

Company: Southern California Gas Company (U 904 G)
Proceeding: 2016 General Rate Case
Application: A.14-11-____
Exhibit: SCG-18

SOCALGAS

DIRECT TESTIMONY OF CHRISTOPHER R. OLMSTED

(INFORMATION TECHNOLOGY)

November 2014

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



TABLE OF CONTENTS

- I. INTRODUCTION..... 1**
 - A. Summary of Total IT Division Costs..... 1**
 - B. Forecast Methodology 2**
 - C. Summary of SoCalGas IT Costs..... 3**
 - D. Summary of Activities 4**
 - E. IT’s Support of SoCalGas’ Goals and Related Initiatives 4**
 - 1. Cybersecurity and Risk Management 5**
 - 2. Customer Privacy and Customer Service Initiatives 10**
 - 3. New Technology..... 11**
 - 4. Operating Efficiencies..... 11**
 - F. SoCalGas IT Testimony Excludes Advanced Metering Infrastructure (“AMI”).. 11**
- II. NON-SHARED COSTS..... 12**
 - A. Introduction..... 12**
 - B. Applications (Non-Shared)..... 12**
 - 1. Description of Costs and Underlying Activities..... 12**
 - 2. Cost Drivers 13**
 - C. Infrastructure (Non-Shared)..... 13**
 - 1. Description of Costs and Underlying Activities..... 13**
 - 2. Cost Drivers 14**
 - D. IT Support (Non-Shared)..... 14**
 - 1. Description of Costs and Underlying Activities..... 14**
 - 2. Cost Drivers 14**
- III. SHARED COSTS..... 15**
 - A. Introduction..... 15**
 - B. IT Applications (Shared)..... 16**
 - 1. Description of Costs and Underlying Activities..... 16**
 - 2. Cost Drivers 16**
 - C. IT Infrastructure (Shared)..... 17**
 - 1. Description of Costs and Underlying Activities..... 17**
 - 2. Cost Drivers 17**
 - D. Information Security (Shared)..... 18**
 - 1. Description of Costs and Underlying Activities..... 18**
 - 2. Cost Drivers 18**

E. IT Support (Shared)	19
1. Description of Costs and Underlying Activities.....	19
2. Cost Drivers	19
IV. CAPITAL.....	19
A. Introduction.....	19
B. Capital Project Approval	21
1. IT Division Capital Plan Development.....	21
2. Concept Documents.....	21
3. Project Prioritization and Approval.....	21
4. Business Cases.....	22
5. Cost Sharing Mechanisms	22
C. IT-Sponsored Capital Projects	22
1. SoCalGas Desktop Hardware Refresh	24
2. Web Application Database Firewalls	24
3. Server Replacement (AIX)	25
4. Refresh Out-of-Warranty Servers	25
5. End Point Security.....	26
6. Logging Infrastructure Refresh	26
7. Storage Area Network (“SAN”) Storage Expansion.....	27
8. Virtual Desktop Infrastructure	27
9. Intrusion Protection System Refresh.....	27
10. SoCalGas Field Area Network.....	28
11. System Management and Automation	28
12. Local Area Network (“LAN”) Refresh	28
13. Converged Computing Infrastructure.....	29
14. Wide Area Network (“WAN”) Refresh	29
15. SoCalGas Private Network Expansion	30
16. Private Network Expansion	30
17. Data Center Network Rebuild	30
18. Business Planning Simulation (“BPS”) Replacement.....	31
19. GIS-SAP Integration	31
20. Financial Asset Management	32
21. SharePoint	32
22. Data Loss Prevention.....	33

23. Travel and Expense Mobility.....	33
24. Identity & Access Management, Phases 2 -4.....	33
V. CONCLUSION	34
VI. WITNESS QUALIFICATIONS.....	35

LIST OF APPENDICES

APPENDIX A – SEU IT PROJECT CONCEPT DOCUMENT TEMPLATE – SUMMARY PAGE	A-1
APPENDIX B: CAPITAL PROJECTS - BASIS ASSUMPTIONS.....	B-1
APPENDIX C: IT INFRASTRUCTURE CAPITAL PROJECTS.....	C-1
APPENDIX D: COMMISSION DECISIONS RELEVANT TO BUSINESS JUSTIFICATIONS FOR IT CAPITAL PROJECTS.....	D-1
APPENDIX E – GLOSSARY OF TERMS.....	E-1

SUMMARY FOR SOUTHERN CALIFORNIA GAS INFORMATION TECHNOLOGY

O&M	2013 (\$000)	2016 (\$000)	Change (\$000)
Non-Shared	6,941	7,640	699
Shared	11,995	15,984	3,989
Total	18,936	23,624	4,688

Capital	2014 (\$000)	2015 (\$000)	2016 (\$000)
IT	48,697	68,674	67,104
Business	55,700	51,242	37,692
Total	104,397	119,916	104,796

Summary of Requests from SoGalGas IT

- Provide support services that directly contribute to Southern California Gas Company's ("SoCalGas") ability to provide secure, safe and reliable service at reasonable rates for our customers while maintaining a safe work environment for our employees
- Enhance and strengthen cybersecurity to ensure that ever-present security threats do not disrupt business operations and secure customer data to meet growing privacy regulations
- Position the Information Technology ("IT") Division ("IT Division", or alternatively, "IT") to meet the continued growth in business demand
- Address aging, end-of-life infrastructure, as well as provide upgrades in the information security area through capital expenditures for IT

1 **SOCALGAS DIRECT TESTIMONY OF CHRISTOPHER R. OLMSTED**
2 **(INFORMATION TECHNOLOGY)**

3 **I. INTRODUCTION**

4 **A. Summary of Total IT Division Costs**

5 The IT Division is responsible for a majority of traditional technology-related services
6 and activities, including cybersecurity, for SoCalGas, San Diego Gas & Electric Company
7 (“SDG&E”) and Sempra Energy Corporate Center (“Corporate Center”). These services include
8 supporting applications, hardware and software, some of which are used for risk assessment and
9 management across the company. Our business clients rely on IT to provide support for
10 numerous areas to deliver safe and reliable service to our customers. The areas include, but are
11 not limited to asset management, work management and measurement, fuel and power, outage
12 management, gas and electric facilities, transportation, procurement and settlement, financial
13 management, accounting, customer field operations, meter reading, customer energy
14 management, smart meter data management, routing, scheduling, dispatching, revenue cycle,
15 customer assistance and customer contact functions. This is accomplished through the IT
16 Division’s operation of company data centers that store and manage data, including those used
17 for risk assessments and development of related mitigation plans, as well as foundational
18 information security services to ensure security and privacy. The costs for these services and
19 activities are attributed to cost centers at SoCalGas that I have described in this chapter of
20 testimony as well as to cost centers at SDG&E, which are described in the testimony of SDG&E
21 IT witness Stephen Mikovits (Ex. SDG&E-19).

22 Table CRO-1 below summarizes the overall costs for services and capital investments
23 provided by the IT Division.

1 **TABLE CRO-1**

2 **Test Year 2016 Summary of IT Division (SoCalGas and SDG&E) Total Costs**

3

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars	2013 Adjusted-Recorded	TY2016 Estimated	Change
SoCalGas	18,936	23,624	4,688
SDG&E	90,547	109,748	19,201
Total O&M	109,483	133,372	23,889

4

	2014	2015	2016
SoCalGas	104,397	119,916	104,796
SDG&E	94,274	62,084	35,388
Total Capital	198,671	182,000	140,184

5 **B. Forecast Methodology**

6 The forecast methodology developed for IT costs is the base year (2013) recorded, plus
7 adjustments. Using this methodology is most appropriate for numerous reasons. First, the pace
8 of change in the technology industry continues to accelerate when compared to prior years. This
9 is evidenced by growth in computing power at the hardware level as well as the number and
10 diversity of applications at the software level. Factoring in emerging computing trends, such as
11 cloud computing and the increasing commercialization of IT capabilities, directed us to use
12 current data and adjustments rather than relying on historical averages that do not include these
13 types of trends in our computing environment. Second, the rapidly changing security threat
14 landscape drives our current cybersecurity risk management activities. These risks and our
15 subsequent risk management activities did not necessarily previously exist in their current form,
16 so they would not be fully accounted for in a historical average. Third, the evolving regulatory
17 requirements around customer data privacy are not fully reflected in a historical average. Fourth,
18 the level of support provided by the IT Division continues to grow as capital projects are
19 implemented since projects that drive benefits and efficiencies within business units often create
20 increased workload within the IT Division that would not have been reflected in our historical
21 costs. As an example, SoCalGas has implemented a number of self-service projects in its
22 customer interaction channels (e.g., interactive voice response (“IVR”) and web channels) that
23 allow customers to manage their own business transactions and stay informed during outages or
24 emergencies. These projects have helped meet evolving customer interaction and service
preferences and also contributed to increased self-service and paperless efficiencies as described

1 in Exhibit SCG-11, the prepared direct testimony of SoCalGas Customer Service and Office
 2 Operations witness Evan Goldman. However, these enhancements have also resulted in
 3 additional functions and features that IT must support.

4 Using the base year, plus adjustments, methodology starts the IT Division at a lower
 5 requested dollar amount than if we had utilized 3-year, 4-year or 5-year averages (see Table
 6 CRO-2). Use of the base year, plus adjustments, methodology is consistent with SDG&E’s
 7 approach, as demonstrated in the testimony of SDG&E IT witness Stephen Mikovits (Ex.
 8 SDG&E-19). I have mentioned particular adjustments made in my testimony, as relevant.

9 **TABLE CRO-2¹**

10 **IT Division (SoCalGas and SDG&E) Forecast Methodology Comparison (000’s)**

2013 Adjusted-Recorded	5-Year Average	4-Year Average	3-Year Average
109,483	111,741	111,578	111,192

11 **C. Summary of SoCalGas IT Costs**

12 The costs presented in the remainder of my testimony are specific to IT costs charged to
 13 SoCalGas cost centers. I am sponsoring the Test Year (“TY”) 2016 forecasts for operations and
 14 maintenance (“O&M”) costs for both non-shared and shared services and capital costs for the
 15 forecast years 2014, 2015, and 2016. Table CRO-3 summarizes my SoCalGas IT sponsored
 16 costs.

17 **TABLE CRO-3**

18 **Test Year 2016 Summary of SoCalGas IT Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars	2013 Adjusted-Recorded	TY2016 Estimated	Change
Total Non-Shared	6,941	7,640	699
Total Shared Services (Incurred)	11,995	15,984	3,989
Total O&M	18,936	23,624	4,688

	2014	2015	2016
Total Capital	104,397	119,916	104,796

19
 20
¹ The 5- year historical costs include both routine IT support as well as unique project work that may vary from year to year. All costs have been included within our historical averages and accurately reflect the scope of IT Division responsibilities.

1 Some of the costs shown in Table CRO-3 serve only SoCalGas, but in most cases, the costs are
2 “shared” and thus serve SoCalGas as well as SDG&E and Corporate Center. Section II discusses
3 non-shared costs that are incurred and activities performed solely for the benefit of SoCalGas.
4 Section III discusses shared costs/activities that benefit SoCalGas, SDG&E and/or Corporate
5 Center. Section IV discusses SoCalGas IT capital costs.

6 **D. Summary of Activities**

7 The IT Division is responsible for a variety of technology-related services and activities
8 for SDG&E, SoCalGas and Corporate Center. The costs presented in my testimony have been
9 categorized into four areas:

- 10 • Applications – Applications support the development, implementation and
11 maintenance of computer software utilized by customers, employees and/or vendor
12 partners.
- 13 • Information Security – Information Security supports governance and compliance
14 functions, corporate security policy framework, security risk management and
15 exception tracking, project roadmap and portfolio management, and the fulfillment of
16 statutory and regulatory requirements.
- 17 • Infrastructure – IT Infrastructure supports the design, implementation and operation
18 of the company’s computing infrastructure, includes both hardware (ranging from
19 desktop computing systems and servers to storage systems) and software (including
20 middleware, production control, operating systems, and other low-level software
21 systems).
- 22 • IT Support - this category of costs includes labor and non-labor for cost centers that
23 are not specifically aligned with the other three IT areas described above.

24 **E. IT’s Support of SoCalGas’ Goals and Related Initiatives**

25 As an organization that is pervasive across the company, the IT Division is involved in
26 many of the goals and related initiatives of SoCalGas and SDG&E. I have briefly discussed the
27 key areas where IT plays a significant role, specifically Cybersecurity and Risk Management,
28 Customer Privacy and Customer Service Initiatives, New Technology, and Operational
29 Efficiencies. These areas of focus are identical for SoCalGas and SDG&E.
30

1 **1. Cybersecurity and Risk Management**

2 Cybersecurity in the utility business has become a significant source of attention and
3 interest in the recent years. Publically disclosed attacks on customer information and critical
4 infrastructure have been the focus of many discussions and proposed legislation in Sacramento
5 and in Washington DC. Recent events, such as the Target breach² and the successful attack on
6 the critical infrastructure at an unnamed utility,³ highlight an ever increasing adversarial focus on
7 our industry.

8 Illustrative examples of the types of cybersecurity risks facing the Sempra Energy
9 Utilities (“SEu”) include:

- 10 • Loss of industrial control systems, such as Supervisory Control and Data
11 Acquisition (“SCADA”);
- 12 • Malware on company computer systems;
- 13 • Release or corruption of customer information (especially Personally Identifiable
14 Information); and
- 15 • Loss of data and/or data center computing equipment due to natural or man-made
16 disasters.

17 IT operates the Information Security Program, which is designed to manage a variety of
18 cybersecurity-related risks. The Information Security Program provides cybersecurity services
19 to SDG&E, SoCalGas and Corporate Center and consists of Shared costs which are discussed
20 below in Section III.D. The Information Security Program is structured into four basic areas
21 designed to provide a holistic approach:

- 22 • Governance and Compliance - The Governance and Compliance functions of the
23 Information Security Program provide security program strategy and oversight; a
24 corporate security policy framework consisting of policies, standards, and
25 guidelines; security risk management and exception tracking; project roadmap
26 and portfolio management; security legislation and regulatory analysis; as well as

² Target, a message from CEO Gregg Steinhafel about Target’s payment card issues, December 20, 2013, available at <https://corporate.target.com/discover/article/Important-Notice-Unauthorized-access-to-payment-ca> (last accessed July 17, 2014).

³ Jim Finkle, U.S. utility’s control system was hacked, says Homeland Security, Reuters, May 20, 2014, available at ICS-CERT Utility Breach Report: <http://www.reuters.com/article/2014/05/21/us-usa-cybercrime-infrastructure-idUSBREA4J10D20140521> (last accessed July 17, 2014).

