Company: San Diego Gas & Electric Company (U 902 M)
Proceeding: 2019 General Rate Case
Application: A.17-10-___
Exhibit: SDG&E-12

SAN DIEGO GAS AND ELECTRIC

DIRECT TESTIMONY OF KENDALL K. HELM

(ELECTRIC AND FUEL PROCUREMENT)

October 6, 2017

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

317093

TABLE OF CONTENTS

LIST OF ACRONYMS

SUMMARY

ELECTRIC & FUEL PROCUREMENT (In 2016 $)			
O&M			
	2016 Adjusted-Recorded (000's)	**TY 2019 Estimated (000's)**	**Change (000's)**
Total Non-Shared Services	7,962	8,641	679
Total Shared Services (Incurred)	0	0	0
Total O&M	**7,962**	**8,641**	**679**

Capital	**2017 ($000)**	**2018 ($000)**	**2019 ($000)**
	$0	$0	$0

Summary of Requests

- San Diego Gas & Electric Company (SDG&E) requests that the California Public Utilities Commission (CPUC) adopt its proposal for $8.7 million of operations and maintenance (O&M) expenses for the function of procuring electricity for SDG&E's 3.6 million customers.
- SDG&E's focus is on aligning and repurposing labor responsibilities in Electric and Fuel Procurement (E&FP) to maintain the required expertise in order to sustain its mission of providing clean, safe, and reliable energy under an evolving technology and regulatory landscape. Accordingly, this request includes an approximate $700,000 increase in O&M expenses relative to the 2016 adjusted recorded amounts primarily due to vacancies in 2016 that have to be filled and/or repurposed for E&FP to succeed at this mission. The $8.7 million request is consistent with O&M expenses recorded in prior years.
- Going forward, a five-year historical average was used as the forecast methodology to develop the 2019 cost forecast because, while procurement roles and priorities are evolving, the overall responsibility to procure adequate supplies of power remains consistent over time.

- Also included in this testimony, SDG&E provides a description of the need for certain technology upgrades required to maintain its legal obligation to provide scheduling services within the California Independent System Operator (CAISO) market. The associated capital costs are requested in the Direct Testimony of Chris Olmsted, Chapter SDG&E-24.

SDG&E DIRECT TESTIMONY OF KENDALL K. HELM
(ELECTRIC AND FUEL PROCUREMENT)

I. INTRODUCTION

A. Summary of Electric and Fuel Procurement Costs and Activities

My testimony supports the Test Year (TY) 2019 forecasts for O&M costs for non-shared services and the need for certain CAISO-related technology upgrades associated with the E&FP function for SDG&E. Table KKH-1 summarizes my sponsored costs. The associated capital costs for technology upgrades are included in the Direct Testimony of Chris Olmsted, Chapter SDG&E-24.

Table KKH-1
SDG&E
Summary of Total Costs

ELECTRIC & FUEL PROCUREMENT (In 2016 $)			
Categories of Management	**2016 Adjusted-Recorded (000s)**	**TY 2019 Estimated (000s)**	**Change (000s)**
A. Long Term Procurement	1,762	2,203	441
B. Trading & Scheduling	2,830	2,949	119
C. Mid and Back Office	3,370	3,489	119
Total Non-Shared Services	**7,962**	**8,641**	**679**

This testimony requests approval for approximately $8.7 million of annual O&M costs for E&FP to fulfill its responsibility for planning, procuring, managing, and administering the energy supply resources needed for SDG&E to deliver clean, safe, and reliable electricity to its approximate 3.6 million customers.[1] Since 2013, the value of these supply resources has exceeded $1.2 billion dollars on an annual basis, and in 2016, 43 percent of the electricity supplied to customers was from renewable sources. E&FP meets customer demand by acquiring both long-term and short-term resources, optimizing those resources in the wholesale energy and ancillary services markets, prudently administering contracts, and accurately settling all energy procurement transactions. To meet state policy goals and comply with legislative and regulatory requirements, E&FP also develops comprehensive procurement strategies and tools to capture the benefits of clean and evolving technologies, such as energy storage, demand response, and

[1] E&FP procures electricity for its bundled customer load, which represents the total demand from those customers that buy the commodity of electricity from SDG&E.

distributed energy resources. While costs for electricity supply are forecasted and recorded in SDG&E's Energy Resource Recovery Account (ERRA), E&FP's O&M costs[2] are part of the General Rate Case (GRC).

In addition to sponsoring my own organization's costs, my testimony supports the need for technology upgrades to enable SDG&E to maintain its legal obligation to provide scheduling services within the CAISO market. The associated capital costs are requested in the Direct Testimony of Mr. Olmsted, (Ex. SDG&E-24).

