Chief Executive Officer and General Manager's Report and Recommendation

on Rates and Services

March 16, 2017 • Volume 1

SMUD®

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Chief Executive Officer & General Manager's Report and Recommendation on

Rates and Services

Volume 1

Residential, Agricultural, Commercial and Lighting Rate Changes

Miscellaneous Rate Changes

March 16, 2017

A Sacramento Municipal Utility District Publication

Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services, Volume 1

March 16, 2017

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For additional copies of this volume, or for information on issues included in the report, call SMUD at:1-855-736-7655

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Executive Summary

This Chief Executive Officer & General Manager's Report and Recommendation on Rates and Services explains staff's proposed changes to SMUD rates.

SMUD staff recommends a single rate increase of 1.5% in 2018 for residential customers. Staff recommends a two-step rate increase for all non-residential customers of 1% in 2018 and 1% in 2019. These increases are needed to cover planned capital spending on technology projects and grid modernization.

The residential rate increase is planned for only 2018 because SMUD recommends isolating the rate increase from its introduction of a residential Time-of-Day (TOD) Rate as the standard rate in 2019.

Projected technology expenditure levels for 2018 and 2019 are $20 million per year higher than in 2016. SMUD is making these expenditures to improve customer experience, the services that we can offer our customers, and lay the foundation to eventually accommodate higher concentrations of distributed energy resources including rooftop solar, electric vehicle charging, battery storage and load management.

The proposed rate increase would be applied equally to all rate components as detailed in the rate schedules included in Volume 2 of this report. With these changes, SMUD electric rates would still remain among the lowest in California.

SMUD Board of Directors' (Board) policy on rate design has long supported time-based pricing as the preferred option. All commercial customers have been on time-based rates for years, giving them financial incentives to shift energy use away from the hours of peak demand. Since 2012, SMUD has conducted in-depth studies of time-based rate designs with thousands of residential customers. In 2013, the Board approved a plan to gradually eliminate energy usage tiers in residential rates by 2017 in preparation for the eventual adoption of residential time-based pricing. In 2015, the Board declared its intention to make time-based pricing the standard rate for residential customers in 2018.

For residential customers, staff recommends adopting a new time-based rate design to better align rates charged with the cost of service and give customers more control over their bills. Called Time-of-Day (5-8 p.m. Peak) Rate, this would become the standard residential rate. (Time-of-Day also is referred to as TOD).

With time-based rates such as the TOD Rate that staff is proposing, the price charged per kilowatt-hour depends on the time of day the customer uses electricity and reflects the costs of energy supply and demand. Power is typically most expensive between 5 and 8 p.m. on weekdays, especially in the summer, when heavy air-conditioning use causes spikes in electricity consumption. TOD (5-8 p.m. Peak) Rate would give customers incentives to shift

electricity consumption to lower-cost periods. Significant benefits would include an estimated 150 megawatt reduction in peak demand.

Making the proposed TOD (5-8 p.m. Peak) Rate the standard for residential customers would help control energy costs and reduce the need to build power plants in the future. Industry experts from NERA Economic Consulting concluded this rate design represents a significant improvement over existing rates, offering more efficient price signals and greater fairness within the residential rate class.

Staff recommends gradually moving customers to the TOD (5-8 p.m. Peak) Rate beginning in September 2018 with most customers moved by April 2019 and all customers moved no later than December 2019 to enable a smooth transition. Eligible residential customers would be able to choose the proposed Fixed Rate as an alternative.

Beginning in 2018, TOD (5-8 p.m. Peak) Rate would be the required rate for customers who are approved for installation by SMUD after December 31, 2017 to install new rooftop solar systems or other renewable generating facilities eligible for Net Energy Metering (NEM.)Staff also recommends changing the Energy Assistance Program Rate (EAPR) to provide discounts based on income level instead of total energy usage. The aim is to better target assistance to those EAPR customers who need it most. Staff recommends a gradual transition to the new EAPR program structure between 2019 and 2021.

Other proposals covered in this report call for rate modifications that would affect relatively few customers. Staff recommends, for example, a change to the NEM Rate Schedule to allow carry-over of electricity credits with monthly settlement, and amending language to rules and regulations as specified in Volume 2 of this report.

SMUD invites customers and the community to learn more about the rate proposals and share feedback. Public workshops will be held at SMUD offices on April 20, 2017 and May 11, 2017, and the SMUD Board of Directors will hold a public hearing on the rates proposal on June 1, 2017. For more information, turn to the Workshops and Public Hearing Schedule section on page 20.

Board Strategic Direction on Rates

All of the recommendations in this Report conform to SMUD's objectives for rate design and implementation. The Board of Directors' Competitive Rates Strategic Direction 2 (SD-2) includes objectives to:

- Establish rate targets that are 18% below Pacific Gas and Electric (PG&E) and at least 10% below PG&E's published rates for each customer class.
- Reflect the cost of energy when it is used.
- Reduce use of energy during on-peak periods.
- Encourage energy efficiency and conservation.
- Minimize "sticker" shock in the transition from one rate design to another.
- Offer flexibility and options.
- Be simple and easy to understand.

- Meet the electricity service needs of people with fixed, low incomes and severe medical conditions.
- Equitably allocate costs across and within customer classes.

In addition to these rate design objectives, the proposed rate changes would help meet SMUD's financial targets by:

- Maintaining cash coverage of all debt service payments (fixed charge ratio) of at least 1.45.
- Maintaining access to credit markets.
- Achieving the State's and SMUD's energy efficiency, renewable energy, and greenhouse gas emissions targets.
- Meeting the Board's reliability targets while making funds available to increase efforts to support system upgrades and preventive and corrective maintenance of aging infrastructure, which is critical to the safe and reliable operation of the transmission and distribution systems.
- Providing SMUD with the resources to invest in the customer support processes necessary to maintain a high level of reliability, customer satisfaction and confidence.

A complete list of the Board's Strategic Directions can be found in the section starting on page 84 in this report.

Rate Increase Drivers

SMUD continues its commitment to minimize costs through close, ongoing scrutiny of budgetary expenses within its control. Looking forward to 2018 and 2019, SMUD has implemented more efficient work processes and has seen the average cost of generating and purchasing wholesale electricity decline slightly. These savings will offset increased costs for labor, materials and supplies. These savings, however, are not sufficient to fund increased investments needed to maintain reliable service and meet customer needs for the future.

Starting in 2015, SMUD began to ramp up its investment in technology and grid modernization. This trend is planned to continue through 2019 and beyond. Projected expenditure levels for 2018 and 2019 are $20 million per year higher than in 2016. This spending will improve the customer experience and lay a foundation for higher concentrations of distributed energy resources (rooftop solar, electric vehicle charging, battery storage and load management). The proposed rate increases for 2018 and 2019 represent an average revenue increase of 1% per year. These increases will generate an additional $40 million over two years to fund technology and grid modernization investments.

SMUD is investing in technology capabilities and enhancements to expand customer choice, continue to improve the customer experience and make it easy to do business with SMUD:

- Enhance billing and payment technology to give customers choices and improved experience across channels.
- Develop a mobile app with bill payment and real time energy management services.
- Diversify product and service offerings and provide more tailored programs, services and experiences to customers.
- Enhance and integrate digital platforms to enable self-service options so customers can do business with SMUD how, when and where they want to.
- Invest in technology to facilitate two-way outage communication and proactive outage notification.
- Improve the telephone Interactive Voice Response (IVR) system, including additional menu language options and the ability to interact with conversational phrases.
- Enhance data analytics capability to more effectively reach low-income customers that can most benefit from energy efficiency items such as smart thermostats, power strips, efficient lighting and appliance education.

SMUD is working especially hard in the area of technology to allow more self-service options. Upgrading our web and mobile account functions will allow customers greater flexibility, and faster service, on their chosen device.

SMUD's current infrastructure was designed to provide energy in a mostly one-way power grid. SMUD generated or purchased energy in known quantities, and then sent it to our customers whose usage patterns were fairly predictable. Today and in the future, the energy system will include more types of energy -- such as solar and wind -- and an increased variety of customer use – such as electric vehicles – used at nontraditional times.

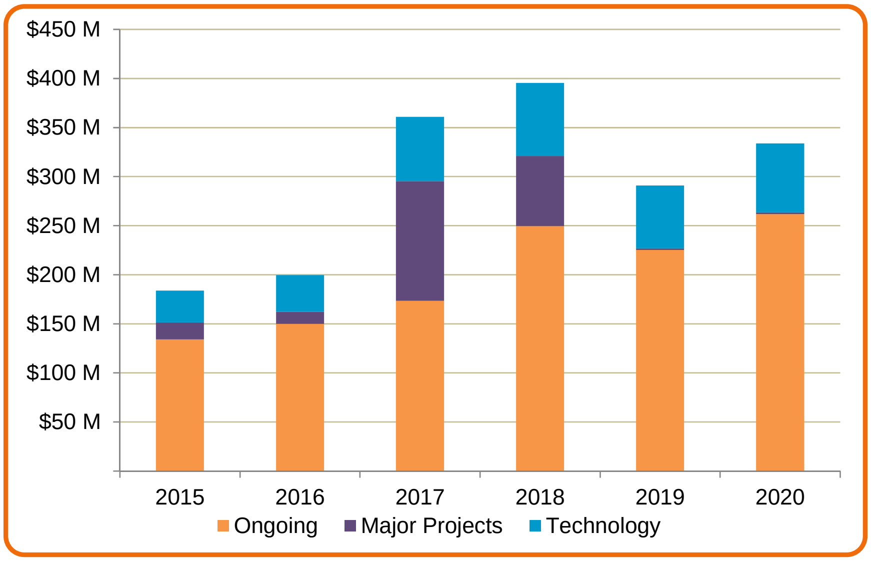
SMUD needs to upgrade its distribution system to be able to manage the introduction of all these types of energy, and keep the supply and demand in balance. The distribution system enhancements planned through 2019 are:

- The implementation of an advanced distribution management system to improve control of the distribution grid. This will improve reliability and allow for more customer-owned resources to be connected to the system and help optimize the value of distributed energy resources.
- Upgrades to SMUD's demand response management system to expand functionality for demand response offerings and enable connected devices for customers.
- Installing smart and high-voltage charging infrastructure and related technology to accelerate and enable wider adoption of electric vehicles by SMUD customers.
- Installation of advanced battery/energy-storage management technology that enables SMUD customers to optimize their energy-storage investments.

Capital Expenditure Forecast

In addition to higher spending on grid modernization and technology projects, SMUD needs to increase what it spends to replace aging infrastructure. SMUD's headquarters building, which is at the end of its useful life, will be rehabilitated starting in 2017. This involves stripping the entire interior and rebuilding a new facility within the old shell. Two major electric substations serving the downtown load will be rebuilt, which will improve the capacity and reliability of service to this key area as it expands. A third major electric substation will be built to support growth in the southern part of the county. Figure 1 shows the capital expenditures through 2020.

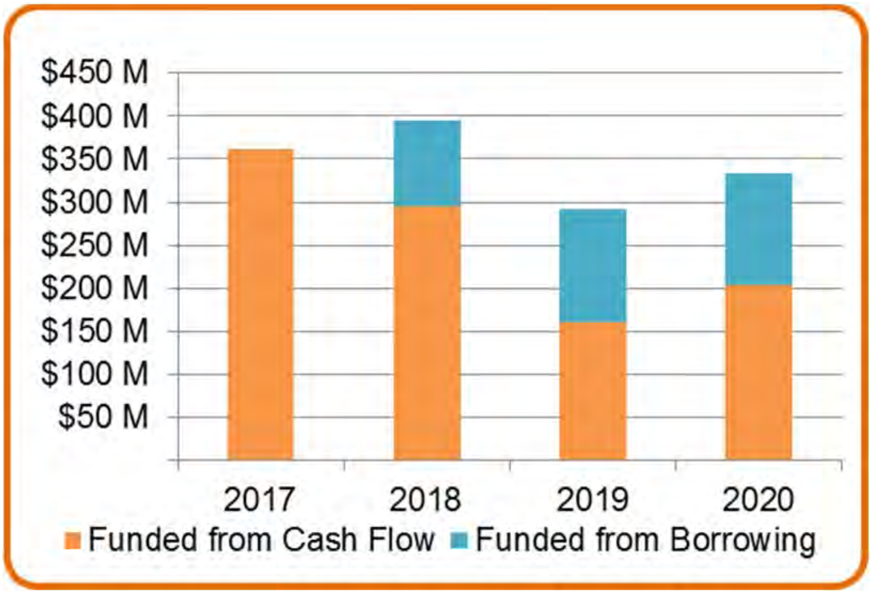
Figure 1 Capital Expenditures (Millions)



Capital Program Funding

SMUD has two sources of funding for its capital projects: cash flow (customer revenue in excess of operating costs and debt service) and new borrowing. For SMUD to have sustainable access to the credit markets at favorable rates, SMUD must limit the percentage of capital projects funded by debt. SMUD also needs to match the term of the new debt with the economic life of the asset it is funding. Things like technology investments and the vehicle fleet have relatively short lives and are funded with cash flow. Longer life assets such as electric substations are funded with a combination of cash flow and new debt. Figure 2 shows the proposed amount of funding by cash flow and by borrowing.

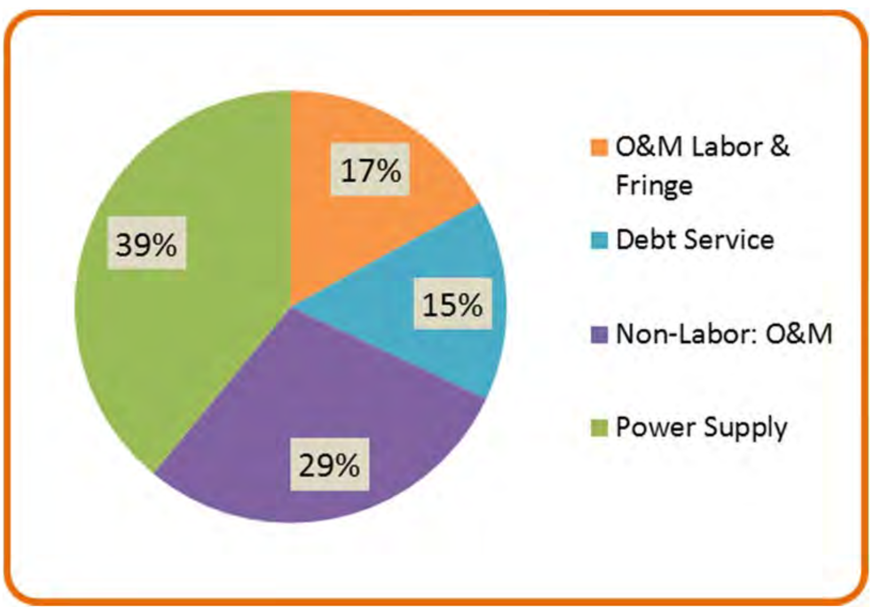
Figure 2 Capital Program Funding (Millions)



SMUD's Operating Costs

SMUD's largest operating cost is power supply, which includes electricity purchases and the cost of natural gas used to generate power. Debt service, which is 15% of total operating costs, is the cost of money borrowed to acquire and build the power plants and infrastructure to serve SMUD customers. Power supply and debt service together represent more than half of total operating costs. As shown in Figure 3, O&M labor and non-labor expenses represent 17% and 29% respectively.

Figure 3. O&M Cost Breakout



SMUD manages its current and future costs to provide financial and rate stability for its customers. The following discussion covers SMUD's approach to managing these cost categories.

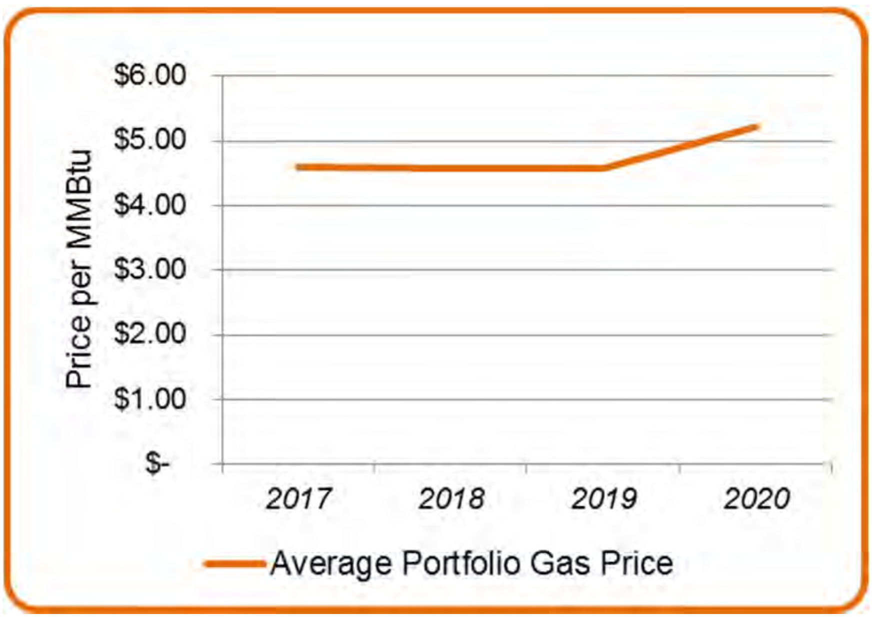
Power Supply Cost

SMUD's power supply costs are mostly locked in through 2020. This is the cost category that has the most potential to change dramatically from year to year due to fluctuations in market energy prices and the weather. SMUD uses sophisticated risk management tools to eliminate most of the potential volatility in this part of the operating budget.

Most of SMUD's power purchase agreements are multi-year fixed-price contracts that are not impacted by short-term changes in energy prices.

Natural gas, SMUD's single largest power supply expense, is nearly 100% locked in through 2020 at fixed prices. The average cost of gas in 2019 will be approximately the same as the cost in 2017 as shown in Figure 4.

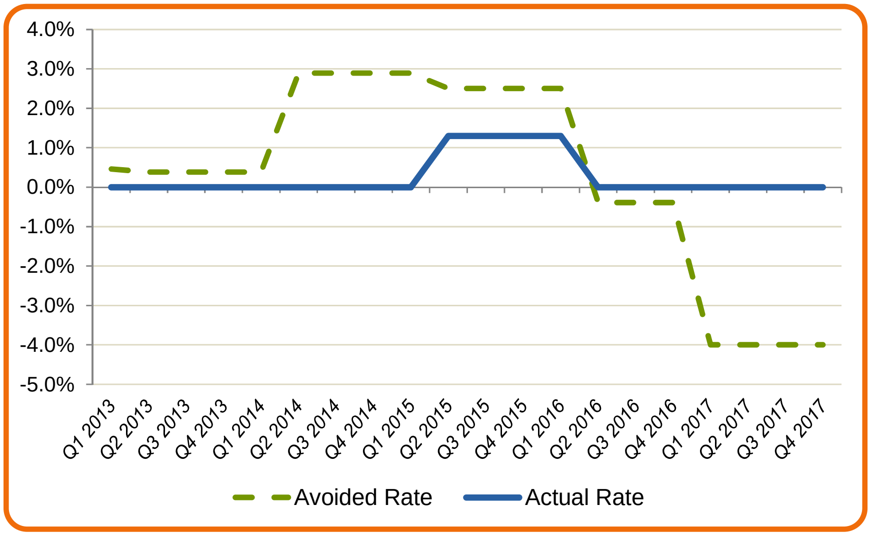
Figure 4 Projected Cost of SMUD Natural Gas



In an average year SMUD gets about 25% of its energy from hydroelectric generation. But this can vary from 12% to 37% depending on the amount of precipitation during the water year. These variations can have a major impact on the amount of energy SMUD has to buy from the market in any one year.

SMUD has purchased precipitation insurance and has a revenue smoothing mechanism that sets aside revenue generated in a wet year to pay for the extra power purchases needed in a dry year. The overall effect of these mitigation strategies has helped insulate SMUD customers from weather impacts, even during the prolonged drought. Figure 5 shows what the rate impact would have been and what it actually was over the last five years due to variations in hydroelectric generation.

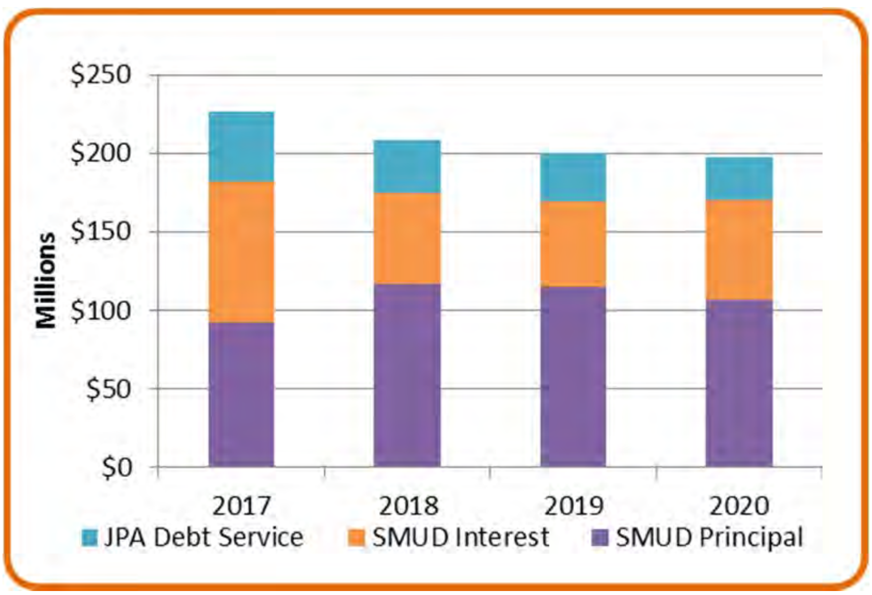
Figure 5 Hydroelectric Rate Impact



Debt Service

SMUD's overall debt service has been structured so that the total amount due gradually decreases over time. SMUD's current rates fully cover the annual repayment of existing debt. An increase in rates due to debt service could occur if SMUD were to expand the current levels of outstanding debt. Figure 6 shows the existing debt service payments through 2020.

Figure 6 Existing Debt Service Payments



JPA stands for Joint Powers Authority

Labor Cost

While SMUD's labor cost represents only 17% of the total O&M budget, as shown in Figure 3, SMUD is very focused on managing this part of its operating budget. Overall, the productivity of SMUD's workforce can be measured by the number of customers SMUD has per employee. Ten years ago, this measure was 253. Based on SMUD's 2017 budget, this number is 266.

SMUD has several initiatives that are expected to further improve the productivity of its workforce over the next three years. One example is a program to establish consistent rules for data collection and management along with more sophisticated data analytics to provide better discipline and insight into operations. These insights will help improve processes that will reduce costs and improve service to customers.

Table 1 shows the forecast of select financial and rate information for 2017 through 2020, including a forecast of new debt issuance and fixed charge ratio. The fixed charge ratio is a measure of cash flow available for debt service payments.