1 IT compliance associated with Sarbanes-Oxley Act Section 404 (“SOX”) and
2 North American Electric Reliability Corporation Critical Infrastructure Protection
3 (“NERC CIP”) regulations.

- 4 • Awareness and Outreach - The Information Security Program’s focus on
5 Awareness and Outreach is designed to provide security-oriented training and
6 communication to all company employees through the use of newsletters, flyers,
7 digital publications, town hall meetings, classroom and online training, and
8 special events with cybersecurity experts.
- 9 • Security Engineering - The security engineering practice was established within
10 the Information Security Program to provide security architecture, establish
11 security controls (which are combinations of people, process, and/or technology
12 elements that are designed to protect systems and data from harm), support the
13 security operation capability, and consult with the business units on projects or
14 programs implementing new technology and business systems to evaluate any
15 risks they may pose and the controls necessary to mitigate those potential risks.
- 16 • Security Operations - Security Operations is one of the more dynamic and fast-
17 paced functions within the Information Security Program. Security Operations
18 focuses on the technical management of security infrastructure, such as firewalls
19 and intrusion prevention systems, maintains process and procedure
20 documentation, performs digital forensics and threat response, conducts
21 vulnerability assessment and penetration testing, assesses threat intelligence
22 information, operates enterprise access controls, performs around-the-clock
23 security monitoring and analysis, and collaborates with government agencies and
24 law enforcement partners on cybersecurity threat intelligence.

25 The Information Security Program relies on industry practices and is structured to reflect
26 recognized security control frameworks, such as the National Institute of Standards and
27 Technology (“NIST”) 800-53 Rev. 4⁴ and the SANS Institute Control Framework titled “The

⁴ National Institute of Standards and Technology and U.S. Department of Commerce, Security and Privacy Controls for Federal Information Systems and Organizations: JOINT TASK FORCE TRANSFORMATION INITIATIVE (NIST 800-53 Rev. 4), April 2013, available at <http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-53r4.pdf> (last accessed July 3, 2014).

1 Critical Security Controls for Effective Cyber Defense” Ver. 5.⁵ These two control frameworks
2 are complimentary and enable SEu to leverage defined security frameworks to protect business
3 systems and critical infrastructure, while simultaneously maintaining regulatory compliance
4 objectives, such as those covered under the SOX regulations.

5 **i. Risk Management**

6 The IT Division, and more specifically the Information Security Program, applies risk
7 management practices and processes to protect systems and data. Specifically, the Information
8 Security Program aligns with the evolving enterprise risk management (“ERM”) governance
9 processes at SoCalGas referenced in the testimony of SoCalGas Risk Management and Policy
10 witness Diana L. Day (Ex. SCG-02) to manage cybersecurity-related risks.

11 As described below, IT has tailored the evolving SoCalGas ERM governance process to
12 meet the unique and complex challenges associated with managing cyber-related risks in a
13 shared services organization.

14 **ii. Risk Management Framework**

15 SEu’s cybersecurity risk management framework is a straight-forward method of
16 assessment that uses ERM constructs, such as “likelihood,” “severity” and “impact categories.”
17 In essence, a cybersecurity risk assessment is based on several ERM factors including, but not
18 limited to, strength of controls, likelihood (or frequency) of a risk event occurring, and severity
19 (or impact) of the business consequence if the risk event occurs. These factors are assessed
20 using a qualitative 1 to 5 scale against broad ERM categories of Financial, Operational, Safety
21 and Reputational impacts. This cybersecurity risk management framework allows Information
22 Security to determine an overall risk rating for each of our defined cybersecurity controls. The
23 collection of defined cybersecurity controls (i.e., the control framework) is considered when
24 attempting to determine Key Risk Indicators⁶ and their application to the appropriate company
25 (e.g., SDG&E and/or SoCalGas).

26 As emphasized in the testimony of Ms. Day (Ex. SCG-02), the evolving SoCalGas ERM
27 process strives to ensure that risk management decisions are an integral part of key
28 organizational decision-making processes. The IT Division’s goal is to do the same. For

⁵ Council on Cybersecurity, The Critical Security Controls for Effective Cyber Defense version 5, available at <https://www.sans.org/media/critical-security-controls/CSC-5.pdf> (last accessed July 3, 2014).

⁶ Key Risk Indicators are discussed in greater detail below in Section I.E.1.iii of my testimony.

1 example, the IT Division elevates the first of two types of risk – enterprise risks – to IT
2 management for decision making. Illustrative examples of enterprise risks include potential
3 technology failures due to:

- 4 • data center environment disruptions
- 5 • destruction of computing infrastructure
- 6 • disruptions to automated system integration processes
- 7 • theft of computing infrastructure

8 The second type of risk – individual risks – are smaller in size, scope and/or potential
9 costs than enterprise risks. Individual risks are those which typically involve only one system or
10 a single attack method as opposed to an enterprise risk which would result in a complete security
11 control failure across the corporation. The IT Division evaluates individual risks the same way
12 as enterprise risks, notably they are assessed based on a combination of factors such as the nature
13 of the vulnerability, the likelihood (or frequency) of the vulnerability being exploited and the
14 business consequence (or impact) if exploitation actually occurs.

15 Risk mitigation generally involves the implementation of new technology, a new process,
16 and/or the addition of workforce labor. Alternative risk treatments are considered by
17 Information Security as part of the evaluation process to determine how effective a control will
18 be in mitigating a particular risk. Information Security works with the risk owner to develop
19 mitigation plans tailored to the particular type of risk being faced. For example, generally,
20 individual risks can be managed by making modifications to existing enterprise security controls.

21 On the other hand, enterprise risks demand additional effort to mitigate because of their
22 larger size, scope and/or potential cost. For example, in some cases of an enterprise risk, such as
23 when new security technical controls are being considered, alternative treatments are considered
24 through a typical Request For Proposal (“RFP”) process in order to obtain information from
25 potential security solution vendors about the availability, cost, implementation and ongoing
26 support requirements associated with a particular security product and/or service. The RFP
27 process helps Information Security select a product or service that presents an effective approach
28 for reducing the enterprise risk under consideration. For proposed enterprise risk treatments that
29 follow the business case process, the mitigation plans are incorporated into the materials used to
30 present IT management with a project concept document for approval. These proposed project
31 concept documents are evaluated against both security and business factors to determine whether

1 or not they will be approved. If a proposed project concept is approved, it enters the business
2 case development phase, which is described below in Section IV.B.4 of my testimony. A project
3 concept document template is provided attached hereto at Appendix A and a sample business
4 case template is provided in my supplemental workpapers at Exhibit SCG-18-SWP.

5 In some cases, this process also results in the identification of a control gap.⁷ Where
6 control gaps are identified, either related to a single application, system, project, or the SEU
7 enterprise, a determination is made of the risk rating that the control gap itself presents.

8 Once a risk or a control gap is identified, it is addressed by remediation, compensating
9 controls, and/or risk acceptance. Risk acceptance decisions are tracked and reported to IT
10 management on a quarterly basis. This tracking process was initiated in 2014. On an
11 independent basis, the internal audit function also tracks and reports risks to the Sempra Energy
12 Audit Committee.

13 **iii. Key Risk Indicators**

14 The Information Security Program tracks cybersecurity risk using Key Risk Indicators
15 (“KRI”s). KRIs are meant to provide the earliest warning that a risk is exceeding a
16 predetermined threshold and may result in catastrophic consequences. KRIs are used to measure
17 where specific cybersecurity risks may be present and provide management with the information
18 necessary to implement compensating controls, take remediation actions, or accept risk. KRIs
19 used by the Information Security Program have several common characteristics; namely they are
20 quantifiable, serve as leading indicators, and provide consistent methods of measurement.

21 The Information Security Program primarily focuses on indicators that would provide the
22 earliest warning that a risk is exceeding a predetermined threshold and could result in
23 catastrophic consequences. One example of a KRI is the number of cybersecurity events
24 reviewed and analyzed as compared to those that are not able to be reviewed or analyzed.
25 Another example of a relevant cybersecurity KRI is the number and severity of security events
26 per month (i.e., suspicious activities), such as a system outage or performance problem that
27 indicates a potential security breach could or has occurred. The number of critical security
28 vulnerabilities not remediated within a set time frame is also a KRI. KRIs help provide a clear

⁷ A control gap is a deficiency or weakness in a security control that could result in a security incident. A simple example would be a manual process or procedure that should be followed by all personnel, but is found to only be followed by some personnel.

1 picture of where problems might exist and enable management to prioritize and initiate actions to
2 lower the risk profile.

3 **iv. Monitoring Threats and Mitigation Plans**

4 Cybersecurity threat reports are most often derived from a combination of public and
5 confidential sources. Cyber threats, by their nature, move quickly and more often than not, they
6 are discovered only after a security breach has occurred. Monitoring for threats presents many
7 challenges and heavily relies on personnel who have specialized training, demonstrated
8 expertise, and industry specific knowledge in cyber threat analysis. Once new threats are
9 discovered, the focus immediately moves to establishing an adequate understanding of the threat,
10 namely what it consist of and how it works. As soon as those aspects are understood, an
11 evaluation can be made by the Information Security team to determine the risk to the company,
12 and effective mitigation plans can be devised and implemented.

13 For each identified risk, specific mitigation plans are developed. These plans can vary in
14 complexity and duration. For example, a business case may need to be initiated for
15 implementing a new technical security control, or routine maintenance may need to be performed
16 in order to patch a vulnerable system. For both types of mitigation plans, the risks are tracked
17 through a risk exception process that requires multiple levels of management approval.

18 **2. Customer Privacy and Customer Service Initiatives**

19 Focus on customers, including the privacy of their data, is a key priority for SoCalGas
20 and the IT Division needs to be funded and staffed to help meet this goal. There is increased
21 demand to add and enhance services for our customers while keeping their information secure,
22 especially personally identifiable information. IT supports these new and enhanced services and
23 customer privacy efforts. Discussions of specific initiatives are described in the testimony of
24 witnesses representing SoCalGas business operations related to customer services, specifically
25 SoCalGas Customer Service Office Operations witness Evan Goldman (Ex. SCG-11) and
26 SoCalGas Customer Service Information witness Gwen Marelli (Ex. SCG-12).

1 **3. New Technology**

2 The IT Division is constantly challenged by the pace of change in technology. We
3 continuously assess these changes and their impact on prior investment decisions. Our goal is to
4 exercise past technology investment decisions in IT assets as approved in prior General Rate
5 Cases (“GRCs”) through (and beyond) their useful life while simultaneously integrating new
6 technologies into the asset mix. Part of the challenge we currently face is the financial treatment
7 of these new technologies. In particular, many new technologies are treated as O&M, rather than
8 capital costs. For example, we foresee cloud computing as a cost effective option to meet some
9 of our computing requirements. However, the financial treatment of cloud technologies as an
10 O&M cost typically creates additional upward pressure on annual operating costs because cloud
11 technologies are generally not treated as assets (e.g., capital investments) within the utility
12 industry. IT has been a good steward of its assigned funding levels, as demonstrated by 2013
13 costs when compared to historical averages (see Table CRO-2). We will continue to do so as we
14 refresh our computing assets.

15 **4. Operating Efficiencies**

16 Seeking out ways to improve processes and increase productivity is an on-going effort
17 within the IT Division. Examples of typical efficiency initiatives include workflow
18 optimizations, reorganizations to consolidate management responsibilities, cross-training of
19 technical staff, aggressive re-negotiation of external vendor licenses and maintenance contracts,
20 and reductions in reimbursable employee expenses. These types of initiatives helped reduce
21 operating costs in 2013 and are reflected in the base year costs for IT.

22 **F. SoCalGas IT Testimony Excludes Advanced Metering Infrastructure**
23 **(“AMI”)**

24 Commission Decision (“D.”) 10-04-027 authorized SoCalGas to deploy AMI to
25 approximately 6 million customers over a period of 7 years. Based on this timing, SoCalGas will
26 not complete AMI deployment until 2017. Accordingly, as described in Witness Rene F.
27 Garcia’s testimony (Ex. SCG-39), all SoCalGas forecasts presented in this TY2016 GRC,
28 including the forecasts in this testimony, reflect business operations, processes and practices
29 without AMI deployment (i.e., “business as usual”). However, it should be noted that
30 implementation of AMI involves both costs (i.e., increases to revenue requirement) and benefits
31 (i.e., decreases to revenue requirement). The combined result is a net revenue requirement that is
32 then embedded in rates. Since a forecasted net revenue requirement for SoCalGas AMI over the

2010 through 2017 timeframe was already approved in a SoCalGas Advice Letter,⁸ a net revenue requirement is already embedded in SoCalGas rates. Accordingly, if the Commission authorizes operating expenses in this GRC that are materially different than those assumed in SoCalGas' approved AMI net revenue requirement that is currently in rates, then the differences will need to be reconciled in an updated advice letter to ensure that embedded AMI operating benefits are consistent with, and no more or no less, than what is authorized in this TY2016 GRC.

II. NON-SHARED COSTS

A. Introduction

Table CRO-4 summarizes the total non-shared O&M forecasts for the listed cost categories. These costs are related to activities that are performed solely for the benefit of SoCalGas.

TABLE CRO-4

SoCalGas

Non-Shared O&M Summary of Costs

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
Categories of Management	2013 Adjusted-Recorded	TY2016 Estimated	Change
A. Applications	2,853	2,853	0
B. Infrastructure	4,047	4,456	409
C. IT Support	41	331	290
Total	6,941	7,640	699

B. Applications (Non-Shared)

1. Description of Costs and Underlying Activities

The SoCalGas Non-Shared IT Applications costs represent labor and non-labor for systems where 100% of the activities directly support SoCalGas. The types of systems supported in this area include, but are not limited to, customer field operations, routing, scheduling and dispatching. An example of a non-shared IT application cost for SoCalGas is its PACER system. The PACER system is a work order management system used only by SoCalGas customer service field personnel. The PACER system schedules, routes and dispatches work to SoCalGas field personnel. The PACER tool collects specifics on work performed at a customer's premise, which is recorded and returned to other SoCalGas systems for status and reporting. Providing the right information in a timely manner helps ensure that

⁸ SoCalGas Advice Letter 4110, effective April 8, 2010.

1 SoCalGas field employees are able to perform their duties and provide customer services in a
2 safe and timely manner.

3 **TABLE CRO-5**

4 **SoCalGas**

5 **Non-Shared O&M Application Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
A. Applications	2013 Adjusted-Recorded	TY2016 Estimated	Change
1. Applications	2,853	2,853	0
Total	2,853	2,853	0

6 **2. Cost Drivers**

7 It is expected that the 2013 expenditures that have been recorded in SoCalGas Non-
8 Shared IT Applications cost centers will continue through TY2016. This will allow SoCalGas IT
9 to continue to support the business functions and features provided by systems booked to non-
10 shared cost centers that it has supported in past years.