B. Summary of Costs Related to the Voluntary Retirement Enhancement Program

Sempra Energy (including SDG&E and SoCalGas) implemented a Voluntary Retirement Enhancement Program (VREP) in 2016, designed to offer savings from operating efficiencies, optimized business processes, and enhanced overall operations. Within E&FP, four people elected to take this program. Across the department, E&FP leveraged existing expertise and process improvements to enable repurposing of their labor responsibilities toward future priorities. In addition, one position was associated with essential hourly resource management activities and had to be backfilled.

C. Safety Culture

E&FP is committed to ensuring the safety of its employees by encouraging an environment of compliance with all applicable federal, state and local safety laws, rules and regulations and SDG&E safety standards. SDG&E's Environmental and Safety Compliance Management Program establishes processes that foster compliance with SDG&E's Injury and Illness Prevention Program and other applicable safety requirements. SDG&E's Environmental Safety Compliance Management Program is administered to E&FP personnel via periodic mandatory training.

D. Organization of Testimony

My testimony is organized as follows:

- Description of the activities, non-shared cost forecast and cost drivers for:
    - Long-Term Procurement

[2] Exclusive of applicable software and subscription costs used exclusively for purposes of energy procurement-related requirements, which may be recovered through ERRA (for example, Tullett Prebon pricing subscriptions used exclusively for SRAC price indices).

- Trading and Scheduling
- Middle-Office and Back-Office

- Description of required technology upgrades for capital costs referenced by Mr. Olmsted (Ex. SDG&E-24).
- Conclusion

II. NON-SHARED COSTS

"Non-Shared Services" are activities that are performed by a utility solely for its own benefit. Table KKH-2 summarizes E&FP's total non-shared O&M forecasts for the listed cost categories.

Table KKH-2
SDG&E
Non-Shared O&M Summary of Costs

Labor	2016 Adjusted-Recorded (000s)	2017 Adjusted-Forecast (000s)	2018 Adjusted-Forecast (000s)	2019 Estimated (000s)
Long Term Procurement	1,663	1,955	1,955	1,955
Trading & Scheduling	2,263	2,333	2,333	2,333
Mid and Back Office	2,525	2,429	2,429	2,429
Total	**6,451**	**6,717**	**6,717**	**6,717**

Non-labor	2016 Adjusted-Recorded (000s)	2017 Adjusted-Forecast (000s)	2018 Adjusted-Forecast (000s)	2019 Estimated (000s)
Long Term Procurement	100	248	248	248
Trading & Scheduling	568	616	616	616
Mid and Back Office	844	1,060	1,060	1,060
Total	**1512**	**1924**	**1924**	**1924**

FTE	2016 Adjusted-Recorded (000s)	2017 Adjusted-Forecast (000s)	2018 Adjusted-Forecast (000s)	2019 Estimated (000s)
Long Term Procurement	12.6	14.7	14.7	14.7

Trading & Scheduling	19.5	20.4	20.4	20.4
Mid and Back Office	24.3	24.6	24.6	24.6
Total	**56.5**	**59.8**	**59.8**	**59.8**

A. Long-Term Procurement

Long-Term Procurement functions include the Vice President of Energy Supply and the Origination and Portfolio Design (O&PD) department.

1. Description of Costs and Underlying Activities

The Vice President of Energy Supply provides direction and officer oversight for E&FP, Electric Generation, and Resource Planning. This involves overseeing about 115 employees across eight different departments including O&PD, Trading and Scheduling, and E&FP Back-Office functions. Overall, the Vice President of Energy Supply is responsible for providing strategic direction consistent with and complementary to SDG&E's wider mission, developing policies to strengthen and enhance energy supply functions and performance, and ensuring that all energy procurement is conducted consistent with internal requirements, Commission rules and decisions, and CAISO tariffs.

O&PD is responsible for soliciting energy supplies from independent producers and utility-owned resources to meet SDG&E's long-term energy and capacity requirements. For supplies from independent producers, O&PD negotiates and executes Power Purchase Agreements (PPAs). At the end of 2016, E&FP's portfolio included 72 PPAs for 4,774 Megawatts (MW) of energy and capacity under contract terms ranging from 1 year to 30 years.[3] The parties to these contracts include, among others, large independent power suppliers, Diverse Business Enterprises, power marketers, and municipalities. Long-term resources include demand response, solar, wind, biomass, small hydro, combined heat and power, conventional generation, and energy storage.

