		2,206,323	\$2,174,101	-1%		
30	2007	2005	30418943	East Street	Woodland	165,000	\$221,352	34%		322,479	\$221,352	-31%	X	
31	2007	2006	30488767	7th Street, From H To E Streets	Los Banos	800,000	\$959,319	20%		911,412	\$959,319	5%		
32				Total 2007		25,464,534	24,001,078	-6%	Total 2007	27,324,661	25,217,324	-8%		
33														
34	2008	2001	30011097	Gough & Green W/gprp	San Francisco	1,972,517	\$2,075,843	5%		1,972,517	\$2,075,843	5%		
35	2008	2001	30011544	Ocean Ave, Phase 1	San Francisco	1,673,118	\$1,726,898	3%		1,673,118	\$1,726,898	3%		
36	2008	2001	30034755	Banks/chapman (substructure Portion) W/gprp	San Francisco	4,191,358	\$3,440,952	-18%		4,191,358	\$3,440,952	-18%	X	
37	2008	2001	30040767	Lower Clayton W/gprp	San Francisco	1,208,199	\$771,642	-36%		766,365	\$771,642	1%		
38	2008	2001	30098043	Industrial	San Carlos	2,952,731	\$2,934,893	-1%		2,991,359	\$2,934,893	-2%		
39	2008	2001	30137189	Lincoln #3 (cabling Portion, 2001 Project)	San Francisco	287,610	\$290,757	1%		287,610	\$290,757	1%		
40	2008	2001	30180213	Ocean Ave Ph 2 (substructure Portion)	San Francisco	2,021,325	\$2,000,195	-1%		2,021,325	\$2,000,195	-1%		
41	2008	2001	30181165	Alpine Terrace (cabling Portion)	San Francisco	290,151	\$312,250	8%		290,151	\$312,250	8%		
42	2008	2001	30192420	Gough & Green (cabling Portion) W/gprp	San Francisco	901,659	\$1,012,904	12%		901,659	\$1,012,904	12%	X	
43	2008	2001	30200858	3rd Street Light Rail / Phase 1	San Francisco	2,064,715	\$2,196,860	6%		2,064,715	\$2,196,860	6%		

AzP Exhibit N. PG&E Rule 20A Completed Projects - Variances Between Earliest Available Cost Estimates and Final Costs - 2007 through 2016															
Line No.	Project Completion Year	Project Initiation Year	Order	Description	Community	Earliest Available Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 5 Estimate Accuracy Range (+100% to -50%) or Insufficient Data Available	Design Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 1 Estimate Accuracy Range (+10% to -5%) or Insufficient Data Available	Testing Selections (Outside of both AACE Class 5 and Class 1 Estimates, or Insufficient Estimate Data Provided)	
44	2008	2001	30211896	3rd Street Light Rail / Phase 2	San Francisco	5,431,763	\$5,416,350	0%		5,431,763	\$5,416,350	0%			
45	2008	2001	30222280	Lincoln Way #2 (cabling Portion) W/ Grrp	San Francisco	1,101,450	\$1,114,745	1%		1,101,450	\$1,114,745	1%			
46	2008	2001	30222768	Santa Clara Civic Center, San Jose	San Jose	650,000	\$647,312	0%		648,639	\$647,312	0%			
47	2008	2001	30223375	Funston Ave W/ Grrp	San Francisco	2,655,757	\$2,729,141	3%		2,655,757	\$2,729,141	3%			
48	2008	2001	30233278	Lower Forest Ave	Pacific Grove	650,000	\$751,389	16%		829,771	\$751,389	-9%	X		
49	2008	2001	30235385	Ocean Ave, Phase	San Francisco	1,540,254	\$1,535,302	0%		1,540,254	\$1,535,302	0%			
50	2008	2002	30242356	Wash/680	Fremont	2,100,000	\$1,087,762	-48%		2,110,409	\$1,087,762	-48%	X		
51	2008	2002	30249966	E Blithedale	Mill Valley	2,900,000	\$3,000,583	3%		3,110,109	\$3,000,583	-4%			
52	2008	2002	30264400	W Francisco Blvd	San Rafael	242,141	\$444,676	84%		493,826	\$444,676	-10%	X		
53	2008	2002	30271350	Lincoln Way 6 W/grrp	San Francisco	809,955	\$677,423	-16%		809,955	\$677,423	-16%	X		
54	2008	2002	30292474	Hammer Lane, Stockton	Stockton	462,848	\$486,964	5%		500,036	\$486,964	-3%			
55	2008	2003	30302872	Shasta Dam Blvd, Shasta Lake	Shasta County	369,000	\$275,198	-25%		368,436	\$275,198	-25%	X		
56	2008	2003	30334789	25th Street W/grrp	San Francisco	910,652	\$955,473	5%		910,652	\$955,473	5%			
57	2008	2003	30334790	Flint/16th St	San Francisco	623,495	\$457,893	-27%		623,495	\$457,893	-27%	X		
58	2008	2003	30334791	Lincoln Way 4 W/grrp	San Francisco	319,798	\$272,358	-15%		319,798	\$272,358	-15%	X		
59	2008	2003	30340559	Oakdale/palou/men dell Plaza	San Francisco	265,300	\$212,547	-20%		265,300	\$212,547	-20%	X		
60	2008	2004	30400105	Oak Street (stanyan-oak)	San Francisco	1,724,209	\$1,744,118	1%		1,725,884	\$1,744,118	1%			
61	2008	2004	30406567	259 N. Wilma Ave, Ripon	Ripon	750,000	\$866,091	15%		959,506	\$866,091	-10%	X		
62	2008	2004	30408801	Dougherty	Dublin	750,000	\$1,215,529	62%		1,268,711	\$1,215,529	-4%			
63	2008	2005	30443282	Chinatown Alleys (beckett)	San Francisco	194,187	\$186,532	-4%		194,187	\$186,532	-4%			
64	2008	2005	30443283	Chinatown Alleys (wentworth)	San Francisco	216,000	\$284,499	32%		280,540	\$284,499	1%			
65	2008	2005	30459828	Banks/chapman, Replace Pole	San Francisco	33,726	\$25,514	-24%		33,726	\$25,514	-24%	X		
66				Total 2008		42,263,918	41,150,595	-3%	Total 2008	43,342,381	41,150,595	-5%			
67															
68	2009	2001	30060281	First St	Pleasanton	4,300,000	\$2,634,711	-39%		4,307,530	\$2,634,711	-39%	X		
69	2009	2001	30166232	Esplanade Ave	Pacifica	300,000	\$165,488	-45%		198,831	\$165,488	-17%	X		
70	2009	2001	30184983	Arguello - 7th & Lincoln-kirk	San Francisco	1,565,000	\$1,706,113	9%		1,565,000	\$1,706,113	9%			
71	2009	2001	30185077	North San Pedro	Marin County	4,177,000	\$4,409,611	6%		4,503,253	\$4,409,611	-2%			
72	2009	2001	30185815	Tamalpais Blvd.	Corte Madera	815,991	\$1,231,590	51%		1,242,940	\$1,231,590	-1%			
73	2009	2001	30215433	3rd St Light Rail, Phase 3	San Francisco	2,807,124	\$2,810,321	0%		2,807,124	\$2,810,321	0%			
74	2009	2002	30245221	Presidio Hts., Phase 3	San Francisco	2,179,363	\$2,312,220	6%		2,179,363	\$2,312,220	6%			
75	2009	2002	30249633	Presidio Hts. 4c W/grrp	San Francisco	2,780,000	\$2,918,860	5%		2,940,065	\$2,918,860	-1%			
76	2009	2002	30276150	Central Ave	Fremont	1,900,000	\$1,916,781	1%		1,895,699	\$1,916,781	1%			
77	2009	2003	30311335	W. Estudillo	San Leandro	1,200,000	\$989,665	-18%		1,025,318	\$989,665	-3%			
78	2009	2003	30311450	E Trinidad	Humboldt County, Trinidad	60,000	\$249,877	316%	X	237,716	\$249,877	5%			
79	2009	2003	30326713	Fiddletown	Amador County	1,095,000	\$1,191,232	9%		1,219,863	\$1,191,232	-2%			
80	2009	2004	30376352	Great Hwy W/grrp	San Francisco	1,533,070	\$1,349,572	-12%		1,410,868	\$1,349,572	-4%			
81	2009	2004	30384129	Upper Lake	Lake County	500,000	\$943,680	89%		1,352,633	\$943,680	-30%	X		
82	2009	2004	30402155	El Dorado St, Ph 1	Stockton	1,414,201	\$1,284,246	-9%		1,326,625	\$1,284,246	-3%			
83	2009	2004	30403106	Fifth Street	Clovis	1,175,082	\$1,123,324	-4%		1,167,561	\$1,123,324	-4%			
84	2009	2004	30411562	East Ave Cohasset To Ceonothus	Butte County, Chico	4,000,000	\$3,457,228	-14%		4,912,691	\$3,457,228	-30%	X		
85	2009	2005	30419337	San Rafael Ave	Belvedere	180,000	\$122,129	-32%		535,028	\$122,129	-77%	X		
86	2009	2005	30421018	Villa Ave. (bullard2herndon)	Clovis	2,000,000	\$2,378,715	19%		2,569,213	\$2,378,715	-7%	X		
87	2009	2005	30449755	Purissima/altamont Roads	Los Altos Hills	1,000,000	\$815,900	-18%		785,402	\$815,900	4%			
88	2009	2005	30454611	Airport Way	Stockton	950,000	\$1,082,551	14%		1,384,759	\$1,082,551	-22%	X		
89	2009	2005	30469953	El Dorado St, Ph 2	Stockton	840,944	\$1,018,164	21%		1,057,519	\$1,018,164	-4%			