11 **C. Infrastructure (Non-Shared)**

12 **1. Description of Costs and Underlying Activities**

13 The SoCalGas Non-Shared IT Infrastructure costs represent labor and non-labor for the
14 infrastructure area where 100% of the activities are for SoCalGas. These costs are for IT-related
15 infrastructure found at or providing service to SoCalGas facilities (e.g., operating bases and the
16 contact center). SoCalGas non-shared IT Infrastructure activities include, but are not limited to,
17 preventive maintenance, problem diagnosis and resolution, and service request processing and
18 implementation. Examples of non-shared IT infrastructure costs for SoCalGas include, but are
19 not limited to, wired and wireless networks, field area networks and backhaul supporting
20 telemetry/ SCADA and field workforce.

1 **TABLE CRO-6**

2 **SoCalGas**

3 **Non-Shared O&M Infrastructure Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
B. Infrastructure	2013 Adjusted-Recorded	TY2016 Estimated	Change
1. Infrastructure	4,047	4,456	409
Total	4,047	4,456	409

4 **2. Cost Drivers**

5 The increased costs proposed for SoCalGas Non-Shared IT Infrastructure are for
 6 telecomm equipment upgrades needed at various SoCalGas facilities (e.g., foundation and guy
 7 wire improvements to enhance tower safety) and two additional network engineering full time
 8 equivalents (“FTEs”) required to meet increased demands in connectivity and capacity (voice
 9 and data) required across SoCalGas’ service territory and related employee expenses.

10 **D. IT Support (Non-Shared)**

11 **1. Description of Costs and Underlying Activities**

12 The costs in SoCalGas Non-Shared IT Support cover non-labor expenses recorded by the
 13 Vice President of IT and the labor and non-labor expenses recorded by the Construction Planning
 14 and Design (“CPD”) project support team.

15 **TABLE CRO-7**

16 **SoCalGas**

17 **Non-Shared O&M IT Support Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
C. IT Support	2013 Adjusted-Recorded	TY2016 Estimated	Change
1. IT Support	41	331	290
Total	41	331	290

18 **2. Cost Drivers**

19 The “increase” in costs for SoCalGas Non-Shared IT Support is attributed to the re-
 20 distribution of CPD costs across IT and business unit cost centers. Through 2013, CPD O&M
 21 costs were recorded to SoCalGas IT cost centers. To provide better transparency to the
 22 ownership of the costs, adjustments were made to align IT-related costs to IT cost centers and

1 align business-related costs to Gas Distribution cost centers. In order to achieve this cost
 2 realignment, historical costs through 2013 were transferred to Gas Distribution. This resulted in
 3 historical IT costs, including for base year 2013, essentially being zeroed out. Forecasts were
 4 then added back to IT cost centers that were in-line with the original plans to address IT-related
 5 CPD work. Business costs related to CPD are represented in workpapers sponsored by
 6 SoCalGas Gas Distribution witness Gina Orozco-Mejia (Ex. SCG-04-WP).

7 **III. SHARED COSTS**

8 **A. Introduction**

9 IT is a shared organization that provides system-wide services for SoCalGas, SDG&E
 10 and Corporate Center. Most of the IT cost centers assigned to SoCalGas share a portion of their
 11 costs with SDG&E and/or Corporate Center (“shared services”). As a result, the bulk of the cost
 12 increases I am requesting on behalf of SoCalGas IT are found in this section of my testimony. I
 13 am sponsoring the forecasts on a total-incurred basis, as well as the shared services allocation
 14 percentages related to those costs. The allocation percentages are determined by cost center
 15 owners based upon appropriate metrics (e.g., number of users, amount of storage, number of
 16 servers) to distribute costs across companies. Those percentages are presented in my shared
 17 services workpapers, along with a description explaining the activities being allocated (Ex. SCG-
 18 18-WP). The dollar amounts allocated to affiliates are presented in the testimony of SDG&E
 19 Shared Services and Shared Assets Billing Policies and Process witness Mark Diancin (Ex.
 20 SDG&E-26). Table CRO-8 summarizes the total shared O&M forecasts for the listed cost
 21 categories.

22 **TABLE CRO-8**

23 **SoCalGas**

24 **Shared O&M Summary of Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars Incurred Costs (100% Level)			
Categories of Management	2013 Adjusted- Recorded	TY2016 Estimated	Change
A. Applications	6,363	8,258	1,895
B. Infrastructure	4,944	6,650	1,706
C. Information Security	628	788	160
D. IT Support	60	288	228
Total Shared Services (Incurred)	11,995	15,984	3,989

1 **B. IT Applications (Shared)**

2 **1. Description of Costs and Underlying Activities**

3 The Shared IT Application costs charged to SoCalGas cost centers represent labor and
4 non-labor for systems where activities performed are shared among SoCalGas, SDG&E and/or
5 Corporate Center. They are comprised of a diverse portfolio of IT applications in place that
6 require investments to manage ongoing requirements of our business users who rely on these
7 systems to perform their daily tasks. The types of systems supported in this area include asset
8 management, distribution work management, transportation, procurement, settlement, financial,
9 customer energy management, revenue cycle, customer assistance and customer contact
10 functions. As an example, Sharepoint is an application that is used across the Sempra Energy
11 organization. SoCalGas payrollled employees who provide support for Sharepoint have their
12 time allocated to SoCalGas, SDG&E and Corporate Center based on an allocation methodology
13 determined to most accurately distribute costs accordingly.

14 **TABLE CRO-9**

15 **SoCalGas**

16 **Shared O&M Applications Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
A. Applications	2013 Adjusted- Recorded	TY2016 Estimated	Change
1. Applications	6,363	8,258	1,895
Total	6,363	8,258	1,895

17 **2. Cost Drivers**

18 Business demand for IT services continues to grow. New functions and features are
19 being requested by business units to meet safety, reliability and regulatory (e.g., customer
20 privacy) initiatives. Adoption of geographic information system (“GIS”) capabilities by
21 SoCalGas business units is also increasing rapidly. In addition, the IT Applications portfolio
22 continues to grow as a result of capital project implementations on behalf of business clients.
23 The increases presented for Shared IT Applications charged to SoCalGas cost centers area are
24 seventeen additional FTEs needed to meet these increased business demands, along with related
25 employee expenses.
26

1 **C. IT Infrastructure (Shared)**

2 **1. Description of Costs and Underlying Activities**

3 The Shared IT Infrastructure costs charged to SoCalGas cost centers represent labor and
4 non-labor for the infrastructure area where the system-wide activities performed benefit
5 SoCalGas, SDG&E and Corporate Center. The majority of these costs are labor utilized to run
6 the Monterey Park data center (i.e., servers, storage, routers) and support network activities.
7 Services include, but are not limited to, providing support for the design, deployment and
8 support of hardware and software systems relating to distributed (e.g., UNIX and Windows) and
9 enterprise (e.g., IBM Z/OS) class servers, disaster recovery, data storage systems, web-based
10 applications middleware, and services infrastructure.

11 Note the costs in Table CRO-10 only represent the shared Infrastructure costs based at
12 SoCalGas. However, the shared Infrastructure costs are primarily based out of SDG&E and
13 charged to SDG&E cost centers. SoCalGas is charged for the service through sharing
14 mechanisms. See the testimony of SDG&E IT witness Stephen Mikovits (Ex. SDG&E-19) for
15 information about the historical costs and forecasted amounts for shared Infrastructure costs
16 charged to SDG&E cost centers.

17 **TABLE CRO-10**

18 **SoCalGas**

19 **Shared O&M IT Infrastructure Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
B. Infrastructure	2013 Adjusted-Recorded	TY2016 Estimated	Change
1. Infrastructure	4,944	6,650 ⁹	1,706
Total	4,944	6,650	1,706

20 **2. Cost Drivers**

21 As the IT Applications portfolio grows, so does the amount of support needed at the IT
22 Infrastructure level. New systems and additional functions and features introduced by the
23 Applications teams to meet business requirements also requires additional IT infrastructure, such
24 as additional servers, storage, databases, and network connections, all of which must be
25 implemented and supported by the IT Infrastructure teams. Eleven additional FTEs and related

⁹ SoCalGas' request for Shared IT O&M Infrastructure Costs includes costs for supporting our mainframe environment. At the time of the Application filing, SoCalGas is analyzing outsourcing this service to a third party. If this occurs, SoCalGas will update the record as appropriate.

1 employee expenses are being requested to support the IT infrastructure needs required by the
 2 business units. Other drivers for Shared IT Infrastructure costs charged to SoCalGas cost centers
 3 include costs for the development of a network strategy to leverage emerging technologies for
 4 improved reliability and performance of our network environment. IT Infrastructure’s ability to
 5 support reliability and performance of its services as required by business clients will be limited
 6 without the additional resources and funding.

7 **D. Information Security (Shared)**

8 **1. Description of Costs and Underlying Activities**

9 The Shared Information Security costs charged to SoCalGas cost centers represent labor
 10 and non-labor for activities performed that benefit SoCalGas, SDG&E and Corporate Center.
 11 Shared activities performed by Information Security include but are not limited to, security
 12 engineering, firewall management, intrusion prevention, identity and access management and
 13 security architecture. These activities address the cybersecurity as well as customer privacy risks
 14 and privacy requirements.

15 Note the costs in Table CRO-11 only represent the shared Information Security costs
 16 based at SoCalGas. However, the shared Information Security costs are primarily based out of
 17 SDG&E and charged to SDG&E cost centers. SoCalGas is charged for the service through
 18 sharing mechanisms. See the testimony of SDG&E IT witness Stephen Mikovits (Ex. SDG&E-
 19 19) for information about the historical costs and forecasted amounts for shared Information
 20 Security costs charged to SDG&E cost centers.

21 **TABLE CRO-11**

22 **SoCalGas**

23 **Shared O&M Information Security Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
C. Information Security	2013 Adjusted-Recorded	TY2016 Estimated	Change
1. Information Security	628	788	160
Total	628	788	160

24 **2. Cost Drivers**

25 The cost increases presented for Shared SoCalGas Information Security charged to
 26 SoCalGas cost centers are for two additional FTEs to meet increased demand in information
 27 security activities along with related employee expenses.

1 **E. IT Support (Shared)**

2 **1. Description of Costs and Underlying Activities**

3 The costs for Shared IT Support charged to SoCalGas cost centers cover non-labor
4 expenses recorded by the Vice President of IT, the business planning group that supports all of
5 IT with budget planning and reporting, and the IT Associate program, which is a three-year
6 program for newly hired IT employees that provides them with rotational assignments within IT.

7 **TABLE CRO-12**

8 **SoCalGas**

9 **Shared O&M IT Support Costs**

IT - INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
C. IT Support	2013 Adjusted- Recorded	TY2016 Estimated	Change
1. IT Support	60	288	228
Total	60	288	228

10 **2. Cost Drivers**

11 The cost drivers behind the Shared IT Support charged to SoCalGas cost centers forecast
12 are labor increases to support one additional FTE in the business planning group needed to
13 support the expanding IT portfolio (e.g., professional services agreements, software license and
14 maintenance agreements) and two FTEs in the IT Associate program to be assigned to SoCalGas
15 IT groups.

16 **IV. CAPITAL**

17 **A. Introduction**

18 Table CRO-13 summarizes the total SoCalGas IT capital forecasts for 2014, 2015, and
19 2016. Table CRO-13 shows the full complement of IT projects being proposed by SCG in this
20 filing. In other words, Table CRO-13 is composed of both business unit-sponsored IT capital
21 projects, as well as IT Division-sponsored IT capital projects. The costs depicted in Table CRO-
22 13 below are the total costs to be incurred by the proposed capital projects and charged to
23 SoCalGas cost centers. They do not reflect adjustments that may result due to sharing of project
24 costs across SDG&E and Corporate Center, if appropriate.

25 Included in Table CRO-13 are projects sponsored by the business units that include IT
26 technology solutions to meet business demand. The business justifications for the business
27 sponsored projects are included in the testimony of the associated business witnesses:

1	Customer Service - Field & Meter Reading	Franke (Ex. SCG-10)
2	Customer Service – Office Operations	Goldman (Ex. SCG-11)
3	Customer Service – Information	Ayres (Ex. SCG-12)
4	Engineering & ES	Stanford (Ex. SCG-13)
5	Environmental	Tracy (Ex. SCG-17)
6	Gas Distribution	Ayala (Ex. SCG-04)
7	Supply Management	Hobbs (Ex. SCG-14)

8 My workpapers contain the cost justifications for the IT portion of these business unit sponsored
9 capital projects. I provide additional information about IT Division-sponsored IT capital projects
10 below in Section IV.C.

11 **TABLE CRO-13**

12 **SoCalGas**

13 **Capital Expenditures Summary of Costs**

INFORMATION TECHNOLOGY			
Shown in Thousands of 2013 Dollars			
Categories of Management	Estimated 2014	Estimated 2015	Estimated 2016
A. Customer Services - Field & SoCalGas Meter Reading	3,096	437	7,217
B. Customer Services - Office Operations	17,610	14,645	6,967
D. Customer Services- Information	5,069	12,717	2,478
E. Gas Engineering	2,231	4,639	8,893
F. Environmental	524	259	0
G. Gas Distribution	23,446	16,052	11,868
H. Information Technology	48,697	68,673	67,103
J. Supply Management	3,724	2,493	269
Total	104,397	119,915	104,795

14 Additional information about the cost assumptions for several of the capital projects is provided
15 in Appendix B of my testimony. Information on Commission decisions that impact certain
16 capital projects and their cost assumptions is provided in Appendix D.

17

18

1 **B. Capital Project Approval**

2 Before an IT capital project is funded and moves into development, it must go through
3 the Capital Project Approval process. The Capital Project Approval process has several distinct
4 stages, as described below.

5 **1. IT Division Capital Plan Development**

6 First, the IT Division prepares a Capital Plan, which is the sum of proposed plans of IT
7 and business sponsored projects that utilize IT capital budget. The Capital Plan includes both
8 ongoing projects and anticipated needs. The Plan is usually developed in the fourth quarter of a
9 fiscal year in preparation for upcoming years. At this stage, the composite Capital Plan consists
10 of a long list of viable capital projects, each with the potential to beneficially impact IT
11 capability and services. Supporting documentation is developed by way of concept documents
12 and business cases to be utilized as part of the prioritization and approval process.

13 **2. Concept Documents**

14 Concept documents (see Appendix A for a concept document summary template) are
15 high-level assessments developed for review during the capital planning process. The concept
16 document contains typical project elements, such as cost estimates, business benefits and project
17 schedules. It also provides project teams the opportunity to document alternative options
18 considered, as well as business risks and implications of not proceeding with the project. All of
19 these elements are available for consideration during project prioritization and approval. The
20 Central Business Planning group then decides whether to approve funding as part of its
21 prioritization and approval process.