To develop long-term procurement plans and implement legislative mandates, O&PD regularly participates in regulatory proceedings and interfaces with numerous government agencies, including the CPUC, the California Energy Commission, and the California Air Resources Board. As an example, the Long-Term Procurement Plan (LTPP)[4] is a reoccurring

[3] Figures include projects both in construction and operation and reflects data as of December 31, 2016.
[4] SDG&E's most recent LTPP (2014 LTPP, Advice Letter 2850-E-A) was approved by the CPUC via disposition letter and became effective February 19, 2016.

two year CPUC proceeding that integrates all E&FP's activities in carrying out the CPUC's preferred loading order for resource additions. Other proceedings where O&PD plays an active role include those for the Renewable Portfolio Standard (RPS), the Integrated Distributed Energy Resources Program, the Green Tariff Shared Renewables Program, and various other procurement programs targeting energy storage, demand response, biogas, and small scale renewables. O&PD also provides input into long-range resource planning models and regularly administers data requests pertaining to E&FP's resource valuation approach and RPS position.

Consistent with approved procurement plans, O&PD then acquires energy resources according to the rules established by the CPUC through competitive solicitations and bilateral negotiations. Competitive solicitations are conducted by issuing a Request for Offers (RFO) to potential parties, developing a valuation model and methodology, evaluating bids submitted, and selecting the most cost-effective resources to meet the RFO objectives. Common to all RFOs, O&PD requests and reviews information on affordability, as well as the presence of safety plans and standards and reliability performance guarantees. Bilateral negotiations are conducted when opportunities and circumstances for acquiring the optimal resources at the optimal time are both unique and fleeting.[5] To conduct procurement of utility-owned resources, O&PD follows a strict code of conduct that governs communications and defines roles within and outside the team.[6] For all forms of long-term procurement, O&PD works with an approved Independent Evaluator.

Following the activities directly related to a solicitation, O&PD then negotiates with independent suppliers who have winning bids to execute a final contract. Bid evaluation, bid selection, and contract negotiation practices and principles for RFOs are largely similar to those for bilateral negotiations and all PPAs executed by O&PD must be approved by the CPUC as falling within the authorized need identified in the LTPP, RPS procurement plan, and/or other state or CPUC-mandated procurement program. Of note, O&PD must also develop PPA language for new product types that have not been solicited before. For example, in 2016, O&PD had to develop a PPA for demand response products that were bid into an all-source solicitation and, in 2017, O&PD is developing a PPA for distributed resources that will be required to offset traditional distribution system investments.

[5] SDG&E 2014 Long Term Procurement Plan at 32-33, Advice Letter 2850-E-A.
[6] Decision (D.) 07-12-052 at 206.

Once PPAs have been executed and approved by the Commission, O&PD is responsible for oversight and contract administration of a project through construction and development. These responsibilities include exercising contractual options in a prudent manner, verifying that conditions precedent to the agreement have been satisfied, monitoring project designs, schedules, and milestones so that the project being constructed meets the stated performance in the contract, and coordinating internal SDG&E functions necessary to meet all the terms and conditions of the agreement. Once a project is in operation, contract administration activities are conducted by E&FP's Back-Office functions. However, at all times, O&PD assists with renegotiating contract provisions as necessary due to changed circumstances or conditions and resolving disputes as required.

Throughout the process, O&PD, together with the other E&FP departments, meets monthly with its Procurement Review Group (PRG) to address a variety of SDG&E procurement issues and transactions. The PRG consists of "non-market participants" who sign non-disclosure agreements, and includes the CPUC Energy Division, the Office of Ratepayer Advocates, and The Utility Reform Network, among others. The PRG's purpose is to review and assess the details of an Investor Owned Utility's overall procurement strategy and specific proposed procurement contracts and processes prior to submitting filings to the CPUC.[7]

To support the company's goals of becoming the cleanest, safest, most reliable energy company in America, Long-Term Procurement seeks to create an optimal energy resource portfolio to meet both state policy objectives and customer interests, while supplying safe and reliable electricity to the grid. Consistent with this mission, SDG&E provided our customers with 43 percent renewable energy in 2016 and added the world's largest lithium-ion energy storage project to our portfolio.

2. Forecast Method

The forecast method developed for this cost category is a five-year historical average. This is most appropriate because, while work priorities can vary from year to year, Long-Term Procurement responsibilities in their entirety remain intact. As described in more detail below, activities associated with monitoring contracts in development have been reduced. However, activities associated with the procurement regulatory landscape and for valuing and negotiating contracts for new resource types has become much more complex. As a result, vacancies in

[7] D.02-08-071 at 25.

2016 must be backfilled and repurposed to meet these changing needs. Using a five-year cost average allows E&FP to reflect evolving Long-Term Procurement priorities and yields a TY 2019 forecast that includes labor costs of $1,955,000 and non-labor costs of $248,000, with 14.7 full-time equivalent employees (FTEs).