AzP Exhibit N. PG&E Rule 20A Completed Projects - Variances Between Earliest Available Cost Estimates and Final Costs - 2007 through 2016														
Line No.	Project Completion Year	Project Initiation Year	Order	Description	Community	Earliest Available Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 5 Estimate Accuracy Range (+100% to -50%) or Insufficient Data Available	Design Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 1 Estimate Accuracy Range (+10% to -5%) or Insufficient Data Available	Testing Selections (Outside of both AACE Class 5 and Class 1 Estimates, or Insufficient Estimate Data Provided)
90	2009	2007	30579877	City Of Newman, Ph 1	Newman	900,000	\$312,071	-65%	X	310,913	\$312,071	0%		
91					Total 2009	37,672,775	36,424,049	-3%	Total 2009	40,935,915	36,424,049	-11%		
92														
93	2010	2001	30014022	Pc Presidio Hts 4a,	San Francisco	2,046,927	\$2,203,646	8%		2,144,545	\$2,203,646	3%		
94	2010	2001	30126926	Ep Kngs Cnyn Ph 3 20a (maple-willw)	Fresno	1,700,000	\$3,403,646	100%	X	3,392,049	\$3,403,646	0%		
95	2010	2001	30134049	East Street R20a	Concord	3,100,000	\$1,850,650	-40%		2,573,145	\$1,850,650	-28%	X	
96	2010	2001	30160625	Parker R20a-parker Avenue-rodeo	Contra Costa County	1,100,000	\$2,300,334	109%	X	2,263,015	\$2,300,334	2%		
97	2010	2001	30213683	Wilson Ave Phil, Rule 20, Vallejo	Vallejo	780,000	\$491,493	-37%		682,896	\$491,493	-28%	X	
98	2010	2001	30219331	Ep 1st&2nd St, Napa Rule 20a	Napa County	2,600,000	\$3,008,083	16%		4,145,295	\$3,008,083	-27%	X	
99	2010	2001	30222281	Oc1 Ges Texas/19th St. Sf R120a W/grp	San Francisco	1,974,439	\$2,348,558	19%		2,330,467	\$2,348,558	1%		
100	2010	2001	30222282	Oc1 Ges Dolores St R20/a Phase 1 W/grp	San Francisco	2,498,011	\$2,871,615	15%		2,778,365	\$2,871,615	3%		
101	2010	2001	30223377	Oc1 Ges San Bruno 2 R20a Ph1	San Francisco	1,818,718	\$2,077,580	14%		2,043,824	\$2,077,580	2%		
102	2010	2002	30242967	Oc1 Ges San Bruno 2 R20a Ph2 W/grp	San Francisco	3,287,460	\$3,927,267	19%		4,087,954	\$3,927,267	-4%		
103	2010	2002	30249355	Oc1 Ep Corbett 1b - Rule 20a	San Francisco	5,375,118	\$4,673,749	-13%		5,409,556	\$4,673,749	-14%	X	
104	2010	2002	30249357	Ep - Broad/randolph R20a	San Francisco	5,482,339	\$5,954,541	9%		6,715,092	\$5,954,541	-11%	X	
105	2010	2002	30249629	Gep Mid Lake R20a	San Francisco	2,552,623	\$2,463,511	-3%		2,552,623	\$2,463,511	-3%		
106	2010	2002	30250175	Gep Dolores Street 2 R20a	San Francisco	2,520,532	\$2,575,673	2%		2,527,570	\$2,575,673	2%		
107	2010	2002	30292479	Hammer Lane Rule 20a-sj Co. Part	San Joaquin County	979,152	\$994,499	2%		1,019,221	\$994,499	-2%		
108	2010	2003	30297408	Oak Street Rule 20a Oc1 9th & 10th	San Francisco	1,840,598	\$2,037,687	11%		2,086,286	\$2,037,687	-2%		
109	2010	2003	30303305	Ave/ortega R20a Cabling	San Francisco	1,900,514	\$2,076,535	9%		2,341,551	\$2,076,535	-11%	X	
110	2010	2003	30314814	Gep: Octavia St	San Francisco	1,557,760	\$1,590,802	2%		1,557,760	\$1,590,802	2%		
111	2010	2003	30333103	Banks/chapman Rule 20a	San Francisco	2,034,308	\$1,787,842	-12%		2,462,490	\$1,787,842	-27%	X	
112	2010	2003	30334696	Oc1 Gep Liberty Hill 2 R20a W/grp	San Francisco	3,758,535	\$3,077,951	-18%		3,783,672	\$3,077,951	-19%	X	
113	2010	2003	30334698	Gep Dolores Street 3 R20a	San Francisco	3,707,878	\$4,558,682	23%		5,119,384	\$4,558,682	-11%	X	
114	2010	2003	30334785	Gep Oakdale/palou 1 R20a	San Francisco	3,962,115	\$4,772,907	20%		4,736,739	\$4,772,907	1%		
115	2010	2003	30334788	Gep Taravel St.	San Francisco	3,631,850	\$3,675,619	1%		3,662,517	\$3,675,619	0%		
116	2010	2003	30334792	Oc1 Gep Lincoln Way 5 Rule 20a	San Francisco	2,332,716	\$3,021,505	30%		2,948,274	\$3,021,505	2%		
117	2010	2003	30344715	Camino Tassajara 20a, Danville	Danville	2,600,000	\$2,371,997	-9%		2,693,395	\$2,371,997	-12%	X	
118	2010	2004	30366845	Olive Ave. (fruitvale Coffee) Rule 20a	Kern County	2,500,000	\$1,947,899	-22%		2,500,000	\$1,947,899	-22%	X	
119	2010	2004	30381109	Nice Rule 20a	Lake County	900,000	\$784,282	-13%		868,421	\$784,282	-10%	X	
120	2010	2005	30444991	Academy, R20a, Hwy 180 To Calif	Fresno County	768,000	\$815,808	6%		825,273	\$815,808	-1%		
121	2010	2005	30467134	Friant Rd Btwn Bugg & No. Fork	Fresno County	100,000	\$609,176	509%	X	597,915	\$609,176	2%		
122	2010	2005	30472856	Friant Road Shoo Fly (rule 20a)	Fresno	1,200,000	\$492,448	-59%	X	871,736	\$492,448	-44%	X	X
123	2010	2006	30513231	Friant Road Rule	Fresno County	1,500,000	\$1,118,261	-25%		1,038,390	\$1,118,261	8%		
124	2010	2006	30526916	Willow R20a(teague To 660' N/o Sheph	Fresno	1,500,000	\$1,140,852	-24%		1,254,596	\$1,140,852	-9%	X	
125	2010	2006	30533492	Oc4 Ep Rule 20a Cypress & Hilltop Reding	Shasta County	300,000	\$193,839	-35%		296,963	\$193,839	-35%	X	
126	2010	2007	30558119	Ep Fort Tejon Rule 20a - Lebec	Kern County	250,000	\$209,282	-16%		306,866	\$209,282	-32%	X	

AzP Exhibit N. PG&E Rule 20A Completed Projects - Variances Between Earliest Available Cost Estimates and Final Costs - 2007 through 2016														
Line No.	Project Completion Year	Project Initiation Year	Order	Description	Community	Earliest Available Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 5 Estimate Accuracy Range (+100% to -50%) or Insufficient Data Available	Design Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 1 Estimate Accuracy Range (+10% to -5%) or Insufficient Data Available	Testing Selections (Outside of both AACE Class 5 and Class 1 Estimates, or Insufficient Estimate Data Provided)
127	2010	2007	30566254	Academy Ave 20a Jefferson Ave, Sanger	Fresno County	400,000	\$461,520	15%		466,588	\$461,520	-1%		
128	2010	2008	30616113	R20a - Alameda Del Prado, Ma Cnty	Marin County	1,000,000	\$1,544,188	54%		1,823,633	\$1,544,188	-15%	X	
129	2010	2008	30629431	Sports Village- Ashe Rd Seg. 1 Bksf	Bakersfield	7,800,000	\$787,398	-90%	X	958,451	\$787,398	-18%	X	X
130	2010	2001	30223376 & 31370088	Ges Mission St R20a	San Francisco	4,314,867	\$5,122,168	19%		Design Cost Estimate Was Not Provided for Both Order Numbers		Insufficient Data for Calculation	X	
131					Total 2010	87,674,460	\$85,343,493	-3%	Total 2010	87,866,516	80,221,325	-9%		
132														
133	2011	2001	30010732	El Camino Real	Colma, Daly City, San Mateo County	266,667	\$2,238,614	739%	X	2,594,656	\$2,238,614	-14%	X	X
134	2011	2001	30155006	Bay St	Fremont	2,500,000	\$1,251,374	-50%		1,510,757	\$1,251,374	-17%	X	
135	2011	2001	30206851	Hwy 92/main St	Half Moon Bay	1,500,000	\$845,737	-44%		901,246	\$845,737	-6%	X	
136	2011	2002	30249353	Mid-24th	San Francisco	2,959,220	\$2,920,534	-1%		2,984,357	\$2,920,534	-2%		
137	2011	2005	30450302	Whitesbridge	Kerman	570,000	\$1,097,272	93%		1,275,672	\$1,097,272	-14%	X	
138	2011	2008	30636534	Lafayette Cir & Fiesta Ln	Lafayette	1,000,000	\$1,049,391	5%		1,914,401	\$1,049,391	-45%	X	
139	2011	2008	30656093	South Mill Creek	Bakersfield	1,394,994	\$1,518,177	9%		1,658,994	\$1,518,177	-8%	X	
140					Total 2011	10,190,881	\$10,921,099	7%	Total 2011	12,840,083	10,921,099	-15%		
141														
142	2012	2003	30072595	Upper Broadway	Seaside	800,000	\$2,678,450	235%	X	2,308,178	\$2,678,450	16%	X	X
143	2012	2001	30146944	Mission/calhoun	Hayward	3,500,000	\$3,371,423	-4%		3,846,340	\$3,371,423	-12%	X	
144	2012	2001	30178490	Lemoore Ave	Kings County, Lemoore	2,506,682	\$4,290,373	71%		4,355,706	\$4,290,373	-1%		
145	2012	2001	30215963	Macarthur Ph 1	Oakland	2,200,000	\$4,295,232	95%		4,678,908	\$4,295,232	-8%	X	
146	2012	2002	30240320	Mission St, Ph 2	Santa Cruz	3,200,000	\$3,897,341	22%		3,887,915	\$3,897,341	0%		
147	2012	2002	30240908	Macarthur Ph 2	Oakland	2,200,000	\$4,043,229	84%		4,868,626	\$4,043,229	-17%	X	
148	2012	2002	30240911	Macarthur Ph 3	Oakland	2,200,000	\$4,966,230	126%	X	5,086,508	\$4,966,230	-2%		
149	2012	2002	30249359	Courtland Connect - Dist.#339 - Ph 1	San Francisco	3,958,771	\$4,105,893	4%		4,103,359	\$4,105,893	0%		
150	2012	2002	30249631	Mid-folsom St - Dist.#350 - Ph 1	San Francisco	2,588,420	\$3,272,663	26%		3,250,225	\$3,272,663	1%		
151	2012	2002	30250174	Liberty Hill - Dist.#329 - Ph 1	San Francisco	4,147,312	\$4,416,284	6%		4,402,364	\$4,416,284	0%		
152	2012	2002	30278150	Laidley St - Dist.#330 - Ph 2	San Francisco	1,212,487	\$1,366,057	13%		1,577,281	\$1,366,057	-13%	X	
153	2012	2003	30302192	Broadway	Sonoma, Sonoma County	761,000	\$2,141,797	181%	X	2,131,283	\$2,141,797	0%		
154	2012	2003	30317644	Sutter Hospital	Merced County	1,000,000	\$2,026,094	103%	X	2,189,686	\$2,026,094	-7%	X	X
155	2012	2003	30323751	Oak Park Blvd	Grover Beach	360,000	\$1,169,786	225%	X	961,658	\$1,169,786	22%	X	X
156	2012	2003	30334699	Courtland Connect - Dist.#339 - Ph 2	San Francisco	3,604,826	\$4,549,045	26%		4,559,222	\$4,549,045	0%		
157	2012	2003	30334782	Corbett Ave - Dist.#311 - Ph 2	San Francisco	5,953,869	\$3,374,543	-43%		3,378,947	\$3,374,543	0%		
158	2012	2003	30334783	Mid-folsom St.	San Francisco	2,995,641	\$3,565,078	19%		3,626,871	\$3,565,078	-2%		
159	2012	2004	30367568	Ralston/eucalyptus Avenues	Hillsborough	750,000	\$2,058,774	175%	X	2,432,676	\$2,058,774	-15%	X	X
160	2012	2004	30383452	Taraval - Dist.#346 - Ph 2	San Francisco	6,997,109	\$8,860,554	27%		9,389,364	\$8,860,554	-6%	X	
161	2012	2004	30395065	Bodega Ave	Petaluma	1,800,000	\$2,622,096	46%		3,135,029	\$2,622,096	-16%	X	
162	2012	2004	30400280	Ocean Ave - Dist.#338 - Ph 4	San Francisco	3,400,000	\$3,741,504	10%		3,739,232	\$3,741,504	0%		
163	2012	2004	30410006	Duboce/church - Dist.#324	San Francisco	2,750,000	\$2,999,615	9%		3,038,267	\$2,999,615	-1%		
164	2012	2004	30410007	Duncan/newburg - Dist.#332	San Francisco	2,392,899	\$2,565,688	7%		2,888,796	\$2,565,688	-11%	X	
165	2012	2005	30454814	Miller/stevenson	Berkeley	4,000,000	\$5,118,222	28%		3,542,236	\$5,118,222	44%	X	
166	2012	2007	30563619	Main St, Templeton	San Luis Obispo County	240,000	\$937,277	291%	X	1,033,000	\$937,277	-9%	X	X
167	2012	2007	30576193	Guadalupe Gardens, Ph 2	San Jose	3,000,000	\$4,992,593	66%		5,612,020	\$4,992,593	-11%	X	
168	2012	2008	30613816	Pershing Ave, Ph 2	Stockton	2,000,000	\$3,406,041	70%		4,268,148	\$3,406,041	-20%	X	
169	2012	2008	30614607	5th Street	West Sacramento	1,000,000	\$1,835,345	84%		1,868,059	\$1,835,345	-2%		
170	2012	2008	30676927	Buttonwillow & Dinuba	Reedley	500,000	\$588,819	18%		820,359	\$588,819	-28%	X	
171	2012	2009	30726360	Gosford Rd	Bakersfield	2,500,000	\$688,009	-72%	X	800,346	\$688,009	-14%	X	X
172					Total 2012	74,519,016	97,944,055	31%	Total 2012	101,780,608	97,944,055	-4%		