22 **3. Project Prioritization and Approval**

23 The concept documents provided by projects teams are utilized for prioritization
24 purposes. Rankings are determined based on various factors including, but not limited to,
25 regulatory requirements, critical service maintenance needs and/or cost benefit analyses. The
26 projects in the narrowed Capital Plan list are then prioritized by likely impact on IT capability
27 and services. The annual capital budget allocation processes for SoCalGas is administered by
28 the Central Business Planning group on behalf of the Executive Finance Committee (“EFC”).
29 Details of the capital planning process are presented in the testimony of SoCalGas Rate Base
30 witness Garry Yee (Ex. SCG-26).

31

1 **4. Business Cases**

2 Once funding is approved by the Central Business Planning group for a concept, a
3 complete business case must be prepared and approved before work begins. Business cases are
4 developed jointly by representative(s) from the sponsoring IT department, representative(s) from
5 the sponsoring business department (when applicable) and a representative from the IT Project
6 Management Office (“IT PMO”). Others may be added to the team as required.

- 7 • The sponsoring IT department is primarily responsible for defining the project
8 scope, identifying the technical approach, and generating the basis of estimate for
9 the capital costs and ongoing O&M support costs.
- 10 • The business representatives are primarily responsible for confirming the business
11 requirements, calculating the business benefits, and ensuring that the proposed
12 solution meets the business objectives.
- 13 • The IT PMO ensures that the templates are completed correctly, that the budgets
14 are calculated and characterized correctly, and that the proposed scope is
15 consistent with policy.

16 A near final draft of the business case is provided to Information Security for review and
17 comment. A sample business case template has been included in my supplemental workpapers
18 (Ex. SCG-18-SWP).

19 **5. Cost Sharing Mechanisms**

20 A sharing mechanism must be determined for any project that will be utilized across
21 SoCalGas, SDG&E and/or Corporate Center. As part of the business case development, a
22 project team will include a recommendation of how costs will be shared for consideration during
23 the capital approval process based on its assessment of project scope.

24 **C. IT-Sponsored Capital Projects**

25 The remainder of the IT capital costs I am requesting is for SoCalGas IT-sponsored
26 capital projects. I have listed the largest capital projects sponsored by IT below in Table CRO-
27 14. The individual projects listed in Table CRO-14 are estimated to be in excess of \$2 million
28 dollars each and cumulatively represent approximately 70% of the projected capital planned for
29 SoCalGas IT cost centers. I have included additional information about these projects below.
30 Information on the remaining SoCalGas IT-sponsored capital projects can be found in my capital

workpapers (Ex. SCG-18-CWP). In addition, the entire list of SoCalGas IT division-sponsored capital projects is provided in Appendix C.

TABLE CRO-14

SoCalGas

Capital Expenditures Summary of Costs – IT Projects Only

Shown in Thousands of 2013 Dollars				
Information Technology	Work Paper (Ex. SCG-18- CWP)	Estimated 2014	Estimated 2015	Estimated 2016
1. SoCalGas Desktop Hardware Refresh	00760B	-	-	7,072
2. Web Application Database Firewalls	00770AA	-	-	3,129
3. Server Replacement (AIX)	00770AE	2,351	547	-
4. Refresh Out-of-Warranty Servers	00770AG	4,520	1,794	695
5. End Point Security	00770C	2,541	532	-
6. Logging Infrastructure Refresh	00770D	-	2,769	-
7. Storage Area Network Expansion	00770R	-	-	6,052
8. Virtual Desktop Infrastructure (“VDI”)	00770X	-	-	2,632
9. Intrusion Protection System Refresh	00770Y	-	-	2,887
10. SoCalGas Field Area Network	00772A	-	17,874	1,429
11. System Management and Automation	00772C	-	2,140	1,003
12. Local Area Network Refresh	00772D	2,478	3,450	4,164
13. Converged Computing Infrastructure	00772H	-	16,072	-
14. Wide Area Network Refresh	00772P	-	-	4,464
15. SoCalGas Private Network Expansion	00772R	-	-	2,148
16. Private Network Expansion	00772W	2,797	1,661	-
17. Data Center Network Rebuild	00772X	4,661	-	-

18. Business Planning Simulation Replacement	00776B	1,860	859	-
19. Geographic Information System- Systems Applications and Products (“SAP”) Integration	00776M	-	1,240	1,275
20. Financial Asset Management	00776X	3,179	-	-
21. SharePoint	00778A	2,588	4,463	2,512
22. Data Loss Prevention	00778B	2,184	-	-
23. Travel and Expense Mobility	00778C	-	2,382	-
24. Identity & Access Management, Phase 2 - 4	00780A	2,678	1,027	1,067
Sub-Total		31,837	56,811	40,530
Remaining IT Projects (See Appendix C)		16,860	11,863	26,574
Total		48,697	68,674	67,104

1 **1. SoCalGas Desktop Hardware Refresh**

2 SoCalGas laptops and desktop have a useful life cycle of five years. After five years of
3 service they will be out of warranty and no longer fit for their intended purpose. Also, the asset
4 will not have the technical capability to meet the business’s needs, and out-of-warranty failures
5 are expected to exceed 10% a year after five years of service. It is common for the availability of
6 spare parts to be limited after five years, increasing the possibility that repairs may not be
7 feasible for failed assets. Once an asset reaches its fifth year of service it should be proactively
8 replaced to ensure the business has an asset fit for its intended purpose and to mitigate as many
9 failures as possible to reduce the impact on production. The specific details regarding this
10 project are found in my capital workpapers (Ex. SCG-18-CWP-00760B).

11 **2. Web Application Database Firewalls**

12 There are many web applications across multiple business units and areas of SEu. As
13 changes and updates occur to company web applications and malicious capabilities advance, SEu
14 may be vulnerable to attacks on critical business systems. Implementing a Web
15 Application/Database Firewall (“WAF”) will provide an added layer of protection to block and
16 send alerts of these attacks. This project will implement new technology at the Rancho Bernardo
17 and Monterey Park data centers to monitor for attacks from the internet. They may also be placed

1 in key locations for internal web facing applications as required. The specific details regarding
2 this project are found in my capital workpapers (Ex, SCG-18-CWP-00770AA).

3 **3. Server Replacement (AIX)**

4 The primary goal of the AIX Server Replacement project is to replace the aged IBM
5 Power frames with the new standard Cisco Unified Computing System (“UCS”) servers and
6 replace the AIX 5.3 operating system with Linux. The hosted applications will be migrated by
7 the application owners in coordination with infrastructure personnel following a formal process
8 of testing and acceptance. This project will ensure high performance and reliability on the new
9 hardware and the new operation system, while increasing efficiencies in the deployment of the
10 hardware. The refreshment of aging IBM Power frame hardware infrastructure with new Cisco
11 UCS hardware will help relieve crucial data center space by reducing three racks to one rack and
12 provide reduced environmental requirements (e.g., power and cooling requirements). The
13 specific details regarding this project are found in my capital workpapers (Ex. SCG-18-CWP-
14 00770AE).

15 **4. Refresh Out-of-Warranty Servers**

16 There are in excess of 2,850 physical servers of varying ages that make up our distributed
17 environment in Rancho Bernardo and Monterey Park data centers and other distributed locations.
18 These servers are dedicated to specific purposes – Applications, Databases and Network
19 Management.

20 A significant number of these servers (1,503 servers) have reached their out-of-warranty
21 state of support from the vendor and/or end-of-life of the operating system (Windows Server
22 2003). As a result, migration to a new server and a supported version of the Microsoft Windows
23 Operating System are required. The scope of this project will cover the 426 out-of-warranty
24 servers and the 1,077 servers that require migration from Windows Server 2003 to a current
25 Windows Server operating system.

26 The out-of-warranty servers have reached the end of their useful technology lives and are
27 subject to hardware and operating system failure. They are covered by extended vendor support
28 at a significant additional cost of \$794K over a three-year period. By replacing these out-of-
29 warranty servers and end of operating system life for servers with new Intel based servers, this
30 refresh project will address the additional support costs of out-of-warranty hardware and mitigate
31 the risk of hardware and operating system failures. Implementation of the new server

1 environment will eliminate the extended server support costs. The project will standardize on a
2 current Microsoft Windows Server operating system. The new servers will be virtualized,
3 installed with a new supported operating system and optimized for simplified disaster recovery
4 capabilities. Additional benefits include centralized server provisioning, reduced overall power
5 consumption and reduced data center floor footprint. The specific details regarding this project
6 are found in my capital workpapers (Ex. SCG-CWP-18-00770AG).

7 **5. End Point Security**

8 The End Point Security project will evaluate advanced anti-malware security controls for
9 client technology to augment the current standard (Trend Micro) anti-virus solution. The
10 controls will include both end point- and network-based solutions. The project will assess
11 controls that function at a network level for all devices connected to the Sempra network, and at
12 the end point for Sempra supported systems. Collectively, these solutions would be capable of
13 supporting Bring Your Own Device (“BYOD”) and third party contractors. An RFP followed by
14 a Proof of Concept will be conducted to evaluate and compare solution capabilities. The project
15 will implement network-based detection and prevention capabilities for advance malware.
16 Tuning will advance over time as the standard implementation process necessary to tune the
17 solution for optimum results improves with minimal negative impact on clients and systems.
18 The project will implement, through a phased deployment, specific configurations of the
19 advanced malware agent to Sempra Energy standard host computing systems. Solution, incident
20 response, process and handling procedures training and improvements will be delivered to
21 accommodate the advanced technology capabilities. The specific details regarding this project
22 are found in my capital workpapers (Ex. SCG-18-CWP-00770C).

23 **6. Logging Infrastructure Refresh**

24 The Logging Infrastructure Refresh project will replace the current core security log
25 monitoring and incident investigation infrastructure, which has reached end-of-life and end-of-
26 support from its manufacturer. Replacement of this core infrastructure will occur at the Rancho
27 Bernardo and Monterey Park data center facilities. This investment will compliment recent
28 investments in logging capabilities at critical infrastructure facilities by replacing the data center
29 core systems to enhance reliability, increase capacity, and reduce ongoing support costs. The
30 Logging Infrastructure Refresh project will purchase new servers and software licensing to
31 sustain current load, allow for anticipated growth, allow for long term archival of security data,

1 reduce data retrieval times of first responders, and efficiently analyze long term trends in
2 archived security log data. The specific details regarding this project are found in my capital
3 workpapers (Ex. SCG-18-CWP-00770D).

4 **7. Storage Area Network (“SAN”) Storage Expansion**

5 The SAN Storage Expansion Project will purchase, install, and allocate physical Storage
6 Area Network storage arrays (i.e., mechanical disks, flash memory, power supplies and network
7 interfaces) in the Rancho Bernardo and Monterey Park data centers. The storage arrays
8 implemented by this project will increase available storage capacity by approximately 20
9 terabytes (“TB”) at each data center location. This project implements storage capacity to be
10 used for rapid provisioning (“on-demand”) for small to medium sized operation and project
11 needs. The increased storage capacity will also expand the volume of computer systems that can
12 be self-provisioned by end-users and clients and delivered in a matter of hours. The specific
13 details regarding this project are found in my capital workpapers (Ex. SCG-18-CWP-00770R).

14 **8. Virtual Desktop Infrastructure**

15 The Virtual Desktop Infrastructure project will deploy an enterprise solution that will
16 expand the existing hardware and software virtualized infrastructure. The current Citrix XenApp
17 is an application-only delivery platform and is becoming outgrown. A new, more robust
18 virtualized solution will be deployed. The solution will provide more robust function and
19 features (e.g., ease of use, ease of administration and scalability). The Virtual Desktop
20 Infrastructure project will provide a production environment to fully support day-to-day load.
21 Additionally, a non-production environment will be deployed that will support 25% to 50% of
22 production. The specific details regarding this project are found in my capital workpapers (Ex.
23 SCG-18-CWP-00770X).

24 **9. Intrusion Protection System Refresh**

25 The Intrusion Projection System Refresh project will replace the Intrusion Prevention
26 Systems (“IPS”) at the Rancho Bernardo and Monterey Park data center facilities that have
27 reached end-of-life and end-of-support from their manufacturers. The new system will allow the
28 company to continue protecting assets and data from malicious attempts to compromise the
29 security of IT systems. The specific details regarding this project are found in my capital
30 workpapers (Ex. SCG-18-CWP-00770Y).

31

1 **10. SoCalGas Field Area Network**

2 SoCalGas plans to build and place in service by TY2016 the SoCalGas Field Area
3 Network. This is a suite of private communication infrastructures supporting field voice
4 communication for Customer Service Field, Distribution & Transmission and Storage. It
5 includes a Land-Mobile-Radio (“LMR”) network and voice dispatch console system. The
6 console systems are end-of-life and either already are, or will soon be, without vendor support.
7 The dispatch system is limited to a finite number of console positions that no longer meet the
8 needs of the business. The radio system also requires the use of other legacy network
9 infrastructure that needs to be retired from the environment. These systems are critical to
10 business operations, especially during emergencies, as the primary voice channel during incident
11 management, priority work orders and emergency response. The call recording system used by
12 dispatch is also end-of-life and incompatible with newer dispatch console systems.
13 Communication for fixed assets in the field, including remote terminal units (“RTU”) on
14 pipelines, currently served by AT&T 3002 circuits needs to be addressed due to aged
15 infrastructure and lack of investment by AT&T. A digital LMR and Internet Protocol (“IP”)-
16 based console system has been evaluated as the solution. The specific details regarding this
17 project are found in my capital workpapers (Ex. SCG-18-CWP-00772A). Additional
18 information about the cost assumptions for this project is included in Appendix B.

19 **11. System Management and Automation**

20 The System Management and Automation project will provide centralized configuration
21 management of infrastructure devices, network and server, which will allow for remote
22 management, notification, and verification. It will create an automated provisioning
23 environment allowing for future improvements in speed, quality, and ease of use. Additionally,
24 The System Management and Automation project will allow for the deployment of Windows
25 Server 2012. The specific details regarding this project are found in my capital workpapers (Ex.
26 SCG-18-CWP-00772C).

27 **12. Local Area Network (“LAN”) Refresh**

28 Sempra has adopted a 5-year refresh cycle for LAN switching infrastructure. The
29 existing infrastructure was installed between 2007 and 2009. The current LAN infrastructure is
30 out-of-warranty and out-of-support; software updates and patches are no longer available for a
31 large number of the devices. The availability of technical support could also become limited or

1 non-existent. The LAN project will replace 644 Ethernet LAN switches with 35,000 individual
2 ports at more than 110 Sempra locations. These switches support the delivery of voice-over-
3 internet protocol (“VoIP”) telephone and data to all SEu users, Substation Security, and Electric
4 and Gas Transmission and Operations. The specific details regarding this project are found in
5 my capital workpapers (Ex. SCG-18-CWP-00772D).