Table 1 Forecast of Selected Financial and Rate Information

Forecast of Selected Financial and Rate Information
2017-2020

	2017 Budget	2018 Projection	2019 Projection	2020 Projection
Residential System Rate Change	*	1.5%	0.0%	**
Cumulative Residential Rate Change		1.5%	1.5%	
Commercial System Rate Change	*	1.0%	1.0%	**
Cumulative Commercial Rate Change		1.0%	2.0%	
Net Income ($M)	$ 128	$ 82	$ 59	$ 52
Fixed Charge Ratio	1.82	1.80	1.67	1.64
Amount of Debt Issued ($M)	$ -	$ 100	$ 130	$ 130
Net Change in Debt ($M)	$ (132)	$ (19)	$ 5	$ 2
Equity Ratio	39%	40%	41%	42%
Net Debt Per Customer	$ 2,940	$ 2,770	$ 2,520	$ 2,410
Days Cash on Hand	183	154	157	131

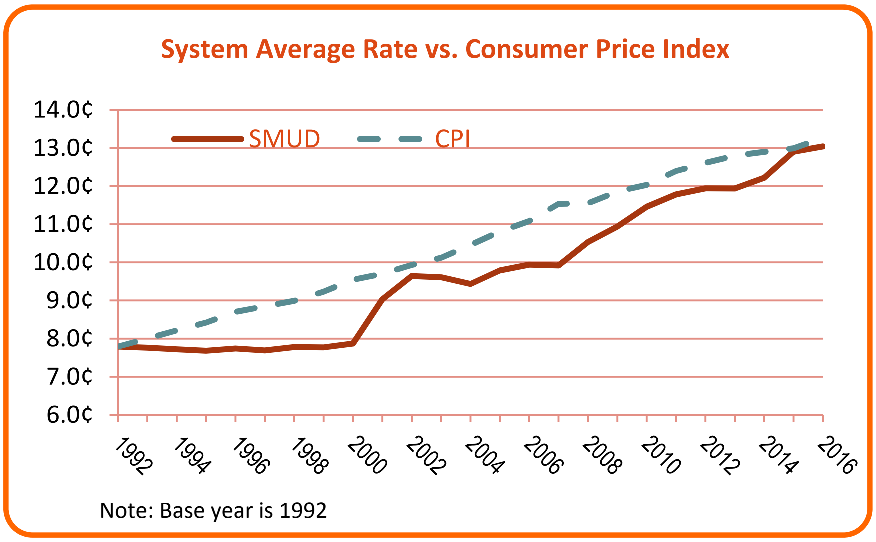
*2017 Rate increase of 2.5% for both Residential and Commercial already adopted and not presented here.
**Any rate action for 2020 would be in next filing

Competitive Position

Over the last 25 years SMUD's system average rate per kilowatt-hour (kWh) has increased at approximately the same rate as general inflation, as measured by the Consumer Price

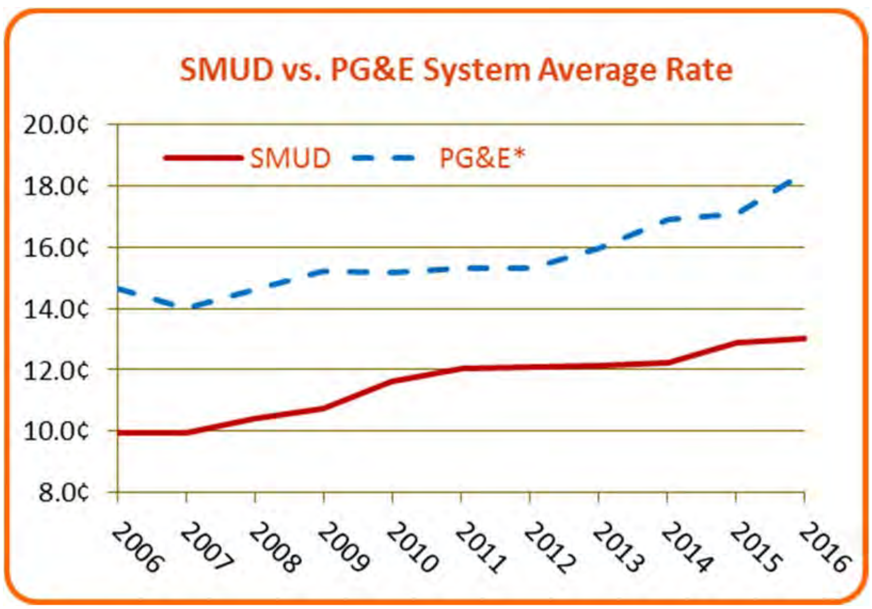
Index (CPI), shown in Figure 7. As a result, electric service in Sacramento has remained affordable.

Figure 7 System Average Rate (Cents per kWh) vs. Consumer Price Index



The Board's Strategic Direction 2 (SD-2) (competitive rates) specifies that SMUD will maintain its average system price at a level that is at least 18% below that of PG&E. As shown in Figure 8, SMUD's 2016 system average rate was 13.04 cents per kWh, which was 29.2% lower than PG&E's forecasted system average rate for the same year.

Figure 8 SMUD vs. PG&E System Average Rate (Cents per kWh)



* PG&E data from EIA 826 survey through 2015, year 2016 taken from Advice Letter 4906-E-A dated 09-30-16.

In addition, SMUD rates are significantly lower than those of most other California electric utilities. As shown in Figure 9, SMUD's 2016 system average rate was 18% to 39% lower than that of the three large investor-owned utilities within California: PG&E, San Diego Gas

& Electric (SDG&E) and Southern California Edison (SCE). SMUD's rates are also lower than the average system rate for most of the state's publicly owned utilities.

Figure 9 California Utility System Average Rate (Cents per kWh)

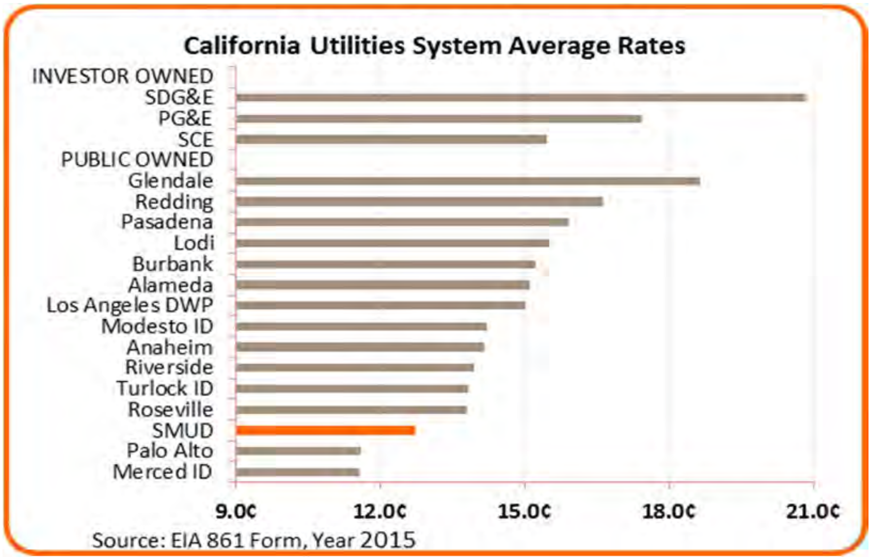


Table 2 shows that SMUD rates are expected to be 31.2% and 30.7% lower than PG&E after the proposed rate increases in 2018 and 2019. SD-2 (competitive rates) also establishes a metric for competitive system rates that are 10% below PG&E for every major rate class. SMUD's residential rates in 2017 are projected to be 32% below PG&E's and most commercial rates are priced even lower[1].

Table 2. SMUD vs. PG&E Comparison Class Average Rate ($/kWh)

Customer		Average Annual Rate*		SMUD Difference Below PG&E		
Class	Description	PG&E	SMUD			
		2017	2017	2017	2018**	2019**
Residential	Standard	$0.2307	$0.1487	-35.6%	-34.5%	-33.9%
	Low Income	$0.1366	$0.0951	-30.4%	-28.7%	-27.0%
All Residential		**$0.2040**	**$0.1385**	**-32.1%**	**-31.0%**	**-30.3%**
Small Commercial	<= 20 kW	$0.2302	$0.1322	-42.6%	-42.0%	-41.4%
	21 - 299 kW	$0.2216	$0.1464	-33.9%	-33.2%	-32.4%
Medium Commercial	300 - 499 kW	$0.2035	$0.1360	-33.1%	-32.5%	-31.7%
	500 - 999 kW	$0.1779	$0.1278	-28.1%	-27.4%	-26.6%
Large Commercial	=> 1 MW	$0.1420	$0.1198	-15.6%	-14.8%	-13.8%
Lighting	Traffic Signals	$0.2202	$0.1023	-53.5%	-53.3%	-53.1%
	Street Lighting	$0.2197	$0.1286	-41.5%	-40.8%	-40.2%
Agriculture	Ag & Pumping	$0.1782	$0.1194	-33.0%	-32.0%	-30.9%
System Average		**$0.1909**	**$0.1299**	**-32.0%**	**-31.2%**	**-30.7%**

* PG&E average prices in 2017 reflect rates effective 3-01-17, per Advice Letter 5011-E-A.
** PG&E average prices in 2018 and 2019 do not reflect PG&E's requested 2017 GRC of 2.67% and 2.34% respectively.

[1] Rate comparison based on SMUD and PG&E's forecasted average rates by class for years 2017-2019.

Workshops and Community Participation

SMUD will hold two public rate workshops and a final public hearing at SMUD on the dates noted below. At these meetings, staff will present details on the proposed rate changes and provide additional information on the expected impacts to individual customer classes.

SMUD invites customers and the community at large to attend these public forums to learn more about the proposed changes, offer comments and ask questions. These forums will also provide valuable feedback for SMUD Board members who will consider the proposed measures at the public hearing. The public hearing in June will provide the last opportunity for public discussion before the Board vote in June.

In addition, SMUD will make a number of presentations to groups and organizations throughout the community about the proposals in this report.

Customers and other interested parties may also provide input or ask questions by contacting SMUD at 1-855-736-7655 or contactus@smud.org.

Workshops and Public Hearing Schedule

Date & Time	Event	Location	Address
April 20, 2017 10 a.m.	Public Workshop	SMUD Customer Service Center Rubicon Room	6301 S Street, Sacramento
May 11, 2017 6 p.m.	Public Workshop	SMUD Customer Service Center Rubicon Room	6301 S Street, Sacramento
June 1, 2017 6 p.m.	Public Hearing	SMUD Customer Service Center Rubicon Room	6301 S Street, Sacramento

Revenue Requirement

Summary of Changes

This section explains the proposed rate revisions for 2018 and 2019. Table 3 shows the effect of the recommended 1.5% rate increase in 2018 for the residential class and the recommended 1.0% rate increase in 2018 followed by a 1.0% rate increase in 2019 for non-residential classes.

Table 3 SMUD Forecasted Revenue After Proposed Rate Increase*

Customer Class ($ in Millions)	2018 Revenue Forecast	2018 Forecast with Proposed Increase	2018 Percent Impact	2019 Forecast before additional Increase	2019 Forecast with Proposed Increase	2019 Percent Impact
Residential	$ 627.43	$ 636.95	1.5%	$ 638.02	$ 638.02	0.0%
Small Commercial < 300kW	$ 347.19	$ 350.68	1.0%	$ 344.86	$ 348.41	1.0%
Small Commercial 300<500kW	$ 71.79	$ 72.50	1.0%	$ 70.18	$ 70.89	1.0%
Medium Commercial 500<1,000kW	$ 69.61	$ 70.31	1.0%	$ 68.45	$ 69.14	1.0%
Large Commercial >1,000kW	$ 169.95	$ 171.65	1.0%	$ 170.97	$ 172.69	1.0%
Agricultural	$ 9.83	$ 9.93	1.0%	$ 9.94	$ 10.04	1.0%
Lighting	$ 8.55	$ 8.60	0.6%	$ 8.55	$ 8.61	0.7%
Total	**$ 1,304.35**	**$ 1,320.63**		**$ 1,310.96**	**$ 1,317.80**	

* Retail revenue excludes special contracts and 2019 residential EAPR program proposal savings of $3.8 million, offset by corresponding increase in public good expenses for EAPR Energy Efficiency. Beginning as early as September 2018, a limited group of EAPR customers will be transitioned to the 2019 EAPR Program Rate as part of a soft launch of the changes.

While the annual 1.0% increase applies equally across all non-residential rate classes, the impact to the lighting class revenue is actually less than the 1.0% rate increase target. This is because the lighting class revenue includes both energy charges, which are subject to the rate increase, and monthly leasing and maintenance charges, which are not subject to the rate increase. These charges are reviewed annually and adjusted as necessary.

The remainder of this report presents the detailed recommendations for rate changes, followed by recommended changes to SMUD's Rules and Regulations.

Changes to Residential Rates

Rate Increase for Residential Rates

Overview

This proposal recommends a rate increase of 1.5% in forecasted residential class retail revenue for year 2018. The proposed rate increase would apply to the monthly System Infrastructure Fixed Charge (SIFC), as well as the energy and miscellaneous charges on customer bills. This increase would apply to all residential rates, including existing pilot rates.

EAPR rates would remain discounted to keep electric service affordable for low-income customers. The discount formula and caps approved in prior rate actions for 2017 would remain unchanged in 2018.

The caps set a maximum monthly EAPR discount which is higher for customers who get their water from wells. Table 4 shows the low-income discounts by component for 2017 and 2018. More information about the EAPR program begins on page 44.

Table 4 EAPR Monthly Discounts

Discounts	2017-2018*
SIFC Discount	$11.50
Percent EAPR Discount Electricity Usage Charge	48%
Maximum EAPR Discount	$42
Maximum EAPR Discount for Wells	$54

* Beginning as early as September 2018, a limited group of EAPR customers will be transitioned to the 2019 EAPR Program Rate as part of a soft launch of the changes. See more details in EAPR Section.

Bill Impacts

Bill impacts would depend on how much electricity a customer uses each month. Figure 10 shows the bill impacts for standard and EAPR customers if their energy consumption remains the same. EAPR customers would see slightly lower bill impacts than standard customers.

Approximately 60% of residential customers – those who use less than 765 kWh per month – would see an average monthly bill increase of less than $1.58 in 2018. Another 20% of customers, with use of up to 1,035 kWh, would see average monthly bill increases of less than $2.00 through 2018. The remaining 20% of customers – those who use the largest amounts of energy – would see an average monthly bill increase of $2.86.

Figure 10. Rate Increase Bill Impacts 2018 Standard vs. EAPR

The average residential customer using 750 kWh per month would see a monthly bill impact of $1.62 in 2018.

Revenue Impact

With the proposed rate increase SMUD expects to collect approximately $9.5 million in added revenues from all residential rate categories in 2018 and 2019.

Recommendation

Staff recommends adoption of the 1.5% rate increase for residential rates in 2018 and no rate increase in 2019. Revisions described above are detailed in the residential rate schedules included in Volume 2 of this report.

New Residential Time-of-Day Rate and Fixed Rate

As stated earlier, in the past two rate actions the Board approved a plan to gradually eliminate energy tier structures in residential rates by 2017, resulting in a single price by season for energy, and declared its intention to make time-based pricing the standard rate for residential customers in 2018. In this rate action, staff is recommending beginning the residential rate transition to TOD (5-8 p.m. Peak) Rate with a soft launch to a limited group of customers beginning in September 2018, with a goal to have most residential customers transitioned to the new rate by April 2019 and complete the transition no later than December 2019. In addition, the initial phase of the EAPR restructure is proposed to begin in 2019, as described in the next section below. The proposed implementation timeline will reduce confusion and bill impacts.

This section describes the structure and features of the proposed residential Time-of-Day (5-8 p.m. Peak) Rate that will become the standard rate as outlined in Volume 2 of this report.

The proposed rate structure reflects increased solar generation since 2010 and its impact on electricity market prices in Northern California. The current trend shows lower prices of electricity during daytime hours and higher prices later in the evening. The proposed rate design better reflects the cost of service, aligns prices with costs of electricity when it is used and encourages customers to manage their energy use during the hours of highest cost.

In 2013, the Board approved a transition plan to eliminate tiers in residential rates by 2017. In 2015, the Board declared its intention to make time-based rates the standard for residential customers in 2018. All SMUD commercial customers are already on time-based pricing, which gives them financial incentives to shift energy use away from the hours of peak demand.

In the first half of 2016, staff performed research and analysis to arrive at the proposed rate design which was presented as an informational item to the Board on July 20, 2016. Staff's proposal ensures a smooth transition from the previously adopted flat 2017 pricing structure to a time-based pricing structure in 2018 and 2019.

Purpose

SD-2 (competitive rates) establishes the principle that prices should reflect the cost of energy when it is used, and in particular, should signal the need to reduce energy usage during SMUD's high-cost peak periods. The proposed rate design complies with this principle.

SD-2 (competitive rates) also establishes that SMUD's rates shall be simple and easy to understand, and offer flexibility and options. The proposed time-based rate design, Time-of-Day (5-8 p.m. Peak) Rate, balances simplicity and the need to align energy pricing with SMUD's marginal cost.

Residential Time-of-Day (5-8 p.m. Peak) Rate

With the proposed Time-of-Day rate for residential customers, staff recommends peak pricing between 5 and 8 p.m. to reflect the latest trend in market prices.

At the April 5 and May 13, 2016 Board committee meetings, staff presented rate options to the Board. On April 20, 2016 the Board received feedback on rate principles and options from three industry experts representing Solar City, the Natural Resources Defense Council (NRDC) and a UC Berkeley professor. The information discussed at those meetings, results of the SmartPricing Options (SPO) study, and analysis of historical electricity market prices in Northern California were key in selecting the proper time periods and rate design.

Day-ahead electricity market prices in Northern California show the highest prices occur between 5 and 8 p.m.. Figure 11 shows how the increase in solar generation since 2010 has shifted the most expensive hours for power to later in the day.

Figure 11 Summer Hourly Market Price 2010 vs. 2015

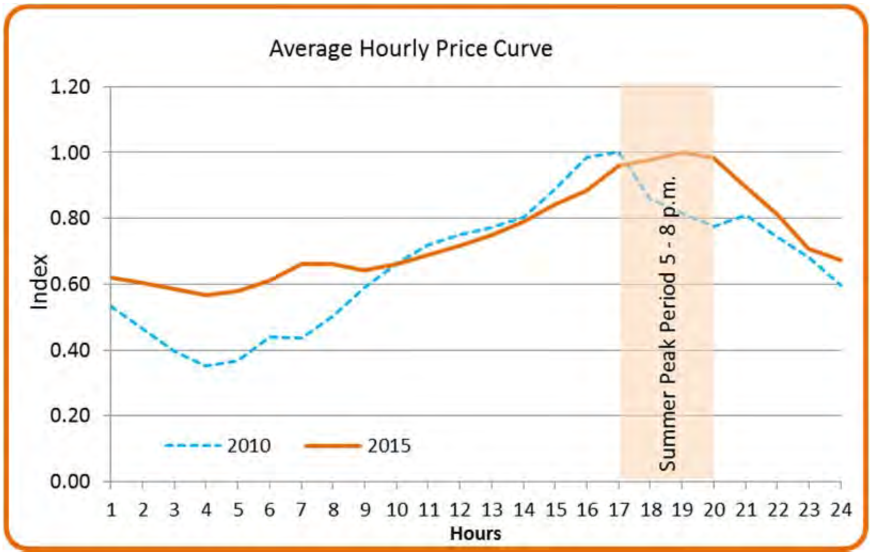
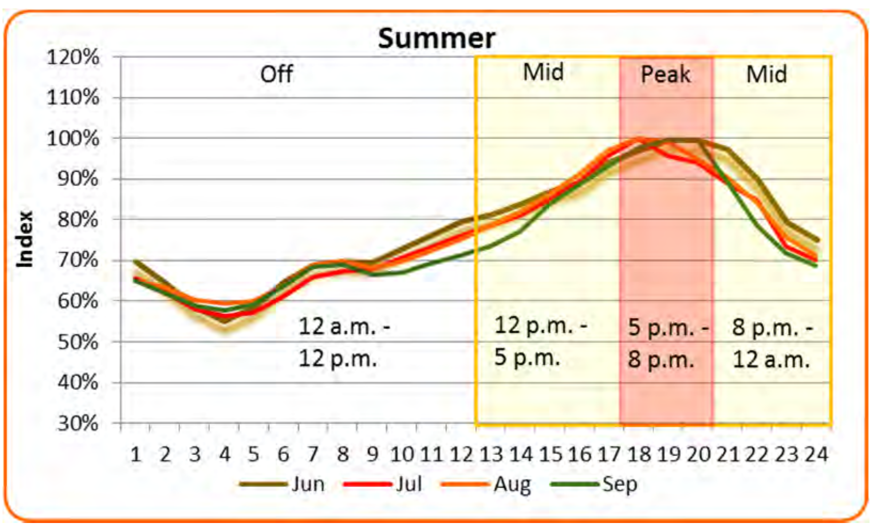


Figure 12 illustrates the consistency of peak prices for summer months (June through September). Electricity prices are lower during daytime hours and higher later in the evening.

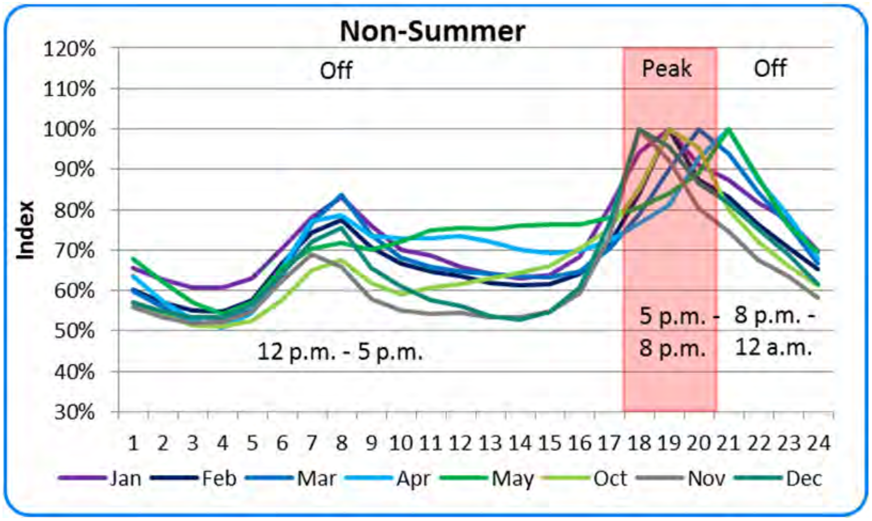
Figure 12 Summer Hourly Market Price



Source: 2014-2015 NP15 day-ahead market prices. Off-Peak hours include weekends and holidays.

The proposed residential peak time period of 5 to 8 p.m. also reflects price trends for the non-summer months, as shown in Figure 13. To reflect this trend, staff proposes the new residential peak time period be from 5 to 8 p.m. year-round. This better aligns prices with times when the market supply costs of electricity are highest.

Figure 13 Non-Summer Hourly Market Price



Source: 2014-2015 NP15 day-ahead market prices. Off-Peak hours include weekends and holidays.

Since 2012, SMUD's optional and pilot time-of-use rates have revolved around the peak hours of 4 to 7 p.m. The SmartPricing Options pilot study had positive results for load reduction, load shifting, and overall customer satisfaction. Survey results showed high acceptance for a three-hour peak window.[2] Building on the success of earlier Time-of-Use (TOU) pilots, the proposed Time-of-Day (5-8 p.m. Peak) Rate design uses a three-hour peak period.