AzP Exhibit N. PG&E Rule 20A Completed Projects - Variances Between Earliest Available Cost Estimates and Final Costs - 2007 through 2016															
Line No.	Project Completion Year	Project Initiation Year	Order	Description	Community	Earliest Available Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 5 Estimate Accuracy Range (+100% to -50%) or Insufficient Data Available	Design Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 1 Estimate Accuracy Range (+10% to -5%) or Insufficient Data Available	Testing Selections (Outside of both AACE Class 5 and Class 1 Estimates, or Insufficient Estimate Data Provided)	
173															
174	2013	2001	30069479	Highway 12, Ph 3	Sonoma County	2,700,000	\$7,371,678	173%	X	6,103,090	\$7,371,678	21%	X	X	
175	2013	2001	30170818	Highway 49 - Pac Bell Lead	Placer County	1,500,000	\$2,761,892	84%		2,886,181	\$2,761,892	-4%			
176	2013	2001	30172470	Gualala, Ph 1	Mendocino County	1,000,000	\$4,067,720	307%	X	3,678,431	\$4,067,720	11%	X	X	
177	2013	2003	30344383	Stevens Creek Blvd	Cupertino, San Jose	1,235,000	\$1,536,350	24%		2,554,000	\$1,536,350	-40%	X		
178	2013	2004	30383780	Island Drive, Clearlake	Lake County	130,000	\$808,835	522%	X	924,086	\$808,835	-12%	X	X	
179	2013	2004	30387770	Lewelling Blvd	Alameda County	3,250,000	\$3,361,081	3%		4,274,732	\$3,361,081	-21%	X		
180	2013	2005	30442255	Baseline Ave,	Santa Barbara	893,000	\$1,337,063	50%		1,551,896	\$1,337,063	-14%	X		
181	2013	2005	30444989	Academy, Sanger	Fresno County, Sanger	600,000	\$1,125,908	88%		1,236,148	\$1,125,908	-9%	X		
182	2013	2006	30492230	Bradley Overpass Hwy 140	Merced	900,000	\$2,167,700	141%	X	2,614,757	\$2,167,700	-17%	X	X	
183	2013	2006	30514516	Guadalupe Gardens, Ph 1	San Jose	4,000,000	\$953,720	-76%	X	1,443,675	\$953,720	-34%	X	X	
184	2013	2006	30520215	District 4 (front St. To 9th), Chowchilla	Madera County	975,000	\$3,382,558	247%	X	1,561,764	\$3,382,558	117%	X	X	
185	2013	2007	30563720	Columbia	Tuolumne County	750,000	\$2,053,328	174%	X	2,310,283	\$2,053,328	-11%	X	X	
186	2013	2007	30567652	Market/almaden	San Jose	2,700,000	\$4,693,194	74%		4,834,808	\$4,693,194	-3%			
187	2013	2008	30615999	Greenfield Rd	San Anselmo	972,000	\$1,468,753	51%		1,386,355	\$1,468,753	6%			
188	2013	2008	30629323	Hillcrest Ave	Antioch	900,000	\$2,303,558	156%	X	2,624,316	\$2,303,558	-12%	X	X	
189	2013	2008	30675530	Cottonwood Road, Bakersfield	Kern County	1,400,000	\$2,734,351	95%		3,014,428	\$2,734,351	-9%	X		
190	2013	2008	30677482	Broad Street Ph 2, San Luis Obispo	San Luis Obispo	2,060,000	\$3,267,025	59%		2,421,642	\$3,267,025	35%	X		
191	2013	2008	30679601	Willow Ave, Ph 2	Fresno	3,000,000	\$1,558,816	-48%		1,749,211	\$1,558,816	-11%	X		
192	2013	2009	30706328	First Street	Los Altos	1,250,000	\$2,250,164	80%		2,343,267	\$2,250,164	-4%			
193	2013	2010	30767869	Grant Line Rd, Ph 2	Tracy	500,000	\$749,975	50%		903,814	\$749,975	-17%	X		
194	2013	2010	30809002	Mid San Rafael Ave	Belvedere	395,000	\$463,327	17%		641,788	\$463,327	-28%	X		
195					Total 2013	31,110,000	50,416,996	62%	Total 2013	51,058,672	50,416,996	-1%			
196															
197	2014	2001	30055034	Bayfair	San Leandro	2,000,000	\$3,179,510	59%		2,671,454	\$3,179,510	19%	X		
198	2014	2002	30267067	C & D Streets	Madera	435,000	\$1,990,498	358%	X	2,189,015	\$1,990,498	-9%	X	X	
199	2014	2003	30334786	Oakdale/palou Ph 2	San Francisco	5,087,236	\$7,097,063	40%		7,464,892	\$7,097,063	-5%			
200	2014	2003	30354298	Jackson/taylor	San Jose	2,600,000	\$4,135,751	59%		6,427,844	\$4,135,751	-36%	X		
201	2014	2004	30406568	City Of Riverbank	Riverbank, Stanislaus County	800,000	\$3,010,033	276%	X	1,725,000	\$3,010,033	74%	X	X	
202	2014	2007	30547671	Main St/placerville Dr	Placerville	1,400,000	\$1,993,374	42%		1,730,632	\$1,993,374	15%	X		
203	2014	2007	30563616	City Of Slo Broad St Ph 1	San Luis Obispo, San Luis Obispo	2,160,000	\$5,094,591	136%	X	5,875,708	\$5,094,591	-13%	X	X	
204	2014	2008	30660879	Bellevue Rd	Atwater	1,200,000	\$3,286,907	174%	X	3,220,383	\$3,286,907	2%			
205	2014	2008	30675659	Madera Youth	Madera	300,000	\$993,089	231%	X	640,694	\$993,089	55%	X	X	
206	2014	2008	30676929	Fowler Library, 7th	Fowler	500,000	\$879,266	76%		806,949	\$879,266	9%			
207	2014	2008	30677628	Mission Overhill Dist 27	Hayward	3,500,000	\$4,975,614	42%		4,770,037	\$4,975,614	4%			
208	2014	2008	30677789	Mission Blvd Dist 25	Hayward	3,500,000	\$7,211,391	106%	X	7,723,994	\$7,211,391	-7%	X	X	
209	2014	2009	30699814	Somersville Road	Antioch	575,000	\$1,009,094	75%		984,236	\$1,009,094	3%			
210	2014	2010	30764513	California Ave	Bakersfield	770,000	\$932,892	21%		894,786	\$932,892	4%			
211	2014	2010	30769201	Buskirk Ave	Pleasant Hill	1,200,000	\$2,115,156	76%		1,841,564	\$2,115,156	15%	X		
212					Total 2014	26,027,236	47,904,230	84%	Total 2014	48,967,188	47,904,230	-2%			
213															
214	2015	2001	30185719	Highway 29	Napa County, St Helena	1,500,000	\$17,048,836	1037%	X	23,969,192	\$17,048,836	-29%	X	X	
215	2015	2002	30242352	Washington & Roberts	Fremont	1,000,000	\$3,501,282	250%	X	3,187,258	\$3,501,282	10%			
216	2015	2003	30323741	Grand Ave [oak Park To Elm]	Arroyo Grande	620,000	\$2,312,480	273%	X	2,627,733	\$2,312,480	-12%	X	X	
217	2015	2004	30406159	School Rd	Humboldt County	1,000,000	\$3,663,855	266%	X	4,903,610	\$3,663,855	-25%	X	X	
218	2015	2004	30411405	The Alameda	Concord	1,000,000	\$1,467,091	47%		911,009	\$1,467,091	61%	X		
219	2015	2005	30431045	Rengstorff Ave	Mountain View	2,465,286	\$2,986,717	21%		3,686,350	\$2,986,717	-19%	X		
220	2015	2007	30575460	Park/naglee	San Jose	1,700,000	\$6,472,553	281%	X	10,423,380	\$6,472,553	-38%	X	X	
221	2015	2008	30616114	East St	Woodland	170,500	\$1,292,764	658%	X	1,395,642	\$1,292,764	-7%	X	X	
222	2015	2008	30642311	Lincoln Wy & High	Auburn	740,000	\$1,544,684	109%	X	1,569,803	\$1,544,684	-2%			
223	2015	2008	30644207	Balls Ferry Rd	Anderson	500,000	\$3,333,295	567%	X	500,000	\$3,333,295	567%	X	X	
224	2015	2008	30650716	Tully Rd	San Jose	1,575,000	\$3,105,827	97%		3,236,450	\$3,105,827	-4%			
225	2015	2008	30675529	13th St	Firebaugh	850,000	\$2,423,475	185%	X	1,449,501	\$2,423,475	67%	X	X	
226	2015	2008	30679737	Marina Vista	Martinez	1,000,000	\$1,828,334	83%		1,133,561	\$1,828,334	61%	X		

AzP Exhibit N. PG&E Rule 20A Completed Projects - Variances Between Earliest Available Cost Estimates and Final Costs - 2007 through 2016														
Line No.	Project Completion Year	Project Initiation Year	Order	Description	Community	Earliest Available Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 5 Estimate Accuracy Range (+100% to -50%) or Insufficient Data Available	Design Cost Estimate	Final Project Cost	Percent Variance	Outside of AACE Class 1 Estimate Accuracy Range (+10% to -5%) or Insufficient Data Available	Testing Selections (Outside of both AACE Class 5 and Class 1 Estimates, or Insufficient Estimate Data Provided)
227	2015	2009	30692249	Petalma Blvd North	Petaluma	1,000,000	\$1,767,995	77%		1,894,201	\$1,767,995	-7%	X	
228	2015	2009	30720578	Winchester Blvd	Campbell	2,500,000	\$6,429,730	157%	X	7,488,634	\$6,429,730	-14%	X	X
229	2015	2010	30762587	County Roads 98 And 27	Yolo County	1,000,000	\$1,891,504	89%		2,354,288	\$1,891,504	-20%	X	
230	2015	2010	30776251	Coleman Ave Ph1	San Jose	2,800,000	\$432,091	-85%	X	492,025	\$432,091	-12%	X	X
231	2015	2011	30835217	Parsons Ave	Merced	4,581,799	\$1,569,890	-66%	X	1,562,508	\$1,569,890	0%		
232	2015	2012	30909576	Wible Rd	Bakersfield	1,123,148	\$2,860,710	155%	X	2,786,670	\$2,860,710	3%		
233	2015	2012	30920922	Evergreen Park	San Jose	2,500,000	\$2,794,111	12%		3,472,763	\$2,794,111	-20%	X	
234	2015	2012	30944299	Mirada Rd	San Mateo County	300,000	\$833,659	178%	X	820,050	\$833,659	2%		
235					Total 2015	29,925,733	69,560,884	132%	Total 2015	79,864,628	69,560,884	-13%		
236														
237	2016	2001	30169463	Meadow Vista	Placer County	1,400,000	\$5,084,513	263%	X	3,236,759	\$5,084,513	57%	X	X
238	2016	2001	30170714	Hwy 49 - Pg&E Lead	Placer County	1,300,000	\$4,568,193	251%	X	5,008,780	\$4,568,193	-9%	X	X
239	2016	2002	30256639	Stony Pt Rd	Santa Rosa	1,820,000	\$8,853,448	386%	X	15,396,064	\$8,853,448	-42%	X	X
240	2016	2003	30308833	E 14th Ph II	Alameda County	4,800,000	\$8,618,365	80%		8,853,714	\$8,618,365	-3%		
241	2016	2007	30563618	El Camino Real, Santa Margarita	San Luis Obispo County	1,440,000	\$2,085,206	45%		1,960,778	\$2,085,206	6%		
242	2016	2008	30648282	Delmas & Park Ave	San Jose	3,000,000	\$5,742,949	91%		6,676,104	\$5,742,949	-14%	X	
243	2016	2008	30669061	Geneva Ave Ph 1	Daly City	633,000	\$6,011,030	850%	X	6,412,983	\$6,011,030	-6%	X	X
244	2016	2008	30676933	Willow Ave S/o	Fresno	241,000	\$1,255,533	421%	X	1,563,252	\$1,255,533	-20%	X	X
245	2016	2008	30676934	Peach Ave (Kings Canyon To	Fresno	2,050,000	\$5,685,408	177%	X	5,597,967	\$5,685,408	2%		
246	2016	2009	30702293	Aborn Rd	San Jose	950,000	\$1,772,317	87%		1,981,475	\$1,772,317	-11%	X	
247	2016	2009	30733248	Main St, Greenville	Plumas County	960,000	\$1,555,871	62%		1,424,953	\$1,555,871	9%		
248	2016	2009	30746320	Martin St	Madera County	350,000	\$1,533,550	338%	X	1,887,852	\$1,533,550	-19%	X	X
249	2016	2010	30794479	Riverside Ave	Paso Robles	2,250,000	\$2,720,690	21%		2,880,000	\$2,720,690	-6%	X	
250	2016	2012	30906266	Old County Rd	San Carlos	1,972,631	\$3,072,450	56%		2,972,000	\$3,072,450	3%		
251	2016	2012	30917227	3rd St Ph 1	Davis	683,329	\$1,717,193	151%	X	2,767,332	\$1,717,193	-38%	X	X
252	2016	2013	30975304	Truesdale St	Eureka	498,256	\$654,697	31%		675,503	\$654,697	-3%		
253	2016	2013	31038742	Vanden Rd	Vacaville	495,912	\$708,336	43%		639,053	\$708,336	11%	X	
254	2016	2014	31051957	Healdsburg Ave Bridge	Healdsburg	Earliest Estimate Not available		Insufficient Data for Calculation	X	316,806	\$81,345	-74%	X	X
255	2016	2014	31068171	Snyder Lane	Rohnert Park	1,079,909	\$991,808	-8%		1,855,572	\$991,808	-47%	X	
256	2016	2014	31106363	E. Nees & N. Maple Ave	Fresno	692,898	\$785,014	13%		898,756	\$785,014	-13%	X	
257	2016	2001	30647467 & 30071453	Camden Ave	San Jose, Santa Clara County	2,500,000	\$3,523,227	41%		2,718,532	\$3,523,227	30%	X	
258					Total 2016	29,116,935	66,939,797	130%	Total 2016	75,724,235	67,021,142	-11%		
259					Total 2007 - 2016	393,965,487	530,606,275	35%	Total 2007 - 2016	569,704,887	526,781,698	-8%		

Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Responses to Discovery, AzP-001-092, Att.1, AzP-005-028, Supp. Att. 1, subpart (b), and 005-Q035(t) Att. 1