6 **13. Converged Computing Infrastructure**

7 The requests and needs of business units are dynamic and often require computing
8 infrastructure to be delivered quickly. Current "just-in-time" infrastructure purchasing is not
9 nimble enough to meet the needs of clients for small-to-medium sized projects or for organic
10 growth of existing computing environments as data volume increases. Existing computing
11 systems will continue to reach vendor end-of-life and end-of-support dates and will need to be
12 replaced or upgrade to provide reliable and available IT systems. This Converged Computing
13 Infrastructure project will provide on-demand and elastic computing capacity to meet business
14 needs without the delays associated with just-in-time infrastructure purchases. This project will
15 increase the capacity and functionality of the computing self-provisioning portal empowering
16 clients to fulfill their computing requests without involving the IT infrastructure department,
17 resulting in a reduced delivery time. Aging systems will be replaced or upgraded providing
18 higher reliability and performance for business applications as systems reach end-of-life or end-
19 of-support. As aging systems are replaced or upgraded, annual maintenance costs, required data
20 center floor space, and power consumption will all be reduced. The specific details regarding
21 this project are found in my capital workpapers (Ex. SCG-18-CWP-00772H). Additional
22 information about the cost assumptions for this project is included in Appendix B.

23 **14. Wide Area Network (“WAN”) Refresh**

24 The WAN project will deploy the incremental capacity and technology upgrades required
25 to support ongoing projects and increasing business demands for a robust, reliable and efficient
26 WAN network. The WAN project will include the retirement and upgrade of end-of-life WAN
27 hardware (approximately 555 routers) and efforts to increase the efficiency of managing the
28 network through software enhancements and technologies to remotely manage devices. The
29 specific details regarding this project are found in my capital workpapers (Ex. SCG-18-CWP-
30 00772P).

1 **15. SoCalGas Private Network Expansion**

2 The SoCalGas Private Network Expansion project will extend SoCalGas’ microwave
3 network to areas currently not covered and will replace end-of-life technology with new
4 Ethernet/Hybrid radios. The private network expansion is covered in two workpaper entries; this
5 entry requests funding in 2016. Funding requested for 2014 and 2015 can be found in the Private
6 Network Expansion project (Ex. SCG-18-CWP-00772W). This project will help minimize lease
7 costs to SoCalGas bases and operational centers and will enable backhaul for pipeline security
8 and expanding pipe operations. An expansion of network protection for existing pipeline
9 telemetry and corporate data and voice needs will also be possible as a result. The specific
10 details regarding this project are found in my capital workpapers (Ex. SCG-18-CWP-00772R).

11 **16. Private Network Expansion**

12 The Private Network Expansion project will extend SoCalGas’ microwave network to
13 areas currently not covered, and will replace end-of-life technology with new Ethernet/Hybrid
14 radios. The private network expansion is covered in two workpaper entries; this entry requests
15 funding for 2014 and 2015. Funding requested for 2016 can be found in the SoCalGas Private
16 Network Expansion project (Ex. SCG-18-CWP-00772R). This project will help minimize lease
17 costs to SCG bases and operational centers and will enable backhaul for pipeline security and
18 expanding pipe operations. An expansion of network protection for existing pipeline telemetry
19 and corporate data and voice needs will also be possible as a result. The specific details
20 regarding this project are found in my capital workpapers (Ex. SCG-CWP-00772W).

21 **17. Data Center Network Rebuild**

22 Identified infrastructure has reached vendor end-of-support and/or end-of-life resulting in
23 no access to software updates for security vulnerabilities or feature enhancements, technical
24 support, or replacement hardware should a failure occur. Due to the age of the infrastructure,
25 reliability is not predictable, increasing the potential for unplanned outages to critical SAP
26 applications used by business and applications used by our customers. The Data Center Network
27 Rebuild project will replace a selected subset of aging, end-of-support/end-of-life data center
28 network access infrastructure to increase reliability, performance, and scalability for critical data
29 center services. The specific details regarding this project are found in my capital workpapers
30 (Ex. SCG-18-CWP-00772X).

1 **18. Business Planning Simulation (“BPS”) Replacement**

2 The SAP BPS module was implemented in 2006 and is used primarily by 100 business
3 planners at SCG and SDG&E. Over the last seven years, the budgeting and planning needs of
4 the business have surpassed the functional capabilities of BPS. As a result, clients have
5 developed workarounds (many of which are manually intensive) and/or have implemented other
6 budget planning tools such as IBM's TM1 system. It should be noted that SAP stopped
7 supporting BPS in March 2010. Continued use of a non-supported system exposes SEu to
8 significant security and supportability risks.

9 The Business Planning and Simulation Replacement project would replace BPS with a
10 system that provides capabilities and flexibility that can be easily driven by the business with
11 minimal reliance on IT. It will provide budget planners with more intuitive and common front
12 ends (web, MS Office, etc.) that will require less training and have a higher adoption rate.
13 Capabilities should include O&M and capital budgeting, earnings plan development and
14 forecasting of financial results. The new planning and budgeting system will provide
15 administrative tools for central planning to easily manage access, permit status monitoring, and
16 implement global adjustments. The new planning and budgeting system will enable process
17 improvements, such as implementing an 18- to 24-month rolling budget. The specific details
18 regarding this project are found in my capital workpapers (Ex. SCG-CWP-00776B).

19 **19. GIS-SAP Integration**

20 The GIS SAP Integration project will integrate SAP’s Plant Maintenance module with
21 GIS to reduce the duplication of data and improve data integrity. Leak survey footage will be
22 maintained graphically in GIS and footage measurements will be provided to SAP for Leak
23 Survey. Manual data uploads will be replaced with real-time integration reducing manual
24 intervention and improving data quality. Both SAP and GIS asset data will be provided to users
25 in the field to improve decision making while on-site, i.e., reduce duplication by displaying leaks
26 in the path of survey for a survey crew. A graphical tool for analysis will be provided that
27 integrates critical data from both systems, i.e., improves area planning by providing a graphical
28 representation of the area(s) in question. The specific details regarding this project are found in
29 my capital workpapers (Ex. SCG-CWP-00776M).

1 **20. Financial Asset Management**

2 The new financial asset management system will provide application modules to
3 automate analysis and reduce the risk of human error in the current manual processes by
4 providing standard functions to maximize the tax calculations in the areas of tax repair, in-
5 service acceleration, retirement, and removal management. The new financial asset management
6 system will improve functionality for major plant accounting processes, such as analysis of rate
7 base, assets, construction work-in-progress (“CWIP”), depreciation expense and studies,
8 property and deferred tax, capital forecasting, and other supporting modules. The new financial
9 asset management system will reduce regulatory and IRS risk by providing support and detailed
10 analysis of depreciation, retirements, and tax repairs, and will reduce the amount of
11 disallowances caused by the inability to substantiate asset related tax deductions. The specific
12 details regarding this project are found in my capital workpapers (Ex. SCG-CWP-00776X).

13 **21. SharePoint**

14 The SharePoint project has two phases. The first phase is to implement SharePoint 2013,
15 which offers out-of-the-box social features, including micro blogging and feeds, communities,
16 badges, reputations and more. SharePoint 2013 improvements in authentication will allow for
17 enabling external collaboration with vendors as well as a more seamless user experience for
18 participating SEu employees. In addition, SEu is seeking ways to lead the utility industry in
19 deriving business insight from data while empowering this business with increased self-service.
20 SharePoint 2013 leverages user driven business intelligence with built-in dashboard reporting
21 tools that offers both graphical and granular data information at one’s fingertips. These include
22 business connectivity services that integrate multiple databases and consolidate into a single
23 presentation in SharePoint, Structured Query Language (“SQL”) Reporting Services integration,
24 as well as Performance Point Services' drilldown capabilities.

25 The second phase will create an automated, efficient and effective centralized business
26 solution, which is required to ensure that the Records Management (“RM”) Program meets all
27 regulatory and legal compliance policies while minimizing associated risks. This project will
28 provide the ability to oversee and ensure compliance with the records management policy
29 through automatically enforcing some of the policy requirements and/or flexible reporting
30 capabilities. The scope includes unstructured electronic data (i.e., both records and non-records).
31 This project proposes to implement a Records Management system that will leverage SharePoint

1 by using Microsoft Record Center, as well as another third party tool to fully meet Sempra
2 Records Management requirement. The specific details regarding this project are found in my
3 capital workpapers (Ex. SCG-CWP-00778A).

4 **22. Data Loss Prevention**

5 The Data Loss Prevention project will deploy discovery and prevention tools and controls
6 for employees copying and carrying sensitive information on an unencrypted storage device,
7 sending sensitive information via instant messaging service or transferring sensitive information
8 from corporate computers to home computers or BYOD systems used at work. It will also
9 include web email containing sensitive company information to coworkers or vendors. The
10 project will reduce the risk of unauthorized disclosure of customer data (i.e., accidental
11 disclosure); liability from breach of sensitive customer data (i.e., malicious attack); create the
12 ability to discover and report on customer and personal identifiable information (“PII”) on file
13 shares, user end points and internet bound communications; and implement automated system
14 policies that monitor inbound/outbound traffic containing unencrypted customer and PII to all
15 end point devices, including BYOD. The specific details regarding this project are found in my
16 capital workpapers (Ex. SCG-CWP-00778B).

17 **23. Travel and Expense Mobility**

18 Currently the submission and approval for employee expense reimbursement can only be
19 accomplished by using the functionality provided by the Travel & Expense application in the
20 SAP Portal or through the SAP Graphical User Interface (“GUI”). Many other companies,
21 including Sempra’s unregulated businesses, have the ability to use mobile technologies to
22 simplify and improve the accuracy of employee requests for reimbursement. The Travel and
23 Expense Mobility project is designed to purchase and deploy SAP's mobile solution for Travel
24 and Expense along with the required foundational components. The specific details regarding
25 this project are found in my capital workpapers (Ex. SCG-CWP-00778C).

26 **24. Identity & Access Management, Phases 2 -4**

27 The Identity & Access Management project (“IAM”) will consist of the identification,
28 development, and deployment of Role Based Access Management. The Project will establish
29 singular access controls and expand system functionality in the following areas: Automated
30 provisioning and de-provisioning of access based on employment status; identity access tracking

1 and reporting; access attestation for system, group, and employment type; and increased system
2 integrations to comply with centralized access controls.

3 By implementing Role Based Access Management, SoCalGas will maintain a singular
4 system of record for assignment, management, and tracking of access within our
5 infrastructure. With this, there will be increased enforcement of the Access Management
6 Standard through least privilege access, separation of duties, and access reporting.

7 Integrated administration console provides a common interface for all user provisioning
8 and de-provisioning activities allowing for granular access and policy management. Centralized
9 security console reduces the chance of unauthorized access going unnoticed. Regulatory
10 compliance, such as NERC, FERC, HIPPA and SOX, requires SoCalGas to establish a secure
11 access control infrastructure.

12 Additional details regarding this project are found in my capital workpapers (Ex. SCG-CWP-
13 00780A).

14 **V. CONCLUSION**

15 This concludes my prepared direct testimony.

1 **VI. WITNESS QUALIFICATIONS**

2 My name is Christopher R. Olmsted and I currently serve as the Director for Application
3 Services at SoCalGas. In this role, I am responsible for the development and maintenance of
4 application solutions related to customer lines of business at SoCalGas.

5 I have been a member of the IT department since 1995. I have held several positions
6 during my career, all of which have focused on customer applications. The majority of my time
7 has been spent working with SoCalGas' Customer Information System. I held various roles of
8 increasing responsibility over the years, resulting in my assignment as Manager of the CIS in
9 2002. In 2008 I joined the team that developed the business case for SoCalGas' Advanced Meter
10 initiative. I assumed responsibility for the IT aspects of the project after California Public
11 Utilities Commission approval and remained on the team until being assigned to my current role
12 in 2012.

13 Prior to joining SoCalGas, I was employed as a consultant with Andersen Consulting
14 (1989 – 1995). My main focus during this time was the development and implementation of an
15 open standards shop floor application for the manufacturing environment. The last two years at
16 Andersen I was as a senior consultant/manager on CIS implementations at SoCalGas and
17 SDG&E.

18 I received a Bachelor of Science degree in Computer Information Systems from
19 California Polytechnic State University at San Luis Obispo in 1989.

20 I have previously testified before the California Public Utilities Commission.

21
22

**APPENDIX A – SEU IT PROJECT CONCEPT DOCUMENT TEMPLATE
SUMMARY PAGE**

**APPENDIX A – SEU IT PROJECT CONCEPT DOCUMENT TEMPLATE
SUMMARY PAGE**

SoCalGas IT Project Concept Document Summary Page Template

Project Name and Contacts			Version
Project Name			
Primary Funding Source	Choose One	Priority Group	
IT / Non IT Funded	IT	Business VP Organization	
IT Director Sponsor		Business VP Sponsor	
IT Line Manager		Business Director Sponsor	
IT Project Manager		Business Line Manager	
Last Updated Date		Business Project Manager	
Project Description and Details on Continued" worksheet if additional space is required			
Project Description: Describe the business problem and the options that will be investigated to solve the problem.			
Project Scope: Provide a brief description of the project's scope.			
Project SOFT Benefits: Provide a brief description of the project's soft benefits.			
Project 'Base' Estimate Assumptions:			
Project 'High' Estimate Assumptions:			
Project 'Low' Estimate Assumptions:			
Project Risks:			
Must Complete By: Complete date & reason (If applicable)			
Dependencies TO: If this project depends on OTHER project, name other project			
Dependencies FROM: If OTHER project depends on this project, name other project			
Business Implications of NOT Implementing Project:			
Privacy: Does the project involve creating, accessing (or allowing another to access), storing, sharing or disposing customer information?			