Staff presented the recommended rate design for the standard Time-of-Day (5-8 p.m. Peak) Rate as an informational item at a Board committee meeting on July 20, 2016. Board members supported staff's recommendation. Proposed prices were finalized in the fall of 2016 to incorporate the proposed 1.5% rate increase and reflect marginal cost.

The proposed rate design balances cost-of-service, simplicity, customer acceptance and complies with the SD-2 (competitive rates) policy.

The proposed TOD (5-8 p.m. Peak) Rate is also consistent with state trends. Although not directly applicable to SMUD, the California Public Utilities Commission (CPUC) issued a decision in January 2017[3] concluding that "TOU peak periods currently in effect should be shifted to later in the day." The document also noted that "the deployment of grid-connected and behind-the-meter solar has increased the availability of energy during the afternoon and decreased the load on the grid. As a result, the peak periods, in terms of grid needs and cost, have shifted to later in the day."

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[2] SmartPricing Options Final Evaluation prepared by Jennifer M. Potter, SMUD, Stephen S. George, Ph.D., Nexant Lupe R. Jimenez, SMUD, page 98, figure 9-3.

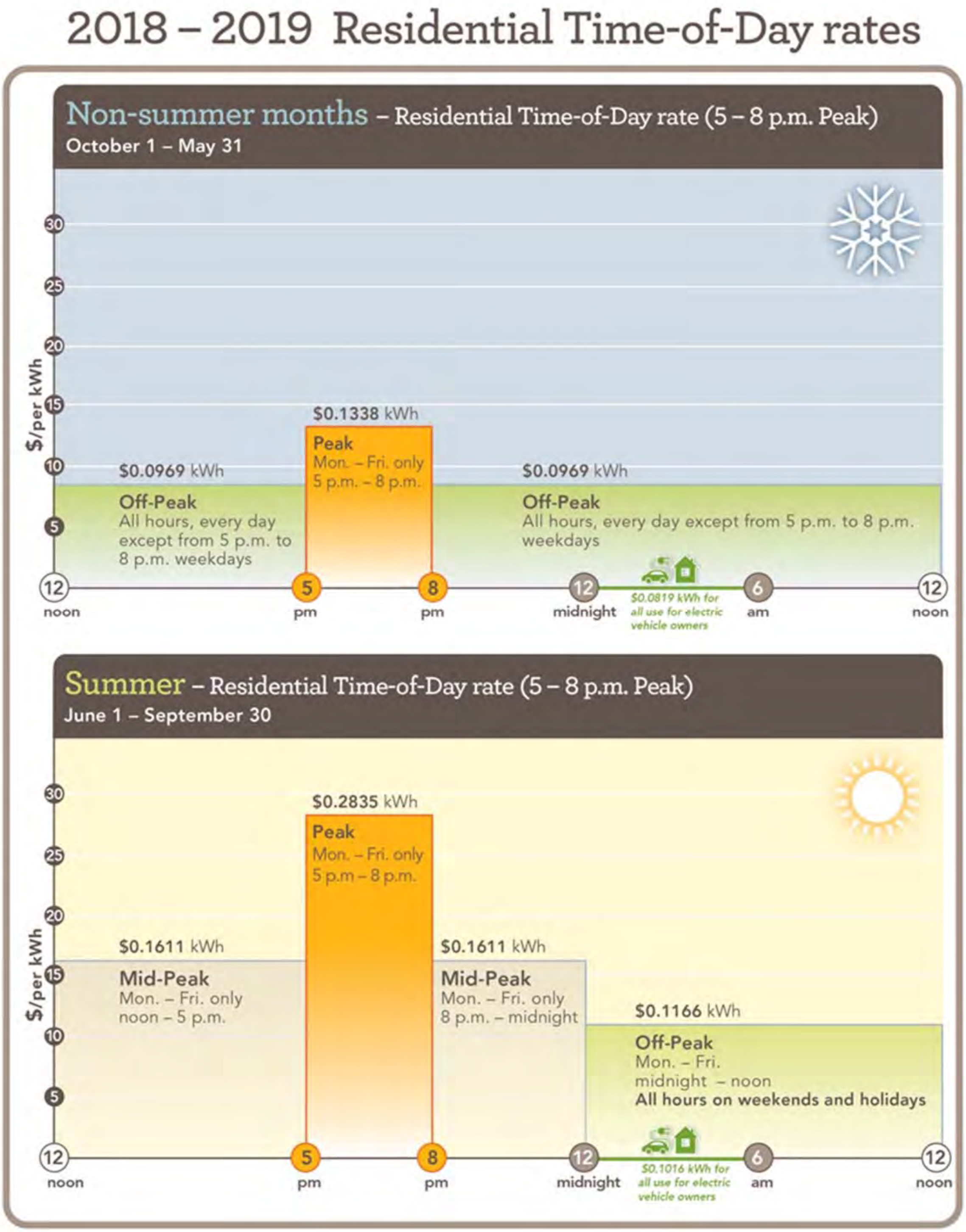
[3] CPUC Decision 17-01-006 dated 01/16/17 Adopting Policy Guidelines To Assess Time Periods For Future Time-of-Use Rates And Energy Resource Contract Payments, Section 1.1 page 5, Section 2.3.3 page 33.

The proposed prices by time period for the Time-of-Day (5-8 p.m. Peak) Rate are based on SMUD's most recent marginal cost study. Experts with NERA Economic Consulting reviewed SMUD's marginal cost study and application to rate design and concluded that SMUD's marginal cost study and the rate principles used to develop the Time-of-Day (5-8 p.m. Peak) Rate are consistent with the industry standard and NERA's approach to marginal costing. The letter of opinion provided by NERA is included in Appendix I of this report.

SMUD is recommending a two season residential TOD rate with a peak time period from 5 to 8 p.m. year-round. TOD rates will be subject to periodic updates in future years to reflect trends in the market. For example, future updates to open rates could result in a different rate structure and new prices by different time periods. In the case of closed rates the prices by time periods could change in the future as a result of rate increases, market trends and marginal cost updates, but the structure of such closed rates will not change.

The charts below illustrate the new proposed Time-of-Day (5-8 p.m. Peak) Rate structure. Eligible customers who have plug-in electric vehicles (PEVs) will continue to receive the current PEV credit of $0.015/kWh for electricity usage between midnight and 6 am. Customers would continue to pay the monthly SIFC and surcharges as specified in the residential Time-of-Day rate schedule included in Volume 2 of this report.

Figure 14 Proposed 2018 – 2019 Time-Of-Day Rates



The kWh charges are also depicted in Table 5 below.

Table 5 Proposed Time-of-Day (5-8 p.m. Peak) Rate Electricity Charges ($/kWh)

Season	Period	2018-2019	Notes
Summer (Jun 1 - Sep 30)	Peak	$0.2835	Weekdays between 5 p.m. and 8 p.m.
	Mid-Peak	$0.1611	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	$0.1166	All other hours, including weekends and the holidays[1].
Non-Summer (Oct 1 - May 31)	Peak	$0.1338	Weekdays between 5 p.m. and 8 p.m.
	Off-Peak	$0.0969	All other hours, including weekends and the holidays[1].
[1]Holidays include: New Year's Day, Martin Luther King Jr. Day, Lincoln's Birthday, Presidents Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, Christmas Day.			

Staff believes the new Time-of-Day (5-8 p.m. Peak) Rate will give customers opportunities to manage their usage and bills while helping SMUD control costs and potentially reduce the need to build new power plants. Staff expects a system peak reduction benefit of approximately 150 MW from the adoption of the residential Time-of-Day (5-8 p.m. Peak) Rate.

Proposed Residential Fixed Rate

SD-2 (competitive rates) also establishes that SMUD's rates shall offer flexibility and options. Accordingly, after customers have been placed on the standard Time-of-Day (5-8 p.m. Peak) Rate, they will have the option to switch to the proposed Fixed Rate.

SMUD's SmartPricing Options (SPO) Pilot study[4] with time-of-use rates had a 4% opt-out rate. Staff developed the proposed Fixed Rate using this assumption. On average, the proposed Fixed Rate is approximately 4%[5] higher than the standard Time-of-Day (5-8 p.m. Peak) Rate. This will ensure SMUD will recover the added costs for serving these customers.

Staff recommends the following Fixed Rate charges:

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[4] SmartPricing Options Final Evaluation prepared by Jennifer M. Potter, SMUD, Stephen S. George, Ph.D., Nexant Lupe R. Jimenez, SMUD, page 73, table 8-1.

[5] The seasonal pricing for the Fixed Rate is based on the load weighted average rate of the top 4% of customers who use the most peak and summer mid-peak energy as a percentage of their seasonal usage. The analysis is based on a stable population of customers with 12 months of 2013 billing data, excluding master-metered mobile homes customers (RSMM) and includes both EAPR and non-EAPR residential customers.

Table 6 Proposed Residential Fixed Rate ($/kWh)

Season	2018-2019	Notes
Summer (Jun 1 - Sep 30)	$0.1649	All electricity usage (All hours, including weekends and the holidays)[1]
Non-Summer (Oct 1 - May 31)	$0.1032	All electricity usage (All hours, including weekends and the holidays)[1]
[1]Holidays include: New Year's Day, Martin Luther King Jr. Day, Lincoln's Birthday, Presidents Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, Christmas Day.		

Customers would continue to pay the monthly SIFC and surcharges as specified in the residential rate schedule included in Volume 2 of this report.

Updated Residential Optional Time-of-Use Rate

Staff also recommends the current Optional Time-of-Use Rate be renamed to Time-of-Day (4-7 p.m. Peak) Rate for clarification between it and the new Time-of-Day (5-8 p.m. Peak) Rate.

Table 7 below shows the proposed changes for 2018 which includes the proposed 1.5% revenue requirement increase and marginal cost update.

Table 7 Optional Residential Time-of-Day (4-7 p.m. Peak) Rate

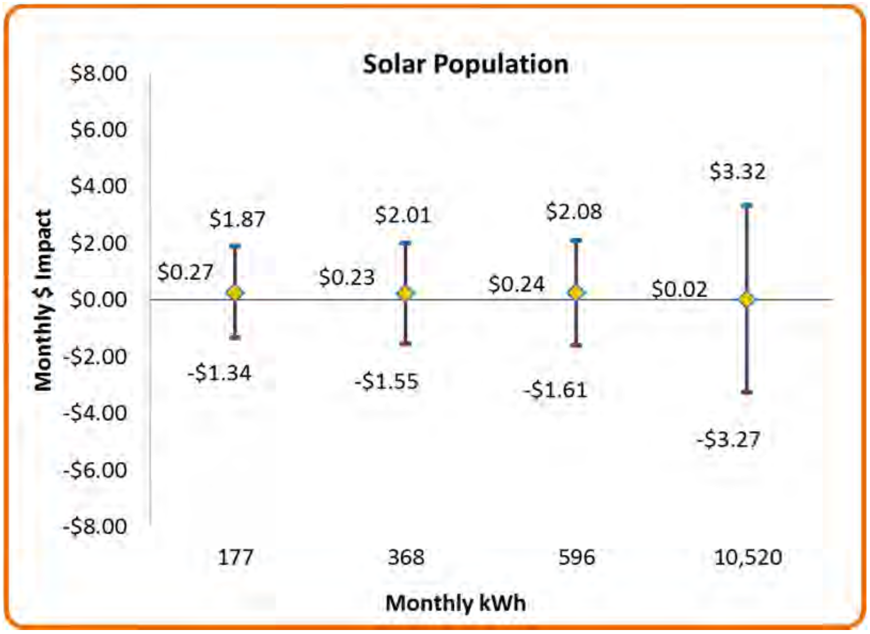
Season	Period	2018-2019 Price ($/kWh)	Date Types and Hours
Jun 1 -Sep 30	Summer Super Peak	$0.3704	Weekdays between 4 p.m. and 7 p.m.
Year-round (Jan 1 - Dec 31)	Peak	$0.1481	Weekdays between 9 a.m. and 9 p.m. except during Summer Super Peak hours.
	Off-Peak	$0.0853	All other hours, including weekends and the holidays.

Staff also proposes a revenue-neutral adjustment consisting of a reduction to the year-round peak and off-peak energy prices, offsetting the increase in the summer super peak energy price to better align prices with the cost of service.

Effective July 1, 2017, this rate is closed to all customers except those who have PEV's or an eligible renewable electrical generation facility. This rate will be closed to all customers by December 31, 2022.

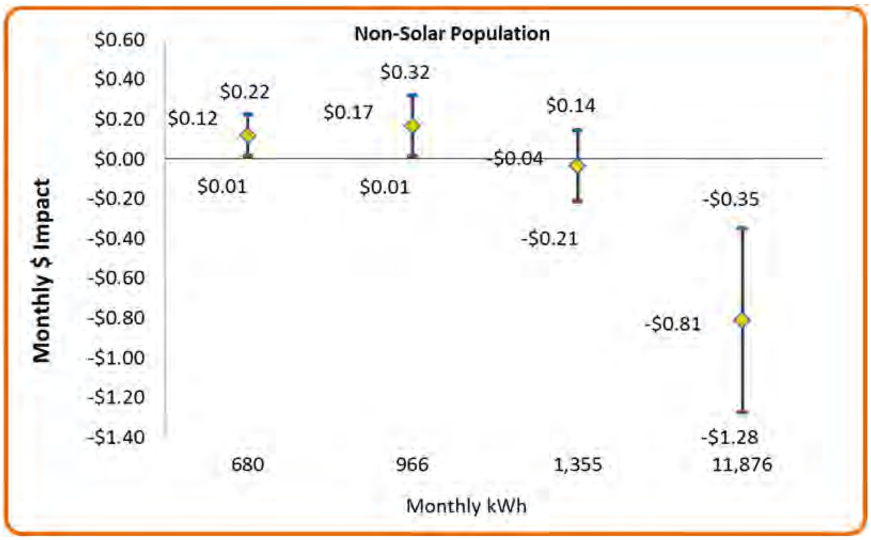
Figure 15 and Figure 16 below illustrate the distribution of the rate impacts among a sample of solar and non-solar customers who were enrolled in the optional Time-of-Day (4-7 p.m. Peak) Rate in 2016. The chart shows the average bill increase for customers grouped by monthly usage, as well as a range of maximum and minimum impacts. The diamond represents the average monthly bill impact and the vertical bar represents the range of bill impacts. The average monthly bill impact is very minimal.

Figure 15 Monthly Bill Impacts to Solar Customers[6]



[6] Notes: Based on 2013 Stable Population (all customers without discounts). These ranges represent two standard deviations or about 95% of the population in each group.

Figure 16 Monthly Bill Impacts to Non-Solar Customers[7]



Figures 16 and 17 are based on customers with 12 months of data.

Timeline for Rate Implementation

The staff recommendation is to begin transitioning residential customers to the Time-of-Day (5-8 p.m. Peak) Rate starting in September 2018, with a goal to have most residential customers transitioned to the new rate by April 2019 and all residential customers transitioned no later than December 2019.

The Time-of-Day (5-8 p.m. Peak) Rate will become the standard for all new residential accounts established with SMUD, including transfer of service to new premises, beginning September 1, 2018. After transitioning to the standard Time-of-Day (5-8 p.m. Peak) Rate, eligible customers can elect the residential Fixed Rate as an alternative rate.

During the transition, SMUD will continue the current standard residential rate (Legacy Rate) with the 1.5% revenue requirement increase proposed in this report until all eligible customers have been transitioned to the Time-of-Day (5-8 p.m. Peak) Rate.

Staff recommends that the existing Optional Time-of-Use Rate be renamed the Time-of-Day (4-7 p.m. Peak) Rate effective July 1, 2017. The rate would then be closed to new participants unless they have Plug-in Electric Vehicles (PEVs) or a NEM generation facility on their premises. Customers on the Time-of-Day (4-7 p.m. Peak) Rate who do not have an eligible renewable electrical generation facility under Rate Schedule 1-NEM will be transitioned to the Time-of-Day (5-8 p.m. Peak) Rate by December 31, 2019.

Residential customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018 and are enrolled on the residential Legacy Rate or Time-of-Day (4-7 p.m. Peak) Rate may

[7] Notes: Based on 2013 Stable Population (all customers without discounts). These ranges represent two standard deviations or about 95% of the population in each group.

remain on either of these rates until December 31, 2022. These "grandfathered" customers can also choose any available open rate through December 31, 2022. If a grandfathered customer on either of these rates elects the Time-of-Day (5-8 p.m. Peak) Rate or the Fixed Rate, they cannot return to the Legacy or the Time-of-Day (4-7 p.m. Peak) Rates. These customers will be transitioned to the standard residential rate effective January 1, 2023.

Staff recommends making the Time-of-Day (5-8 p.m. Peak) Rate the standard rate for customers whose approval for installation of a new eligible renewable electrical generation facility under Rate Schedule 1-NEM occurs on or after January 1, 2018. These customers will not be eligible to enroll on any other SMUD rates.

Customers who have a PEV will continue to receive a $0.015/kWh discount off of the Off-Peak pricing period on the Time-of-Day (5-8 p.m. Peak) Rate between the hours of midnight and 6 a.m. every day. Staff also recommends making the Time-of-Day (5-8 p.m. Peak) Rate available to customers who have a PEV starting as early as January 1, 2018.

Revenue Impact

The proposed standard Time-of-Day (5-8 p.m. Peak) Rate design is revenue neutral.

Bill Impacts

Figure 17 shows average, minimum and maximum monthly bill impacts by consumption range. The diamond represents the average bill impact and the vertical bar represents the range of bill impacts. Overall the proposed Time-of-Day (5-8 p.m. Peak) Rate design is revenue neutral for the residential class and no additional revenue is collected from moving customers to the Time-of-Day (5-8 p.m. Peak) Rate. Bill impacts can be positive or negative depending primarily on the amount of kWh usage in the peak period.

Figure 17 Range of Time-of-Day (5-8 p.m. Peak) Monthly Bill Impacts[8]

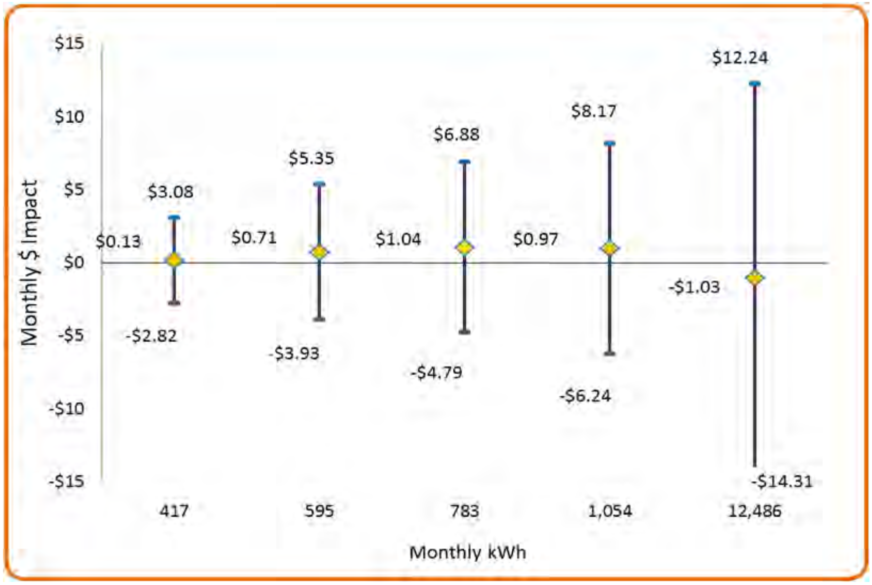


Table 8, below, shows bill impacts increase as the percent of usage on peak increases. If customers don't change their current energy-use patterns, about 6% would save about $8 per month, 38% would save about $1.65 per month on Time-of-Day (5-8 p.m. Peak) Rates, while 49% would pay about $2 more per month. About 8% of customers would pay about $6.80 more per month on the Time-of-Day (5-8 p.m. Peak) Rate.

Table 8 Standard Customers' Bill Impacts

Monthly Bill Impacts Standard Customers on Time of Day (5-8 p.m.) Rate*			
Monthly $ Bill Impact	**% Customers**	**Avg $ Monthly Bill Impact**	**% of Usage in Summer Peak**
< -$5	6%	($8.11)	2.9%
-$5 to $0	38%	($1.65)	4.0%
$ 0 to $5	49%	$2.03	6.6%
> $5	8%	$6.80	8.4%

* Standard Customer means customers that are on the standard residential rate and are not receiving any Energy Assistance Program Rate (EAPR) discount or the Medical Equipment Discount (MED). Bill impacts based on 2013 stable population of 338,132 customer bills at 2019 prices. Numbers may not add up due to rounding.

If customers shift energy use out of the peak period to other hours, bill impacts could be significantly reduced. Figure 18 shows examples of savings by type of appliance.

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[8] Notes: Based on 2013 Stable Population (all customers without discounts). These ranges represent two standard deviations or about 95% of the population in each group.

Figure 18 Potential Savings from Shifting Usage - Time-of-Day (5-8 p.m. Peak) Rate

Summer months (June 1 – September 30)

Typical Usage Appliances & Watt Usage	Peak Usage (1 Hour)	Make A Shift >	Mid-Peak Usage (1 Hour)	Make A Shift >	Off-Peak Usage (1 Hour)
Dryer – 4,000 watts	$1.11	Shift Your Time of Use >	$0.63	Shift Your Time of Use >	$0.46
A/C (3.5 ton) – 3,300 watts	$0.92		$0.52		$0.38
Stove-top – 2,200 watts	$0.61		$0.35		$0.25
Dishwasher – 1,200 watts	$0.33		$0.19		$0.14
Clothes washer – 900 watts	$0.25		$0.14		$0.10
8 x 13 watt CFLs – 104 watts	$0.03		$0.02		$0.01
Ceiling fan – 60 watts	$0.02		$0.01		$0.007
LED TV – 40 watts	$0.01		$0.01		$0.0046

Figure 19 displays a comparison of monthly bills on the Legacy Rate (the standard rate in 2017 adjusted with revenue requirement) and the proposed Time-of-Day (5-8 p.m. Peak) Rate. The average seasonal bills on the Legacy Rate are $89 in non-summer and $123 in summer. The Time-of-Day (5-8 p.m. Peak) Rate average seasonal bills are $81 in non-summer months and $139 in summer months. The summer season is only four months long, June through September. The average monthly bill is the same under both rates.