AzP Exhibit O. PG&E Rule 20A Project Cost Estimate Classification Description			
Estimate Class	Description	Typical Inputs	Estimating Methodology
1	A Class 1 estimate represents the highest level of estimating certainty. It assumes 100% of engineering is complete, all work is under contract, and enough progress has been made to extrapolate performance trends.	100% engineering design, awarded contracts, execution progress and performance measures, detailed execution and commissioning plans.	Class 1 estimates generally involve the highest degree of deterministic estimating methods and require a significant amount of effort. Class 1 estimates are prepared in great detail and are therefore usually performed on only the most important or critical areas of the project. Items in the estimates are usually based on bids based on final design specifications or accurate unit cost line items based on actual design quantities. In cases where construction is already underway, a Class 1 estimate may be based on earned value management metrics and performance trending analysis.
2	Class 2 estimates are based on detailed engineering designs and execution plans.	60-90% engineering design, detailed resource plans, critical path execution schedules, and vendor quotes for substantial portions of equipment, material, and construction services.	Class 2 estimates generally involve a high degree of deterministic estimating methods, including quantity takeoff and detailed resource/contracting plans. Class 2 estimates are prepared in detail and often involve numerous unit cost line items.
3	Class 3 estimates are based on a detailed scope of work, execution strategy, and preliminary engineering design.	30-60% overall engineering design, e.g., contracting/procurement strategy, substantially complete geotechnical investigations, preliminary earthwork drawings for excavation, complete one line diagrams, equipment performance specifications.	Class 3 estimates involve more deterministic estimating methods than probabilistic methods. They usually involve the predominant use of unit cost line items, although these may be at an assembly level of detail rather than individual components. The estimate should be based on scope of work documents as well as expected permit costs. Factoring and other probabilistic methods may be used to estimate less-significant areas of the project. For Governance Threshold 1 projects, a Class 3 estimate, at a minimum, is required for authorization by the PG&E Board of Directors, SEE PM-1010S, "Project Management Governance Standard.
4	Class 4 estimates are based on a selected asset alternative and are prepared with limited scope information and have a wide range of potential outcomes. Execution strategy alternatives (e.g., routing/siting, contracting strategy) are typically not yet selected.	<15% overall engineering design, feasibility design for several alternative layouts/routes, facility capacity, preliminary one-line diagrams, and comprehensive user requirements.	Class 4 estimates generally use probabilistic estimating methods, including equipment factors, gross unit costs/ratios, and other parametric modeling.
5	Class 5 project estimates correspond to projects in the early concept and planning phase, often before a project team has been assigned. Class 5 estimates are prepared based on limited information (e.g., a very high-level investment objective provided by a sponsor) and subsequently have a wide range of potential outcomes.	Facility type, capacity, location, and investment objectives.	Class 5 estimates generally use probabilistic estimating methods such as cost/capacity curves and factors, historical benchmarks, and other parametric techniques.
Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AzP-001-018, Att. 20, p. 24-26			

AsP Exhibit P, Information Log for Variance Selections												
Selection Nbr.	Order Nbr.	Project Description	Community	(A) A copy of the documents containing the project's Advance Authorization and related supporting files. Please include the calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented and approved in the project's Advance Authorization.	(B) A copy of the documents containing the project's Business Case and related supporting files. Please include the calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented and approved in the project's Business Case.	(C) The calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented in the project's earliest initial estimate as provided in response to discovery AsP 001-Q092 Atch01. If this differs from the response provided in subpart "A" please reconcile and fully explain any difference.	(D) The calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented in the project's design cost estimate provided in response to discovery AsP 005-Q028Supp01Atch01. If this differs from the response provided in subpart "B" please reconcile and fully explain any difference.	(E) The calculation and underlying supporting documents in native format that support the actual cost and duration for the project once completed.	(F) For each project, please include a narrative response stating the primary reasons for the variance of the final project cost from the initial and design estimates.	(G) For each of the projects identified , please provide copies of subsequent costs estimates that were developed to support an increase in the authorized cost for the project. Also provide copies of all additional documents that are part of the project folder that were developed to support the increase in the authorized project cost.	(H) For each of the projects identified, please provide copies of the Project Manager's close-out email as referenced in AsP 001-Q144 for if not already a part of the job folder provided in subpart "G" response.	(I) For each of the projects identified, please provide copies of any authorizations for release of contingency or reauthorization for an increase in the approved project costs.
1	30185719	HIGHWAY 29	NAPA COUNTY, ST HELENA	*Advance Authorization dated 3.10.19 for \$4,000,000 *Advance Authorization dated 9.28.10 for \$8,200,000	Three documents provided for support: (1) Business Case dated April 26, 2012; (2) Job Review dated 04/26/2012 (with a "Due Date" of 03/21/2012) (3) Economic Evaluation Un-dated	No Documents Provided	Five documents provided: (1) Cost Summary Sheet (2) Job Estimate Avoided Overhead Relocation (3) Job Estimate (4) Joint Trench Summary (5) Schedule	No Documents Provided	Five documents provided: (1) Boundary Variance Request dated 5/10/10 (2) Boundary Variance Request dated 4/26/13 (3) Boundary Variance Request dated 5/1/13 (4) Timeline Notes (5) Underrun Notes dated 7/1/13	Seven documents provided: (1) Contract Work Authorization dated 3/15/13 (2) Contract Work Authorization dated 3/18/13 (3) Contract Work Authorization dated 6/11/13 (4) Contract Work Authorization Change Order dated 7/3/13 (5) Contract Work Authorization Change Order dated 10/1/13 (6) Contract Work Authorization Change Order dated 11/21/13 (7) Contract Work Authorization Change Order date	One document provided: (1) Major Project Close	No Documents Provided
2	30256639	STONY PT RD	SANTA ROSA	Advance Authorization dated 1.12.11 for \$3,577,073	Two documents provided for support: (1) Business Case dated 04/15/13; (2) Job Review dated 11/10/13	No Documents Provided	One document provided: (1) Job Estimate	No Documents Provided	One document provided: (1) Boundary Variance Request provided	No Documents Provided	No Documents Provided	No Documents Provided
3	30629431	SPORTS VILLAGE- ASHE RD SEG. 1 BKSF	BAKERSFIELD	Advance Authorization dated 9.10.08 for \$1,500,000	One document provided for support: (1) Project Authorization dated 12/31/09	No Documents Provided	One document provided: (1) Job Estimate	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
4	30669061	GENEVA AVE PH 1	DALY CITY	*Advance Authorization dated 2.18.09 for 1,200,000 *Advance Authorization dated 4.5.12 for \$3,800,000		No Documents Provided	Two documents provided: (1) Cost Summary Sheet (2) Job Estimate	No Documents Provided	No Documents Provided	Four documents provided: (1) Change Order Log (2) Contingency Release (3) Reauthorization (4) Reauthorization dated 12/22/14	No Documents Provided	No Documents Provided
5	30575460	PARK/NAGLEE	SAN JOSE	Advance Authorization dated 5.11.07 for \$4,000,000	Two documents provided for support: (1) Business Case dated 08/29/11 ; (2) Job Review dated 03/08/11	No Documents Provided	Two documents provided: (1) Project Estimate - 10/23/2008 (2) Job Estimate - 11/06/2012	No Documents Provided	One document provided: (1) Boundary Variance Request provided	No Documents Provided	No Documents Provided	No Documents Provided
6	30069479	HIGHWAY 12, PH 3	SONOMA COUNTY	Advance Authorization date 3.16.09 for \$3,400,000	Two documents provided for support: (1) Project Authorization dated 10/20/10 ; (2) Job Review dated 09/08/09	No Documents Provided	Two documents provided: (1) Job Estimate (2) Schedule	No Documents Provided	Two documents provided: (1)Meeting Minutes dated 11/04/2008 (2) Meeting Minutes dated 01/07/2009	Six documents provided: (1) Contract Work Authorization dated 4/2/09 (2) Contract Work Authorization dated SAME (3) Reauthorization (4) Reauthorization dated 3/24/11 (5) Reauthorization Job Review dated 04/24/11 (6) Reauthorization dated 04/24/11	No Documents Provided	No Documents Provided
7	30720578	WINCHESTER BLVD	CAMPBELL	Advance Authorization dated 10/2011 for \$2,500,000	One document provided for support: (1) Business Case dated 10/09/12	No Documents Provided	Two documents provided: (1) and (2) Job Estimates, both dated 08/13/2012	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
8	30677789	MISSION BLVD DIST 25	HAYWARD	*Advance Authorization dated 12.05.08 for \$4,500,000 *Advance Authorization dated 12.05.08 for \$2,500,000	Two documents provided for support: (1) Business Case dated 12/10/08 ; (2) Job Review dated 07/20/11	No Documents Provided	Three documents provided: (1) Cost Summary Sheet (2) and (3) Job Estimate, both dated 08/16/2011	No Documents Provided	No Documents Provided	One document provided: (1) Reauthorization	No Documents Provided	No Documents Provided
9	30169463	MEADOW VISTA	PLACER COUNTY	Advance Authorization dated Nov/2011 for \$2,900,000	Two documents provided for support: (1) Business Case dated 12/19/00 ; (2) Job Review dated 07/5/11	No Documents Provided	Four documents provided: (1), (2) and (3) Job Estimates, all dated 11/20/2011	No Documents Provided	Two documents provided: (1) Field Change Order Authorization (2) Job Schedule	Four documents provided: (1) Change Order Summary Log (2) Contingency Release (3) Reauthorization dated 11/9/12 (4) Reauthorization	No Documents Provided	No Documents Provided
10	30170714	HWY 49 - PG&E LEAD	PLACER COUNTY	Advance Authorization dated 8.20.12 for \$2,729,724/\$2,329,422	Two documents provided for support: (1) Business Case dated 5/31/01 ; (2) Job Review dated 03/15/13	No Documents Provided	Two documents provided: (1) and (2) Job Estimates, both dated 05/21/2013	No Documents Provided	No Documents Provided	Three documents provided: (1) Contingency Release (2) Reauthorization date 1/19/10 (3) Reauthorization	No Documents Provided	No Documents Provided
11	30172470	GUALALA, PH 1	MENDOCINO COUNTY	Advance Authorization dated 1.15.06 for \$2,500,000	Two documents provided for support: (1) Business Case dated 3/1/11 ; (2) Job Review dated 09/28/10	No Documents Provided	Two documents provided: (1) Job Estimate Face Sheet dated 11/30/2010 (2) Job Estimate dated 11/06/2010	No Documents Provided	No Documents Provided	One document provided: (1) Reauthorization	No Documents Provided	No Documents Provided
12	30514516	GUADALUPE GARDENS, PH 1	SAN JOSE	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
13	30563616	CITY OF SLO BROAD ST PH 1	SAN LUIS OBISPO, SAN LUIS OBISPO COUNTY	*Advance Authorization dated 2.24.09 for \$3,750,000 *Advance Authorization date 3.15.08 for \$3,750,000	Four documents provided for support: (1) Project Authorization dated 12/12/10; (2) Job Review Gas dated 04/15/09; (3) Job Review Electric dated 04/15/09; (4) Job Review dated 12/15/09	No Documents Provided	Two documents provided: (1) Cost Summary Sheet (2) Job Estimate	No Documents Provided	One document provided: (1) Field Change Order Authorization	Three documents provided: (1) Change Request (2) Reauthorization (3) Reauthorization dated 3/2/11	No Documents Provided	No Documents Provided
14	30644207	BALLS FERRY RD	ANDERSON	*Advance Authorization dated 2.9.08 for \$500,000 *Advance Authorization dated 12.07.12 for \$3,445,336	Two documents provided for support: (1) Business Case dated 6/15/13 ; (2) Job Review dated 06/12/13	No Documents Provided	Three documents provided: (1) Cost Summary Sheet 1 (2) Cost Summary Sheet 2 (3) Job Estimate dated 03/27/2013	No Documents Provided	One document provided: (1) Gas Incident Report	No Documents Provided	No Documents Provided	No Documents Provided
15	30406159	SCHOOL RD	HUMBOLDT COUNTY	*Advance Authorization dated 10.26.09 for \$3,000,000 *Advance Authorization dated 3.2.11 for \$1,368,000/\$1,094,400	Three documents provided for support: (1) Business Case dated 4/15/13; (2) Cost Analysis dated 11/22/13; (3) Project Scope not dated	No Documents Provided	Five documents provided: (1) Job Estimate dated 11/13/2013 (2) Cultural Resources Review Memo dated 03/09/2012 (3) Erosion Sediment and Control Plan dated 01/14/2014 (4) Erosion Sediment and Control Plan dated 01/14/2014	No Documents Provided	Three documents provided: (1) Meeting Minutes dated 05/08/2014 (2) Meeting Minutes dated 08/14/2014 (3) Meeting Minutes dated 09/11/2014	No Documents Provided	No Documents Provided	No Documents Provided
16	30520215	DISTRICT 4 (FRONT ST. TO 9TH), CHOWCHILLA	MADERA COUNTY	*Advance Authorization date 12.20.06 for \$850,000 *Advance Authorization date 9.30.08 for \$1,500,000	One document provided for support: (1) Business Case dated 2000	No Documents Provided	Four documents provided: (1) Form B Summary (2) Job Estimate dated 11/13/2013 (3) Job Review (4) Project Authorization Cost Summary dated 09/17/2010	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
17	30348512	WALTON AVE	YUBA CITY	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	One document provided: (1) Reauthorization Advance Authorization	No Documents Provided	No Documents Provided
18	30776251	COLEMAN AVE PH1	SAN JOSE	Advance Authorization dated 4.30.14 for \$2,667,600/\$2,134,080	One document provided for support: (1) Project Authorization dated 5/31/15	No Documents Provided	Three documents provided: (1) Cost Summary Sheet (2) Job Estimate dated 10/10/2014 (3) Job Review	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
19	30406568	CITY OF RIVERBANK	RIVERBANK, STANISLAUS COUNTY	*Advance Authorization dated 3.9.07 for \$850,000 *Advance Authorization dated 9.30.08 for \$800,000 *Advance Authorization dated 12.09.05 for \$1,547,000	Two documents provided for support: (1) Project Authorization not dated ; (2) Job Review dated 01/23/09;	No Documents Provided	Three documents provided: (1) Job Estimate Face Sheet dated 04/05/2010 (2) Job Estimate dated 02/01/2010 (3) Job Estimate dated 04/05/2010	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
20	30010732	EL CAMINO REAL	COLMA, DALY CITY, SAN MATEO COUNTY	*Advance Authorization dated 12.20.07 for \$1,547,000	One document provided for support: (1) Project Authorization dated Dec 2009	No Documents Provided	One document provided: (1) Job Estimate	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
21	30072595	UPPER BROADWAY	SEASIDE	*Advance Authorization dated 9.30.08 for No Documents Provided	One document provided for support: (1) Project Authorization dated April 2010	No Documents Provided	One document provided: (1) Job Review	No Documents Provided	One document provided: (1) Field Change Order Authorization	No Documents Provided	No Documents Provided	No Documents Provided
22	30726360	GOSFORD RD	BAKERSFIELD	Advance Authorization dated 4.14.11 for \$721,000	One document provided for support: (1) Project Authorization dated 12/31/09	No Documents Provided	Two documents provided: (1) Job Estimate Face Sheet dated 04/15/2011 (2) Job Estimate dated 04/15/2011	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
23	30323741	GRAND AVE (OAK PARK TO ELM)	ARROYO GRANDE	No Documents Provided	No Documents Provided	No Documents Provided	Three documents provided: (1) Cost Summary (2) Job Estimated dated 07/18/2012 (3) Job Estimate dated 07/18/2012	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided

AsP Exhibit P, Information Log for Variance Selections												
Selection Nbr.	Order Nbr.	Project Description	Community	(A) A copy of the documents containing the project's Advance Authorization and related supporting files. Please include the calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented and approved in the project's Advance Authorization.	(B) A copy of the documents containing the project's Business Case and related supporting files. Please include the calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented and approved in the project's Business Case.	(C) The calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented in the project's earliest initial estimate as provided in response to discovery AsP 001-Q092 Atch01. If this differs from the response provided in subpart 'A' please reconcile and fully explain any difference.	(D) The calculation and underlying supporting documents in native format that support the cost and duration estimate for the project as it was presented in the project's design cost estimate provided in response to discovery AsP 005-Q028Supp01Atch01. If this differs from the response provided in subpart 'B' please reconcile and fully explain any difference.	(E) The calculation and underlying supporting documents in native format that support the actual cost and duration for the project once completed.	(F) For each project, please include a narrative response stating the primary reasons for the variance of the final project cost from the initial and design estimates.	(G) For each of the projects identified, please provide copies of subsequent costs estimates that were developed to support an increase in the authorized cost for the project. Also provide copies of all additional documents that are part of the project folder that were developed to support the increase in the authorized project cost.	(H) For each of the projects identified, please provide copies of the Project Manager's close-out email as referenced in AsP 001-Q144 for if not already a part of the job folder provided in subpart 'G' response.	(I) For each of the projects identified, please provide copies of any authorizations for release of contingency or reauthorization for an increase in the approved project costs.
24	30675529	13TH ST	FIREBAUGH	No Documents Provided	One document provided for support: (1) Project Authorization dated 12/31/13	No Documents Provided	Three documents provided: (1) Cost Summary Sheet (2) Job Estimate Face Sheet dated 07/03/2012 (3) Job Estimate	No Documents Provided	Two documents provided: (1) Financial Review (2) Material Comparison	One document provided: (1) Reauthorization	No Documents Provided	No Documents Provided
25	30267067	C & D STREETS	MADERA	No Documents Provided	One document provided for support: (1) Business Case Project Authorization dated 2000	No Documents Provided	Three documents provided: (1) Job Estimate Face Sheet dated 11/09/2012 (2) Job Estimated dated 11/09/2012 (3) Job Review	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
26	30629323	HILLCREST AVE	ANTIOCH	No Documents Provided	Two documents provided for support: (1) Project Authorization dated 10/2010 ; (2) Job Review not dated	No Documents Provided	Four documents provided: (1) Job Estimate dated 02/02/2010 (2) Job Estimate dated 06/09/2010 (3) Job Estimate dated 06/12/2010 (4) Job Estimate dated 07/09/2010	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
27	30367568	RALSTON/EUCALYPTUS AVENUES	HILLSBOROUGH	*Advance Authorization dated 5.07.08 for \$400,000 *Advance Authorization dated 6.23.08 for \$1,300,000/\$500,000	One document provided for support: (1) Project Authorization dated 12/2009	No Documents Provided	Three documents provided: (1) Job Estimate Face Sheet (2) Job Estimate Cost Summary (3) Job Review from dated 06/30/2008	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
28	30563720	COLUMBIA	TUOLUMNE COUNTY	Advance Authorization dated 9.14.11 for \$1,800,000	Two documents provided for support: (1) Business Case dated 12/19/00 ; (2) Job Review dated 8/13/09	No Documents Provided	Five documents provided: (1) Cost Summary Sheet (2) Job Estimate dated 11/03/2011 (3) Job Estimate dated 04/05/2012 (4) Job Estimate dated 05/04/2012 (5) Job Estimate dated 06/27/2012	No Documents Provided	No Documents Provided	One document provided: (1) Reauthorization	No Documents Provided	No Documents Provided
29	30492230	BRADLEY OVERPASS HWY 140	MERCED	Advance Authorization dated 3.24.06 for \$500,000	Two documents provided for support: (1) Business Case dated 1/24/11 ; (2) Job Review dated 11/16/10	No Documents Provided	One document provided: (1) Job Estimate dated 12/10/2012	No Documents Provided	One document provided: (1) Change Order Log	Two documents provided: (1) Reauthorization (2) Reauthorization dated 4/21/11	No Documents Provided	No Documents Provided
30	30746320	MARTIN ST	MADERA COUNTY	Advance Authorization dated 5.12.10 for \$350,000	Two documents provided for support: (1) Business Case dated 8/6/10; (2) Job Review dated 6/17/14	No Documents Provided	Four documents provided: (1) Cost Summary (2) Job Estimate Face Sheet dated 07/14/2014 (3) Job Estimate dated 10/07/2013 (4) Schedule	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
31	30616114	EAST ST	WOODLAND	Advance Authorization dated 5.2.12 for \$843,255.43/\$703,815.43	Two documents provided for support: (1) Project Authorization dated 2/28/10 ; (2) Job Review dated 9/4/09	No Documents Provided	Two documents provided: (1) Job Estimate Face Sheet dated 08/27/2009 (2) Job Estimate dated 08/27/2009	No Documents Provided	No Documents Provided	Two documents provided: (1) Change Request Status Log (2) Contingency Release	No Documents Provided	No Documents Provided
32	30917227	3RD ST PH 1	DAVIS	Advance Authorization dated 1.12.11 for \$3,577,073	Two documents provided for support: (1) Business Case dated 6/15/13; (2) Job Review dated 5/22/14	No Documents Provided	Four documents provided: (1) Cost Summary (2) Job Estimate dated 03/14/2014 (3) Schedule dated 03/12/2014 (4) Schedule dated 06/04/2014	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
33	30317644	SUTTER HOSPITAL	MERCED COUNTY	No Documents Provided	One document provided for support: (1) Project Authorization dated 11/20/09	No Documents Provided	One document provided: (1) Job Estimate dated 06/02/2009	No Documents Provided	No Documents Provided	Five documents provided: (1) Change Order Log (2) Change Request 1 (3) Change Request 2 (4) Reauthorization (5) Timeline	No Documents Provided	No Documents Provided
34 & 35	30647467	#N/A	#N/A	No Documents Provided	Two documents provided for support: (1) Business Case dated 10/1/12; (2) Project Review not dated	No Documents Provided	Two documents provided: (1) Job Estimate dated 01/08/2015 (2) Schedule	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
36	30676933	WILLOW AVE S/O NEES	FRESNO	Advance Authorization dated 12.31.12 for \$649,800/\$519,840	Two documents provided for support: (1) Business Case dated 2006; (2) Economic Evaluation not dated	No Documents Provided	Four documents provided: (1) Cost Summary Sheet (2) Cost Summary Sheet 2 (3) Job Estimate dated 10/01/2013 (4) Job Estimate dated 12/19/2013	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
37	30123751	OAK PARK BLVD	GROVER BEACH	Advance Authorization dated 4.25.06 for \$500,000	Two documents provided for support: (1) Project Authorization dated 6/2010; (2) Job Review dated 7/8/09	No Documents Provided	Two documents provided: (1) Job Estimate Environmental Screening Checklist dated 06/26/2009 (2) Job Estimate Job Construction Package dated 06/22/2009	No Documents Provided	No Documents Provided	Two documents provided: (1) Reauthorization (2) Reauthorization dated 3/24/11	No Documents Provided	No Documents Provided
38 & 39	30223376 & 31370088	#N/A	#N/A	No Documents Provided	One document provided for support: (1) Project Authorization dated 6/1/04	No Documents Provided	One document provided: (1) Job Estimate Cost Summary Sheet dated 03/06/2003	No Documents Provided	No Documents Provided	Two documents provided: (1) Reauthorization Economic Evaluation (2) Reauthorization	No Documents Provided	No Documents Provided
40	30472856	FRIANT ROAD SHO O FLY (RULE 20A)	FRESNO	No Documents Provided	No Documents Provided	No Documents Provided	One document provided: (1) Job Estimate dated 09/19/2006	No Documents Provided	No Documents Provided	Four documents provided: (1) Change Order 1 (2) Change Order 2 (3) Change Order 3 (4) Contract Change Order 1	No Documents Provided	No Documents Provided
41	30563619	MAIN ST, TEMPLETON	SAN LUIS OBISPO COUNTY	No Documents Provided	Two documents provided for support: (1) Project Authorization dated 7/1/11; (2) Job Review dated 8/26/10	No Documents Provided	Five documents provided: (1) Cost Summary Sheet 1 (2) Cost Summary Sheet 2 (3) Job Estimate dated 03/30/2009 (4) Job Estimate dated 07/29/2010 (5) Job Estimate dated 01/13/2010	No Documents Provided	No Documents Provided	One document provided: (1) Reauthorization	No Documents Provided	No Documents Provided
42	30675659	MADERA YOUTH CENTER	MADERA	*Advance Authorization dated 5.12.09 for \$250,000 *Advance Authorization dated 3.8.11 for \$833,112/\$666,489	Two documents provided for support: (1) Business Case dated 2008; (2) Job Review dated 7/25/13	No Documents Provided	Three documents provided: (1) Cost Summary (2) Job Estimated Face Sheet dated 01/25/2013 (3) Job Estimate dated 02/25/2013	No Documents Provided	One document provided: (1) Progress Report	Four documents provided: (1) Change Order 1 (2) Change Order 2 (3) Reauthorization (4) Reauthorization dated 10/11/12	No Documents Provided	No Documents Provided
43	30383780	ISLAND DRIVE, CLEARLAKE	LAKE COUNTY	No Documents Provided	Three documents provided for support: (1) Business Case dated 06/09/2004 ; (2) Job Review dated 04/16/2012 (3) Job Review dated 09/19/2011	No Documents Provided	Seven documents provided: (1) Contract Work Authorization (2) Cost Summary Sheet 1 (3) Cost Summary Sheet 2 (4) Job Estimate Face Sheet dated 05/05/2012 (5) Job Estimate dated 03/12/2012 (6) Job Estimate dated 05/12/2012 (7) Job Estimate dated 07/02/2014 (8) Job Estimate dated 07/03/2014	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
44	P	FREMONT BLVD-IRVINGTON	FREMONT	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
45	31051957	HEALDSBURG AVE BRIDGE	HEALDSBURG	No Documents Provided	One document provided for support: (1) Project Authorization dated 9/30/14	No Documents Provided	Three documents provided: (1) Job Estimate Avoided Overhead Relocation (2) Job Estimate dated 07/02/2014 (3) Job Estimate dated 07/03/2014	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided	No Documents Provided
Number of Responses with No Documents Provided				15	5	43	3	43	31	24	42	43

Source: GRC 2017 Rule 20A Audit. Case No. A-15-09-001. Response to discovery AsP-007-001.