SoCalGas IT Project Concept Document Summary Page Template

Project Estimate and Dates Summary							
Funding - See Business Planning for Questions				Loaders- (Loaders highlighted in yellow apply to Capital and O&M)			
			Contingency	0.00%	Loader Source:		SCG
Asset Allocation			SDGE	0%	Labor Loader		
			SCG	0%	Non-Labor Loader		
			Corp	0%	Admin & General Loader		
			Total	0%	AFUDC		
Dates and Milestones							
Business Case Start					Milestones Significant milestones on a quarterly basis		
Business Case Completion							
Project Start							
Project In Service Date							
Project Complete							
Project Costs (Complete 2-Annual Estimate worksheet to populate Base estimate)							
Labor SDS %		0%	IRR %	Less than 0%	Loaded Estimate (In Thousands)		
Non Labor SDS %		0%	NPV \$	#REF!	Low	High	Base
O&M		Business Case Development O&M			\$0	\$0	\$0
		Project Incremental O&M			\$0	\$0	\$0
		Administrative & General Loader			\$0	\$0	\$0
		SubTotal Estimate			\$0	\$0	\$0
Capital		Project Capital			\$0	\$0	\$0
		Administrative & General Loader			\$0	\$0	\$0
		SubTotal Estimate			\$0	\$0	\$0
		AFUDC			\$0	\$0	\$0
		SubTotal Estimate + AFUDC			\$0	\$0	\$0
Annual Benefits and Costs (Post Project) Estimate (Complete 2-Annual Estimate worksheet to populate Base Estimate)							
				Loaded Estimates Including A&G (In Thousands)			
Asset Life Years		5			Low	High	Base
Total Benefits				\$0	\$0	\$0	
Total Incremental O&M				\$0	\$0	\$0	
Total Benefits - Total O&M				\$0	\$0	\$0	
Average Yearly Benefits or O&M Cost				\$0	\$0	\$0	

SoCalGas IT Project Concept Document Summary Page Template

Project Scores		
Operational Necessity <i>Select all that apply</i>		
Score	Category	Anchors
0	Mandated	<p>Project is mandated, the proposed solution is the only viable option, and: 20 - Delay is a realistic option; highly unlikely or minimal penalties - and - no significant negative publicity for non-compliance or there is a less expensive solution. 40 - Delay is a potential option; penalties and/or negative publicity are significant but very unlikely to occur. 75* - Delay is not an option; substantial penalties -and/or - negative publicity for non-compliance will occur</p> <p>Provide the name of the legal, regulatory, fed., state agency or internal policy (info. security, etc.) requiring this work, and any penalties that will be incurred:</p>
0	Capacity	<p>*Skip section if mandated = 75 Capacity for the existing application, infrastructure or business processes: 10 - is at risk of not meeting significant business requirements, but we can wait 1 to 2 years before starting work 20 - is at risk of not meeting significant business requirements and work must start within 12 months 30 - is currently unable to function at business-acceptable levels</p>
0	Reliability	<p>*Skip section if mandated = 75 The project is being pursued to increase application or infrastructure reliability where: 10 - The existing application and/or infrastructure is approaching it's end of useful life but work can start within 1 to 2 years. 20 - The existing application and/or infrastructure is approaching it's end of useful life and work must start within 12 months. 30 - The existing application and/or infrastructure has reached it's end of useful life and business processes are currently at risk</p>
1	Operational Necessity Score. Note: Default Score = 1	
Economic Justification. Note: Default Score = 1		
1	Economic Justification (Calculated)	<p>1 - Payback > 10 years 20 - Payback > 6 years to <= 10 years 40 - Payback > 4 years to <= 6 years</p> <p>60 - Payback >= 2 years to <= 4 years 80 - Payback < 2 years 100 - Financial penalty and/or negative publicity avoided if compliant with mandate.</p>
Business Opportunity/Value <i>Can project support/enable specific SEu Objectives:</i>		
Score	Category	Anchors
0	Operational Excellence for our Core Business	<p>The project will help achieve operational excellence for our core business by: 20 - Leveraging technology and system re-engineering to increase efficiency and reduce costs 40 - Supporting the execution of major projects/initiatives (enabling major projects/programs such as OpEx, Advanced Meter) 60 - Creating opportunities to improve employee and/or customer safety (such as Pipeline Integrity)</p>
0	Maximize Technology	<p>This project or IT strategic initiative will enable us to maximize technology for SEu by: 20 - Creating new business growth opportunities (new products and/or services) 40 - Enhancing our customer experience/interactions</p>
1	Business Opportunity/Value Score. Note: Default Score = 1	

**APPENDIX B – CAPITAL PROJECTS – BASIS ASSUMPTIONS
(SELECT PROJECTS)**

Appendix B
Capital Projects - Basis Assumptions

SCG Project

Work Paper ID	810B
Project Name	SCG Construction, Planning and Design (CPD) Enhancements Phase 1
Version	1

Basis of Estimate

Component or Phase	System Deployments														
Description	<p>The Construction, Planning and Design (CPD) Enhancements Phase 1 project is a follow-on project to the OpEx CPD project. The original OpEx CPD project began in mid-2010 as the final project of the OpEx program. The CPD system is primarily comprised of SAP, ClickSoftware and Schneider Electric Graphic Work Design (GWD) integrated software as well as interfaces with several legacy systems. CPD replaces the existing construction work management system (CMS) which has reached end-of-life.</p> <p>The first deployment of CPD was completed on July 29, 2013 at Inland (597 users). The scope of the CPD Enhancements Phase 1 project is to complete all remaining deployments as well as implement a number of system enhancements. The deployments in scope of this project are as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th><u>Region</u></th> <th><u>Deployment Date</u></th> <th><u>Number of Users</u></th> </tr> </thead> <tbody> <tr> <td>Pacific</td> <td>March 10, 2014*</td> <td>426</td> </tr> <tr> <td>Orange</td> <td>July 14, 2014*</td> <td>370</td> </tr> <tr> <td>Northern</td> <td>November 10, 2014</td> <td>540</td> </tr> </tbody> </table> <p>*As of November 5th, all deployments have been completed as planned on the dates depicted above.</p>			<u>Region</u>	<u>Deployment Date</u>	<u>Number of Users</u>	Pacific	March 10, 2014*	426	Orange	July 14, 2014*	370	Northern	November 10, 2014	540
<u>Region</u>	<u>Deployment Date</u>	<u>Number of Users</u>													
Pacific	March 10, 2014*	426													
Orange	July 14, 2014*	370													
Northern	November 10, 2014	540													
Labor Estimate	\$1,007,000	Basis Type	Analogous												
Basis Explanation	To complete all remaining deployments, estimated that a project staff comparable in size to the original CPD implementation project would be necessary. Based on this experience with the prior deployment on July 29, 2013, it was determined that approximately 11 full-time equivalent (FTE) employees are necessary to support the deployment schedule shown above.														
Non-Labor Estimate	\$4,904,000	Basis Type	Analogous												
Basis Explanation	Based on initial OpEx CPD implementation project, estimated that on average 33 contractors (16 FTE's) are necessary for portions of their time to complete deployments as well as complete enhancements described below. Estimates were based on known contractor rates and estimated hours from two primary vendors that participated on the initial OpEx CPD project. The two primary vendors, in addition to several smaller vendors, continue to provide contractors on the CPD Enhancement Phase 1 project.														

Component or Phase	System Enhancements
--------------------	---------------------

Appendix B
Capital Projects - Basis Assumptions

Phase			
Description	<p>The Construction, Planning and Design (CPD) Enhancements Phase 1 project is a follow-on project to the OpEx CPD project. The original OpEx CPD project began in mid-2010 as the final project of the OpEx program. The CPD system is primarily comprised of SAP, ClickSoftware and Schneider Electric Graphic Work Design (GWD) integrated software as well as interfaces with several legacy systems. CPD replaces the existing construction work management system (CMS) which has reached end-of-life.</p> <p>In addition to completing remaining deployments described above, the scope of this project includes completing enhancements to improve system functionality for end-users. During the months following initial deployment in 2013, enhancements have been logged, prioritized and completed. From January 1, 2014, through June 30, 2014, 394 enhancements have been completed specifically relating to SCG as well as 80 that benefit both SCG and SDG&E.</p>		
Labor Estimate	\$1,235,000	Basis Type	Analogous
Basis Explanation	<p>To complete enhancements in addition to remaining deployments discussed above, estimated that a project staff comparable in size to the original CPD implementation project would be necessary. Based on the number of employees assigned to the OpEx CPD project we estimated that approximately 14 full-time equivalent (FTE) employees are necessary to support enhancement delivery activities. Many enhancements are very complicated and require a number of individuals to define requirements, work with developers to design changes, develop solutions, test and rollout to end-users</p>		
Non-Labor Estimate	\$5,059,000	Basis Type	Analogous
Basis Explanation	<p>Based on initial CPD implementation project, estimated that on average 33 contractors (16 FTEs) are necessary for portions of their time to complete enhancements as well as complete remaining deployments described above. Estimates were based on known contractor rates and estimated hours from two primary vendors that participated on the initial CPD project. The two primary vendors, in addition to several smaller vendors, continue to provide contractors on the CPD Enhancement Phase 1 project. Total non-labor projected for 2014 (including deployment activities described above) is \$8.9 million. Year-to-date non-labor spending on both deployments and enhancements is \$5.0 million.</p>		

Appendix B
Capital Projects - Basis Assumptions

SCG Project

Work Paper ID	776A
Project Name	Click Upgrade
Version	1.6

Basis of Estimate

Component or Phase	Internal Labor for Click Upgrade		
Description	Includes all internal labor needed to complete requirements, build upgraded system environments; finalize test readiness preparation; and perform functional, non-functional and user acceptance testing for all phases of the project.		
Labor Estimate	\$2,810,000	Basis Type	Parametric / Analogous
Basis Explanation	<p>The project internal labor estimate is based upon an estimated timeline and resourcing requirements provided by Click Software for the technical upgrade. The estimated timeline for the technical upgrade is 21 months including 6 months for Design, 3 months for Build, 3 months for Test, and 9 months to Deploy in an area by area rollout. Internal resources required include a business subject matter expert (SME), dispatcher 1, dispatcher 2, field representative 1, field representative 2, database administrator, representative from the CPD project, and an a subject matter expert for the OMS/DMS system. In addition to the resources identified by Click Software, the internal resource estimate includes the addition of 2 new software developers. All of these resources were planned to be internal employees with the exception of the Project Manager and IT SME who are external consultants and excluded from the internal labor estimate.</p> <p>The estimated internal labor cost for the user acceptance test (UAT) was determined analogously based on previous Click Release projects at Sempra. Historically the estimated effort to complete a user acceptance test for a Click release is twelve weeks with twenty people.</p> <p>The project is a three phase project, with usability and timekeeping / payroll redesign phase following the technical upgrade phase.</p>		
Non-Labor Estimate	\$0	Basis Type	None.
Basis Explanation	No non-labor is required for this component.		

Appendix B
Capital Projects - Basis Assumptions

Component or Phase	Non-Labor for Click Upgrade		
Description	Non-Labor estimate for Click Upgrade includes vendor services, hardware, software licensing of new timekeeping software on the mobile, and employee travel expenses required to deliver the Click technical upgrade, usability, and timekeeping enhancements.		
Labor Estimate	\$0	Basis Type	None
Basis Explanation	No internal labor is required for this component.		
Non-Labor Estimate	\$7,921,000	Basis Type	Parametric / Analogous
Basis Explanation	<p>The non-labor estimate includes vendor services, hardware, software, and other miscellaneous expenses.</p> <p>There are five primary vendor service providers included in the non-labor estimate for the Click Upgrade effort.</p> <p>The estimate software is based upon the project timeline and resourcing requirements provided by vendor for the technical upgrade. The estimated timeline for the technical upgrade is 21 months including 6 months for design, 3 months for build, 3 months for test, and 9 months to deploy in an area by area rollout. Required resources includes a project manager, business analyst, solution architect, senior technical consultant, quality assurance personnel, logistics, and ICE India.</p> <p>SCG engaged a consulting company to conduct a design assessment and produce a detailed findings report.</p> <p>The SCG project manager and the SCG IT subject matter expert are both consultants. These two resources are required through the duration of all three phases of the project and are estimated based on their actual billing rate and an average of 155 hours per month for the duration of the project.</p> <p>The vendor services estimate also includes professional testing services. The initial estimate of \$570,000 was based on professional judgment. A subsequent estimate was obtained from a vendor but for \$520,000.</p> <p>The Hardware estimate is based on configuration information provided by the selected vendor. The vendor recommended a 1-to-1 replacement of existing servers. The current production hardware environment has 40 application servers and 2 database servers.</p> <p>The estimated application server costs are based on recent server purchase: 40 X \$15,000 plus tax (46,500) and shipping (300) for a total of \$646,800</p> <p>The estimated database server costs are based on recent data base server purchases: 2 X \$25,000 plus tax (3,875) and shipping (500) for a total of \$54,375</p> <p>Total Hardware Estimate is \$701,175.</p> <p>The estimated software estimates are based on configuration information provided by</p>		

Appendix B
Capital Projects - Basis Assumptions

	<p>the selected vendors.</p> <p>License fees are estimated to be \$588,326 based on recent purchases and the estimated number of cores for the database.</p> <p>Total estimated software costs are \$839,000</p> <p>Miscellaneous costs of \$6,000 have been included to cover travel and local mileage.</p>
--	--

Appendix B
Capital Projects - Basis Assumptions

SCG Project

Work Paper ID	772A
Project Name	SCG Field Area Network
Version	1.1

Basis of Estimate

Component or Phase	Field Radio Communication Hardware and Construction Services		
Description	<p>Field radio communication hardware includes microwave radios, switches, routers, antennas, cabling, power, and ancillary hardware elements. Radio hardware is required for a total of 37 sites and 3,400 mobile radio units.</p> <p>Construction services include the retrofit of 26 existing communication sites and the construction of 11 new sites. The construction estimates includes labor and services required to permit, design, construct, install and test the 37 sites.</p>		
Labor Estimate	\$1,498,500	Basis Type	Analogous
Basis Explanation	<p>Based on our previous experience constructing similar microwave and field area network communication systems (SGCS, SCADA, Private Network Expansion), we estimated the following internal labor requirements:</p> <ul style="list-style-type: none"> • One Network Engineer, one Radio Frequency Engineer and one Information Security Engineer to support requirements, design, staging & product test and construction over the period of 24 months (11,100 labor hours). • Six Network Operation Engineers to support production cutover over the period of 12 months (11,470 labor hours). • Two management resources supporting project management, supply chain and project closeout over the period of 24 months (7,400 labor hours). 		
Non-Labor Estimate	\$11,028,066	Basis Type	Quote / Analogous
Basis Explanation	<p>Hardware estimates are based on vendor discussions and quotes, as well as past experience with similar construction projects. Specific elements of cost include:</p> <ul style="list-style-type: none"> • Radio, antennas, cabling and power supplies are based on vendor quotes (\$6.1MM); • Network routers, switches and microwave radios are based on recent purchases of similar equipment (\$1M). Quantity details provided on attached spreadsheet. • The radio and telephone interoperability feature cost estimates were provided by vendor during meeting April 18,2014 (\$925K); • Sales tax at 9% (\$724K), shipping and handling at 5% (\$402K), and warehousing costs at \$67K/month (\$402K) were added to vendor quotes; • Radio spectrum cost at \$9.7K for 25 additional channels (\$242K). • Construction costs (\$1.2M) to cover any additional jurisdictional needs and structural modification on 26 retrofit (\$19K/site), 11 new sites (\$65K/site) 		

Appendix B
Capital Projects - Basis Assumptions

	based on the similar project under SGCS program.
--	--

Component or Phase	Dispatch Voice Communication System Hardware and Installation Services		
Description	Includes procurement and installation of the scout console packages, 19" LCD touch screens, headsets, desk microphone, gateway nodes and endpoints. Console packages covers 131 dispatch positions.		
Labor Estimate	\$1,506,500	Basis Type	Analogous
Basis Explanation	<p>Based on our previous experience of constructing similar microwave and field area network systems (SGCS, SCADA, Private Network Expansion), we estimated the following internal labor requirements.</p> <ul style="list-style-type: none"> • One Network Engineer, one Radio Frequency Engineer, one Information Security Engineer, one Customer Services Engineer to support requirements, design, staging & product test and construction over the period of 24 Months. (14,410 labor hours) • Four Network Operation Engineers to support production cutover over the period of 12 months. (14,410 labor hours) • Two management resources supporting project management, supply chain and project closeout over the period of 24 months. (1,310 labor hours) 		
Non-Labor Estimate	\$4,779,770	Basis Type	Quote
Basis Explanation	<p>Hardware estimates are based on vendor discussions and quotes, as well as past experience with similar construction projects. Specific elements of cost include:</p> <ul style="list-style-type: none"> • Console packages, 19" LCD touch screens, headsets, desk microphone, gateway nodes and endpoints (\$3.6M); • Sales tax at 9% (\$328K), shipping and handling at 5% (\$182K), warehousing costs at \$31K/month (\$182K); and • Custom configuration at \$3.3K per dispatch position (\$437K). 		