Figure 19 Legacy Rate vs. Time-of-Day (5-8 p.m. Peak) Rate

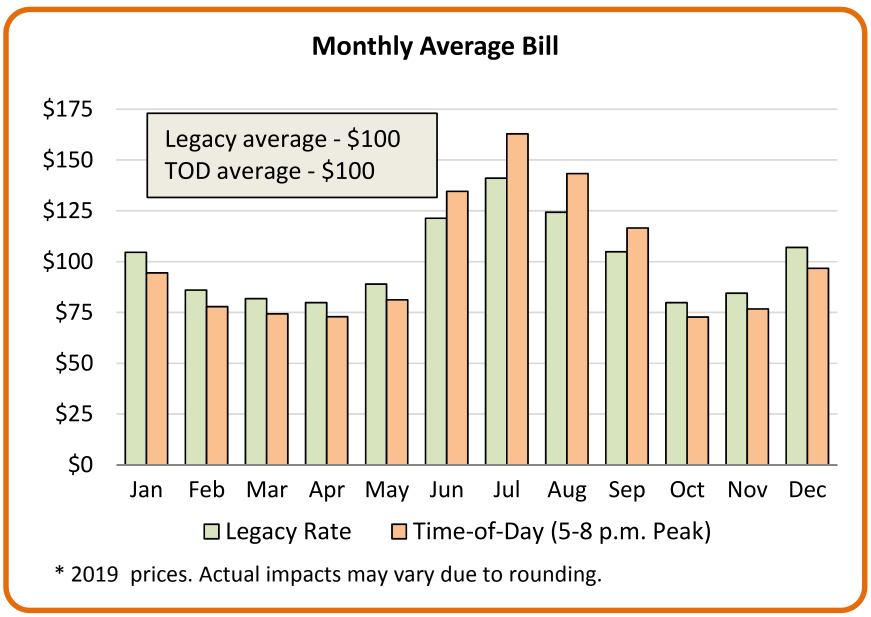


Table 9 and Figure 20 illustrate that customers on the Energy Assistance Program Rate (EAPR) will experience bill impacts similar to those not on EAPR rates.

Table 9 EAPR Customers' Bill Impacts

Monthly Bill Impacts EAPR Customers on Time of Day (5-8 p.m.) Rate*			
Monthly $ Bill Impact	% Customers	Avg $ Monthly Bill Impact	% of Usage in Summer Peak
< -$5	4%	($8.87)	2.8%
-$5 to $0	34%	($1.52)	3.8%
$ 0 to $5	52%	$2.07	6.1%
> $5	10%	$6.66	8.2%

* 2013 stable population of 74,233 customer bills at 2019 prices

Figure 20 is a comparison of the proposed standard Time-of-Day (5-8 p.m. Peak) Rate and the EAPR Time-of-Day (5-8 p.m. Peak) Rate bill impacts. Bill impacts on both rates are about the same.

Figure 20 Comparison of Standard vs. EAPR Monthly Bill Impacts

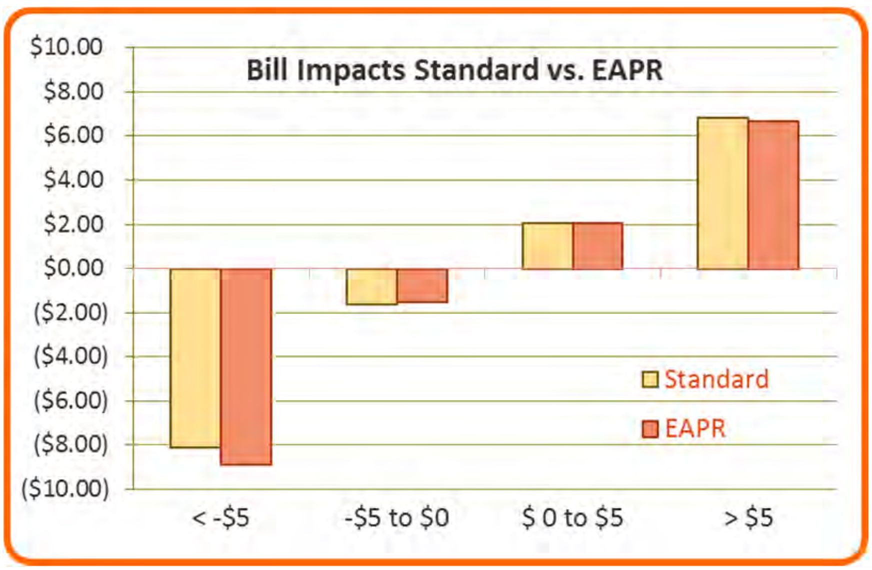


Figure 21 displays a comparison of the proposed alternative Fixed Rate and the Legacy Rate (current rate effective in 2017 adjusted with proposed 1.5% rate increase).

Figure 21 Bill Impact Comparison - Legacy Rate to Fixed Rate

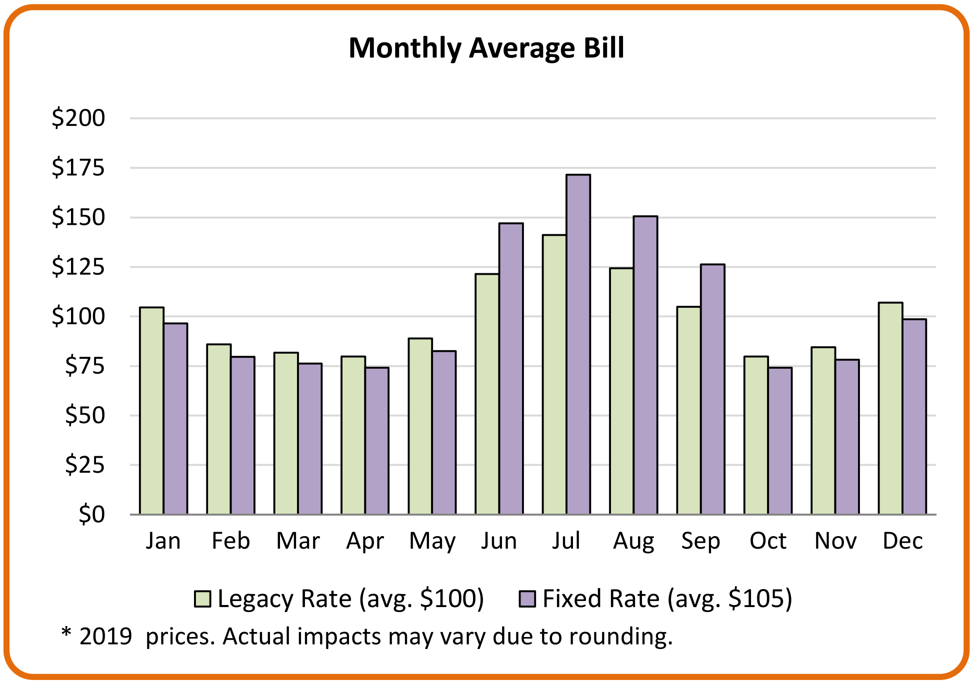


Table 10 shows the impacts to customers on the Medical Equipment Discount rate.

Table 10 Medical Equipment Discount Monthly Bill Impacts

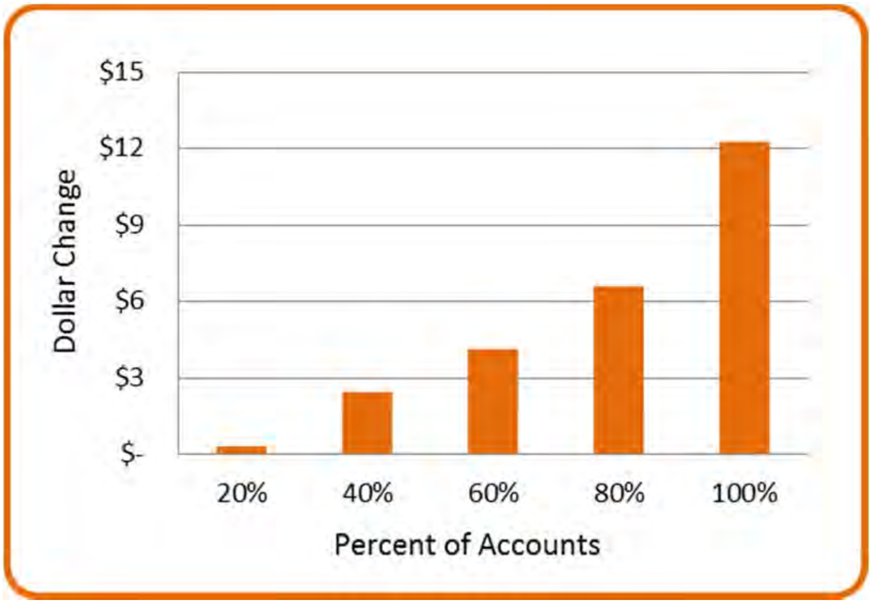
Monthly Bill Impacts MED Customers on Time-Of-Day (5-8 p.m.) Rate*			
Monthly $ Bill Impact	% Customers	Avg $ Monthly Bill Impact	% of Usage in Summer Peak
< -$5	7%	($7.91)	3.0%
-$5 to $0	34%	($1.87)	4.1%
$ 0 to $5	50%	$2.12	6.0%
> $5	9%	$6.85	8.0%

* 2013 stable population of 6,971 customer bills at 2019 prices. There are approx. 9,344 accounts enrolled in the MED program. Includes customers who are MED and EAPR.

Analog and digital non-communicating meters do not record time-of-day data. Customers without digital communicating meters will be placed on the new Fixed Rate. The bill impacts to these customers are shown in Figure 22.

As shown in the chart below, about 60% of this group of customers will experience an average monthly bill impact of $4.17 or less. Another 20% of customer would see an average monthly bill impact of $6.37, and the remaining 20% – those who use the largest amounts of energy – would see an average monthly bill impact of $12.01.

Figure 22 Digital Non-Communicating Meter (Legacy Rate vs. Fixed Rate)*



* 2015 billing data. The population of Non-AMI meter customers is 493. 2018 Prices used.

Current Plug-in Electric Vehicle (PEV) Pilot Rates

The current Residential PEV Pilot Program pricing plan under rate categories RPEV_1 and RPEV_2 will end at the end of 2017. There are approximately 500 customers enrolled in this pilot pricing plan. Under the proposed rate transition, customers on this pricing pilot will transition, as determined by SMUD, to the TOD (5-8 p.m. Peak) Rate beginning the first full bill cycle in 2018. Bill impacts for this group of customers will depend on whether the customer chooses to stay on the TOD (5-8 p.m. Peak) Rate, enrolls in the standard Legacy Rate or elects the alternate Fixed Rate. Generally, if these customers remain on the TOD (5-8 p.m. Peak) Rate they would see an annual bill reduction of about 3% as compared to the Legacy Rate.

Recommendations

Approve the proposed residential rate design and rates discussed in this report and included in the residential rate schedules in Volume 2 of this report.

New Rate Seasons and TOD Time Periods

Time-of-Day (5-8 p.m. Peak) Rate ($/kWh)

Season	Period	2018-2019	Date Types and Hours
Summer (Jun 1 -Sep 30)	Peak	$0.2835	Weekdays between 5 p.m. and 8 p.m.
	Mid-Peak	$0.1611	Weekdays between noon and midnight except during the Peak hours
	Off-Peak	$0.1166	All other hours, including weekends and the holidays
Non-Summer (Oct 1 – May 31)	Peak	$0.1338	Weekdays between 5 p.m. and 8 p.m.
	Off-Peak	$0.0969	All other hours, including weekends and the holidays

Time-of-Day (4-7 p.m. Peak) Rate ($/kWh)

Season	Period	2018-2019	Date Types and Hours
Summer (Jun 1 -Sep 30)	Summer Super Peak	$0.3704	Weekdays between 4 p.m. and 7 p.m.
Year-round (Jan 1 - Dec 31)	Peak	$0.1481	Weekdays between 9 a.m. and 9 p.m. except during Summer Super Peak hours
	Off-Peak	$0.0853	All other hours, including weekends and the holidays

Fixed Rate ($/kWh)

Season	2018-2019	Notes
Summer (Jun 1 -Sep 30)	$0.1649	All kWh usage
Non-Summer (Oct 1 -May 31)	$0.1032	All kWh usage

Legacy Rate ($/kWh)

Season	2018-2019	Notes
Summer (Jun 1 -Sep 30)	$0.1310	All kWh usage
Winter (Oct 1 -May 31)	$0.1145	All kWh usage

A full list of holidays can be found in the glossary of this report.

Staff recommends gradually moving customers to the standard Time-of-Day (5-8 p.m. Peak) Rate beginning September 1, 2018, with most customers moved by April 2019 and all customers moved no later than December 2019.

Adopting the following names for the time periods of the standard Time-of-Day (5-8 p.m. Peak) Rate:

- Summer - June 1 through September 30:
  - Peak (Weekdays between 5 p.m. and 8 p.m.);
  - Mid-Peak (Weekdays between noon and midnight, except during the Peak hours);
  - Off-Peak (all other hours, including weekends and the holidays).
- Non-Summer - October 1 through May 31:
  - Peak (Weekdays between 5 p.m. and 8 p.m.);
  - Off-Peak (all other hours, including weekends and the holidays).

Renaming the current Optional Time-of-Use Rate to Time-of-Day (4-7 p.m. Peak) Rate.

The Time-of-Day transition to the proposed rate changes should be rolled out as follows:

Time-of-Day (4-7 p.m. Peak) Rate

- Effective July 1, 2017, the Time-of-Day (TOD) (4-7 p.m. Peak) Rate is closed to customers who do not have a plug-in electric vehicle (PEV) or have an eligible renewable electrical generation facility under Rate Schedule 1-NEM.
- Effective July 1, 2017, the TOD (4-7 p.m. Peak) Rate is the standard rate for customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018.
- Customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018 can elect the Legacy Rate under Rate Schedule R as an alternative rate and may remain on the Legacy Rate until December 31, 2022.
- Customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018, and are enrolled on the TOD (4-7 p.m. Peak) Rate may remain on this closed rate until December 31, 2022.
- Effective January 1, 2018, the TOD (4-7 p.m. Peak) Rate is closed for enrollment to residential customers who do not have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018.
- Customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018, and are enrolled on the TOD (4-7 p.m. Peak) Rate may remain on this closed rate until December 31, 2022.

- The TOD (4-7 p.m. Peak) Rate will terminate for customers with an eligible renewable electrical generation facility under Rate Schedule 1-NEM on their first full billing cycle that closes in 2023, and customers will then transition to SMUD's residential standard rate.
- If a customer who has an eligible renewable electrical generation facility under Rate Schedule 1-NEM on this rate category elects an open rate, the customer cannot return to the TOD (4-7 p.m. Peak) Rate.
- Existing customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018 may enroll in the TOD (5-8 p.m. Peak) Rate at any time; however, once enrolled in the TOD (5-8 p.m. Peak) Rate, the customer cannot return to the TOD (4-7 p.m. Peak) Rate.
- Existing customers on the TOD (4-7 p.m. Peak) rate who do not have an eligible renewable electrical generation facility under Rate Schedule 1-NEM will transition as determined by SMUD to the TOD (5-8 p.m. Peak) Rate no later than December 31, 2019 and will no longer be eligible for the TOD (4-7 p.m. Peak) Rate.
- Update the current energy charges by time period for 2018 to reflect marginal cost updates.

Standard Time-of-Day (5-8 p.m. Peak) Rate

- Effective January 1, 2018, the Time-of-Day (TOD) (5-8 p.m. Peak) Rate is the standard rate for customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD after December 31, 2017.
- Customers who move-in or transfer service to premises with an eligible renewable electrical generation facility after December 31, 2017 must be on the TOD (5-8 p.m. Peak) Rate.
- Effective January 1, 2018, the TOD (5-8 p.m. Peak) Rate is available to any new or existing residential customer with an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018. However, once enrolled in the TOD (5-8 p.m. Peak) Rate, the customer cannot return to the TOD (4-7 p.m. Peak) or Legacy Rate.
- Effective January 1, 2018, the TOD (5-8 p.m. Peak) Rate is available to any new or existing residential customer who has a plug-in electric vehicle (PEV).
- Effective January 1, 2018, the TOD (5-8 p.m. Peak) Rate replaces the Residential Plug-in Electric Vehicle Pilot Program pricing plans RPEV_1 and RPEV_2. Existing customers on pricing plans RPEV_1 and RPEV_2 will transition as determined by SMUD to TOD (5-8 p.m. Peak) Rate beginning the first full bill cycle in January 2018. Separate electric vehicle charging meters will be removed and all residential usage will be recorded on the residence billing meter.
- The former RPEV_1 and RPEV_2 customers may elect not to be transitioned to the TOD (5-8 p.m. Peak) Rate, and be placed on the open standard Legacy Rate under Rate Schedule R. Once the Legacy Rate is closed for enrollment, the former

RPEV_1 and RPEV_2 customers may elect the Fixed Rate under Rate Schedule R as an alternative.

- As early as September 1, 2018, the TOD (5-8 p.m. Peak) Rate will replace the Residential SmartPricing Options Pilot Rate under Rate Schedule R-SPO for rate categories RSCH_SP, RSEH_SP, RSGH_SP, RWCH_SP, RWEH_SP, and RWGH_SP. Existing customers on these rate categories will begin to transition as determined by SMUD to the TOD (5-8 p.m. Peak) Rate beginning the first full billing cycle in September 2018, and complete the transition no later than January 31, 2019.
- As early as September 1, 2018, existing eligible customers in the Legacy Rate, with rate categories RSCH, RWCH, RSEH, RWEH, RSGH and RWGH under Rate Schedule R, will gradually transition as determined by SMUD to the TOD (5-8 p.m. Peak) Rate beginning the first full billing cycle in September 2018, and complete the transition no later than December 31, 2019.
- After being transitioned to the TOD (5-8 p.m. Peak) Rate, eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.
- Effective October 1, 2018, the TOD (5-8 p.m. Peak) Rate is the standard rate for all new SMUD customers opening a new account via a move-in or transfer of service to a new premises. New move-in and transfer customers may elect the Fixed Rate under Rate Schedule R as an alternative, if eligible.
- Effective January 1, 2019, the TOD (5-8 p.m. Peak) Rate is the standard rate for SMUD's residential customers. Customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD after December 31, 2017 must be on the TOD (5-8 p.m. Peak) Rate.
- Effective January 1, 2019, existing eligible customers on the Legacy Rate, with rate categories RSCH, RWCH, RSEH, RWEH, RSGH and RWGH under Rate Schedule R, will gradually transition as determined by SMUD to the TOD (5-8 p.m. Peak) Rate beginning the first full billing cycle in January 2019, and complete transition no later than December 31, 2019.
- Residential Master Metered (RSMM) and non-digital communicating meters are not eligible for this rate.

New Fixed Rate

- Effective September 1, 2018, the Fixed Rate is available as the alternative rate to the TOD (5-8 p.m. Peak) Rate (rate category RT02) under Rate Schedule R-TOD.
- The Fixed Rate is required for customers serviced with analog meters and digital non-communicating meters. These customers will transition to the Fixed Rate as determined by SMUD no later than December 31, 2019.
- Customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD after December 31, 2017 are not eligible to enroll in the Fixed Rate.
- Customers who have master meters, including those enrolled on the RSMM rate category, are not eligible to enroll in the Fixed Rate.

Legacy Rate

- The Legacy Rate is the standard rate for SMUD's residential customers, in effect on January 1, 2017, except customers who have an eligible renewable electrical generation facility on the premises. Customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018, and are enrolled on the Legacy Rate or the Time-of-Day (4-7 p.m. Peak) Rate under Rate Schedule R-TOD on or before December 31, 2017 may remain on these rates until December 31, 2022.
- Effective October 1, 2018, the Legacy Rate is closed for enrollment to all residential customers who do not have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018.
- The Legacy rate will no longer be an available rate option to residential customers once a customer has been transitioned to the TOD (5-8 p.m. Peak) Rate. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.
- Customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018, and are enrolled on the Legacy rate may remain on this closed rate until December 31, 2022. If an eligible generation facility customer in this rate category elects an open rate, the customer cannot return to the Legacy Rate.
- Customers in the Legacy Rate who do not have an eligible renewable electrical generation facility under Rate Schedule 1-NEM, will gradually transition as determined by SMUD to the TOD (5-8 p.m. Peak) Rate (rate category RT02) under Rate Schedule R-TOD, if eligible, as early as September 1, 2018, and no later than December 31, 2019.
- All other existing customers not eligible for Rate Schedule R-TOD will transition to the alternative Fixed Rate under this Rate Schedule R as determined by SMUD no later than December 31, 2019.
- Customers with wells will begin transitioning to Rate Schedule R-TOD in January 2019.

Master Meter Mobile Parks Rate

- Effective January 1, 2019 master-metered customers on the Legacy Rate (rate categories RSCH, RWCH, RSEH, RWEH, RSGH and RWGH) will be transitioned to the new rate category RSMM no later than December 31, 2019.

All the recommended prices and changes are specified in the rate schedule R-TOD and rate schedule R included in Volume 2 of this report. A summary of the TOD rate transition can be found in Appendix II to this report.

Energy Assistance Program Rate (EAPR)

SMUD's EAPR program helps keep electric services affordable for low-income customers by providing discounts on monthly bills. The current discount formula and caps will remain in place in 2018. Beyond that, staff recommends changes to the discount structure, which would be phased in over three years, starting in January 2019.

While the program has provided substantial benefits to low-income customers for years, Staff has re-examined the discount with the goal of better helping the customers most in need of assistance.

Staff proposals aim to further reduce electricity bills for low-income customers through a combination of rate design, energy efficiency investments, pilot programs and education.

Purpose

The proposed changes in the EAPR rate starting in 2019 would increase assistance to customers with household incomes below the 100% federal poverty level (FPL) while continuing to provide some assistance to EAPR customers whose income falls in the 100% to 200% FPL range.

Historically, eligibility for EAPR has been based on income but the dollar value of the total monthly discount has been based on the volume of energy usage. Under the changes staff proposes in this report, the monthly discount on energy charges would be based on household income instead of the volume of energy usage. All EAPR customers will continue to receive a discount on the monthly System Infrastructure Fixed Charge (SIFC).

The proposed changes to the EAPR discount would better target limited resources to the lowest-income customers. In addition, by 2021, these changes are projected to free up nearly $10 million that is currently being paid in discounts, providing more resources to fund additional energy efficiency, as needed, to achieve SMUD goals of making energy more affordable to low-income customers.

The SMUD Board has also approved investing an additional $10 million between 2017 and the end of 2020 on energy efficiency measures for EAPR customers during the transition to the new discount structure.

Background

According to the American Council for an Energy-Efficient Economy (ACEEE):

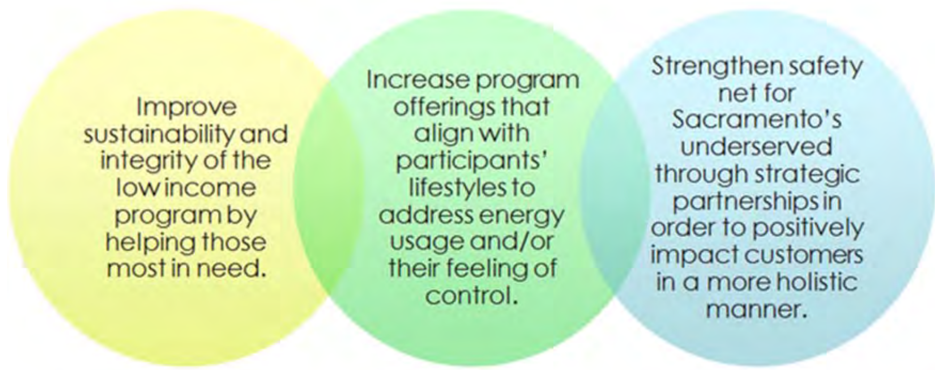
- Low-income households pay more for energy per square foot than the average household. This is due in part to greater inefficiencies within the home.
- Families who have high energy bills relative to their income experience long-term negative effects on health and well-being.
- Addressing energy affordability can help break the cycle of poverty and improve economic development, educational achievement and public health in disadvantaged communities.