Source: GRC 2017 Rule 20A Audit, Case No. A.15-09-001, Response to Discovery, AsP-007-001

AzP Exhibit Q. PG&E Rule 20A Completed Projects - 2007 through 2016 - Cost Per Mile of Conversion (Nominal Dollars)								
Line No.	Project Completion Year	Order	Description	Community	Urban/Suburban/Rural/Unknown	Final Project Cost	Miles of Overhead Line Converted to Underground	Cost Per Mile of Overhead (Nominal)
1	30069477	30069477	State Hwy 1 - Jenner	Sonoma County	Unknown	\$1,007,477	0.62	\$1,624,964
2	30071191	30071191	City Of Davenport	Santa Cruz County	Rural	\$1,594,313	0.69	\$2,310,598
3	30075639	30075639	Carmel Valley Rd, Carmel-by-the-sea	Monterey County	Unknown	\$1,707,829	1.69	\$1,010,549
4	30155281	30155281	Fremont Blvd-irvington	Fremont	Unknown	\$1,216,246	0.58	\$2,096,976
5	30155323	30155323	Mason St. (davis-merchant)	Vacaville	Unknown	\$576,143	0.27	\$2,133,862
6	30167443	30167443	Cohasset Rd And East Ave, Chico	Butte County	Unknown	\$801,892	0.36	\$2,227,479
7	30170978	30170978	San Ramon Valley Blvd	San Ramon	Unknown	\$1,034,453	0.42	\$2,462,983
8	30171622	30171622	G & H Streets, From 7th To 11th Sts.	Arcata	Unknown	\$1,109,691	0.26	\$4,268,042
9	30178098	30178098	3rd And C Streets	West Sacramento	Unknown	\$830,239	0.20	\$4,151,196
10	30195251	30195251	San Pedro Creek Phase 1	Pacifica	Unknown	\$401,204	0.44	\$911,828
11	30223284	30223284	3rd Street / Xing 2	San Francisco	Unknown	\$214,111	-	Non-Quantifiable, No Miles Converted
12	30236749	30236749	3rd Street / Xing -3	San Francisco	Unknown	\$290,630	-	Non-Quantifiable, No Miles Converted
13	30237178	30237178	Ocean Ave, Phase Ii Cabling	San Francisco	Unknown	\$989,723	0.67	\$1,477,198
14	30239753	30239753	Ocean Ave, Phase Iii-b Subst	San Francisco	Unknown	\$697,184	0.47	\$1,483,371
15	30267444	30267444	Ocean Ave, Phase 3a/b Cbl/oh	San Francisco	Unknown	\$1,312,088	0.78	\$1,682,164
16	30269575	30269575	Clark Rd & Skyway	Paradise	Unknown	\$753,334	0.38	\$1,982,459
17	30282030	30282030	West Steele Lane	Santa Rosa	Unknown	\$1,019,413	0.82	\$1,243,187
18	30288220	30288220	Lovers Lane	Vacaville	Unknown	\$258,583	0.39	
19	30306856	30306856	Louise Ave	Lathrop	Unknown	\$520,569	0.34	\$1,531,087
20	30321001	30321001	Parkview Ave, Redding	Shasta County	Unknown	\$709,870	0.37	\$1,918,567
21	30328762	30328762	Stillman Street	San Francisco	Unknown	\$496,270	0.13	\$3,817,464
22	30339035	30339035	Pershing Street	Stockton	Unknown	\$697,055	0.32	\$2,178,297
23	30339515	30339515	Hwy 108 "f" Oakdale	Oakdale	Unknown	\$1,370,321	1.14	\$1,202,036
24	30348512	30348512	Walton Ave	Yuba City	Unknown	\$207,406	-	Non-Quantifiable, No Miles Converted
25	30354147	30354147	Shaw & Cedar Avenues	Fresno	Urban	\$924,177	0.42	\$2,200,420
26	30359162	30359162	Southshore Phase 1	Stockton	Unknown	\$164,932	0.18	\$916,286
27	30384525	30384525	Concannon	Livermore	Unknown	\$637,873	0.17	\$3,752,192
28	30391234	30391234	Chinatown Alleys (waverly)	San Francisco	Unknown	\$319,527	-	Non-Quantifiable, No Miles Converted
29	30415847	30415847	Civic Center, Phase 2	San Jose	Urban	\$2,174,101	1.54	\$1,411,754
30	30418943	30418943	East Street	Woodland	Unknown	\$221,352	0.23	\$962,399
31	30488767	30488767	7th Street, From H To E Streets	Los Banos	Urban	\$959,319	0.35	\$2,740,911
32					Total 2007	\$25,217,324	14.23	\$1,772,124
33								
34	30011097	30011097	Gough & Green W/gprp	San Francisco	Rural	\$2,075,843	0.16	\$12,974,016
35	30011544	30011544	Ocean Ave, Phase 1	San Francisco	Urban	\$1,726,898	1.42	\$1,216,126
36	30034755	30034755	Banks/chapman (substructure Portion) W/gprp	San Francisco	Urban	\$3,440,952	-	Non-Quantifiable, No Miles Converted
37	30040767	30040767	Lower Clayton W/gprp	San Francisco	Rural	\$771,642	-	Non-Quantifiable, No Miles Converted
38	30098043	30098043	Industrial	San Carlos	Unknown	\$2,934,893	1.33	\$2,206,687
39	30137189	30137189	Lincoln #3 (cabling Portion, 2001 Project)	San Francisco	Rural	\$290,757	0.25	\$1,163,027
40	30180213	30180213	Ocean Ave Ph 2 (substructure Portion)	San Francisco	Urban	\$2,000,195	-	Non-Quantifiable, No Miles Converted
41	30181165	30181165	Alpine Terrace (cabling Portion)	San Francisco	Urban	\$312,250	0.32	\$975,783
42	30192420	30192420	Gough & Green (cabling Portion) W/gprp	San Francisco	Urban	\$1,012,904	0.48	\$2,110,216
43	30200858	30200858	3rd Street Light Rail / Phase 1	San Francisco	Unknown	\$2,196,860	0.48	\$4,576,793
44	30211896	30211896	3rd Street Light Rail / Phase 2	San Francisco	Urban	\$5,416,350	0.80	\$6,770,437
45	30222280	30222280	Lincoln Way #2 (cabling Portion) W/ Gprp	San Francisco	Rural	\$1,114,745	0.45	\$2,477,211
46	30222768	30222768	Santa Clara Civic Center, San Jose	San Jose	Unknown	\$647,312	0.49	\$1,321,044
47	30223375	30223375	Funston Ave W/ Gprp	San Francisco	Urban	\$2,729,141	0.67	\$4,073,345
48	30233278	30233278	Lower Forest Ave	Pacific Grove	Unknown	\$751,389	0.39	\$1,926,639
49	30235385	30235385	Ocean Ave, Phase 3a	San Francisco	Unknown	\$1,535,302	-	Non-Quantifiable, No Miles Converted
50	30242356	30242356	Wash/680	Fremont	Suburban	\$1,087,762	0.47	\$2,314,388
51	30249966	30249966	E Blithedale	Mill Valley	Unknown	\$3,000,583	0.50	\$6,001,165
52	30264400	30264400	W Francisco Blvd	San Rafael	Unknown	\$444,676	0.36	\$1,235,211
53	30271350	30271350	Lincoln Way 6 W/gprp	San Francisco	Urban	\$677,423	0.23	\$2,945,317
54	30292474	30292474	Hammer Lane, Stockton	Stockton	Unknown	\$486,964	0.53	\$918,800
55	30302872	30302872	Shasta Dam Blvd, Shasta Lake	Shasta County	Unknown	\$275,198	0.50	\$550,395

AzP Exhibit Q. PG&E Rule 20A Completed Projects - 2007 through 2016 - Cost Per Mile of Conversion (Nominal Dollars)								
Line No.	Project Completion Year	Order	Description	Community	Urban/Suburban/Rural/Unknown	Final Project Cost	Miles of Overhead Line Converted to Underground	Cost Per Mile of Overhead (Nominal)
56	30334789	30334789	25th Street W/gprp	San Francisco	Unknown	\$955,473	0.27	\$3,538,789
57	30334790	30334790	Flint/16th St W/gprp	San Francisco	Unknown	\$457,893	0.11	\$4,162,668
58	30334791	30334791	Lincoln Way 4 W/gprp	San Francisco	Unknown	\$272,358	0.20	\$1,361,792
59	30340559	30340559	Oakdale/palou/mendell Plaza	San Francisco	Unknown	\$212,547	-	Non-Quantifiable, No Miles Converted
60	30400105	30400105	Oak Street (stanyan- Oak)	San Francisco	Urban	\$1,744,118	0.48	\$3,633,580
61	30406567	30406567	259 N. Wilma Ave, Ripon	Ripon	Unknown	\$866,091	0.59	\$1,467,952
62	30408801	30408801	Dougherty	Dublin	Unknown	\$1,215,529	0.18	\$6,752,940
63	30443282	30443282	Chinatown Alleys (beckett)	San Francisco	Unknown	\$186,532	-	Non-Quantifiable, No Miles Converted
64	30443283	30443283	Chinatown Alleys (wentworth)	San Francisco	Unknown	\$284,499	-	Non-Quantifiable, No Miles Converted
65	30459828	30459828	Banks/chapman, Replace Pole	San Francisco	Unknown	\$25,514	-	Non-Quantifiable, No Miles Converted
66					Total 2008	\$41,150,595	11.66	\$3,529,211
67								
68	30060281	30060281	First St	Pleasanton	Unknown	\$2,634,711	0.82	\$3,213,062
69	30166232	30166232	Esplanade Ave	Pacifica	Unknown	\$165,488	-	Non-Quantifiable, No Miles Converted
70	30184983	30184983	Arguello - 7th & Lincoln-kirk	San Francisco	Urban	\$1,706,113	2.21	\$771,997
71	30185077	30185077	North San Pedro	Marin County	Unknown	\$4,409,611	1.28	\$3,445,008
72	30185815	30185815	Tamalpais Blvd.	Corte Madera	Unknown	\$1,231,590	0.24	\$5,131,623
73	30215433	30215433	3rd St Light Rail, Phase 3	San Francisco	Urban	\$2,810,321	0.55	\$5,109,675
74	30245221	30245221	Presidio Hts., Phase 3	San Francisco	Unknown	\$2,312,220	1.48	\$1,562,311
75	30249633	30249633	Presidio Hts. 4c W/gprp	San Francisco	Unknown	\$2,918,860	0.69	\$4,230,232
76	30276150	30276150	Central Ave	Fremont	Unknown	\$1,916,781	0.34	\$5,637,592
77	30311335	30311335	W. Estudillo	San Leandro	Suburban	\$989,665	0.43	\$2,301,546
78	30311450	30311450	E Trinidad	Humboldt County, Trinidad	Unknown	\$249,877	0.80	\$312,346
79	30326713	30326713	Fiddletown	Amador County	Suburban	\$1,191,232	0.40	\$2,978,079
80	30376352	30376352	Great Hwy W/gprp	San Francisco	Unknown	\$1,349,572	0.44	\$3,067,210
81	30384129	30384129	Upper Lake	Lake County	Unknown	\$943,680	0.29	\$3,254,067
82	30402155	30402155	El Dorado St, Ph 1	Stockton	Urban	\$1,284,246	0.42	\$3,057,728
83	30403106	30403106	Fifth Street	Clovis	Urban	\$1,123,324	0.48	\$2,340,258
84	30411562	30411562	East Ave Cohasset To Ceonothus	Butte County, Chico	Urban	\$3,457,228	1.29	\$2,680,022
85	30419337	30419337	San Rafael Ave	Belvedere	Suburban	\$122,129	-	Non-Quantifiable, No Miles Converted
86	30421018	30421018	Villa Ave. (bullard2herndon)	Clovis	Urban	\$2,378,715	0.42	\$5,731,844
87	30449755	30449755	Purissima/altamont Roads	Los Altos Hills	Rural	\$815,900	0.61	\$1,337,541
88	30454611	30454611	Airport Way	Stockton	Urban	\$1,082,551	0.79	\$1,370,317
89	30469953	30469953	El Dorado St, Ph 2	Stockton	Urban	\$1,018,164	0.46	\$2,213,401
90	30579877	30579877	City Of Newman, Ph 1	Newman	Suburban	\$312,071	0.13	\$2,400,550
91					Total 2009	\$36,424,049	14.57	\$2,500,793
92								
93	30014022	30014022	Pc Presidio Hts 4a, Sf	San Francisco	Unknown	\$2,203,646	0.42	\$5,246,776
94	30126926	30126926	Ep Kngs Cnyn Ph 3 20a (maple-willw)	Fresno	Urban	\$3,403,646	1.14	\$2,985,654
95	30134049	30134049	East Street R20a	Concord	Unknown	\$1,850,650	0.29	\$6,381,552
96	30160625	30160625	Parker R20a-parker Avenue-rodeo	Contra Costa County	Unknown	\$2,300,334	0.98	\$2,347,280
97	30213683	30213683	Wilson Ave Phii, Rule 20, Vallejo	Vallejo	Suburban	\$491,493	0.40	\$1,228,733
98	30219331	30219331	Ep 1st&2nd St, Napa Rule 20a	Napa County	Urban	\$3,008,083	0.78	\$3,856,517
99	30222281	30222281	Oc1 Ges Texas/19th St. Sf Rl20a W/gprp	San Francisco	Unknown	\$2,348,558	0.79	\$2,972,858
100	30222282	30222282	Oc1 Ges Dolores St R20/a Phase 1 W/gprp	San Francisco	Unknown	\$2,871,615	0.88	\$3,263,199
101	30223377	30223377	Oc1 Ges San Bruno 2 R20a Ph1 W/gprp,sf	San Francisco	Unknown	\$2,077,580	0.42	\$4,946,619
102	30242967	30242967	Oc1 Ges San Bruno 2 R20a Ph2 W/gprp Sf	San Francisco	Unknown	\$3,927,267	1.30	\$3,020,975
103	30249355	30249355	Oc1 Ep Corbett 1b - Rule 20a	San Francisco	Unknown	\$4,673,749	1.16	\$4,029,094
104	30249357	30249357	Ep - Broad/randolph R20a	San Francisco	Unknown	\$5,954,541	1.10	\$5,413,219
105	30249629	30249629	Gep Mid Lake R20a	San Francisco	Unknown	\$2,463,511	0.88	\$2,799,444
106	30250175	30250175	Gep Dolores Street 2 R20a	San Francisco	Unknown	\$2,575,673	0.47	\$5,480,155
107	30292479	30292479	Hammer Lane Rule 20a-sj Co. Part	San Joaquin County	Unknown	\$994,499	0.96	\$1,035,936
108	30297408	30297408	Oak Street Rule 20a	San Francisco	Urban	\$2,037,687	-	Non-Quantifiable, No Miles Converted
109	30303305	30303305	Oc1 9th & 10th Ave/ortega R20a Cabling	San Francisco	Unknown	\$2,076,535	1.48	\$1,403,064
110	30314814	30314814	Gep: Octavia St R20a	San Francisco	Unknown	\$1,590,802	0.47	\$3,384,685
111	30333103	30333103	Banks/chapman Rule 20a	San Francisco	Unknown	\$1,787,842	0.14	\$12,770,300