3. Cost Drivers

Cost drivers behind this forecast are related to changes in the electric procurement environment. While annual procurement levels vary, activities requiring Long-Term procurement expertise are growing in number and complexity as California moves to a 50 percent RPS goal by 2030 and the CPUC moves toward an integrated resource planning process. Currently, E&FP must comply with between 10 to 15 different procurement mandates. At the same time, the CPUC is seeking in depth data and analysis from SDG&E regarding wholesale changes to the way electric procurement is conducted in the state, including discussion of full retail choice. In addition to regulatory responsibilities, the solicitation process is becoming more varied and complex. Least-cost best-fit valuation methodologies are evolving, transparency rules are being evaluated, and O&PD must assess the role of factors that are difficult to measure, such as societal costs and benefits. In addition, O&PD is charged with designing and implementing an RFO process and PPAs for new product types that support maturation of developing technologies in the marketplace while ensuring risks are mitigated and customers receive a reliable product. Perhaps the most challenging among these activities is the need to develop and implement a PPA for a third-party distributed resource that will displace traditional distribution system investments and guarantee the same level of performance to prevent outages. Along with energy efficiency and demand response, energy storage and distributed resources entail new and different operational issues and risks that must be identified and mitigated by expert negotiators to protect bundled customers' interests. Optimizing E&FP's long-term portfolio is a valued service provided to customers and Long-Term Procurement's cost forecast is designed to maintain SDG&E's required expertise.

B. Trading and Scheduling

Trading and Scheduling refers to activities conducted by the Energy Supply & Dispatch (ES&D) department, which includes Electric Procurement & Trading, Market Analysis, Electric Fuels, and Market Operations.

1. Description of Costs and Underlying Activities

The ES&D department optimizes SDG&E's generation and contracted resources within the CAISO markets to serve bundled customers in a least-cost dispatch manner and consistent with Commission-approved procurement plans. In 2016, ES&D managed electric supply resources to meet a peak load of over 64,000 megawatt hours. To support these activities, ES&D personnel have advanced and specific CAISO market expertise and leverage several information management systems across functions, including Power Costs System Inc. (PCI), YES Energy, and Morningstar.

Within ES&D, Electric Procurement & Trading performs short-term planning, procurement, and trading functions for transactions inside of a five-year time horizon. Planning activities include developing short-term forecasting methodologies, performing short-term power planning studies and regulatory analysis, and assessing changes in tariffs and regulations governing least-cost dispatch of electric and gas portfolios. Electric Procurement & Trading is also responsible for all short-term electricity transactions related to dispatchable generation, including executing all trades, purchases, hedges and sales to manage the electricity supply portfolio consistent with SDG&E's LTPP.[8] In addition, Electric Procurement & Trading is responsible for procuring gas needed for dispatchable generation and for performing gas scheduling on the electronic bulletin boards of the interstate and intrastate pipelines it uses to deliver fuel to its gas-fired resources, including SDG&E-owned resources and contracts for tolling resources.

Market Analysis performs day-ahead demand forecasting, conducts analysis of daily portfolio performance, conducts generation outage planning, and seeks to optimize ES&D's scheduling and bidding strategies. Market Analysis must also comply with various reporting requirements related to its least-cost dispatch operations, including the ERRA Compliance regulatory filing and the CPUC quarterly compliance report. Market Analysis is further responsible for SDG&E's greenhouse gas (GHG) compliance activities. To meet GHG compliance requirements, Market Analysis develops and implements policies for procuring GHG

[8] Hedging is a risk management strategy used to limit the probability of loss from fluctuations in the prices of commodities. Generally, this involves taking market positions that maintain the price risk exposure associated with E&FP's portfolio within the customer risk tolerance limits set by the CPUC. Limits are set in the LTPP.

allowances and offsets in compliance with the limits established in the LTPP and conducts necessary reporting related to those activities.

Electric Fuels oversees the scheduling and dispatch functions. Electric Fuels staffs a Real-Time desk to perform these functions 24 hours a day and has responsibility for scheduling resources into the CAISO's day-ahead, hour-ahead, and 15-minute markets. In addition to scheduling SDG&E's own generating capacity, Electric Fuels schedules and dispatches most resources contracted under E&FP's 73 PPAs and serves as the point of contact for daily operational administration of those resources. Electric Fuels is responsible for complying with CAISO dispatch instructions in accordance with Federal Energy Regulatory Commission (FERC) approved tariffs and protocols and for ensuring all scheduling and market dispatch functions comply with all rules and regulations.