Although SMUD spends over $40 million annually on low-income discount program, EAPR customers compared to average SMUD households:

- Are more apt to fall behind on paying their electric bill.
- Are 6.5 times more likely to be disconnected.
- May require additional funds through SMUD's EnergyHELP program.

New Direction

The changes staff propose for the EAPR program are guided by the following overarching strategic objectives:



In pursuing these objectives, staff considered the factors below.

Basing the EAPR discount on income level instead of electricity usage will continue to meet the needs of people with fixed low incomes and severe medical conditions, as established in the Board's Strategic Direction on competitive rates (SD-2).

The proposed discount will be based on the customer's income as a percentage of the federal poverty level (FPL). More of the discount would be directed to customers with the lowest household income, particularly those whose income is less than 50% of FPL, in an effort to improve the affordability of electric bills.

SMUD recognizes that the affordability of electric bills can also be challenging for customers who have income in the 100% to 200% of FPL range and will therefore continue to offer some discount and make efforts to help them reduce their energy use and bills through increased funding for energy efficiency, education and other measures.

Issues with current structure

An analysis of the current EAPR program shows that the distribution of funds is disproportionately skewed toward the highest energy users versus helping those most in need of assistance.

Under SMUD's current rate structure, approximately 10,000 EAPR customers, or 10% of program participants, have electric bills that are higher than the accepted industry standard for affordability in relation to household income. These 10,000 participants are at risk for negative long-term effects on their health and well-being, including physical discomfort, inadequate lighting and unsafe housing conditions. This highlights the need to restructure the discount to better help those most in need. [9]

Proposed Discount and Addressing Bill Impacts

This rate proposal is designed to provide a higher discount to the low-income customers who need it most. Under the current rate structure, many of those with the lowest incomes (0-50% of FPL) continue to have unaffordable electric bills, despite receiving a monthly discount. Comparatively, program participants with higher income levels (100-200% FPL) have electric bills that are more affordable.

By providing households in the 0-50% FPL with a monthly discount of up to $70 in 2021, SMUD can make bills more affordable for the customers who most need assistance. More than 40% of EAPR participants – all of those below the federal poverty level – are projected to receive an increase in discount. The remaining customers will have a reduced monthly discount level, but, on average, their electric bills will continue to be affordable relative to their income.

Table 11 shows the bill impacts expected over the three-year transition by year and FPL as a result of the EAPR redesign.

[9] ACEEE. (2016). Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities. Washington, DC: Drehobl, A., & Ross, L.

Table 11 Bill Impacts by FPL

Baseline	2019	2020	2021
Net Impact of EAPR Restructure: $0M	**Net Impact of EAPR Restructure:** ($3.8M)	**Net Impact of EAPR Restructure:** ($6.8M)	**Net Impact of EAPR Restructure:** ($9.9M)
Maximum Discount: $42	**Maximum Discount:** 0-50% FPL: $50 50-100% FPL: $40 100-150% FPL: $30 150-200% FPL: $30	**Maximum Discount:** 0-50% FPL: $60 50-100% FPL: $41 100-150% FPL: $25 150-200% FPL: $20	**Maximum Discount:** 0-50% FPL: $70 50-100% FPL: $42 100-150% FPL: $20 150-200% FPL: $10
Avg. Monthly Bill Impact: 0-50: $ - 50-100: $ - 100-150 $ - 150-200: $ -	**Avg. Monthly Bill Impact:** 0-50: -$11.76 50-100: -$4.14 100-150 $4.97 150-200: $5.63	**Avg. Monthly Bill Impact:** 0-50: -$7.46 50-100: -$0.81 100-150 $4.81 150-200: $9.87	**Avg. Monthly Bill Impact:** 0-50: -$6.47 50-100: -$0.80 100-150 $4.95 150-200: $10.10

* Maximum EAPR discount includes $10 SIFC discount.

Adjusting the EAPR structure so that it is based on income will allow SMUD to improve electric bill affordability. This represents a substantial improvement for households in the 0-50% FPL range, whose electric bills on average consume more than 13% of the household income. The percentage of income these customers spend on electric bills is more than three times higher than that of all other EAPR customers. With the proposed changes, electric bills for customers in the 0-50% FPL group as a whole are projected to lower to an average 8.5 percent of income. While SMUD will not be able to reduce electric bills to affordable levels for every single customer living below poverty level, the proposed restructuring of the bill discount is a step in that direction.

Some customers may continue to have unaffordable electric bills, even with SMUD's changes to the EAPR discount. As discussed earlier, SMUD will be ramping up the amount of funding available for EAPR energy efficiency, energy education, and other measures. Offerings will be designed according to income levels, usage levels and patterns, as well as dwelling type (multi-family, single family homes). They will be further customized through an in-person energy audit to ensure energy efficiency offerings provide the maximum benefit. A high-level overview of sample energy efficiency packages is provided in Table 12, below.

Table 12 Overview of Energy Efficiency Offerings

Energy Efficiency Package Options	Sample Offerings
Rooftop solar (depending on qualifying criteria)	• Installed solar • SMUD weatherization
Deep home weatherization	• HVAC repair or replacement • Windows • Refrigerator replacement • Programmable thermostats
House bundle or apartment bundle	• LEDs • Smart power strips • In-home education and energy audit
Education	• Workshops regarding energy usage, financial management, etc. • Online education

Revenue Impact

By following the criteria set forth, the total discount provided to EAPR customers is reduced by approximately $10 million when the changes are fully phased in. SMUD can then focus those funds to provide energy efficiency solutions to the EAPR customers most in need of assistance, reducing their future electric bills.

Recommendation

Staff recommends that SMUD's Board adopt the following Energy Assistance Program Rate:

EAPR customers will be grouped into four income categories: 0-50% FPL; 50%-100% FPL; 100%-150% FPL and 150%-200% FPL.

Each EAPR income category will receive a $10 reduction to the SIFC from 2019 through 2021.

The following energy discounts would also be available.

Figure 23 EAPR Discount*

Federal Poverty Level	2019 Maximum Energy Discount	2020 Maximum Energy Discount	2021 Maximum Energy Discount
0-50%	$40	$50	$60
>50 to100%	$30	$31	$32
>100 to150%	$20	$15	$10
>150 to 200%	$20	$10	$0

*Proposed monthly maximum EAPR energy discount by year. All EAPR customers also receive a $10 discount on the monthly System Infrastructure Fixed Charge (SIFC).

The energy discount is applied as a 100% reduction in the cost per kilowatt hour up to the maximum discount by income category shown in Figure 23.

Revisions described above are detailed in the EAPR rate schedule included in Volume 2 of this report.

Beginning as early as September 2018, a limited group of EAPR customers will be transitioned to the 2019 EAPR Program Rate as part of a soft launch of the changes. Overall, the goal is to have most EAPR customers transitioned to the 2019 EAPR Program as early as the first bill cycle in 2019 and continuing through the end of the year.

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Changes to Commercial Rates

Rate Increase for Agricultural and Commercial Rates

The proposed 1% rate increase in 2018 and 1% in 2019 would be applied equally to all rate components of SMUD's commercial and agricultural rates. These rate components include the following:

- Energy charges;
- System Infrastructure Fixed Charge (SIFC) per month per meter;
- Summer Super Peak Demand Charge;
- Site Infrastructure Charge;
- Generator Standby Charges;
- Power Factor and Other Miscellaneous Charges.

Bill Impacts

On average, SMUD's commercial and agricultural customers will see an increase on their annual bill of 1% in 2018 and 1% in 2019.

Revenue Impact

With the proposed rate increase SMUD expects to collect added revenue of approximately $6.8 million in 2018 and a total of $13.7 million in 2019 from all commercial classes including agriculture.

Recommendation

Staff Recommends adoption of the 1% rate increase for agriculture and commercial rates. Revisions described above are detailed in the AG, GS, GS-TOU1, GS-TOU2, GS-TOU3, and GS-TDP rate schedules included in Volume 2 of this report.

Changes to Agricultural and Commercial Rates

Purpose

The Agricultural Service Rate states that accounts on a demand rate are subject to a power factor adjustment charge. In some cases, however, SMUD is not able to retrieve the data that is necessary to calculate this charge. Accordingly, staff recommends a minor language change to address situations where it cannot assess the power factor adjustment charge to some customers.

Staff also recommends minor language changes of Section II, Subsections C. and D. and Section IV, Subsection A.1 in the Rate Schedule AG to clarify definitions and improve consistency. Section IV, Subsection A in the Rate Schedule AG also needs to be amended to be consistent with the commercial tariff sheets.

The table describing basis for proration in the Agricultural and all Commercial Rate Schedules require a minor language change to reflect the current process and be consistent among all tariff sheets.

Recommendation

Effective July 1, 2017, change the language in Section V. subsection C.1. to read that SMUD *may* charge a power factor adjustment. The specific language is:

C. Power Factor Adjustment

1. Adjustment (charge varies by month)

Accounts on a demand rate ~~are~~ may be subject to a power factor (PF) adjustment charge. When a customer's monthly power factor falls below 95% leading or lagging, the following billing adjustment will apply:

Effective July 1, 2017, amend the language of Section II, Subsections C. and D. and Section IV, Subsection A.1 in the Rate Schedule AG as follows:

C. Small Agricultural Optional Time-of-Use – AON

This optional rate is for small agricultural ~~nondemand~~ accounts~~.~~ ***having a monthly maximum demand of 30 kW or less.*** *~~Transfers~~* ***Customers transferring*** *to the small agricultural Time-of-Use Rate must remain ~~in effect~~* ***on the rate*** *for ~~at least~~* ***minimum of*** *four months. Customers electing to move off this optional rate cannot return to service under this schedule for 12 months.*

D. Large Agricultural Optional Time-of-Use – AOD

This optional rate is for large agricultural accounts with demand greater than 30 kW and less than 499 kW. Transfers to the agricultural Time-of-Use Rate must remain ~~in effect~~ ***on the rate*** *for ~~at least~~* ***minimum of*** *four months. Customers electing to move off this optional rate cannot return to service under this schedule for 12 months.*

Amend Section IV, Subsection A in the Rate Schedule AG effective July 1, 2017, and make the same language change in all commercial rate schedules effective January 1, 2018 so the first requirement under section "Generator Standby Service Option" is consistent in all tariff sheets and reads as follows.

IV. Rate Option Menu

A. Generator Standby Service Option

Generator Standby Service applies when all of the following conditions are met:

1 The customer has ~~electric~~ ***generation****~~or(s)~~, sited on the customer premises, that serves all or part of the customer's load;* ***and***

2. The generator(s) are not fueled by a renewable resource; and

*~~2.~~***3.***The generator(s) are connected to SMUD's electrical system; and*

*~~3.~~***4.*** SMUD is required to have resources available to provide supplemental service, backup electricity and/or to supply electricity during generator(s) maintenance service.*

Amend the language in the table describing basis for proration in the 2017 Agricultural Rate Schedules to read as follows:

Billing Circumstance	*Basis for Proration*
Bill period is shorter than 27 days	*Relationship between the length of the billing period and 30 days*
Bill period is longer than 34 days	
*Seasons overlap **and price changes** within bill period*	*Relationship between the length of the billing period and the number of days that fall within the respective season **or pricing periods.***

Amend the language in the table describing basis for proration in the 2018 and 2019 Agricultural, Night Lighting, and all Commercial Rate Schedules to read as follows:

Billing Circumstance	*Basis for Proration*
Bill period is shorter than 27 days	*Relationship between the length of the billing period and 30 days*
Bill period is longer than 34 days	
*~~Seasons overlap~~ **Price changes** within bill period*	*Relationship between the length of the billing period and the number of days that fall within the respective **pricing periods.***

Revisions described above are detailed in the Agricultural and Commercial rate schedules included in Volume 2 of this report.

Remove General Service Legacy Rate from Rates Book

Overview

The General Service Legacy rate existed before the adoption of Time-of-Use rates in 2012. The rate was closed to new customers effective January 1, 2012. As of June 2016 there were no longer any customers on the General Service Legacy rates.

Revenue Impact

None.

Bill Impacts

None.

Recommendation

Remove the GS-LEG rate sheets from the rates book.

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Changes to Street, Traffic, and Lighting Rates

Rate Increase for Street/Traffic/Lighting Rates

The proposed 1% rate increases each year in 2018 and 2019 would be applied to the SIFC, the Electricity and Switching Charge and the Electricity Usage Charge, and Monthly Charges of the Lighting Schedules. The rate increases would not apply to monthly leasing and maintenance charges for street lighting lamps and fixtures. SMUD reviews the street lighting fees annually and posts them separately on its website, www.smud.org.

Bill Impacts

On average, SMUD's street lighting, traffic lighting and night lighting customers will see an increase on their annual bill of 1% in 2018 and 1% in 2019.

Revenue Impact

With the proposed rate increase SMUD expects to collect added revenue of approximately $53,000 in 2018 and a total of $112,000 in 2019 from all lighting classes. This increase does not apply to lighting fees.

Recommendation

Staff recommends adoption of the 1% rate increase each year in 2018 and 2019 for Street/Traffic/Lighting Rates. Revisions described above are detailed in the NLGT, SLS and TSS rate schedules included in Volume 2 of this report.

Metered Street Lighting Service

Purpose

As the Rates, Rules and Regulations are currently written for Street Lighting Service, there is a five-lamp threshold for a meter requirement. This threshold has raised questions about whether lamps should be metered. Based on a substantial amount of experience with new street light requests staff has determined that the eligibility criteria for the SL_COM_M and SL_DOM_M rate categories should not include this threshold. This will provide SMUD flexibility to decide when installing a meter is reasonable.

Advances in outdoor lighting technology allow greater efficiency and functionality, such as variable light levels. A meter is needed to accurately capture the fluctuating electricity usage of these new technologies, like that of LED fixtures. Also, smart meter technology allows for remote monitoring and reporting of outages and system performance. By introducing the customer-owned and maintained meter rate, staff has been able to capture actual usage and measure energy savings. Staff also has a record of the environmental advantages customers have received by retrofitting their lamps with LED lights. With a better understanding of the benefits of metering the customer-owned and maintained lighting, SMUD's new standard has now become metered street lights.

Revenue Impact

This modification will not significantly impact revenue

Recommendation

Effective January 1, 2018, staff recommends the following changes to rate schedule SLS:

1. Amend the first paragraph of section III. in Rate Schedule SLS, Rate Category SL_COM_M to read:

Eligible street lighting customers requesting new installations of lamps or additions of new lamps to existing accounts ***will*** *default to the metered SL_COM_M rate. Eligible street lighting customers will be served under the default rate* ***or as determined by SMUD.*** ~~*when 1) five or more lamps are connected individually or in series to a single lighting circuit or SMUD point of service, or 2) or as determined necessary by SMUD at its sole discretion.*~~

2. Amend the second paragraph of section V. in Rate Schedule SLS, Rate Categories SL_DOM and SL_DOM_M to read:

Eligible street lighting customers requesting new installations of lamps or addition of new lamps to existing accounts ***will*** *default to the metered SL_DOM_M rate* ***unless otherwise determined by SMUD*** *.* ~~*Eligible street lighting customers will be served under the default rate when 1) five or more lamps are connected individually or in series to a single lighting circuit or SMUD point of service, or 2) or as otherwise determined by SMUD. on its sole discretion.*~~ *Street lighting customers who are* ***determined by SMUD*** *not eligible for the default SL_DOM_M metered rate will be served under the SL_DOM rate.*

Miscellaneous Rates Changes

Net Energy Metering (NEM) Changes

Purpose

PV Monthly Treatment Program

Currently NEM customers are billed based on a 12-month settlement structure that carries over electricity usage month to month for the year. This often causes questions for customers at their annual settlement date, especially when faced with a significant amount owed to SMUD. To remedy this, the PV Monthly Treatment Program will give NEM customers an option to pay monthly instead of waiting for the 12-month settlement bill.

Under this program we are also changing how the ending cumulative credit balance applies at the end of a customer's 12-month settlement period. The treatment plan will no longer "zero out" the ending annual cumulative credit balance for net-consumers. This change will apply to the residential, small commercial and agricultural NEM billing rates regardless of whether these customers were on the monthly or annual billing plan. If a customer is a net generator, then normal net metering rules will apply.

Future Successor Rate

SMUD's current NEM program is based on the statutory requirements of Public Utilities Code Section 2827. SMUD is required to offer the current NEM program until the total rated NEM generation capacity reaches 5% of SMUD's aggregate customer peak demand (based on net system coincident peak). SMUD expects to reach this 5% cap in summer of 2017. Staff proposes to continue the current NEM program through the end of 2017. Effective January 1, 2018, staff proposes to require residential customers that receive SMUD approval of an interconnection beginning January 1, 2018 to take service under the proposed Time-of-Day (TOD) (5-8 p.m. Peak) Rate. All other NEM rate components will remain the same. For commercial/industrial and agricultural customers, the proposal is no change to the NEM program because these customers are already on time of day pricing.

Residential or commercial customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation on or after January1, 2018 will be subject to any future NEM rates that the Board approves, and will only be allowed to choose rates that are "open" at the time of interconnection.

Bill Impacts

None.

Revenue Impact

PV Monthly Treatment Program - Small decrease in SMUD revenue (estimated $5,000 annually).

Future Rate Requirements – None.

Recommendation

Staff recommends replacing the word “will” with “may” in Section VI. of Rate Schedule NEM to clarify that during the settlement processing for annual net consumers’ ending cumulative credit balance may be carried forward to the next settlement period as a result in a change from the PV Monthly Treatment Program. Specifically, staff recommends Section VI. Settlement Method be amended as follows:

> *All customers who qualify for the net metering option will have a 12-month settlement period. For existing systems the settlement period begins on the customer’s move-in date. For new installations, the settlement period begins on the first day of operations after the customer has requested to be on the NEM rate and the NEM-eligible system is approved by SMUD for grid connection. At the end of the customer’s 12-month settlement period, any unused accumulated monthly retail electricity credits ~~will~~* may *be zeroed out.*

Staff also recommends adding the following language to the existing NEM rate schedule to address a successor NEM program rate:

Residential customers who have an eligible renewable electrical generation facility on their premises that was approved by SMUD for installation on or after January 1, 2018 will be placed on the applicable standard R-TOD (Time-of-Day) Rate. All other components above of this NEM Rate Schedule apply to the successor NEM program rate.

All NEM residential, commercial/industrial, and agricultural customers who have an eligible renewable electrical generation facility on their premises that was approved by SMUD for installation on or after January 1, 2018 will be subject to any future NEM rates approved by SMUD Board of Directors.

Revisions described above are detailed in the NEM rate schedule included in Volume 2 of this report.

EAPR and MED Rate Code Suffixes

Purpose

Due to the need to update rate code nomenclature during the residential TOD and EAPR rate transitions, staff proposes removing the references to the EAPR and MED rate code suffixes from the rates book.

Revenue Impact

None.

Bill Impact

None.

Recommendations

Effective July 1, 2017, in the Residential Service rate schedule and Residential Time-of-Day rate schedule under section IV Rate Option Menu remove references to rate suffixes "_E", "_L" and "_EL".

Revisions described above are in included in Volume 2 of this report.

Nonprofit Organization Energy Assistance Program Rate

Purpose

Currently, all eligible nonprofit small commercial customers taking service under the rate category GSN_T receive a rate discount as specified in the EAPR rate schedule. The current standard rate charges include a monthly System Infrastructure Fixed Charge (SIFC) of $20 for this rate category. The current EAPR rate schedule shows a discounted SIFC of $13.10 which is $6.90 or 35% off the SIFC charge. All other eligible nonprofit commercial customers receive 35% off the SIFC charge. Displaying the actual monthly discount of 35% would convey a more direct message to customers and be consistent with other eligible nonprofit commercial rate categories.

Revenue Impact

None.

Bill Impact

None.

Recommendations

Effective January 1, 2018, amend the language in Section V. subsection B in the Rate Schedule EAPR to display a discount of 35% off the monthly SIFC instead of the reduced SIFC charge of $13.10 for a clearer explanation to customers and be in line with other rate descriptions. The specific proposed language reads:

> ***B. The GSN_T System Infrastructure Fixed Charge will receive a discount of 35% each billing period.***

Revisions described above are in included in Volume 2 of this report.

Residential Master-Metered Multifamily and Mobile Home Park Billing

Purpose

Customers who live in master-metered multifamily and mobile home parks do not have individual meters. As a result, these customers cannot choose to be on a time-based rate. To address this, staff recommends transitioning master-metered customers to a new proposed rate between January 2019 and the end of 2019.

Revenue Impact

None.

Bill Impact

None.

Recommendations

Effective January 1, 2019, add a new Residential Master-Metered Multifamily and Mobile Home Park fixed rate. Revised language is included in Volume 2 of this report.

Residential Master-Metered Multifamily and Mobile Home Park (RSMM) ($/kWh)

Season	2018-2019	Notes
Summer (Jun 1 -Sep 30)	$0.1310	All kWh usage
Non-Summer (Oct 1 -May 31)	$0.1145	All kWh usage

Residential SmartPricing Options (SPO) Pilot

Purpose

Rate transition to the standard TOD (5-8 p.m. Peak) Rate will begin in September 2018. In addition, the 1.5% rate increase has been added to the existing pilot rate to reflect revenue requirement. For customers on the SPO pilots that include Critical Peak Pricing (CPP), there will be no conservation days in 2018. Staff has adjusted the proposed rates to reflect that change.

Revenue Impact

None.

Bill Impact

Figures 24 – 26 below show the bill impacts for the three different pricing plans.