AzP Exhibit Q. PG&E Rule 20A Completed Projects - 2007 through 2016 - Cost Per Mile of Conversion (Nominal Dollars)								
Line No.	Project Completion Year	Order	Description	Community	Urban/Suburban/Rural/Unknown	Final Project Cost	Miles of Overhead Line Converted to Underground	Cost Per Mile of Overhead (Nominal)
112	30334696	30334696	Oc1 Gep Liberty Hill 2 R20a W/gprp	San Francisco	Unknown	\$3,077,951	0.64	\$4,809,298
113	30334698	30334698	Gep Dolores Street 3 R20a	San Francisco	Unknown	\$4,558,682	1.79	\$2,546,750
114	30334785	30334785	Gep Oakdale/palou 1 R20a	San Francisco	Unknown	\$4,772,907	1.27	\$3,758,194
115	30334788	30334788	Gep Taravel St. R20a	San Francisco	Unknown	\$3,675,619	1.30	\$2,827,399
116	30334792	30334792	Oc1 Gep Lincoln Way 5 Rule 20a W/gprp	San Francisco	Unknown	\$3,021,505	0.87	\$3,472,994
117	30344715	30344715	Camino Tassajara 20a, Danville	Danville	Unknown	\$2,371,997	1.64	\$1,446,340
118	30366845	30366845	Olive Ave. (fruitvale - Coffee) Rule 20a	Kern County	Urban	\$1,947,899	1.04	\$1,872,980
119	30381109	30381109	Nice Rule 20a	Lake County	Unknown	\$784,282	0.33	\$2,376,612
120	30444991	30444991	Academy, R20a, Hwy 180 To Calif	Fresno County	Rural	\$815,808	0.96	\$849,800
121	30467134	30467134	Friant Rd Btwn Bugg & No. Fork	Fresno County	Urban	\$609,176	0.38	\$1,603,095
122	30472856	30472856	Friant Road Shoo Fly (rule 20a)	Fresno	Rural	\$492,448	0.37	\$1,330,941
123	30513231	30513231	Friant Road Rule 20a	Fresno County	Rural	\$1,118,261	0.56	\$1,996,895
124	30526916	30526916	Willow R20a(teague To 660' N/o Sheph	Fresno	Urban	\$1,140,852	1.07	\$1,066,217
125	30533492	30533492	Oc4 Ep Rule 20a Cypress & Hilltop Reding	Shasta County	Urban	\$193,839	0.23	\$842,778
126	30558119	30558119	Ep Fort Tejon Rule 20a - Lebec	Kern County	Rural	\$209,282	0.36	\$581,339
127	30566254	30566254	Academy Ave 20a Jefferson Ave, Sanger	Fresno County	Urban	\$461,520	0.25	\$1,846,080
128	30616113	30616113	R20a - Alameda Del Prado, Ma Cnty	Marin County	Urban	\$1,544,188	0.47	\$3,285,506
129	30629431	30629431	Sports Village- Ashe Rd Seg. 1 Bksf	Bakersfield	Rural	\$787,398	0.56	\$1,406,068
130	30223376 &	30223376 &	Ges Mission St R20a	San Francisco	Unknown	\$5,122,168	0.70	\$7,317,383
131					Total 2010	\$85,343,493	28.85	\$2,958,180
132								
133	30010732	30010732	El Camino Real	Colma, Daly City, San Mateo County	Unknown	\$2,238,614	0.71	\$3,152,977
134	30155006	30155006	Bay St	Fremont	Suburban	\$1,251,374	0.34	\$3,680,512
135	30206851	30206851	Hwy 92/main St	Half Moon Bay	Unknown	\$845,737	1.40	\$604,098
136	30249353	30249353	Mid-24th	San Francisco	Unknown	\$2,920,534	0.74	\$3,946,668
137	30450302	30450302	Whitesbridge	Kerman	Urban	\$1,097,272	0.29	\$3,783,697
138	30636534	30636534	Lafayette Cir & Fiesta Ln	Lafayette	Urban	\$1,049,391	0.26	\$4,036,119
139	30656093	30656093	South Mill Creek	Bakersfield	Urban	\$1,518,177	0.28	\$5,422,061
140					Total 2011	\$10,921,099	4.02	\$2,716,691
141								
142	30072595	30072595	Upper Broadway	Seaside	Unknown	\$2,678,450	0.35	\$7,652,714
143	30146944	30146944	Mission/calhoun	Hayward	Suburban	\$3,371,423	0.75	\$4,495,230
144	30178490	30178490	Lemoore Ave	Kings County, Lemoore	Urban	\$4,290,373	1.25	\$3,432,299
145	30215963	30215963	Macarthur Ph 1	Oakland	Unknown	\$4,295,232	1.08	\$3,977,066
146	30240320	30240320	Mission St, Ph 2	Santa Cruz	Urban	\$3,897,341	1.60	\$2,435,838
147	30240908	30240908	Macarthur Ph 2	Oakland	Unknown	\$4,043,229	0.86	\$4,701,430
148	30240911	30240911	Macarthur Ph 3	Oakland	Unknown	\$4,966,230	0.75	\$6,621,641
149	30249359	30249359	Courtland Connect - Dist.#339 - Ph 1	San Francisco	Unknown	\$4,105,893	1.16	\$3,539,563
150	30249631	30249631	Mid-folsom St - Dist.#350 - Ph 1	San Francisco	Unknown	\$3,272,663	0.61	\$5,365,021
151	30250174	30250174	Liberty Hill - Dist.#329 - Ph 1	San Francisco	Unknown	\$4,416,284	1.05	\$4,205,984
152	30278150	30278150	Laidley St - Dist.#330 - Ph 2	San Francisco	Unknown	\$1,366,057	0.35	\$3,903,020
153	30302192	30302192	Broadway	Sonoma, Sonoma County	Suburban	\$2,141,797	0.73	\$2,933,968
154	30317644	30317644	Sutter Hospital	Merced County	Urban	\$2,026,094	0.86	\$2,355,924
155	30323751	30323751	Oak Park Blvd	Grover Beach	Suburban	\$1,169,786	0.47	\$2,488,906
156	30334699	30334699	Courtland Connect - Dist.#339 - Ph 2	San Francisco	Unknown	\$4,549,045	0.83	\$5,480,777
157	30334782	30334782	Corbett Ave - Dist.#311 - Ph 2	San Francisco	Unknown	\$3,374,543	0.65	\$5,191,604
158	30334783	30334783	Mid-folsom St.	San Francisco	Unknown	\$3,565,078	1.46	\$2,441,834
159	30367568	30367568	Ralston/eucalyptus Avenues	Hillsborough	Unknown	\$2,058,774	0.37	\$5,564,255
160	30383452	30383452	Taraval - Dist.#346 - Ph 2	San Francisco	Unknown	\$8,860,554	1.25	\$7,088,443
161	30395065	30395065	Bodega Ave	Petaluma	Suburban	\$2,622,096	0.52	\$5,042,492
162	30400280	30400280	Ocean Ave - Dist.#338 - Ph 4	San Francisco	Unknown	\$3,741,504	0.94	\$3,980,324
163	30410006	30410006	Duboce/church - Dist.#324	San Francisco	Unknown	\$2,999,615	0.47	\$6,382,159
164	30410007	30410007	Duncan/newburg - Dist.#332	San Francisco	Unknown	\$2,565,688	0.48	\$5,345,184
165	30454814	30454814	Miller/stevenson	Berkeley	Suburban	\$5,118,222	0.54	\$9,478,189
166	30563619	30563619	Main St, Templeton	San Luis Obispo County	Suburban	\$937,277	0.47	\$1,994,206
167	30576193	30576193	Guadalupe Gardens, Ph 2	San Jose	Urban	\$4,992,593	0.32	\$15,601,852
168	30613816	30613816	Pershing Ave, Ph 2	Stockton	Urban	\$3,406,041	1.04	\$3,275,040
169	30614607	30614607	5th Street	West Sacramento	Unknown	\$1,835,345	0.41	\$4,476,450
170	30676927	30676927	Buttonwillow & Dinuba	Reedley	Unknown	\$588,819	0.24	\$2,453,413
171	30726360	30726360	Gosford Rd	Bakersfield	Rural	\$688,009	0.38	\$1,810,550
172					Total 2012	\$97,944,055	22.24	\$4,403,959
173								
174	30069479	30069479	Highway 12, Ph 3	Sonoma County	Suburban	\$7,371,678	1.31	\$5,627,235
175	30170818	30170818	Highway 49 - Pac Bell Lead	Placer County	Unknown	\$2,761,892	0.09	\$30,687,689