Market Operations manages compliance with annual and monthly Resource Adequacy (RA) requirements, including purchases of short-term resources as needed. To fulfill this responsibility, Market Operations supports RA solicitations, prepares system and local RA filings at the CPUC, and demonstrates that they have procured sufficient capacity resources, including reserves, needed to serve aggregate monthly system load. Market Operations also participates in CAISO-related meetings and working groups to monitor changes at the CAISO and to anticipate associated impacts on SDG&E's operations and portfolio costs.

Through effective and efficient management of the daily and short-term electricity needs of customers, ES&D plays a central role in contributing to SDG&E's clean, safe, and reliable energy goals. ES&D provides this essential service 24 hours a day, seven days a week and is the first point of contact for all resources procured on customers' behalf.

2. Forecast Method

The forecast method developed for this cost category is a five-year historical average. This is most appropriate because, while ES&D costs vary from year to year with short-term vacancies and periodic system investments, overall responsibilities remain consistent over time. For example, between 2012 and 2016, E&SD costs exceeded $3 million in both 2012 and 2014 due in part to costs associated with periodic maintenance of data systems used for daily resources scheduling. In 2013 and 2016, however, ES&D costs were below average due in part to temporary vacancies. Using a five-year average reduces variability between years and is consistent with the forecast methodology chosen for the other cost categories in my testimony

and throughout most of this GRC application. Using this approach, ES&D's 2019 forecast includes labor costs of $2,333,000 and non-labor costs of $616,000, with 20.4 FTEs.

3. Cost Drivers

ES&D must on a daily basis buy all the electricity it needs from the CAISO markets to serve SDG&E's 3.6 million customers and sell all SDG&E-owned generation and all SDG&E contracted resources to the CAISO markets to offset E&FP's energy procurement expenses. This daily procurement process of buying and selling electricity must be done per Least-Cost Dispatch requirements set forth by the CPUC and consists of complex energy transactions with large dollar values. ES&D has already leveraged its existing expertise and procurement systems to absorb the increased scheduling activities associated with the two new conventional resources added in 2012 and the approximately 32 renewable generation resources that have come on line since 2012. In 2017, ES&D also began absorbing additional scheduling activities associated with 37.5 MW of energy storage that was added to the portfolio and is developing further expertise to reliably manage a portfolio with rising levels of rooftop solar. Looking ahead, the scope, complexity, and importance of E&SD's work will continue to require skilled and competent personnel, accurate and efficient information management systems, and regular training.

C. Middle-Office and Back-Office

Middle-Office and Back-Office functions include the Energy Risk Management (Energy Risk) department and the Settlements and Systems (S&S) department.

1. Description of Costs and Underlying Activities

The Energy Risk department is responsible for all Middle-Office functions, including identifying, managing, monitoring, and reporting on market, credit, financial and operational risks associated with E&FP functions. Energy Risk conducts daily reviews of E&FP's physical and financial positions, including trader authority limits, counterparty credit risk positions, and compliance with financial liquidity and margin requirements. To comply with Commission-approved risk metrics[9] and internal policies, Energy Risk reviews daily market pricing data, forward price curves, volatilities, and correlations used for the evaluation and measurement of portfolio risk. On an ongoing basis, Energy Risk performs hedging portfolio analysis and

[9] D.12-01-033 and D.15-10-031.

supports ES&D in the development of procurement and hedge plans, consistent with the Commission approved LTPP, and monitors ES&D's compliance with approved plans.

Energy Risk develops, maintains and supports all trading and risk management models and applications, including modeling new technologies and facilities, enforcement of operational risk controls related to the execution, recording, and valuation of trades. Energy Risk is responsible for compliance with Dodd-Frank requirements, Sarbanes-Oxley (SOX) 404 compliance, and FERC-required reporting of fixed price transactions to index publishers.

Energy Risk also assesses credit exposure for various contracts and transactions, including long-term PPAs, RA transactions, contract amendments, etc. The group works with O&PD in determining credit terms and conditions to protect customer as well as company interests.

S&S is responsible for Back-Office financial and accounting activities required to reconcile all energy contracts for E&FP's power procurement, verify CAISO charges and support the primary operational systems (PCI, Allegro and Versify)[10] used in E&FP's operations. In the reconciliation process, S&S validates that all contract and market payments and receipts are in accordance with the terms of the contract or tariff provisions associated with the underlying transactions. This process requires annually verifying and processing over 2,100 invoices and billing requests, filing disputes of questionable charges when appropriate, and preparing journal entries for recording expenses and revenues. S&S is also responsible for financial accounting and payment of the commodity, transportation, hedging, and other related transactions associated with the gas burned at the five SDG&E-owned power plants with E&FP tolling agreements.[11]

In addition, S&S must review daily CAISO charges and invoices for accuracy and will enter into disputes with the CAISO as required to correct billing discrepancies. S&S provides guidance and expertise in technical analyses for Market Operations and Origination and Portfolio Design using the CAISO meter data, and tariff and power contract data to support regulatory and legislative policy positions. To support the development of procurement policies and targets,

[10] These systems are primarily used to schedule and bid power to the CAISO, record gas and power transactions, and manage RA.