Figure 24 Off-Peak Discount Plan Bill Impacts

Figure 25 Optimum Off-Peak Plan Bill Impacts

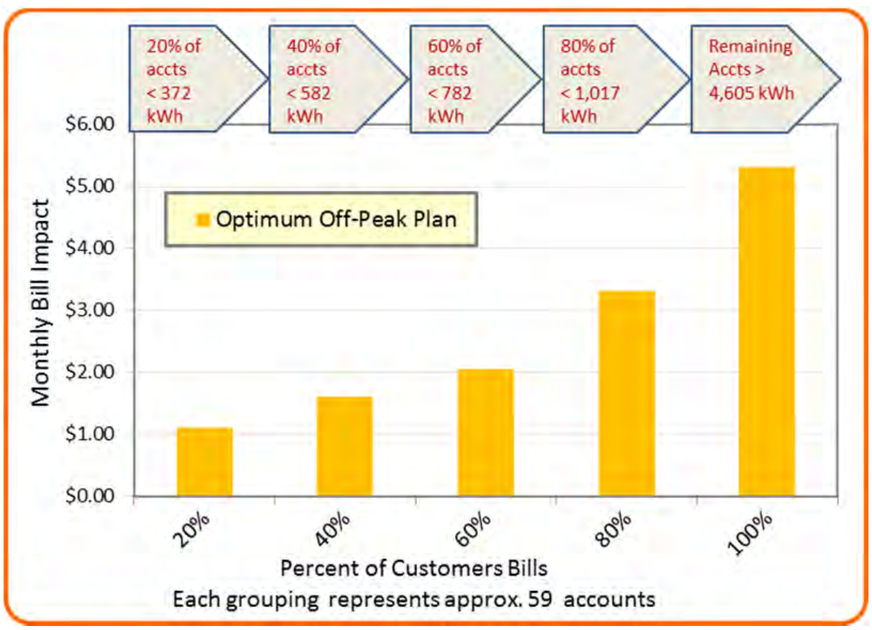
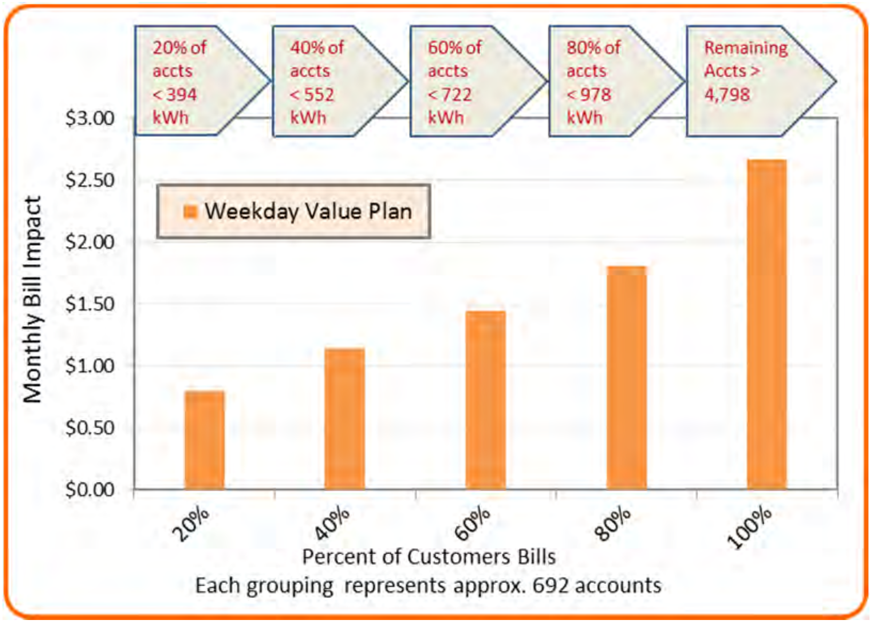


Figure 26 Weekday Value Plan Bill Impacts



Recommendations

Extend rates until December 31, 2018. Revisions described above are in included in Volume 2 of this report. Tables showing the new prices are shown below.

Weekday Value Plan (Summer Only)*	2018 ($/kWh)
All Off-Peak	$0.1003
On-Peak	$0.3208

Off-Peak Discount Plan (Summer Only)*	2018 ($/kWh)
All Off-Peak	$0.1310
On-Peak Conservation Day	$0

Optimum Off-Peak Plan (Summer Only)*	2018 ($/kWh)
All Off-Peak	$0.1003
On-Peak	$0.3208
On-Peak Conservation Day	$0

* Participants are billed on their otherwise applicable rates during the remaining months of the year.

SolarShares® Program (SS)

Purpose

No customers are currently on this program rate and staff recommends it be closed.

Revenue Impact

None.

Bill Impact

None.

Recommendations

Remove the Rate Schedule SS from the rates book on July 1, 2017.

Solar Surcharge (SB1)

Overview

On January 1, 2008 SMUD established a temporary solar surcharge on all energy charges as required by the state law known as SB-1. The law capped the revenue SMUD was required to collect under the surcharge at $130 million. SMUD anticipates that the full $130 million will be collected by early 2018. The Rate Schedule SB1 will not be needed once the cap is reached.

Recommendation

Remove the Rate Schedule SB1 from the rates book effective January 1, 2019.

Distribution Wheeling Service (DWS)

Purpose

Staff updated the Rates Costing Study to determine the Open Access Transmission Tariff rates. The distribution wheeling service charges were updated as a result of that study. Staff recommends updating the distribution wheeling service charges by voltage to reflect the increased cost of service.

Revenue Impact

None.

Bill Impact

None.

Recommendations

Staff recommends updating the distribution wheeling service charges by voltage to reflect the increased cost of service effective July 1, 2017. The charges in year 2018 are being adjusted to reflect the revenue requirement. Revisions described above are in included the Distribution Wheeling Service Rate Schedule DWS in Volume 2 of this report.

Greenergy® Language Changes

Purpose

The names and descriptions of the Green Pricing Options vary by rate schedule based upon when they were last updated. Staff therefore recommends updating language and providing for consistent references in the rate schedules.

Revenue Impact

None.

Bill Impact

None.

Recommendations

Staff recommends updating the name and description of the items listed in the Green Pricing Options section which appears in each of the tariff sheets. This will improve consistency and allow for more recent program information. Proposed language in the tariff is shown below.

1. SMUD Community Solar Option
Under this premium service option, customers elect to contribute monthly payments toward opportunities to use solar power to educate our community about the importance of renewable energy through partnering with schools, non-profit organizations and low-income housing. Refer to the SMUD website, www.smud.org, for further information on monthly contribution options and currently identified projects.

2. SMUD Renewable Energy Option:
Customers electing power service will receive an additional monthly electricity usage charge of no less than ¼ cent and no greater than 3 cents per kWh. SMUD may offer multiple rate options representing various blends of renewable resources and/or renewable energy credits within the rate range. The actual prices will be published each November and will be based on the expected above market cost of renewable resources for the upcoming year. Participation will be limited to the amount of resources that SMUD is able to secure at or below the 3 cent limit.

On Residential tariff sheets only:

Fixed Greenergy® Fee Options
Customers may opt to support SMUD renewable energy purchases through one of the following monthly fees:

Greenergy Partner Plus – 100% $6
Greenergy Partner Plus- 50% $3

On Non-residential tariff sheets only:

Fixed Greenergy® Fee Options
Customers may opt to support SMUD renewable energy purchases through one of the following monthly fees:

Greenergy Partner Plus $10
Greenergy Partner $5

Make changes effective January 1, 2018. Revisions described above are in included in Volume 2 of this report.

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Changes to Rules and Regulations

Application of Rates and Rate Options (Rule 12)

Staff recommends a minor language change to the current Rule and Regulation 12 to be consistent with the proposed approach to transitioning residential customers to the new standard TOD (5-8 p.m. Peak) Rate.

Purpose

The last sentence in Section I. Application of Rates in Rule and Regulation 12 is unnecessary and may confuse customers with the proposed approach to transition residential customers to the new standard TOD (5-8 p.m. Peak) Rate. In addition, staff recommends renaming the wording “meter reading” with “billing period” in Section II. Application of Rate Options. These minor amendments are needed to prevent confusion during the rate transition and to clarify existing language.

Revenue Impact

No impact to revenue.

Recommendation

Effective July 1, 2017, amend the language of Section I. Application of Rates in Rule and Regulation 12 to delete the last sentence in the second paragraph as shown below:

> *“Where more than one rate is applicable to service to a customer or applicant for service, SMUD will inform such customer or applicant for service of the alternative rates, and such customer or applicant shall designate which rate he or she desires. As a means of assisting a customer or applicant in selecting the most favorable rate, SMUD may make comparative calculations of charges under such alternative rates but shall not be required to do so by any customer or applicant. ~~If the customer or applicant does not designate the rate desired, SMUD will render bills for such service according to the applicable rate that will, in SMUD’s judgment, result in the lowest charge for such service.~~*

Replace the wording “meter reading” with “billing period” in Section II. Application of Rate Options as shown below.

> *“When a customer desires service on an applicable rate other than that on which he or she is being billed, the customer shall notify SMUD and the change in rate will become effective for service rendered after the next regular ~~meter reading~~* billing period *following the date of such notice. SMUD shall not be required to make more than one change in rate for any customer within 12 consecutive months unless a new rate is made effective or the operating conditions of such customer have changed so as to warrant a change in rate, except, however, that any such customer served on a rate with an annual minimum charge will not be permitted more than one change in rate in any 12 consecutive months.”*

Rule and Regulation 17

Staff recommends a minor language change to the current Rule and Regulation 17 to be consistent with billing processes.

Purpose

Replace the wording “readings” with “data” in the first paragraph in Section II of Rule and regulation 17.

Revenue Impact

No impact to revenue.

Recommendation

Effective July 1, 2017, Amend the first paragraph in Section II of Rule and regulation 17 to replace the wording “reading for” with “data”.

*“When, as the result of SMUD testing, a meter is found to be more than 2 percent fast, SMUD will provide the customer a refund of the overcharge based on the corrected meter ~~readings~~ **data** for the period in which the meter was in use. Refunds will be made for a maximum of 6 billing periods unless a date for the cause of the error can be established. In this case, the overcharge will be computed back to the established date of the error, but not beyond three years prior to the date the error is brought to SMUD’s attention.”*

Changes to Rates Book Appendix A

Rates Book Appendix A Change

Purpose

Appendix A in the rates book has been included to explain the methodology of Rate Category naming and descriptions. With the proposed changes in residential rate categories it is necessary to modify the naming methodology and descriptions. Due to the possible need to update rate code nomenclature during the residential TOD and EAPR rate transitions, staff proposes removing the Rate Category descriptions from the rates book and maintaining the latest rate code nomenclature on www.smud.org.

Bill Impacts

None

Revenue Impact

None

Recommendation

Effective July 1, 2017, remove Rate Category Description from Appendix A of the rates book as detailed in Volume 2 of this report and maintain the Rate Category descriptions on www.smud.org.

Detail of Rate Changes

Residential Rates

System Infrastructure Fixed Charge for All Residential Rates

Charge Component	Unit	Proposed 2018
System Infrastructure Fixed Charge	per month	$20.30

Residential Time-of-Day (5-8 p.m. Peak) Energy Rate (RT02)[1]

Season and Charge Component	Unit	Proposed 2018
Non-Summer Off-Peak	per kWh	$0.0969
Non-Summer Peak	per kWh	$0.1338
Summer Off-Peak	per kWh	$0.1166
Summer Mid-Peak	per kWh	$0.1611
Summer Peak	per kWh	$0.2835

Electric Vehicle Credits[2]	per kWh	-$0.0150

Residential Time-of-Day (4-7 p.m. Peak) Energy Rate (RT01)[1]

Season and Charge Component	Unit	Proposed 2018
Peak	per kWh	$0.1481
Off-Peak	per kWh	$0.0853
Summer Super Peak	per kWh	$0.3704

Electric Vehicle Credits[2]	per kWh	-$0.0150

Residential Fixed Energy Rate (RF01)[1]

Season and Charge Component	Unit	Proposed 2018
Summer	per kWh	$0.1649
Non-Summer	per kWh	$0.1032

Legacy Residential Energy Rate[1]

Season and Charge Component	Unit	Proposed 2018
Summer	per kWh	$0.1310
Winter[4]	per kWh	$0.1145

Smart-Pricing Option - Weekday Value Plan Energy Rate (Summer Only)[3]

Charge Component		Unit	Proposed 2018
	All Off-Peak	per kWh	$0.1003
	On-Peak	per kWh	$0.3208

Smart-Pricing Option - Off-Peak Discount Plan Energy Rate (Summer Only)[3]

Charge Component		Unit	Proposed 2018
	All Off-Peak	per kWh	$0.1310
	On-Peak Conservation Day	per kWh	n/a

Smart-Pricing Option - Optimum Off-Peak Plan Energy Rate (Summer Only)[3]

Charge Component		Unit	Proposed 2018
	All Off-Peak	per kWh	$0.1003
	On-Peak	per kWh	$0.3208
	On-Peak Conservation Day	per kWh	n/a

Master-Metered Multifamily Accomodation and Mobile Home Park Energy Rate (RSMM) (Closed)

Season and Charge Component		Unit		Proposed 2019
	Summer	per kWh		$0.1310
	Non-Summer	per kWh		$0.1145

Residential Energy Assistance Program Rate[1]

Charge Component		Federal Poverty Level	Unit	Proposed 2019	Proposed 2020	Proposed 2021
	SIFC Discount	All Levels	per month	$10.00	$10.00	$10.00
	Maximum Energy Discount	0-50%	per month	$40.00	$50.00	$60.00
		>50-100%	per month	$30.00	$31.00	$32.00
		>100-150%	per month	$20.00	$15.00	$10.00
		>150-200%	per month	$20.00	$10.00	$0.00

Miscellaneous Residential Pricing

Charge Component		Unit	Proposed 2018
	Three-phase power	per month	$43.60
	Standby generation (Secondary level)	per kW	$6.67

1. See eligibility in rates and regulations
2. Credits apply to applicable time-based pricing periods between midnight and 6 a.m. under residential Time-of-Day rate
3. Participants are billed on their otherwise applicable rates during the remaining months of the year
4. Winter on legacy rates are non-summer on all new rates

Agricultural Rates

Season and Charge Component	Unit	Proposed 2018	Proposed 2019
Non-Demand ASN Rate (30 kW and below)			
System Infrastructure Fixed Charge	per month	$11.00	$11.10
Winter kWh	per kWh	$0.1221	$0.1233
Summer kWh	per kWh	$0.1338	$0.1352
Demand ASD Rate (Over 30 kW)			
System Infrastructure Fixed Charge	per month	$25.55	$25.80
Site Infrastructure Charge <= 30 kW	per kW	$0.00	$0.00
Site Infrastructure Charge > 30 kW	per kW	$2.52	$2.55
Winter First 8,750 kWh	per kWh	$0.1352	$0.1366
Winter Additional kWh	per kWh	$0.1061	$0.1072
Summer First 8,750 kWh	per kWh	$0.1296	$0.1309
Summer Additional kWh	per kWh	$0.0938	$0.0947
Non-Demand Time-of-Use AON Rate (30 kW and below)			
System Infrastructure Fixed Charge	per month	$14.75	$14.90
Winter On-Peak	per kWh	$0.1404	$0.1419
Winter Off-Peak	per kWh	$0.1197	$0.1209
Summer On-Peak	per kWh	$0.2036	$0.2057
Summer Off-Peak	per kWh	$0.1094	$0.1105
Demand Time-of-Use AOD Rate (Over 30 kW)			
System Infrastructure Fixed Charge	per month	$88.85	$89.75
Winter Maximum Demand Charge	per kW	$2.51	$2.54
Winter On-Peak	per kWh	$0.1398	$0.1412
Winter Off-Peak	per kWh	$0.1187	$0.1199
Summer Maximum Demand Charge	per kW	$3.51	$3.55
Summer On-Peak	per kWh	$0.2164	$0.2186
Summer Off-Peak	per kWh	$0.1153	$0.1165

Small Commercial Rates (0-299 kW)

Non-Demand < =20 kW (GSN_T)	Unit	Proposed 2018	Proposed 2019
System Infrastructure Fixed Charge	per month	$20.20	$20.40

	Unit	Proposed 2018	Proposed 2019
Non-Demand < =20 kW (GSN_T)			
Winter kWh	per kWh	$0.1303	$0.1316
Summer Off-Peak kWh	per kWh	$0.1099	$0.1110
Summer On-Peak kWh	per kWh	$0.3008	$0.3037

	Unit	Proposed	
Non-Demand, Non-Metered Rate (GFN)			
System Infrastructure Fixed Charge	per month	$9.00	$9.10
Year-round energy	per kWh	$0.1318	$0.1331

	Unit	Proposed 2018	Proposed 2019
Demand Rate 21- 299 kW (GSS_T)			
System Infrastructure Fixed Charge	per month	$24.55	$24.80
Site Infrastructure Charge	per kW	$7.58	$7.66
Winter Energy	per kWh	$0.1021	$0.1032
Summer Off-Peak kWh	per kWh	$0.0905	$0.0914
Summer On-Peak kWh	per kWh	$0.2607	$0.2634

Small Commercial Energy Assistance Rate	Unit	Proposed 2018	Proposed 2019
System Infrastructure Fixed Charge			
Non-Demand < = 20 kW (GSN_T)	per month	$13.15	$13.25
Demand Rate 21- 299 kW (GSS_T)	per month	$15.95	$16.10

Small Commercial TOU Rates (300-499 kW)

Season and Charge Component	Unit	Proposed 2018	Proposed 2019
Service at Secondary Voltage Level (GUS_S)			
System Infrastructure Fixed Charge	per month	$107.95	$109.05
Site Infrastructure Charge	per kW	$3.80	$3.84
Winter Off-Peak	per kWh	$0.0828	$0.0837
Winter On-Peak	per kWh	$0.1043	$0.1054
Summer Super-Peak Demand Charge	per kW	$7.65	$7.73
Summer Off-Peak	per kWh	$0.1090	$0.1101
Summer On-Peak	per kWh	$0.1371	$0.1385
Summer Super-Peak	per kWh	$0.2006	$0.2027
Service at Primary Voltage Level (GUP_S)			
System Infrastructure Fixed Charge	per month	$107.95	$109.05
Site Infrastructure Charge	per kW	$3.40	$3.44
Winter Off-Peak	per kWh	$0.0783	$0.0791
Winter On-Peak	per kWh	$0.0985	$0.0995
Summer Super-Peak Demand Charge	per kW	$6.98	$7.05
Summer Off-Peak	per kWh	$0.1036	$0.1047
Summer On-Peak	per kWh	$0.1320	$0.1334
Summer Super-Peak	per kWh	$0.1909	$0.1929

Medium Commercial TOU Rates (500-999 kW)

Season and Charge Component	Unit	Proposed 2018	Proposed 2019
Service at Secondary Voltage Level (GUS_M)			
System Infrastructure Fixed Charge	per month	$107.95	$109.05
Site Infrastructure Charge	per kW	$2.85	$2.88
Winter Off-Peak	per kWh	$0.0814	$0.0822
Winter On-Peak	per kWh	$0.1028	$0.1039
Summer Super-Peak Demand Charge	per kW	$6.98	$7.05
Summer Off-Peak	per kWh	$0.1033	$0.1044
Summer On-Peak	per kWh	$0.1342	$0.1356
Summer Super-Peak	per kWh	$0.1949	$0.1969
Service at Primary Voltage Level (GUP_M)			
System Infrastructure Fixed Charge	per month	$107.95	$109.05
Site Infrastructure Charge	per kW	$2.52	$2.55
Winter Off-Peak	per kWh	$0.0771	$0.0779
Winter On-Peak	per kWh	$0.0972	$0.0982
Summer Super-Peak Demand Charge	per kW	$6.42	$6.49
Summer Off-Peak	per kWh	$0.0983	$0.0993
Summer On-Peak	per kWh	$0.1294	$0.1307
Summer Super-Peak	per kWh	$0.1855	$0.1874
Service at Transmission Voltage Level (GUT_M)			
System Infrastructure Fixed Charge	per month	$285.90	$288.85
Site Infrastructure Charge	per kW	$2.07	$2.09
Winter Off-Peak	per kWh	$0.0754	$0.0762
Winter On-Peak	per kWh	$0.0937	$0.0947
Summer Super-Peak Demand Charge	per kW	$0.00	$0.00
Summer Off-Peak	per kWh	$0.0968	$0.0978
Summer On-Peak	per kWh	$0.1212	$0.1224
Summer Super-Peak	per kWh	$0.1801	$0.1820

Large Commercial TOU (1000+ kW)

Season and Charge Component	Unit	Proposed 2018	Proposed 2019
Service at Secondary Voltage Level (GUS_L)			
System Infrastructure Fixed Charge	per month	$108.00	$109.15
Site Infrastructure Charge	per kW	$4.02	$4.06
Winter Off-Peak	per kWh	$0.0855	$0.0864
Winter On-Peak	per kWh	$0.1078	$0.1090
Summer Super-Peak Demand Charge	per kW	$0.00	$0.00
Summer Off-Peak	per kWh	$0.1073	$0.1084
Summer On-Peak	per kWh	$0.1341	$0.1355
Summer Super-Peak	per kWh	$0.1680	$0.1698
Service at Primary Voltage Level (GUP_L)			
System Infrastructure Fixed Charge	per month	$108.00	$109.15
Site Infrastructure Charge	per kW	$3.86	$3.90
Winter Off-Peak	per kWh	$0.0799	$0.0808
Winter On-Peak	per kWh	$0.1026	$0.1037
Summer Super-Peak Demand Charge	per kW	$0.00	$0.00
Summer Off-Peak	per kWh	$0.0979	$0.0989
Summer On-Peak	per kWh	$0.1261	$0.1274
Summer Super-Peak	per kWh	$0.1385	$0.1400
Service at Transmission Voltage Level (GUT_L)			
System Infrastructure Fixed Charge	per month	$286.00	$289.05
Site Infrastructure Charge	per kW	$3.07	$3.10
Winter Off-Peak	per kWh	$0.0782	$0.0790
Winter On-Peak	per kWh	$0.0989	$0.1000
Summer Super-Peak Demand Charge	per kW	$0.00	$0.00
Summer Off-Peak	per kWh	$0.0965	$0.0975
Summer On-Peak	per kWh	$0.1182	$0.1195
Summer Super-Peak	per kWh	$0.1345	$0.1359

Temperature Dependent Pricing Rate (TDP)

Season and Charge Component	Unit	Proposed 2018	Proposed 2019
System Infrastructure Fixed Charge	per month	$286.00	$289.05
Site Infrastructure Charge	per kW	$0.55	$0.56
Winter Off-Peak	per kWh	$0.0707	$0.0714
Winter On-Peak	per kWh	$0.0989	$0.1000
Summer Super-Peak Demand Charge			
Heat Storm	per kW	$5.74	$5.80
Extremely Hot	per kW	$5.40	$5.45
Very Hot	per kW	$1.00	$1.01
Mild to Hot	No Charge	$0.00	$0.00
Summer Off-Peak	per kWh	$0.0890	$0.0899
Summer On-Peak	per kWh	$0.1182	$0.1195
Summer Super-Peak	per kWh	$0.1345	$0.1359

Combined Heat & Power (CHP) Distributed Generation

Charge Component	Unit	Proposed 2018	Proposed 2019
Reserved Capacity Charge			
Secondary	per kW	$6.36	$6.42
Primary	per kW	$6.36	$6.42
Subtransmission	per kW	$6.11	$6.17

Distribution Wheeling Service

Voltage Level	Unit	Proposed 2017	Proposed 2018	Proposed 2019
12/21 kV	$/kW-month	$9.452	$9.546	$9.642
69 kV	$/kW-month	$1.472	$1.487	$1.502

Miscellaneous Commercial Charges

Charge Component	Unit	Proposed 2018	Proposed 2019
Power Factor Adjustment	per excess kvar x kWh	$0.0109	$0.0110
Power Factor Waiver	per excess kvar	$0.2886	$0.2915
Standby Charges for Customer Generation			
Secondary Voltage Service	per kW of contract capacity	$6.64	$6.71
Primary Voltage Service		$5.25	$5.30
Subtransmission Voltage Service		$2.65	$2.68