Appendix B
Capital Projects - Basis Assumptions

SCG Project

Work Paper ID	774L
Project Name	My Account Tech Refresh
Version	1.1

Basis of Estimate

Component or Phase	Hardware		
Description	Implementation of nine brand new technical environments for supporting software development, integration and testing activities. Specific hardware components included are multiple application servers, Oracle RAC databases and storage. Cost estimates based on input from Information Technology (IT) Infrastructure support team's and software development vendor partner selected via formal "Request for Proposal (RFP)" process.		
Labor Estimate	\$0	Basis Type	None
Basis Explanation	No internal labor is required for this component.		
Non-Labor Estimate	\$837,000	Basis Type	Parametric
Basis Explanation	<ul style="list-style-type: none"> • Based on technology refresh roadmap preparation and detailed architectural and planning activities. • Experience on My Account End-to-End Environments. 		

Component or Phase	Software		
Description	Software licenses cost covering Oracle WebCenter Suite, Oracle eBilling Suite, Oracle databases, Red Hat Linux Enterprise. These software licenses are required implement software development infrastructure and run time environments.		
Labor Estimate	\$0	Basis Type	None
Basis Explanation	No labor required for this component		
Non-Labor Estimate	\$1,400,000	Basis Type	Parametric
Basis Explanation	<ul style="list-style-type: none"> • Software license 		

Component or Phase	Software Architecture and Development		
Description	Includes all labor and vendor services required for architecting, designing and developing application software and project management of such efforts/activities.		
Labor Estimate	\$2,712,000	Basis Type	Parametric /Analogous

Appendix B
Capital Projects - Basis Assumptions

Basis Explanation	<ul style="list-style-type: none"> • Labor allocation and costs based on detailed analysis of business requirements, software development estimates (Release 1 RICEFS, software development Sprints) • Prior experience with similar software development projects such as My Account Usability and Accessibility (MAAUI), eServices Phase 6 and 7, My Account End-to-End Environments • Input from vendor partner selected via a formal RFP process. 		
Non-Labor Estimate	\$6,848,882	Basis Type	Parametric /Analogous
Basis Explanation	<ul style="list-style-type: none"> • These non-labor costs include vendor partners software architects, developers and project management personnel • Estimated developed based on formal RFP process and resulting bids and estimates • Prior experience with similar software development projects such as My Account Usability and Accessibility (MAAUI), eServices Phase 6 and 7 and My Account End-to-End Environments 		

Component or Phase	Testing		
Description	Includes all labor and services required for project testing phase		
Labor Estimate	\$489,000	Basis Type	Analogous
Basis Explanation	<ul style="list-style-type: none"> • Labor allocation and costs based on detailed analysis of business requirements, software development estimates (Release 1 RICEFS, software development Sprints) • Prior experience with similar software development projects such as My Account Usability and Accessibility (MAAUI) and eServices Phase 6 and 7 • Input from vendor partner selected via a formal RFP process. 		
Non-Labor Estimate	\$1,200,000	Basis Type	Contract
Basis Explanation	Vendor statements of work (SoW)		

Appendix B
Capital Projects - Basis Assumptions

SCG Project

Work Paper ID	772H
Project Name	SE Converged Computing Infrastructure
Version	1.1

Basis of Estimate

Component or Phase	Hardware: servers, networks, storage and backups and installations.																							
Description	Building of the converged computing infrastructure in 2015 and 2016 through acquisition and installations of servers, network equipment and storage in both Rancho Bernardo and Monterey Park data centers. Infrastructure provides additional compute capacity to meet the expected needs for small-to-medium sized projects, requests, and refresh of existing computing systems.																							
Labor Estimate	\$62,000	Basis Type	Analogous																					
Basis Explanation	<p>Based on experience developed through execution of similar infrastructure projects performing weekly one hour oversight touch point meetings.</p> <p>Internal labor estimate of \$62,000 is primarily for weekly oversight and status review functions. A project manager, project coordinator, infrastructure architect, and technical lead will each expend, on average, four hours a week for the duration of the project in order to oversee vendor contract performance.</p>																							
Non-Labor Estimate	\$12,501,816	Basis Type	Quotes																					
Basis Explanation	<p>Hardware estimate is prepared for Rancho Bernardo and Monterey Park data centers based on the current size and age and condition of the equipment. Hardware is divided into four categories: 1) server and network equipment, 2) Storage, 3) backup and 4) installations – electrical, cables and racks. The table below summarizes the hardware assumptions:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Hardware</th> <th style="text-align: center;">Quantity</th> <th style="text-align: center;">Unit Cost</th> <th style="text-align: center;">Extended Cost</th> <th style="text-align: center;">Reference Based on similar equipment and installation work</th> </tr> </thead> <tbody> <tr> <td>Server racks & Network equipment - Each rack is made up of 32 high capacity servers and all of the required network equipment.</td> <td style="text-align: center;">12 racks</td> <td style="text-align: right;">\$415,911</td> <td style="text-align: right;">\$4,978,932</td> <td>Vendor Quote</td> </tr> <tr> <td>Storage equipment – expansion of existing controllers and additional storage capacity.</td> <td style="text-align: center;">3,000 Terabytes</td> <td style="text-align: right;">\$1,915.58</td> <td style="text-align: right;">\$5,746,761</td> <td>Vendor Quote</td> </tr> <tr> <td>Enterprise backup equipment – additional controllers</td> <td style="text-align: center;">520 Terabytes</td> <td style="text-align: right;">\$2,527.16</td> <td style="text-align: right;">\$1,314,123</td> <td>Vendor Quote</td> </tr> </tbody> </table>				Hardware	Quantity	Unit Cost	Extended Cost	Reference Based on similar equipment and installation work	Server racks & Network equipment - Each rack is made up of 32 high capacity servers and all of the required network equipment.	12 racks	\$415,911	\$4,978,932	Vendor Quote	Storage equipment – expansion of existing controllers and additional storage capacity.	3,000 Terabytes	\$1,915.58	\$5,746,761	Vendor Quote	Enterprise backup equipment – additional controllers	520 Terabytes	\$2,527.16	\$1,314,123	Vendor Quote
Hardware	Quantity	Unit Cost	Extended Cost	Reference Based on similar equipment and installation work																				
Server racks & Network equipment - Each rack is made up of 32 high capacity servers and all of the required network equipment.	12 racks	\$415,911	\$4,978,932	Vendor Quote																				
Storage equipment – expansion of existing controllers and additional storage capacity.	3,000 Terabytes	\$1,915.58	\$5,746,761	Vendor Quote																				
Enterprise backup equipment – additional controllers	520 Terabytes	\$2,527.16	\$1,314,123	Vendor Quote																				

Appendix B
Capital Projects - Basis Assumptions

	and switches.				
	Electrical and cable, racks and installations	12 Installations	\$38,500	\$462,000	Vendor Quote
	Totals			\$12,501,816	
Component or Phase	Design and implementation of converged computing infrastructure.				
Description	The assumption calls for extensive use of external labor in the design and implementation of the hardware. The work is completed through seven step lifecycle. The steps include 1) Discovery, 2) Requirements, 3) Design, 4) Installations, 5) Testing, 6) Cutover and 7) Decommissions.				
Labor Estimate	\$0	Basis Type	None		
Basis Explanation	The assumption calls for extensive use of external labor in the design and implementation of the hardware.				
Non-Labor Estimate	\$3,489,560	Basis Type	Analogous		
Basis Explanation	Estimate is based on a statement of work from a similar project, being planned.				

APPENDIX C – IT DIVISION-SPONSORED IT CAPITAL PROJECTS FOR SCG

IT Division-sponsored IT capital projects for SCG

Shown in Thousands of 2013 Dollars				
Information Technology	Work paper (SCG - 18 - CWP)	Estimated 2014	Estimated 2015	Estimated 2016
SCG Desktop Hardware Refresh	760B	-	-	7,072
Web Application Database Firewalls & Security Testing Platform	770AA	-	-	3,129
SERVER REPLACEMENT-AIX RETIREMENT	770AE	2,351	547	-
ROWS Refresh Out of Warranty Servers.	770AG	4,520	1,794	695
End Point Security	770C	2,541	532	-
Logging Infrastructure Refresh	770D	-	2,769	-
SE SAN Storage Expansion	770R	-	-	6,052
SE 2016 VMware View Virtual Desktop Infrastructure	770X	-	-	2,632
IPS Refresh	770Y	-	-	2,887
SCG Field Area Network	772A	-	17,874	1,429
SE System Management and Automation	772C	-	2,140	1,003
SE Local Area Network Refresh	772D	2,478	3,450	4,164
SE Converged Computing Infrastructure	772H	-	16,072	-
SE Wide Area Network Refresh	772P	-	-	4,464
SCG Private Network Expansion	772R	-	-	2,148
PRIVATE NETWORK EXPANSION AND REFRSH	772W	2,797	1,661	-
Data Center Network Rebuild	772X	4,661	-	-
Business Planning Simulation (BPS) Replacement Project	776B	1,860	859	-
GIS SAP Integration	776M	-	1,240	1,275
FINANCIAL ASSET MGMT (FAM)	776X	3,179	-	-
SharePoint 2013 & Records Management	778A	2,588	4,464	2,513
Data Loss Prevention	778B	2,184	-	-
Travel and Expense Mobility	778C	-	2,382	-
Identity & Access Management, Phase 2 - 4	780A	2,678	1,027	1,067
SAP SUPER USER PROVISIONING	751A	17	-	-
2016 GRC Results of Op Model	756C	162	-	-
ITSM Tool Optimization	760A	689	477	-
SE 2015 Mainframe Expansion	760C	-	-	1,818
eGRC Infrastructure Refresh	760D	-	-	1,990
Forensics Lab Infrastructure Refresh	760E	-	-	1,822
Data Center Network Core	760F	1,133	-	-
SCG 2014 Active Directory Refresh	762A	-	865	-
SCG WAN REBUILD PH IV	762B	778	-	-
SE Network Attached Storage (NAS) Replacement	762C	1,148	-	-
SEu Wireless/Sempra Virtual Office Upgrade and Expansion	762D	662	-	-
CIS Frontend Architecture Optimization	764I	-	-	1,544
SAP ECC and BI Archiving	768A	802	-	-
Business Objects Upgrade	768B	-	648	-
Microsoft Business Intelligence (BI) Enterprise Platform	768C	-	-	461
SEu Web-Audio Conferencing and Instant Messaging Refresh	770A	264	1,089	-
WINDOWS 7 PLATFORM REPLACEMENT (W7U)	770AB	1,409	-	-
ENTERPRISE MESSAGING INFRASTRUCTURE	770AC	978	-	-
EDIX Enhancement - Phase 2	770AD	397	123	-
Enterprise Voice System Refresh	770AF	214	-	-
Seu Call Recording Replacement	770AH	786	-	-
Backup Services Enhancement	770AI	849	-	-
Mobile Device Management Infrastructure	770B	1,023	87	-
Gas SCADA Perimeter Refresh	770E	829	-	-
Information Security - Infrastructure Reliability	770F	350	350	350
SEu Enterprise Call Recording Refresh	770H	341	-	-

IT Division-sponsored IT capital projects for SCG

Shown in Thousands of 2013 Dollars				
Information Technology	Work paper (SCG - 18 - CWP)	Estimated 2014	Estimated 2015	Estimated 2016
Web Application Firewall	770K	-	-	1,511
Enterprise Risk and Compliance (eGRC) Archer expansion	770L	-	-	659
Enterprise Social Computing	770M	-	-	590
ITCS - App-V and UE-V	770N	-	608	1,296
SCG Video-enabled Collaboration Room Upgrade	770O	-	394	-
SEu TelePresence Upgrade	770P	-	1,097	-
SCG Infrastructure Rooms (Compton Headquarter	770Q	-	-	117
SE 2015 VMware View Virtual Desktop Infrastructure	770S	-	1,514	186
SCG Infrastructure Rooms (Anaheim IDF/Server Room)	770T	-	81	-
SE Infrastructure Enabling Services (DNS, DHCP, NTP)	770U	-	-	806
SE SCOM 2012 Upgrade	770V	-	-	571
Source Code Security	770Z	-	-	909
SCG 2014 CI Small Cap Project	772B	500	500	500
SE Enterprise Application Messaging and Caching Platform	772E	-	675	-
SCG GAS SCADA Convert	772G	-	-	1,499
SE Backup Systems	772I	-	-	702
SCG Communications Shelte	772J	-	244	-
SE EWE Self Service Web provision/deployment	772K	-	-	236
SCG Communications Shelter	772M	-	383	-
SE Backup Systems	772N	-	-	356
2016 SCG Communication Shelter	772O	-	-	821
SCG Communication Shelter (Box Springs)	772Q	145	193	-
SCG Communication Shelters (Double Mountain)	772S	145	232	-
SE Remote Access Services (VPN) Refresh	772T	-	-	797
SCG BATTERY REPLACEMENT REENGINEER PROJE	772U	149	-	-
CORE NETWORK DESIGN	772V	536	-	-
TELECOMMUNICATIONS EXPENSE MANAGEMENT	773A	693	-	-
In House EDI X12 Services	774F	-	456	108
SAP Business Warehouse 7.3 Upgrade	776J	-	497	-
Employee Care Services iVOS Claims System AON eSolutions	776L	-	-	1,754
DESIGN ENGINEERING SW Replacement	776U	1,089	158	-
Small Cap Requests (Banctec)	777B	-	132	-
Identity & Access Management Infrastructure Refresh	780B	-	-	1,727
PT81451 Mandiant Expansion	780C	453	-	-
SE Application Platform Technology Refresh	782A	-	609	984
Enterprise BI Analytics and Dashboards - 2014	788A	319	451	-
Enterprise BI Analytics and Dashboards - 2015	788B	-	-	769
Enterprise Analytics System (EAS) Phase II	788C	-	-	452
Enterprise Analytics System (EAS) Phase III	788D	-	-	470
Enterprise BI Analytics and Dashboards	788E	-	-	769
Grand Total		48,697	68,674	67,104