[11] Miramar Energy Facility I, Miramar Energy Facility II, Palomar Energy Center, Cuyamaca Peak Energy Center and Desert Star Energy Center are further described in Daniel Baerman's Electric Generation & SONGS testimony (Exhibit SDG&E-16).

S&S responds to data requests from multiple regulatory agencies, including the CPUC and FERC relating to procurement trends.

Other S&S responsibilities include the aggregation, tracking, and reporting of energy procurement data, including meter data to regulatory agencies and the CAISO, reviewing, testing, and commenting on proposed CAISO changes to the reconciliation process, and preparing FERC Form 1 sections related to purchased power and sales for resale.[12] S&S is responsible for the energy supply costs for the ERRA compliance and General Rate Case proceedings and providing corresponding testimony and responses to data requests from regulatory agencies, including the Office of Ratepayer Advocates (ORA) and the CPUC Energy Division.

S&S contract administrators are responsible for the 67 operating PPAs within E&FP's portfolio.[13] Contract administration activities include daily interactions with counterparties, coordinating and resolving disputes, monitoring counterparties safety plans, invoice verifications, contract interpretations and serving as points of contact. Contract administrators work to manage proper distribution of settlement payments and charges and, when discrepancies are found, the two functions work together to resolve them. Contract administrators also monitor and verify various contract terms, including scheduled maintenance, curtailments, insurance and efficiency monitoring. Through 2016, contract administrators, in conjunction with other E&FP teams had already secured an estimated $6.5 million in customer savings from implementation of economic curtailment amendments to renewable contracts and expects these savings to grow over time. Within E&FP, contract administrators also develop and maintain functional and process flow diagrams for energy procurement, support process improvement initiatives, and develop and document business requirements and processes for quality control.

S&S is further responsible for administration of vendor contracts associated with software subscriptions and key software systems, including PCI, Allegro, and Versify, which E&FP uses to record gas and power transactions, manage RA and to schedule and bid power to the CAISO. S&S works closely with internal Information Technology personnel and external contractors to manage the implementation of system upgrades and enhancements providing overall leadership, strategic planning, guidance, and management to meet objectives, milestones,

[12] CAISO changes may require E&FP to intervene at FERC as well.
[13] Figure excludes projects in construction and reflects data as of December 31, 2016.

and budgets associated with capital projects and system changes to support E&FP department functions.

Together, the Middle-Office and Back-Office functions within E&FP mitigates risks to SDG&E's customers so that customers incur correct costs and receive correct revenues from the bidding, purchase, and sale of energy and ancillary services into the CAISO markets. The prudent provision of these functions protects the clean, safe and reliable energy portfolio E&FP uses to meet company goals, state mandates, and customer interests.

2. Forecast Method

The forecast method developed for this cost category is a five-year historical average. This is most appropriate because the five-year average is indicative of how we expect Middle-Office and Back-Office functions to operate going forward. The five-year average reflects a small decrease in labor costs that accords with streamlining efforts. Non-labor costs have varied in recent years from over $1.2 million in 2014 to approximately $850,000 in 2016. Because S&S may change from year to year on how it manages software subscriptions and leverages technology systems and new offerings to support E&FP operations, reporting, and compliance, a five-year average reduces the associated variability. Using this approach, the TY 2019 forecast for Middle and Back Office includes labor costs of $2,429,000 and non-labor costs of $1,060,000 with 24.6 FTEs.

3. Cost Drivers

Energy Risk identifies, manages, monitors, and reports on market, credit, financial and operational risks associated with a hedging portfolio of over $1 billion,[14] and assesses credit and market risks associated with existing and future long-term and short-term transactions. Due to the technical nature of the tasks, Energy Risk requires highly educated and specially trained staff and sophisticated systems to conduct quantitative analysis. Similar to other departments within E&FP, Energy Risk has already leveraged existing resources to tackle additional modeling and risks associated with new technologies and new market products. The functions performed by Energy Risk are critical to protect the interests of the company and its customers.

S&S annually validates and processes over $1.3 billion in annual transactions related to electricity procurement. The S&S function process requires the collection, validation, and

[14] SDG&E's hedging portfolio is composed of fixed price power contracts and financial natural gas hedges.

analysis of large amounts of price, quantity and operational data. Given the large amount of data involved and the complexity of the underlying transactions, S&S relies on experienced staff, advanced computer systems and vendor software solutions to accurately complete the overall settlement process.