Outdoor Street and Traffic Lighting Rates

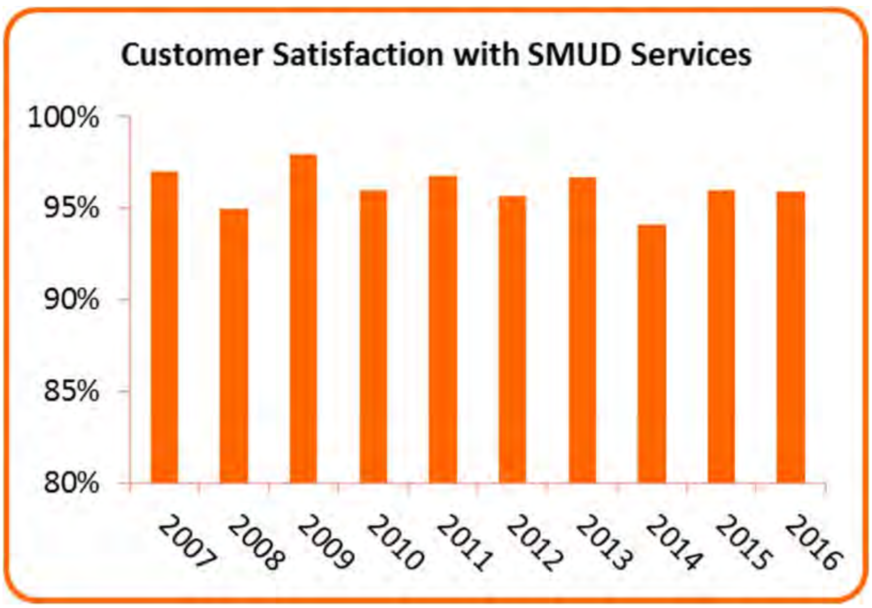
Lighting Schedule		Proposed 2018	Proposed 2019
Metered Customer owned and maintained (COM_M)			
System Infrastructure Fixed Charge	per month	$9.15	$9.25
Year-round energy charges	per kWh	$0.0791	$0.0800
Unmetered Streetlighting Rates			
Monthly charge (per rated wattage of lamp & ballast)			
NLGT Outdoor Lighting Service		$0.0264	$0.0267
Customer-owned and maintained (COM)		$0.0264	$0.0267
SMUD (District) owned and maintained (DOM)		$0.0264	$0.0267
Customer-owned SMUD (District) maintained (CODM)		$0.0264	$0.0267
TC ILS Traffic Control -- Intersection Lighting Service			
System Infrastructure Fixed Charge	per month	$5.45	$5.50
Year-round energy charges	per kWh	$0.0993	$0.1004
TSS Traffic Signal Service SL_TSF (Closed)			
<70 watts (per unit)		$3.95	$4.00
> 70 watts (per lamp per watt)		$0.0276	$0.0279
Minimum monthly charge		$3.95	$4.00

Information on SMUD Performance

Customer Satisfaction

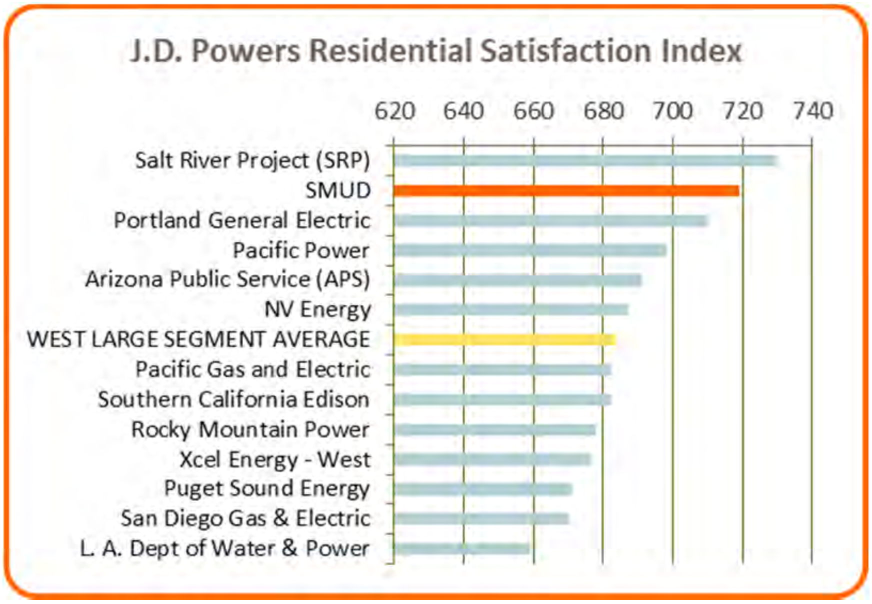
SMUD continues to earn high marks of satisfaction from its customer-owners. The following chart shows the percentage of customers who were satisfied or very satisfied in follow up surveys SMUD conducted with customers. These ongoing surveys are conducted after performing services including troubleshooting problems, new service connections and tree trimming, starting service, billing inquiries and outage communication. Customer satisfaction ratings have been 94% or higher for the past decade.

Figure 27 Customer Satisfaction Survey Results



Since 2000, SMUD has participated in the annual Electric Utility Residential Customer Satisfaction Study conducted by J.D. Power and Associates. This study ranks electric utilities from across the United States on a Customer Satisfaction Index and on six sub-components to the overall satisfaction index. SMUD has been ranked in the top three in the western region on the residential Customer Satisfaction Index since 2004. Results of the 2016 survey are shown in Figure 28.

Figure 28 J.D. Power 2016 Residential Satisfaction Index



System Average Interruption

SMUD follows industry standards for measuring the overall reliability of the distribution system using the System Average Interruption Frequency Index (SAIFI) and the System Average Interruption Duration Index (SAIDI).

For SAIFI, these goals are:

- With a major event: 0.99 to 1.33 average outages per customer per year.
- Excluding a major event: 0.85 to 1.14 average outages per customer per year.

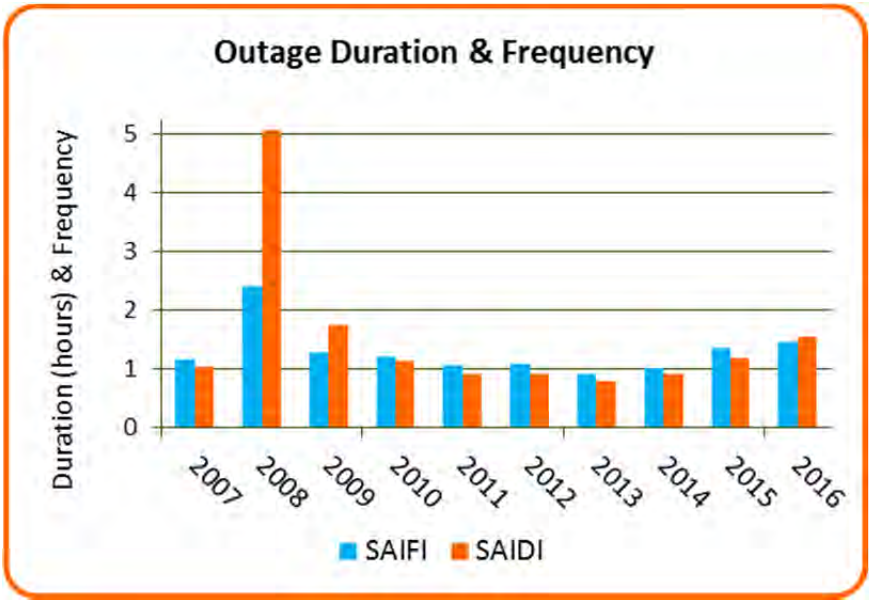
For SAIDI, SD-4 limits the average duration of outages per customer per year:

- For a major event, 67.6 to 93.3 minutes.
- Excluding a major event, 49.7 to 68.7 minutes.

SMUD system reliability fell outside the acceptable ranges set by Board Policy SD-4 on Reliability for 2015 and 2016.

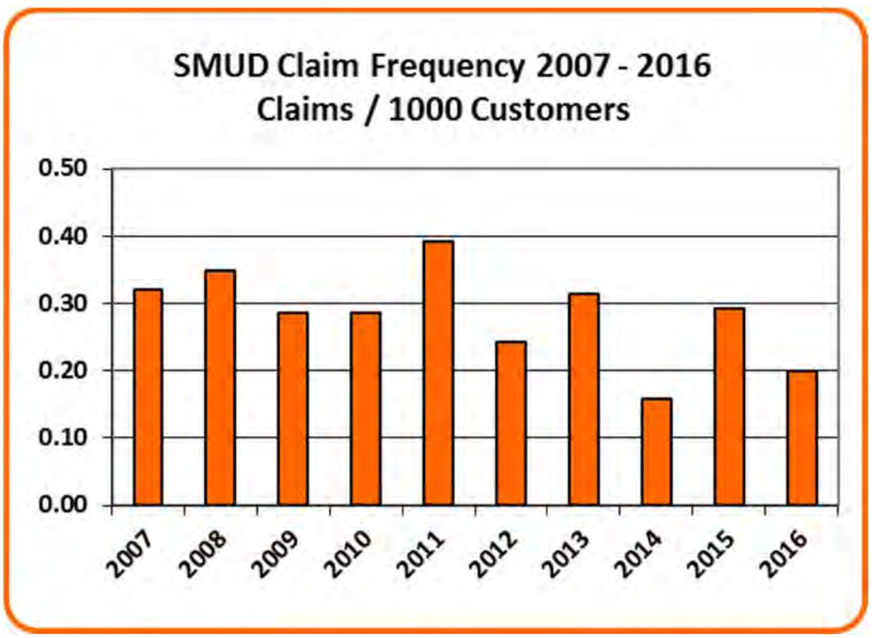
In 2016, a qualifying major event occurred in the form of a severe storm March 5-7. Annual system maintenance initiatives designed to enhance reliability include the Distribution Line Inspection Program, the Cable Replacement program, and the Vegetation Management Program.

Figure 29 SMUD Outage Duration and Frequency by Year



SMUD Frequency of Claims

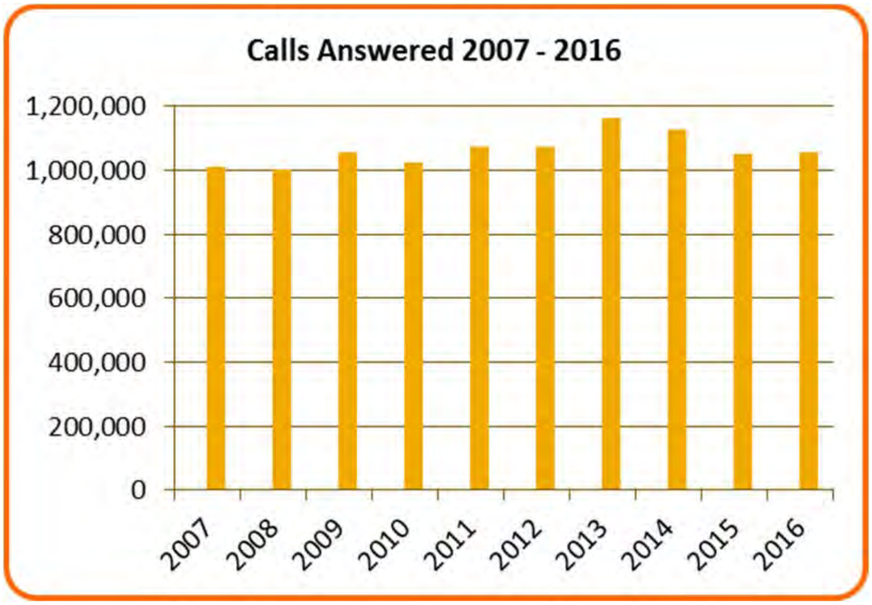
Figure 30 SMUD Claim Frequency by Year[10]



[10] Includes Automobile and General Claims

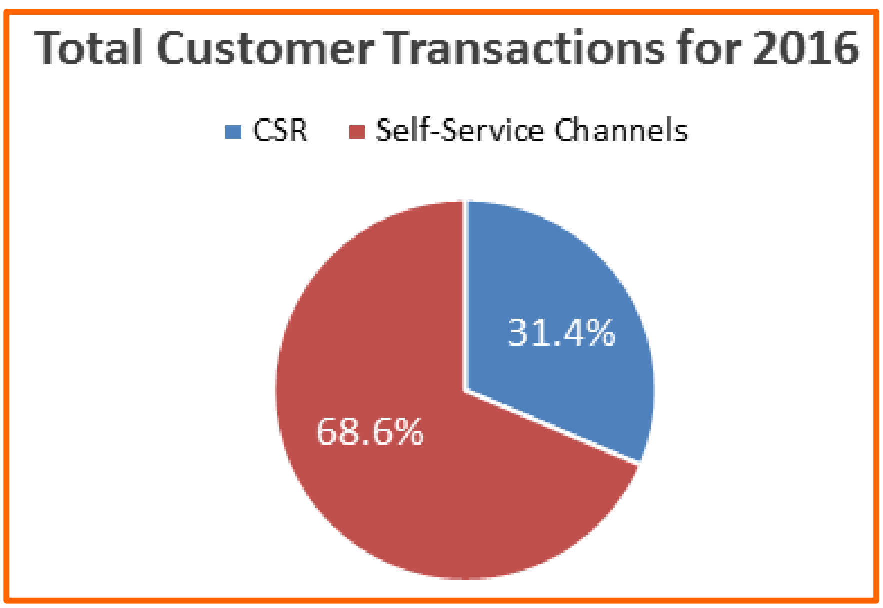
Customer Calls

Figure 31 Customer Calls Answered by Year



Other Customer Service Information

Figure 32 Self-Service Transactions versus the CSR Channel in 2016



The use of our self-service channels continues to grow with over 68% of primary transactions completed in a self-service channel in 2016. This demonstrates the need to invest in technology enhancements that promote and expand self-service.

Environmental Assessment

1.0 Section 21080(b)(8) of the California Public Resources Code and Section 15273 of the California Environmental Quality Act (CEQA) Guidelines (California Code of Regulations, Title 14, Sections 15000, et seq.) provide that CEQA does not apply to the establishment, modification, structuring, restructuring, or approval of rates, tolls, fares, and other charges by public agencies which the public agency finds are for the purpose of:

(1) Meeting operating expenses, including employee wage rates and fringe benefits;

(2) Purchasing or leasing supplies, equipment, or materials;

(3) Meeting financial reserve needs and requirements;

(4) Obtaining funds for capital projects necessary to maintain service within existing service areas; or

(5) Obtaining funds that are necessary to maintain such intra-city transfers as are authorized by city charter

2.0 Section 15061(b) (3) of the CEQA Guidelines provides that where it can be said with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.

3.0 The proposed action to increase all residential rate components by 1.5 percent effective January 1, 2018, is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

4.0 The proposed action to establish a residential Time-of-Day (5-8 p.m. Peak) Rate as a standard rate and modify the eligibility criteria for the optional Time-of-Day (4-7 p.m. Peak) Rate is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

5.0 The proposed action to modify the eligibility criteria for the residential Legacy Rate and establish an optional residential Fixed Rate is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

6.0 The proposed action to transfer residential customers on the PEV Pilot Rates to the TOD (5-8 p.m. Peak) Rate in 2018 is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

7.0 The proposed action to modify SMUD's Energy Assistance Program Rate (EAPR) program is for the purposes set forth in (1) through (4) of Section 1.0 of the

Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

8.0 The proposed action to increase all commercial and agricultural rate components by 1.0 percent effective January 1, 2018, and by 1.0 percent effective January 1, 2019, is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

9.0 The proposed action to eliminate the General Service Legacy Rate is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

10.0 The proposed action to increase all street, traffic, and lighting rate components, except monthly leasing and maintenance charges, by 1.0 percent effective January 1, 2018, and by 1.0 percent effective January 1, 2019, is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

11.0 The proposed action to remove the five or more lamps threshold for metered street lighting service is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

12.0 It can be seen with certainty that there is no possibility that the proposed action to modify the Net Energy Metering Rate Schedule NEM to allow for monthly billing, net-generator crediting, and to establish a successor NEM program may have a significant effect on the environment. Therefore, this proposed action is not subject to CEQA.

13.0 It can be seen with certainty that there is no possibility that eliminating the references to EAPR and MED rate code suffixes may have a significant effect on the environment. Therefore, this proposed action is not subject to CEQA.

14.0 It can be seen with certainty that there is no possibility that modifying the Nonprofit Organization discount reference in Rate Schedule EAPR may have a significant effect on the environment. Therefore, this proposed action is not subject to CEQA.

15.0 The proposed action to add a new Residential and Master-Metered Multifamily and Mobile Home Park fixed rate (RSMM) is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

16.0 The proposed action to extend the SmartPricing Options (SPO) Pilot rate through 2018, modify eligibility criteria, and remove the conservation days from the rate is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

17.0 The proposed action to eliminate the SolarShares® Program Rate Schedule SS is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

18.0 It can be seen with certainty that there is no possibility that the proposed action to remove the Solar Surcharge Rate Schedule (SB1) from the rates book in 2019 may have a significant effect on the environment. Therefore, this proposed action is not subject to CEQA.

19.0 The proposed action to increase the Distribution Wheeling Service (DWS) charges by voltage is for the purposes set forth in (1) through (4) of Section 1.0 of the Environmental Assessment. Therefore, this rate action is exempt from the requirements of CEQA.

20.0 It can be seen with certainty that updating the name and description of the Green Pricing Options have a significant effect on the environment. Therefore, this proposed action is not subject to CEQA.

21.0 It can be seen with certainty that there is no possibility that the proposed action to modify Rule & Regulation 12 to facilitate customer time-of-use rate transitions and clarify meter/billing language may have a significant effect on the environment. Therefore, this proposed action is not subject to CEQA.

22.0 It can be seen with certainty that there is no possibility that the proposed action to remove Appendix A from the rates book and to post online may have a significant effect on the environment. Therefore, this proposed action is not subject to CEQA.

SMUD Programs and Web Links

SMUD has information regarding a variety programs and bill assistance available to customers that can be found at the following links:

Rebates, Incentives and Financing

https://www.smud.org/en/residential/save-energy/rebates-incentives-financing/

Calculate Energy Consumption

https://www.smud.org/en/residential/save-energy/calculate-energy-consumption.htm

Learn energy efficiency

https://www.smud.org/en/residential/save-energy/learn-energy-efficiency/index.htm

Conservation Tips

https://www.smud.org/en/residential/save-energy/learn-energy-efficiency/conservation-tips.htm

Payment assistance programs

https://www.smud.org/en/residential/customer-service/payment-assistance.htm

Strategic Direction

Our Strategic Direction guides us in the decisions we make about SMUD's policies and operations. Our Board continually reviews and refines these guidelines to make sure we'll meet customers' energy needs, both now and in the future.

SD-1A

SMUD is community-owned. Our purpose is to enhance the quality of life for our customers and community through creative energy solutions.

SD1-B

SMUD's vision is to be the trusted partner with our customers and community, providing innovative solutions to ensure energy affordability and reliability, improve the environment, reduce our region's carbon footprint, and enhance the vitality of our community.

SD-2

Maintaining competitive rates is a core value of the District.

Therefore:

a) The Board establishes a rate target of 18 percent below Pacific Gas & Electric Company's published rates on a system average basis. In addition, the Board establishes a rate target of at least 10 percent below PG&E's published rates for each customer class.

b) SMUD's rate of change for both rates and bills shall be competitive with other local utilities on a system average basis.

c) In addition, SMUD's rates shall be designed to balance and achieve the following goals:

i) Reflect the cost of energy when it is used;

ii) Reduce use on peak;

iii) Encourage energy efficiency and conservation;

iv) Minimize "sticker" shock in the transition from one rate design to another;

v) Offer flexibility and options;

vi) Be simple and easy to understand;

vii) Meet the needs of people with fixed low incomes and severe medical conditions; and

viii) Equitably allocate costs across and within customer classes.

SD-3

Maintaining access to credit is a core value of SMUD.

Therefore:

a) For SMUD's annual budgets, the Board establishes a minimum target of cash coverage of all debt service payments (fixed charge ratio) of 1.45 times.

b) When making resource decisions, SMUD shall weigh the impacts on long-term revenue requirements, debt, financial risk and flexibility.

c) SMUD's goal is to maintain at least an "A" rating with credit rating agencies.

SD-4

Meeting customer energy requirements is a core value of SMUD.

Therefore:

a) SMUD will assure all customer energy requirements are met. This will be accomplished through the use of: (i) its generation resources and purchase power portfolio 100 percent of the time; and (ii) its transmission assets to assure an overall availability of at least 99.99 percent.

b) SMUD will achieve distribution system reliability by: Limiting the average frequency of outage per customer per year to:

- With major event: 0.99 - 1.33
- Excluding major event: 0.85 - 1.14

Limiting the average duration of outages per customer per year to:

- With major event: 67.5 – 93.3 minutes
- Excluding major event: 49.7 – 68.7 minutes

Ensuring that no individual circuits exceed these targets for more than two consecutive years. For circuits that exceed these targets for two consecutive years, a remedial action plan will be issued and completed within eighteen months.

c) SMUD will maintain the electric system in good repair and make the necessary upgrades to maintain load serving capability and meet regulatory standards.

SD-5

Maintaining a high level of customer relations is a core value of SMUD. Additionally, the Board recognizes that the customer satisfaction target of 95 percent with no individual component measured falling below 85 percent. In addition, the Board establishes an overall customer experience "value for what you pay" target of 80 percent by the end of 2021, with neither the average commercial customer score falling below 69 percent nor the average residential customer score falling below 65 percent in any year.

As part of this policy:

a) SMUD customers shall be treated in a respectful, dignified and civil manner.

b) SMUD shall communicate a procedure for customers who believe they have not received fair treatment from SMUD to be heard.

SD-6

Creating a safe environment for employees and the public is a core value of SMUD.

Through continuous improvement, SMUD will be recognized as a leader in employee safety while also assuring the safety of the public related to SMUD operations and facilities. This includes a comprehensive approach to monitoring organizational and public safety performance.

Therefore, SMUD will continue to improve safety results to:

Workplace Safety

a) Reduce SMUD's injury severity rate to 1.4 by 2020, as measured by OSHA's Days Away Restricted Time (DART), a rate that demonstrates strong safety performance.

b) Provide timely, quality health care for injured employees that aids their recovery while maintaining positive financial performance of the workers' compensation program.

Public Safety

a) Track and report injuries to the public related to SMUD operations or facilities.

b) Implement measures to protect the public from injuries related to SMUD operations or facilities.

SD-7

Environmental leadership is a core value of SMUD. The Board is committed to environmental leadership through community engagement, continuous improvement in pollution prevention, carbon reduction, energy efficiency, and conservation.

Therefore:

a) SMUD will conduct its business affairs and operations in a manner that reduces adverse environmental impacts, reduces pollution, and enhances resource conservation and stewardship.

b) SMUD will provide leadership in the reduction of the region's total emissions of greenhouse gases through proactive programs in all SMUD activities and development and support of national, State, and regional climate change policies and initiatives.

c) SMUD will promote the efficient use of energy by its customer-owners.

d) SMUD will proactively engage its customer-owners and other stakeholders in meeting this directive.

SD-8

Developing and maintaining a high quality, inclusive workplace that engages and inspires employees to commit to SMUD's purpose, vision and values is a core value of SMUD.

Therefore:

a) SMUD shall attract and retain a highly qualified workforce.

b) SMUD shall engage its workforce in personal and professional development.

c) SMUD shall maintain and communicate written policies that define procedures and expectations for staff and provide for effective handling of grievances.

d) SMUD's percentage of engaged employees as measured through the Engagement Index shall exceed 80%.

e) Annually, and consistent with State and Federal law, the Board shall receive a report detailing the demographics of the SMUD workforce, the available workforce, and the Sacramento region. The report shall also provide information on veterans as a part of SMUD's workforce.

SD-9

It is a core value of SMUD to provide its customer-owners with a sustainable power supply through the use of an integrated resource planning process. A sustainable power supply is defined as one that reduces SMUD's net long-term greenhouse gas (GHG) emissions to serve retail customer load to 350,000 tonnes (10% of its 1990 carbon dioxide emission levels) by 2050, while assuring reliability of the system, minimizing environmental impacts on land, habitat, water quality, and air quality, and maintaining a competitive position relative to other California electricity providers. In reducing its net GHG emissions, SMUD will utilize energy efficiency, renewable and net carbon free resources, including large hydroelectric resources and biogas. SMUD may also use offsets to support these goals to the extent their use is cost effective and beneficial to SMUD customers and the region.