**APPENDIX D – STATUTES AND COMMISSION DECISIONS RELEVANT TO
BUSINESS JUSTIFICATIONS FOR CAPITAL PROJECTS**

Appendix D
Statutes and Commission Decisions Relevant to Business Justifications for Capital Projects

Workpaper	Project Name	Areas where GIS data is use as a supporting tool.	Statute or Commission Decision/Order	Link
0776AA	SCG GIS Gas Enhancements ¹	The required periodic reports from a GO/CFR that we file routinely using GIS data.	<ul style="list-style-type: none"> ○ 49 CFR §191.11 - <i>Distribution system: Annual report.</i> <ul style="list-style-type: none"> ▪ (a) General. Except as provided in paragraph (b) of this section, each operator of a distribution pipeline system must submit an annual report for that system on DOT Form PHMSA F 7100.1-1. This report must be submitted each year, not later than March 15, for the preceding calendar year. ○ G.O. 112E Section 123.1 Annual Reports <ul style="list-style-type: none"> ▪ Each operator shall submit to the DOT, with a copy to the CPUC, annual reports required by sections 191.11 and 191.17 of 49 CFR Part 191. Such reports shall be submitted in the manner prescribed in 49 CFR Part 191. 	http://www.ecfr.gov/cgi-bin/text-idx?SID=92c40638b2371d1c9db862d57305d3d1&node=pt49.3.191&rgn=div5 http://docs.cpuc.ca.gov/PUBLISHED/GENERAL_ORDER/126869.htm
		Special assessment procedures (DIMP) for which we use GIS data	<p>Subpart P: Distribution Integrity Management Program (DIMP)</p> <p>49 CFR §192.1007: What are the required elements of an integrity management</p> <ul style="list-style-type: none"> ▪ (e) Measure performance, monitor results, and evaluate effectiveness. <ul style="list-style-type: none"> (1) Develop and monitor performance measures from 	http://www.ecfr.gov/cgi-bin/text-idx?SID=92c40638b2371d1c9db862d57305d3d1&node=pt49.3.192&rgn=div5#sp49.3.192.p

¹ The table above identifies several of the citations for a few of the periodic regulatory reports and filings that must be submitted by SoCalGas and are relevant to the GIS Gas Enhancement project. Many of those reports require geographical or schematic mapping information as well as specific information on gas facilities. The GIS system acts not only as a facilities mapping system, but also as an asset management repository in which the data necessary to complete those reports is maintained. This data not only serves for the fulfillment of reporting requirements, but also for the daily operations, inspection, condition evaluation, asset health, maintenance and emergency response management for the SoCalGas system.

Appendix D
Statutes and Commission Decisions Relevant to Business Justifications for Capital Projects

			<p>an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:</p> <ul style="list-style-type: none"> (i) Number of hazardous leaks either eliminated or repaired as required by § 192.703(c) of this subchapter (or total number of leaks if all leaks are repaired when found), categorized by cause; (iv) Total number of leaks either eliminated or repaired, categorized by cause; (v) Number of hazardous leaks either eliminated or repaired as required by § 192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by material; and (vi) Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat. <p>Subsection (g) Report results. Report, on an annual basis, the four measures listed in paragraphs (e)(1)(i) through (e)(1)(iv) of this section, as part of the annual report required by § 191.11. An operator also must report the four measures to the state pipeline safety authority if a state exercises jurisdiction over the operator's pipeline.</p>	
		<p>Routine surveys, inspections, and/or information where the resultant data is incorporated into the GIS datasets</p>	<ul style="list-style-type: none"> ○ <i>49 CFR §192.491 Corrosion control records.</i> <ul style="list-style-type: none"> ▪ (a) Each operator shall maintain records or maps to show the location of cathodically protected piping, cathodic protection facilities, galvanic anodes, and 	<p>http://www.ecfr.gov/cgi-bin/text-idx?SID=9f28be74bb16185d88f87fd0da6f4fcb&node=se49.3.192_1491&rgn=div8</p>

Appendix D
Statutes and Commission Decisions Relevant to Business Justifications for Capital Projects

			<p>neighboring structures bonded to the cathodic protection system. Records or maps showing a stated number of anodes, installed in a stated manner or spacing, need not show specific distances to each buried anode.</p> <ul style="list-style-type: none"> ▪ (c) Each operator shall maintain a record of each test, survey, or inspection required by this subpart in sufficient detail to demonstrate the adequacy of corrosion control measures or that a corrosive condition does not exist. These records must be retained for at least 5 years, except that records related to §§192.465(a) and (e) and 192.475(b) must be retained for as long as the pipeline remains in service. 	
		<p>Emergency Response requirements of the GO/CFR/PHMSA for which we utilize GIS systems and data</p>	<p>49 CFR §192.615 Emergency plans.</p> <p>(a) Each operator shall establish written procedures to minimize the hazard resulting from a gas pipeline emergency. At a minimum, the procedures must provide for the following:</p> <p>(4) The availability of personnel, equipment, tools, and materials, as needed at the scene of an emergency.</p> <p>(6) Emergency shutdown and pressure reduction in any section of the operator's pipeline system necessary to minimize hazards to life or property.</p> <p>(9) Safely restoring any service outage.</p>	<p>http://www.ecfr.gov/cgi-bin/text-idx?SID=92c40638b2371d1c9db862d57305d3d1&node=pt49.3.192&rgn=div5#se49.3.192_1615</p>

Appendix D
Statutes and Commission Decisions Relevant to Business Justifications for Capital Projects

Workpaper	Project Name	CPUC Ruling	Relevant Language
0754A	Third Party Data Request	D.14-05-016 http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M090/K845/90845985.PDF	OPs 2-13, which establish the Data Request and Release Process (OP 8), the Energy Data Access Committee (OP 10), and memorandum account treatment with cost recovery through the GRC (OP 13).
0754A	California Producers Envoy	D.07-08-029 http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/71690.PDF http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M079/K275/79275125.PDF https://www.socalgas.com/regulatory/tariffs/tm2/pdf/4177-A.pdf	Resolution G-3489, in response to SoCalGas' proposed implementation of D.07-08-029 in Advice Letter (AL) 4177 ordered SoCalGas to "submit a supplemental Tier 2 advice letter which incorporates the modifications [to AL 4177] ordered herein." Ordering Paragraph (OP) 10. In its Disposition Letter dated February 11, 2014, the Commission approved this supplemental advice letter, AL 4177-A, including all the agreements attached to it. AL 4177-A explains the need for the system modification to SoCalGas' Electronic Bulletin Board (ENVOY®) (para. 2, p. 5) in order to implement the balancing requirements of the California Producer Operational Balancing Agreement (CPOBA) (Form 6452). Pertinent sections of the CPOBA are Section II, Scheduling, and Sub-Section 3.4 of Section III, Default (pp. 5-10 of the CPOBA). The CPOBA is attached to AL 4177-A.
0770AH	SEu Call Recording Replacement	D.98-03-073 at Attachment B (Remedial Measure #14) http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/66766.PDF http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/132884.PDF	"The SoCalGas Gas Select EBB shall be the primary means of communication between Gas Operations and any shipper on the SoCalGas system, including Gas Acquisition. Telephonic and facsimile communications between Gas Operations and any shipper on the SoCalGas system, including Gas Acquisition, shall be limited to the status and administration of that shipper's transportation and storage capacity, volumes, and, if relevant, expected gas usage. Telephonic communications shall be tape recorded. In addition, SoCalGas shall permit a representative of the CPUC and/or the California Power Exchange to audit or monitor the application of the procedures and protocols being used to operate the system and respond to the service requests of all system users." (Remedial Measure 14.)

APPENDIX E – GLOSSARY OF TERMS

APPENDIX E – GLOSSARY OF TERMS

The following list includes all abbreviations and terms used in my testimony and/or work papers.

Term	Acronym	Description
Advanced Metering Infrastructure	AMI	Project that is adding automated reading device to installed gas meters.
AIX	---	IBM's Unix-based operating system, which runs on its midrange computers and mainframes.
Bring your Own Device	BYOD	Refers to the policy of permitting employees to bring personally owned mobile devices (laptops, tablets, and smart phones) to the workplace, and to use those devices to access privileged company information and applications
Business Planning and Simulation	BPS	SAP module utilized for budgeting and planning purposes.
Cloud Computing	---	System architecture that uses shared infrastructure (a “cloud”) to support multiple software applications. Traditionally, high-performance IT applications used dedicated, single-purpose computing infrastructure – e.g., dedicated servers and storage for that single application. A computing cloud can be external (sold by a service provider) or internal (hosted by the end-use company).
Construction Planning and Design	CPD	Project that integrates planning, sketching, supply management, accounting and project costing for large construction projects.
Construction Work In Progress	CWIP	Long term asset account that accumulates the cost of a project that has not yet been placed into service.
Enterprise Risk Management	ERM	An evolving approach at SoCalGas that includes a comprehensive risk management policy and guidelines, with defined, substantive roles and responsibilities established throughout the organization and transparent repeatable processes to support assessment of key risks.
Executive Finance Committee	EFC	Committee comprised of senior management leadership that is responsible for financial decisions at SoCalGas.
Full Time Equivalents	FTE	A unit that indicates the workload of an employed person in a way that makes workloads comparable across various contexts.
Geographic Information System	GIS	Computer system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.
Graphical User Interface	GUI	A human-computer interface (i.e., a way for humans to interact with computers) that uses windows, icons and menus.
Identity and Access Management	IAM	Initiative to improve the way people and systems gain access to online systems and data. Both people and digital systems need to connect with production data systems, and the Identity and Access Management initiative seeks to improve both security and efficiency of those connections.

Information Technology Program Management Office	IT PMO	IT department that is responsible for delivery of IT projects. The department is comprised of project managers and specialists that are involved with project governance, concept document and business case development, project delivery and budget and status reporting.
Interactive Voice Response	IVR	Technology that allows a computer to interact with humans through the use of voice and tones input via keypad.
Internet Protocol	IP	The principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries.
Intrusion Prevention System	IPS	Network security appliances that monitor network and/or system activities for malicious activity. The main functions of intrusion prevention systems are to identify malicious activity, log information about this activity, attempt to block/stop it, and report it
Key Risk Indicators	KRI	Used to measure where specific cybersecurity risks may be present and provide management with the information necessary to implement compensating controls, take remediation actions, or accept risk.
Land Mobile Radio	LMR	Wireless communications system intended for use by users in vehicles (mobiles) or on foot (portables).
Linux	---	Unix-like computer operating system assembled under the model of free and open source software development and distribution.
Local Area Network	LAN	A type of network network that interconnects computers within a limited area.
North American Electric Reliability Corporation Critical Infrastructure Protection	NERC CIP	Committee formed to help NERC advance the physical security and cybersecurity of the critical electricity infrastructure of North America.
Operating System	OS	Software that manages computer hardware resources and provides common services for other computer programs. The operating system is an essential component of the system software in a computer system.
Personal Identification Information	PII	Information that can be used on its own or with other information to identify, contact, or locate a single person, or to identify an individual in context.
Records Management	RM	Professional practice or discipline of controlling and governing what are considered to be the most important records of an organization throughout the records life-cycle, which includes from the time such records are conceived through to their eventual disposal.
Remote Terminal Units	RTUs	Electronic device that interfaces objects in the physical world to a distributed control system or SCADA system by transmitting telemetry data to a master system, and by using messages from the master supervisory system to control connected objects.
Request for Proposal	RFP	A Supply Management process used to enable potential

		suppliers to submit business proposals to SDG&E for the procurement of a commodity, service or asset.
San Diego Gas & Electric Company	SDG&E	An investor-owned, Sempra Energy utility.
Sarbanes-Oxley	SOX	An act passed by U.S. Congress in 2002 to protect investors from the possibility of fraudulent accounting activities by corporations. Mandated strict reforms to improve financial disclosures from corporations and prevent accounting fraud.
Sempra Energy Utilities	SEu	SDG&E and SoCalGas, collectively
Southern California Gas Company	SoCalGas	An investor-owned, Sempra Energy utility.
Storage Area Network	SAN	Dedicated network that provides access to consolidated, block level data storage. SANs are primarily used to enhance storage devices, such as disk arrays, tape libraries, and optical jukeboxes, accessible to servers so that the devices appear like locally attached devices to the operating system.
Structured Query Language	SQL	Standard way to communicate with relational data base management systems. SQL is among the oldest IT system standards, dating back to the 1970s.
Supervisory Control and Data Acquisition	SCADA	Type of industrial control system (ICS). Industrial control systems are computer-based systems that monitor and control industrial processes that exist in the physical world.
Systems Applications and Products	SAP	Developers of enterprise software and software-related services. Headquartered in Walldorf, Germany, with locations in more than 130 countries.
United Computing System	UCS	Server platform provided by Cisco.
Unix	---	Multitasking, multiuser computer operating system.
Virtual Desktop Infrastructure	VDI	A virtualization technique enabling access to a virtualized desktop, which is hosted on a remote service over the Internet. It refers to the software, hardware and other resources required for the virtualization of a standard desktop system.
Voice-Over-Internet Protocol	VoIP	Methodology and group of technologies for the delivery of voice communications and multimedia sessions over Internet Protocol (“IP”) networks, such as the Internet.
Web Application Firewall	WAF	Appliance, server plugin, or filter that applies a set of rules to an HTTP conversation. Generally, these rules cover common attacks such as cross-site scripting and SQL injection.
Wide Area Network	WAN	A type of network that covers a broad area (i.e., any telecommunications network that links across metropolitan, regional, national or international boundaries) using leased telecommunication lines.