Similar to ES&D, S&S has already leveraged existing labor and non-labor resources to absorb the increased settlement activities associated with the two new conventional resources added in 2012 and the approximately 32 renewable generation resources that have come on line since 2012. Looking ahead, S&S will need to manage settlement activities associated with additional resources, including new energy storage projects, as well as numerous additional economic curtailment amendments and must ensure it continues to have the capacity to perform its functions successfully.

III. SUPPORT FOR IT CAPITAL COSTS

A. Introduction

To support E&FP activities, SDG&E is seeking capital costs for certain technology upgrades required to maintain its obligation[15] to provide scheduling services within the CAISO market. The associated capital costs are requested in the Direct Testimony of Mr. Olmsted (Ex. SDG&E-24). A description of the needed upgrades is provided below.

B. 2016 CAISO Mandates

These forecasted capital expenditures support the company's goals of remaining a CAISO Scheduling Coordinator (SC), complying with CAISO mandated changes, achieving operational efficiencies, and ensuring that current software capital assets are kept under maintenance levels and fully supported. The CAISO publishes a roadmap of planned initiatives which are implemented and released twice a year, with which SDG&E must comply to remain a SC.[16] The 2016 initiatives will require new software modules and configuration changes in several major software applications utilized to meet these requirements, including: PCI, which is an E&FP system for communication with the CAISO for bidding and scheduling; and Versify,

[15] The majority of SDG&E's contracts require SDG&E to provide scheduling services for the generator counterparties.

[16] Scope of 2016 CAISO initiatives: Capacity Procurement Mechanism Replacement; Commitment Cost Enhancements; Post Implementation Open Metering System (OMS) Enhancements; Flexible Ramping Product; Contingency Modeling Enhancements; and Participating Intermittent Resource Program (PIRP) Decommissioning.

which is an E&FP RA planning, operations, and analytics system. Noncompliance with these required updates would cause SDG&E to lose its ability to be an SC and could also result in potential fines and disallowances in ERRA proceedings. It is imperative that E&FP comply with CAISO requirements by making the necessary updates to its PCI, Allegro, and Versify systems.

C. Allegro Technology Upgrade

These forecasted capital expenditures support the company's goals of complying with SOX requirements, maintaining up-to-date systems, enhancing forecast accuracy, and ensuring compatibility between software systems used within E&FP. Allegro is a SOX compliance system primarily used for regulatory reporting,[17] accounting, commodity trading management, and portfolio valuation. It has been used for the Energy Trading Risk Management (ETRM) functions within E&FP since 2007.

In 2014 Allegro Development Corp. began implementing a major product technology revamp, called "Allegro Horizon Technology," to incorporate current technology trends. This new platform builds on and supports ETRM features that impact the data models, business processes and functions, and extensions SDG&E has built up over time to support E&FP's unique applications and reporting requirements. It also addresses some long-standing enhancement requests and resolves issues identified by the E&FP and IT teams. The new system will not only improve forecasting and compliance capabilities, but will create efficiencies and allow labor to be re-directed to other tasks.[18] The benefits of these new capabilities cannot be realized without an upgrade to the "Allegro Horizon Technology" version, as Allegro no longer supports functional changes or enhancements to existing software currently used by SDG&E. Allegro performs a critical function at SDG&E by allowing E&FP accounting to interface directly with SAP, and it is crucial that E&FP implement the new Allegro version to maintain efficiencies and to comply with regulatory and market changes.

D. 2017 CAISO Mandates

These forecasted capital expenditures support the company's goals of enhancing accuracy to reduce time spent on manual processes, to reduce the risk of fines, to comply with company

[17] The Federal Energy Regulatory Commission, CPUC, Commodity Futures Trading Commission, and Securities & Exchange Commission all receive reports that include data from Allegro.
[18] For example, calculating gas losses will allow $10,000 of unloaded labor costs per year to be reallocated, and the new regulatory reporting capability will allow $12,000 of unloaded labor costs per year (unloaded) to be reallocated.

information and technology (IT) standards, and to streamline the validation and updating of electric rate characteristics for Transitional Bundled Service pricing. The CAISO has updated its Operation Meter Analysis & Reporting (OMAR) system, which necessities a replacement of E&FP's current Electricity Scheduling & Settlement Application (ESSA) product, as it not compatible with the proposed CAISO changes and is no longer supported by SDG&E Information Technology operations personnel. The new Meter Data Processing System (MDPS) will automate current manual operations, compile and submit settlement-quality meter data to the CAISO's new Meter Reporting Interface – Settlement (MRI-S), and provide an opportunity to utilize CAISO actual data for department analytics and reporting to support efficiency and accuracy in E&FP's operations. Without the implementation of MDPS, SDG&E will not be able to meet its meter data reporting requirements as per CAISO Tariff Section 37.5.2.[19]