AzP Exhibit Q. PG&E Rule 20A Completed Projects - 2007 through 2016 - Cost Per Mile of Conversion (Nominal Dollars)								
Line No.	Project Completion Year	Order	Description	Community	Urban/Suburban/Rural/Unknown	Final Project Cost	Miles of Overhead Line Converted to Underground	Cost Per Mile of Overhead (Nominal)
176	30172470	30172470	Gualala, Ph 1	Mendocino County	Suburban	\$4,067,720	0.70	\$5,811,029
177	30344383	30344383	Stevens Creek Blvd	Cupertino, San Jose	Urban	\$1,536,350	0.36	\$4,267,639
178	30383780	30383780	Island Drive, Clearlake	Lake County	Rural	\$808,835	0.12	\$6,740,292
179	30387770	30387770	Lewelling Blvd	Alameda County	Unknown	\$3,361,081	0.82	\$4,098,879
180	30442255	30442255	Baseline Ave, Ballard	Santa Barbara County	Unknown	\$1,337,063	0.51	\$2,621,692
181	30444989	30444989	Academy, Sanger	Fresno County, Sanger	Urban	\$1,125,908	0.34	\$3,311,494
182	30492230	30492230	Bradley Overpass Hwy 140	Merced	Urban	\$2,167,700	0.36	\$6,021,389
183	30514516	30514516	Guadalupe Gardens, Ph 1	San Jose	Urban	\$953,720	2.48	\$384,565
184	30520215	30520215	District 4 (front St. To 9th), Chowchilla	Madera County	Urban	\$3,382,558	0.62	\$5,455,739
185	30563720	30563720	Columbia	Tuolumne County	Rural	\$2,053,328	0.40	\$5,133,320
186	30567652	30567652	Market/almaden	San Jose	Urban	\$4,693,194	0.84	\$5,587,136
187	30615999	30615999	Greenfield Rd	San Anselmo	Suburban	\$1,468,753	0.34	\$4,319,862
188	30629323	30629323	Hillcrest Ave	Antioch	Unknown	\$2,303,558	0.49	\$4,701,139
189	30675530	30675530	Cottonwood Road, Bakersfield	Kern County	Urban	\$2,734,351	0.77	\$3,551,105
190	30677482	30677482	Broad Street Ph 2, San Luis Obispo	San Luis Obispo, San Luis Obispo County	Unknown	\$3,267,025	0.78	\$4,188,494
191	30679601	30679601	Willow Ave, Ph 2	Fresno	Urban	\$1,558,816	0.94	\$1,658,315
192	30706328	30706328	First Street	Los Altos	Unknown	\$2,250,164	0.13	\$17,308,954
193	30767869	30767869	Grant Line Rd, Ph 2	Tracy	Urban	\$749,975	0.48	\$1,562,448
194	30809002	30809002	Mid San Rafael Ave	Belvedere	Suburban	\$463,327	0.42	\$1,103,160
195					Total 2013	\$50,416,996	13.30	\$3,790,752
196								
197	30055034	30055034	Bayfair	San Leandro	Unknown	\$3,179,510	0.53	\$5,999,075
198	30267067	30267067	C & D Streets	Madera	Urban	\$1,990,498	0.35	\$5,687,136
199	30334786	30334786	Oakdale/palou Ph 2	San Francisco	Unknown	\$7,097,063	1.53	\$4,638,604
200	30354298	30354298	Jackson/taylor	San Jose	Unknown	\$4,135,751	1.29	\$3,206,009
201	30406568	30406568	City Of Riverbank	Riverbank, Stanislaus County	Urban	\$3,010,033	0.69	\$4,362,367
202	30547671	30547671	Main St/placerville Dr	Placerville	Unknown	\$1,993,374	0.35	\$5,695,354
203	30563616	30563616	City Of Slo Broad St Ph 1	San Luis Obispo, San Luis Obispo County	Unknown	\$5,094,591	1.32	\$3,859,539
204	30660879	30660879	Bellevue Rd	Atwater	Urban	\$3,286,907	0.83	\$3,960,128
205	30675659	30675659	Madera Youth Center	Madera	Urban	\$993,089	0.24	\$4,137,870
206	30676929	30676929	Fowler Library, 7th St	Fowler	Unknown	\$879,266	0.31	\$2,836,343
207	30677628	30677628	Mission Overhill Dist 27	Hayward	Urban	\$4,975,614	1.01	\$4,926,351
208	30677789	30677789	Mission Blvd Dist 25	Hayward	Urban	\$7,211,391	1.11	\$6,496,749
209	30699814	30699814	Somersville Road	Antioch	Unknown	\$1,009,094	0.33	\$3,057,861
210	30764513	30764513	California Ave	Bakersfield	Unknown	\$932,892	0.31	\$3,009,330
211	30769201	30769201	Buskirk Ave	Pleasant Hill	Urban	\$2,115,156	0.45	\$4,700,346
212					Total 2014	\$47,904,230	11	\$4,498,050
213								
214	30185719	30185719	Highway 29	Napa County, St Helena	Suburban	\$17,048,836	2.83	\$6,024,324
215	30242352	30242352	Washington & Roberts	Fremont	Unknown	\$3,501,282	1.66	\$2,114,301
216	30323741	30323741	Grand Ave [oak Park To Elm]	Arroyo Grande	Suburban	\$2,312,480	0.59	\$3,919,457
217	30406159	30406159	School Rd	Humboldt County	Suburban	\$3,663,855	0.55	\$6,661,555
218	30411405	30411405	The Alameda	Concord	Suburban	\$1,467,091	0.11	\$13,337,195
219	30431045	30431045	Rengstorff Ave	Mountain View	Unknown	\$2,986,717	0.89	\$3,355,861
220	30575460	30575460	Park/naglee	San Jose	Urban	\$6,472,553	1.72	\$3,763,112
221	30616114	30616114	East St	Woodland	Unknown	\$1,292,764	0.33	\$3,917,468
222	30642311	30642311	Lincoln Wy & High St	Auburn	Unknown	\$1,544,684	0.16	\$9,654,278
223	30644207	30644207	Balls Ferry Rd	Anderson	Urban	\$3,333,295	0.75	\$4,444,394
224	30650716	30650716	Tully Rd	San Jose	Urban	\$3,105,827	1.18	\$2,632,057
225	30675529	30675529	13th St	Firebaugh	Suburban	\$2,423,475	0.42	\$5,770,179
226	30679737	30679737	Marina Vista	Martinez	Unknown	\$1,828,334	0.38	\$4,811,405
227	30692249	30692249	Petalma Blvd North	Petaluma	Suburban	\$1,767,995	0.52	\$3,399,990
228	30720578	30720578	Winchester Blvd	Campbell	Unknown	\$6,429,730	1.49	\$4,315,255
229	30762587	30762587	County Roads 98 And 27	Yolo County	Unknown	\$1,891,504	0.64	\$2,955,476
230	30776251	30776251	Coleman Ave Ph1	San Jose	Unknown	\$432,091	0.06	\$7,201,520
231	30835217	30835217	Parsons Ave	Merced	Urban	\$1,569,890	0.32	\$4,905,906
232	30909576	30909576	Wible Rd	Bakersfield	Unknown	\$2,860,710	0.51	\$5,609,235
233	30920922	30920922	Evergreen Park	San Jose	Unknown	\$2,794,111	1.07	\$2,611,319
234	30944299	30944299	Mirada Rd	San Mateo County	Urban	\$833,659	0.27	\$3,087,626
235					Total 2015	\$69,560,884	16.45	\$4,229,654
236								
237	30169463	30169463	Meadow Vista	Placer County	Unknown	\$5,084,513	0.55	\$9,244,568
238	30170714	30170714	Hwy 49 - Pg&e Lead	Placer County	Unknown	\$4,568,193	0.74	\$6,173,234
239	30256639	30256639	Stony Pt Rd	Santa Rosa	Suburban	\$8,853,448	1.43	\$6,191,222

AzP Exhibit Q. PG&E Rule 20A Completed Projects - 2007 through 2016 - Cost Per Mile of Conversion (Nominal Dollars)								
Line No.	Project Completion Year	Order	Description	Community	Urban/Suburban/Rural/Unknown	Final Project Cost	Miles of Overhead Line Converted to Underground	Cost Per Mile of Overhead (Nominal)
240	30308833	30308833	E 14th Ph II	Alameda County	Unknown	\$8,618,365	1.18	\$7,303,699
241	30563618	30563618	El Camino Real, Santa Margarita	San Luis Obispo County	Suburban	\$2,085,206	0.40	\$5,213,014
242	30648282	30648282	Delmas & Park Ave	San Jose	Unknown	\$5,742,949	1.39	\$4,131,618
243	30669061	30669061	Geneva Ave Ph 1	Daly City	Urban	\$6,011,030	0.96	\$6,261,489
244	30676933	30676933	Willow Ave S/o Nees	Fresno	Urban	\$1,255,533	0.39	\$3,219,315
245	30676934	30676934	Peach Ave [kings Canyon To Belmont]	Fresno	Unknown	\$5,685,408	1.06	\$5,363,592
246	30702293	30702293	Aborn Rd	San Jose	Urban	\$1,772,317	0.26	\$6,816,605
247	30733248	30733248	Main St, Greenville	Plumas County	Unknown	\$1,555,871	0.25	\$6,223,482
248	30746320	30746320	Martin St	Madera County	Suburban	\$1,533,550	0.61	\$2,514,017
249	30794479	30794479	Riverside Ave	Paso Robles	Suburban	\$2,720,690	0.60	\$4,534,484
250	30906266	30906266	Old County Rd	San Carlos	Urban	\$3,072,450	0.55	\$5,586,272
251	30917227	30917227	3rd St Ph 1	Davis	Unknown	\$1,717,193	0.53	\$3,239,987
252	30975304	30975304	Truesdale St	Eureka	Urban	\$654,697	0.06	\$10,911,623
253	31038742	31038742	Vanden Rd	Vacaville	Suburban	\$708,336	0.26	\$2,724,369
254	31051957	31051957	Healdsburg Ave Bridge	Healdsburg	Unknown	\$81,345	0.12	\$677,876
255	31068171	31068171	Snyder Lane	Rohnert Park	Suburban	\$991,808	0.33	\$3,005,479
256	31106363	31106363	E. Nees & N. Maple Ave	Fresno	Urban	\$785,014	0.23	\$3,413,105
257	30647467 &	30647467 &	Camden Ave	San Jose, Santa Clara County	Urban	\$3,523,227	1.80	\$1,957,348
258					Total 2016	\$67,021,142	14	\$4,892,054
259								
260					Total (2007-2016)	\$531,903,867	149.66	\$3,554,058

Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-092, Att.1 and Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab

AzP Exhibit R. Avg. Cost Per Converted Mile of Projects Completed 2007 through 2016 - by Year						
Population Density	Year	Total Costs of Conversions (Nominal)	Infl Conv Factor	Total Costs of Conversions (Real)	Miles Converted	Avg. Cost Per Mile Converted (Real)
		2007 - Nominal	Infl Conv Factor	2007 - Real	2007 - Miles Converted	2007 - Avg. Cost Per Mile Converted
Rural	2007	1,594,313	116%	1,849,403	0.69	2,680,294
Urban		4,057,596		4,706,811	2.31	2,037,581
Unknown		19,565,415		22,695,881	11.23	2,021,005
Suburban		-		-	-	No Project Activity
		2008 - Nominal	Infl Conv Factor	2008 - Real	2008 - Miles Converted	2008 - Avg. Cost Per Mile Converted
Rural	2008	4,252,986	110%	4,678,285	0.86	5,439,866
Urban		19,060,232		20,966,255	4.40	4,765,058
Unknown		16,749,615		18,424,577	5.93	3,107,011
Suburban		1,087,762		1,196,539	0.47	2,545,827
		2009 - Nominal	Infl Conv Factor	2009 - Real	2009 - Miles Converted	2009 - Avg. Cost Per Mile Converted
Rural	2009	815,900	112%	913,808	0.61	1,498,046
Urban		14,860,662		16,643,942	6.62	2,516,091
Unknown		18,132,389		20,308,276	6.38	3,183,115
Suburban		2,615,097		2,928,909	0.96	3,050,946
		2010 - Nominal	Infl Conv Factor	2010 - Real	2010 - Miles Converted	2010 - Avg. Cost Per Mile Converted
Rural	2010	3,423,197	111%	3,799,749	2.81	1,352,224
Urban		14,346,890		15,925,048	5.36	2,971,091
Unknown		67,081,913		74,460,924	20.28	3,671,643
Suburban		491,493		545,557	0.40	1,363,893
		2011 - Nominal	Infl Conv Factor	2011 - Real	2011 - Miles Converted	2011 - Avg. Cost Per Mile Converted
Rural	2011	-	107%	-	-	No Project Activity
Urban		3,664,840		3,921,379	0.83	4,724,553
Unknown		6,004,885		6,425,227	2.85	2,254,466
Suburban		1,251,374		1,338,970	0.34	3,938,148
		2012 - Nominal	Infl Conv Factor	2012 - Real	2012 - Miles Converted	2012 - Avg. Cost Per Mile Converted
Rural	2012	688,009	105%	722,409	0.38	1,901,078
Urban		18,612,442		19,543,064	5.07	3,854,648
Unknown		63,283,003		66,447,154	13.31	4,992,273
Suburban		15,360,600		16,128,630	3.48	4,634,664
		2013 - Nominal	Infl Conv Factor	2013 - Real	2013 - Miles Converted	2013 - Avg. Cost Per Mile Converted
Rural	2013	2,862,163	103%	2,948,028	0.52	5,669,284
Urban		18,902,572		19,469,649	7.19	2,707,879
Unknown		15,280,783		15,739,206	2.82	5,581,279
Suburban		13,371,478		13,772,622	2.77	4,972,066
		2014 - Nominal	Infl Conv Factor	2014 - Real	2014 - Miles Converted	2014 - Avg. Cost Per Mile Converted
Rural	2014	-	101%	-	-	No Project Activity
Urban		23,582,687		23,818,514	4.68	5,089,426
Unknown		24,321,542		24,564,758	5.97	4,114,700
Suburban		-		-	-	No Project Activity
		2015 - Nominal	Infl Conv Factor	2015 - Real	2015 - Miles Converted	2015 - Avg. Cost Per Mile Converted
Rural	2015	-	101%	-	-	No Project Activity
Urban		15,315,225		15,468,377	4.24	3,648,202
Unknown		25,561,927		25,817,546	7.19	3,592,756
Suburban		28,683,732		28,970,570	5.02	5,771,030
		2016 - Nominal	Infl Conv Factor	2016 - Real	2016 - Miles Converted	2016 - Avg. Cost Per Mile Converted
Rural	2016	-	100%	-	-	No Project Activity
Urban		17,074,268		17,074,268	4.25	4,017,475
Unknown		33,053,837		33,053,837	5.82	5,679,353
Suburban		16,893,037		16,893,037	3.63	4,653,729
Rural	2007-2016 (Wtd. Avg. Cost Per Mile Converted in Real \$s)	2,540,321				
Urban		3,505,113				
Unknown		3,765,621				
Suburban		4,790,559				

Source: GRC 2017 Rule 20A Audit, Case No. A.15-091-001, Response to Discovery, AzP-001-092, Att.1, Response to Master Data Request in the Rule 20 OIR, R.17-05-010, "Detailed Project Information" tab, and CPI Inflation Calculator available on the US Bureau of Labor Statistics website at <https://data.bls.gov/cgi-bin/cpi/calc.pl>