E. 2018 CAISO Mandates

These forecasted capital expenditures support company goals similar to those described above under 2016 CAISO Mandates – remaining a CAISO SC, complying with CAISO mandated changes and CPUC requirements, achieving market and operational efficiencies, and ensuring that current software capital assets are kept under maintenance levels and fully supported. Compliance with the 2018 CAISO Mandates will require further new and updated software components and configuration changes to PCI, Versify, and the Automated Dispatch System. Projects to comply with the 2018 CAISO initiatives require meeting the CAISO published schedule timeline and the use of IT Project Management Office, Vendor, and E&FP resources. The CAISO implementation methodology utilizes a project based approach, and E&FP must plan for market simulation testing several months in advance of the completion date to ensure readiness and account for delays caused by meeting the dependencies from all CAISO stakeholders and decision makers. As explained above, it is imperative that E&FP comply with CAISO requirements by making the necessary updates to its PCI, Allegro, and Versify systems.

IV. CONCLUSION

The E&FP functions that SDG&E will continue to undertake in 2019, as the above testimony demonstrates, exist to ensure clean, safe, and reliable energy is available to serve SDG&E's customers. Associated O&M responsibilities require expertise and advanced

[19] Scheduling Coordinator Metered Entities must provide CAISO with complete and accurate Meter Data, subject to penalties and sanctions.

technology systems, that are broadly consistent with prior year costs. As such, SDG&E requests that the Commission adopt its proposal for $8.7 million of O&M expenses in TY 2019 for E&FP in order to allow SDG&E to meet all of its electric commodity procurement responsibilities through the 2019-2021 rate case cycle.

This concludes my prepared direct testimony.

V. WITNESS QUALIFICATIONS

My name is Kendall K. Helm, and since June 2016 I have been the Director of Origination and Portfolio Optimization in the Energy Procurement department at San Diego Gas & Electric. My business address is 8315 Century Park Court, San Diego, California 92123.

In my current job, I oversee the procurement of all long-term energy resources. My responsibilities include overseeing the procurement process and managing the review of bids received within solicitations, including the Track IV Decision, Demand Response Auction Mechanism, Resource Adequacy, Renewable Auction Mechanism and Green Tariff Shared Renewables.

I have been with the Sempra Energy family of companies since 2012. Prior to taking my current position at SDG&E, I was the Director of Investor Relations at Sempra Energy. I have also worked as Manager of Corporate Economics for Sempra Energy, where I provided research on the company's valuation, capital structure and corporate strategy. Prior to joining the Sempra Energy companies, I was Senior Economist for International Affairs and Trade at the U.S. Government Accountability Office, where I reported to Congress on topics relating to climate change, energy export promotion, and international competitiveness.

I received a bachelor's degree in economics and international studies from the University of Denver and a Ph.D. in economics from American University.

I have not previously testified before the California Public Utilities Commission.

LIST OF ACRONYMS

ACRONYM	DEFINITION
SDG&E	San Diego Gas & Electric Company
CPUC	California Public Utilities Commission
O&M	Operations and Maintenance
E&EP	Electric and Fuel Procurement
CAISO	California Independent System Operator
TY	Test Year
ERRA	Energy Resource Recovery Account
GRC	General Rate Case
VREP	Voluntary Retirement Enhancement Program
O&PD	Origination and Portfolio Design
PPA	Power Purchase Agreements
MW	Megawatts
LTPP	Long-Term Procurement Plan
RPS	Renewable Portfolio Standard
RFO	Request for Offers
D.	Decision
PRG	Procurement Review Group
FTE	Full-Time Equivalent
ES&D	Energy Supply & Dispatch
PCI	Power Costs System Inc.
GHG	Greenhouse Gas
FERC	Federal Energy Regulatory Commission
RA	Resource Adequacy
S&S	Settlements and Systems
SOX	Sarbanes-Oxley
SONGS	San Onofre Nuclear Generating Station
ORA	Office of Ratepayer Advocates
SC	Scheduling Coordinator
OMS	Open Metering System
PIRP	Participating Intermittent Resource Program
ETRM	Energy Trading Risk Management
IT	Information Technology
OMAR	Operation Meter Analysis & Reporting
ESSA	Electricity Scheduling & Settlement Application
MDPS	Meter Data Processing System
MRI-S	Meter Reporting Interface – Settlement