To guide SMUD in its resource evaluation and investment, the Board sets the following interim goal:[11]

Year	Net Greenhouse Gas Emissions (metric tonnes)
2020	2,318,000

In keeping with this policy, SMUD shall also achieve the following:

a) SMUD's goal is to achieve Energy Efficiency equal to 15% of retail load over the next 10-year period. On an annual basis, SMUD will achieve energy efficiency savings of 1.5% of the average annual retail energy sales over the three-year period ending with the current year.

To do this, SMUD will acquire as much cost effective and reliable energy efficiency as feasible through programs that optimize value across all customers. SMUD shall support additional energy efficiency acquisition by targeting one percent (1%) of retail revenues for above market costs associated with education, market transformation, and programs for hard to reach or higher cost customer segments. The market value of

[11] Note: This goal does not take into account the potential impacts of the electrification of transportation.

energy efficiency will include environmental attributes, local capacity value and other customer costs reduced by an efficiency measure.

b) Provide dependable renewable resources to meet 33% of SMUD's load by 2020, and 50% of its load by 2030, excluding additional renewable energy acquired for certain customer programs. In acquiring renewable resources, SMUD shall emphasize local and regional environmental benefits.

c) Promote cost effective, clean distributed generation through SMUD programs.

SD-10

To assure SMUD's long-term competitiveness and its ability to deliver innovative products and services, SMUD shall invest in research and development projects that support its core and key values, based on an analysis of the projects' relative risks and their potential benefits to SMUD customers.

SD-11

Supporting and strengthening the public power business model is a core value. Local decision making and flexibility are essential to effective and responsible local governance. Community-owned utilities are primarily accountable to customer-owners, not stockholders. Community citizens have a direct voice in public power decisions.

Preservation of this business model is vital to ensure public power systems continue to provide innovative solutions tailored to best meet the needs of their customers and communities.

SD-12

Maintaining the public trust and confidence in the integrity and ethical conduct of the Board and SMUD employees is a core value. Therefore, to ensure the public interest is paramount in all official conduct, the Board shall adopt and update, as necessary: a Conflict of Interest Code as required by State law. SMUD shall also maintain and enforce a code of conduct applicable to all employees.

Among other things the code of conduct shall:

a) Require high ethical standards in all aspects of official conduct;

b) Establish clear guidelines for ethical standards and conduct by setting forth those acts that may be incompatible with the best interests of SMUD and the public;

c) Require disclosure and reporting of potential conflicts of interest; and

d) Provide a process for (i) reporting suspected violations of the code of conduct and policies through multiple channels, including an anonymous hotline, and (ii) investigating suspected violations.

SD-13

Promoting the economic vitality of our region and the growth of our customer base is a key value of SMUD. Therefore, SMUD shall exercise strategic leadership and actively participate in regional economic development.

Specifically:

a) SMUD shall promote innovation while maintaining rate affordability and balancing the other strategic directions.

b) SMUD shall align its economic development activities with regional economic development initiatives.

c) SMUD shall assist in retaining, recruiting and growing commercial and industrial rate-paying customers.

d) SMUD shall offer economic development rates and program incentives.

e) SMUD shall offer a contracting program for certified small businesses who are rate-paying customers.

SD-14

As a community-owned utility, SMUD recognizes that the relocation or underground placement of primary voltage power lines may be desirable to local jurisdictions to improve aesthetics, economic vitality, safety and disabled access. Therefore, it is a key value of the District to make selected distribution system enhancements, such as relocation or underground placement of primary power lines below 69 kV.

a) The District will, at its expense and where technically feasible, relocate or underground existing overhead distribution facilities provided the governing body of the city or county in which the electric facilities are and will be located has:

i) Identified, after consultation with SMUD, a specific system enhancement project;

ii) Determined the project is in the public interest;

iii) Ensured all existing overhead communication facilities related to the project will also be relocated or placed underground;

iv) Obtained and provided SMUD with all easements necessary for the project.

b) After achievement of core financial targets, the District will annually commit up to one-half of one percent of the its annual gross electric sales revenue to system enhancements. The proposed projects will be subject to the District's annual budget approval process, and uncommitted funds from any given year will not be carried over to future years. Funding will be assigned to projects brought forward by local cities or counties based on applying the following criteria (not in order of preference):

i) Project scale and/or cost when measured against available District resources.

ii) Requesting entity has developed full scope, obtained all necessary easements, and development plan for customer service conversion from overhead to underground, as required.

iii) Extent to which the costs are borne by others.

SD-15

Providing broad outreach and communication to SMUD's customers and the community is a key value of the District.

Specifically:

a) SMUD shall provide its customers the information, education and tools they need to best manage their energy use according to their needs.

b) SMUD will use an integrated and consistent communication strategy that recognizes the unique customer segments that SMUD serves.

c) SMUD's communication and community outreach activities shall reflect the diversity of SMUD. SMUD shall use a broad mix of communication channels to reach all customer segments. This communication shall be designed to ensure that all groups are aware of SMUD's major decisions and programs.

SD-16

Proper management of cyber and physical information is a core value. Robust information management practices are critical to effective risk management and to ensure regulatory compliance, business resiliency and customer satisfaction. SMUD shall take prudent and reasonable measures to ensure:

a) Information Security: SMUD, customer, employee and third party information and SMUD information systems are protected from unauthorized access, use, disclosure, disruption, modification, or destruction.

b) Customer Privacy: SMUD will annually notify customers about the collection, use and dissemination of sensitive and confidential customer information. Except as provided by law or for a business purpose, SMUD will not disseminate sensitive and confidential customer information to a third party for non-SMUD business purposes unless the customer first consents to the release of the information. Where sensitive and confidential information is disseminated for a business purpose, SMUD will ensure: (i) the third party has robust information practices to protect the sensitive and confidential customer information, and (ii) use of the information by the third party is limited to SMUD's business purpose. SMUD will maintain a process that identifies the business purposes for which SMUD will collect, use and disseminate sensitive and confidential customer information.

c) Records Management: The efficient and systematic control of the creation, capture, identification, receipt, maintenance, use, disposition, and destruction of SMUD records, in accordance with legal requirements and Board policies.

SD-17

Effectively balancing and managing risk to further SMUD's policies and business goals is a core value of SMUD.

Therefore:

SMUD will implement and maintain an integrated enterprise risk management process that identifies, assesses, prudently manages and mitigates a variety of risks facing SMUD, including financial, supply, operational, physical security, climate change, legal, legislative and regulatory, and reputational risk.

SD-18

New technologies enable multi-directional customer business relationships. These technologies include, but are not limited to, distributed generation, storage, electricity used as transportation fuel, micro grids and future smart grid applications. SMUD shall integrate emerging technologies into SMUD's customer offerings in a way that balances risk and opportunity in order to benefit our community.

Compliance

Introduction

California voters approved Proposition 26 in November 2010, and that measure provides that every "levy, charge, or exaction of any kind imposed by a local government" is treated as a tax subject to voter approval, with exceptions discussed below. (Cal. Const., art. XIII C, § 1, subd. (e).) Proposition 26 therefore applies only to charges that are "imposed" by local government. SMUD rates are not "imposed" on customers for purposes of Proposition 26, because that language requires some exercise of government force or authority, which is not involved when a public agency such as SMUD provides services to customers in a competitive market. SMUD customers pay only for the voluntary use of service, and they have meaningful alternatives to that service, such as solar, hydro, fuel cell, wind and geothermal power.

Proposition 26 Does Not Apply to SMUD Rates

Although Proposition 26 therefore does not govern SMUD electric rates, the rate structure developed for this Chief Executive Officer and General Manager's Report and Recommendations on Rates and Services ("Report") complies with Proposition 26, which includes seven exceptions that treat certain charges imposed by local government agencies as fees rather than taxes, five of which are relevant to SMUD charges.

Cost-Justified Fees for Benefits and Services

First, charges for benefits conferred upon the payor, or for specific government services provided directly to the payor, are excepted under Cal. Const., art. XIII C, subdivisions (e)(1) and (e)(2), respectively, provided that the charge does not exceed the reasonable cost of providing that benefit or service. The proposed rate increases are based upon cost-of-service principles.

The cost-of-service analysis that demonstrates the cost-justification for the rates now in place is the Chief Executive Officer and General Manager's Report and Recommendation on Rates and Services dated April 2, 2015, which is incorporated herein by this reference. The rate increases discussed in that report were made on an across-the-board basis to reflect cost increases of proportionate impact on all customer classes and did not require reexamination of the allocation of costs among classes or of class definitions.

Four rate proposals in this Report (described in detail in the main part above) require additional discussion: 1) a new residential Time-of-Day (TOD) (5-8 p.m. Peak) Rate, 2) an optional Fixed Rate alternative to the TOD (5-8 p.m. Peak) Rate, 3) an optional time-of-use

("TOU") rate currently in effect for residential customers, to be renamed TOD (4-7 p.m. Peak) Rate, and (4) the Energy Assistance Program Rate ("EAPR") restructure, which provides a discount to low-income customers.

1) TOD Rate

The revenue-neutral TOD (5-8 p.m. Peak) Rate is supported by SMUD Board of Directors (Board) policy that prices should reflect the cost of energy when it is used. In contrast to the current TOU rate, which charges a premium for consumption between the peak demand hours of 4-7 p.m., the TOD rate shifts the peak period to 5-8 p.m., based on increased solar generation and shifting load patterns in recent years. While the Board is not required to adopt time-based rates, or to shift the peak period forward, the TOD (5-8 p.m. Peak) Rate reflects the cost of service, providing cheaper rates in off-peak times when power is less costly for SMUD to produce or purchase and to distribute and therefore complies with Proposition 26.

2) Fixed Rate

The Report also proposes a new Fixed Rate, which will be available as an opt-out to the TOD (5-8 p.m. Peak) Rate for certain customers. On average, the proposed Fixed Rate is approximately 4% higher than the TOD (5-8 p.m. Peak) Rate. However, no customer will be required to enroll in this rate (except smart meter opt-out customers who will be placed on the Fixed Rate), which offers flexibility for those who do not wish to incur time-based energy charges. This rate raises no Proposition 26 issue, because it is voluntarily undertaken by customers who opt-in to the program and therefore not "imposed" for purposes of Proposition 26, and in any event, the higher rate reflects the increased cost to serve customers that do no shift usage based on the TOD peak periods.

3) Current Residential TOU Rate (Renamed TOD (4-7 p.m. Peak) Rate)

The proposed rates also include the current TOU rate, which is currently open to all customers. The TOU rate charges a premium for consumption between the peak hours of 4-7 p.m. when it is more costly for SMUD to produce or purchase and to distribute power. With the proposal in this Report, like the Fixed Rate, the TOU rate raises no Proposition 26 issues, because it is voluntarily undertaken by customers who opt-in to the program (i.e., the rate is not "imposed"). Moreover, as discussed in the April 2, 2015 report, this rate reflects the cost of service in any event.

4) EAPR Program

The EAPR program provides a discount for certain low-income customers. It is a legislative policy that pre-dates Proposition 26, which does not vitiate local government policies that predate the measure. The proposed continuation of the EAPR rate provides an increased discount to certain customers who can least afford energy charges, while transitioning to a lower discount for other customers based on income levels. The net effect of the EAPR restructure is to decrease the aggregate discount, and this program is therefore grandfathered under Proposition 26.

Non-Cost Justified Fees for Use of SMUD Property; Fines and Penalties

In addition to the exceptions applicable to charges for benefits and services, Proposition 26 also provides exceptions for the following categories of charges, which are not treated as taxes subject to voter approval: (1) charges for the use of government property and (2) fines and penalties. (Cal. Const., art XIII C, § 1, subds (e)(4) and (e)(5).) Unlike charges for benefits and services, which cannot exceed the reasonable cost of providing those benefits and services, Proposition 26 does not limit charges for use of property and fines and penalties to the cost of service. Therefore, to the extent that SMUD's charges are for the use of SMUD property (such as wholesale or open access transmission service rates) or fines and penalties (such as late-payment charges), those charges would comply with Proposition 26 if it applied (which, as explained above, it does not) even without a showing that such charges are limited to SMUD's costs.

Development Impact Fees

The final exception of Proposition 26 relevant to this discussion is that provided by article XIII C, section 1, subdivision (e)(6) for fees imposed as a condition of property development. Thus, to the extent SMUD's charges are imposed in the development context, they would comply with Proposition 26 if it applied. Again, as noted above, SMUD's charges are not subject to Proposition 26 because they are meaningfully voluntary and therefore not "imposed."

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Glossary

ACEEE

American Council for an Energy-Efficient Economy

Analog and digital non-communicating meters

Analog meters have mechanical dials that a utility worker has to read each month to measure a customer's power usage. Digital non-communicating meters incorporate digital sensors and do not have communication capabilities for automatic monitoring, control and two way communication through a wireless mesh network.

California Public Utilities Commission (CPUC)

An agency that regulates investor-owned utilities in the state of California.

Claim

Requests for payment, to or from SMUD, for damaged property or other obligations.

Core values

SMUD's core values are part of the Board's Strategic Direction and are a component of all solutions for meeting customers' electrical needs. SMUD core values include competitive rates, access to credit markets, reliability, customer relations, safety, environmental leadership, employee relations, resource planning, public power business model, ethics, information management and security, enterprise risk management, and emerging technologies.

Consumer Price Index (CPI)

Government-produced monthly data on changes in the prices paid by urban consumers for a representative basket of goods and services.

Credit Markets

A financial market where participants buy and sell debt securities, usually in the form of bonds.

Days Cash On Hand

A financial metric that indicates the number of days of operating expenses that could be paid with the current cash available.

Digital Communicating Meter

A computerized meter that incorporates digital sensors and communication capabilities for automatic monitoring, control and two-way communication through a wireless mesh network.

Distributed Generation

Distributed generation, also called on-site generation or decentralized generation, typically generates electricity from either sunlight or natural gas combustion. Distributed generation systems are small-scale power generation technologies (typically in the range of 3 to 10,000 kW) that may provide electricity directly for customer use onsite, or deliver electricity back into the distribution grid.

Energy Assistance Program Rate (EAPR)

A SMUD program that offers eligible low-income customers a discount on their monthly energy bills.

Energy Information Administration (EIA)

An independent agency within the U.S. Department of Energy that develops surveys, collects energy data, and analyzes and models energy issues.

Equity Ratio

SMUD equity divided by SMUD debt and equity – this percentage shows the value of SMUD assets relative to SMUD's financial leverage.

Fixed Rate

The proposed SMUD rate with fixed energy prices; one price for all kWh usage in summer, and one price for all kWh usage in non-summer months. Prices are subject to rate changes during a public rate process.

Federal Poverty Level (FPL)

A measure of income issued every year by the United States Department of Health and Human Services. Federal poverty levels are used to determine eligibility for certain programs and benefits.

Fixed Charge Coverage or Fixed Charge Ratio

The fixed charge ratio is a measure of cash flow available for debt service payments.

Greenhouse Gases (GHG)

Gases such as carbon dioxide, methane and nitrous oxides that trap heat in the atmosphere. Because of fossil fuel use and other human activity, greenhouse gases have been concentrating at higher levels, leading to general climate warming. SMUD produces greenhouse gases primarily through its operation of natural gas-fired power plants. SMUD is committed to reducing its GHG emissions through the use of renewable power and other means. SMUD's goal is to reduce its greenhouse gas emissions to only 10% of its 1990 level by 2050.

Holidays – for off-peak pricing

Off-peak pricing shall apply during the following holidays:

Holiday	Month	Date
New Year's Day	January	1
Martin Luther King Jr. Day	January	Third Monday
Lincoln's Birthday	February	12
Presidents Day	February	Third Monday
Memorial Day	May	Last Monday
Independence Day	July	4
Labor Day	September	First Monday
Columbus Day	October	Second Monday
Veterans Day	November	11
Thanksgiving Day	November	Fourth Thursday
Christmas Day	December	25

J.D Power and Associates

J.D. Power and Associates is a global marketing information services company providing forecasting, performance improvement, social media and customer satisfaction insights and solutions.

Key Values

Key Values, part of the Board's Strategic Direction, define SMUD's course of action regarding research and development, economic development, system enhancement, and outreach and communication.

Legacy Rate

SMUD's flat residential rate in effect on January 1, 2017. For eligible customers, this rate will be subject to rate adjustments in future rate processes through December 31, 2022.

Load

The amount of power carried by a utility system or subsystem, or the amount of power consumed by an electric device, at a specified time. Load may also be referred to as demand.

Low-income household

For SMUD program eligibility, households with income that is less than twice the federal poverty level.

Marginal Cost

The economic concept of the change in total costs that result when output is increased or decreased by a single unit.

Net Debt per Customer

A metric that measures the amount of debt outstanding, minus cash on hand, divided by the number of customers.

Net Energy Metering (NEM)

Customers who have qualifying renewable energy technologies, as defined by the NEM rate schedule, are charged for the energy SMUD delivers to them, and credited for the energy they export to SMUD (for example, solar). The amount of energy remaining after the deduction of any energy generation from metered energy consumption. SMUD's NEM pricing, rules and regulations are described in Rate Schedule 1-NEM.

Peak periods

Hours when SMUD experiences its highest seasonal system peak and electricity is more expensive. In its time-based rates, SMUD charges higher prices for energy during the peak periods to reflect the cost of service.

Pilot Rate

Experimental rates offered for a limited time to a sample of customers for studying their impact and to help determine future proposals for new rates and programs including preparing for rate implementation.

Plug-in Electric Vehicle (PEV)

A passenger vehicle powered by battery packs that can be recharged from an external source of electricity. Plug-in hybrid electric vehicles also have an internal combustion engine.

Photovoltaic (PV)

Photovoltaic is a generation technology that uses semiconductors to convert solar radiation into electricity.

Rates book

A legal document that codifies prices and fees for SMUD electric rates.

System Average Interruption Duration Index (SAIDI)

SAIDI is an index of electric system reliability that measures the average length of time for electric service outages per customer on an annual basis. Board Policy SD-4 on Reliability sets the SAIDI, excluding major events, at between 49.7 to 68.7 minutes.

System Average Interruption Frequency Index (SAIFI)

SAIFI is an index of electric system reliability that measures the frequency of electric service outages per customer on an annual basis. Board Policy SD-4 on Reliability sets the SAIFI, excluding major events, at between .85 to 1.14 outages per customer per year.

Senate Bill 1 (SB-1)

California State Senate Bill 1 (SB-1) requires utility investment in customer-sited solar installations. In 2008, SMUD implemented a per kilowatt-hour solar surcharge to fund its investment requirements under the legislation. The surcharge will end in 2018.

Standard Customer Bill

Refers to customers who are on the standard residential rate and are not receiving any Energy Assistance Program Rate (EAPR) discount or the Medical Equipment Discount (MED).

Strategic Direction (SD)

Guidelines used by SMUD's Board of Directors in the decisions made about SMUD's policies and operations. The Board continually reviews and refines these guidelines to make sure SMUD will meet customer's energy needs, both now and in the future.

System Infrastructure Fixed Charge (SIFC)

A fixed monthly charge that helps cover the cost of infrastructure, including poles, lines, transformers, service drop and meter equipment, as well as billing and customer service expenses such as the contact center.

System Average Rate

Total retail revenue divided by the total kilowatt-hours sold.

Time-of-Day (TOD) Rate

SMUD name for a residential time-based rate that charges different prices based on the time-of-day electricity is used. With time-based rates such as the TOD (5-8 p.m. Peak) Rate, the price charged per kilowatt-hour depends on the time of day and reflects energy supply and demand. Power is typically most expensive between 5 and 8 p.m. on weekdays, especially in the summer, when heavy air-conditioning use causes spikes in electricity consumption.

Tariff

A schedule of prices and fees including terms, conditions, rules and regulations for any given electric service rate or electric rule. Tariff sheets are listed in the rates book, which is available on www.smud.org.

Time-of-Use (TOU)

Rates in which energy prices vary by season and time of day to better reflect costs. TOU is an acronym widely used in the electric utility industry that refers to electric rates that charges different prices by time period to reflect cost of providing service. At SMUD, for residential customers, it is called Time-of-Day.

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Unaudited Financial Statistics

SMUD Retail Energy Sales Forecast

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Table 13 SMUD Retail Energy Sales Forecast

SMUD Retail Energy Sales Forecast

Managed Monthly Megawatt Hours (MWh) by Rate Class

		Residential		Agric & Irrig	Small Commercial		Commerical Time-of-Use			Street & Traffic	Night Lighting	Total Sales (MWh)
Year	Month	Elect Heat	Std Heat		< 19 kW	20 - 299 kW	300 - 499 kW	500 - 999 kW	=> 1000 kW			
2018	1	145,274	306,613	2,537	65,962	140,057	46,156	46,853	179,006	5,214	292	937,965
	2	120,245	262,733	2,535	62,899	140,460	46,096	46,056	165,661	5,224	292	852,200
	3	94,150	231,652	2,529	58,153	134,426	44,075	45,698	164,672	5,233	291	780,880
	4	77,327	211,529	3,574	54,662	131,288	42,678	43,647	164,720	5,243	290	734,958
	5	71,650	218,607	6,000	55,260	137,236	43,552	45,408	159,507	5,252	290	742,763
	6	82,206	278,238	9,535	61,447	151,905	47,616	49,424	172,776	5,262	289	858,699
	7	101,034	364,411	11,905	67,241	162,610	49,761	51,298	178,721	5,262	289	992,532
	8	102,119	367,312	12,324	68,205	165,270	50,462	53,255	181,048	5,267	288	1,005,551
	9	95,295	350,079	10,461	66,999	161,283	49,949	53,339	178,987	5,277	288	971,958
	10	76,981	265,982	6,562	60,831	151,382	48,076	51,789	172,516	5,286	287	839,694
	11	76,438	226,440	3,857	56,122	138,093	46,488	47,385	172,446	5,296	287	772,851
	12	117,435	279,726	2,547	61,619	140,851	46,358	46,761	165,984	5,305	286	866,872
2019	1	144,800	307,865	2,538	65,334	137,579	45,095	45,294	182,482	5,169	285	936,442
	2	119,661	263,078	2,535	62,244	137,951	44,889	44,472	168,711	5,178	285	849,004
	3	92,865	229,148	2,524	57,337	131,331	42,484	43,880	166,946	5,183	284	771,981
	4	75,790	207,394	3,569	53,874	128,105	40,949	41,787	166,700	5,192	284	723,644
	5	69,984	213,585	6,000	54,371	133,576	41,457	43,313	160,759	5,202	283	728,530
	6	80,317	272,769	9,544	60,456	147,901	45,496	47,451	174,542	5,211	282	843,970
	7	99,038	359,303	11,922	66,232	158,588	47,656	49,466	180,498	5,211	282	978,196
	8	100,665	364,513	12,342	67,320	161,703	48,655	51,888	183,392	5,220	282	995,980
	9	94,475	350,282	10,476	66,410	158,730	48,601	52,534	182,079	5,225	281	969,094
	10	76,403	266,461	6,568	60,318	149,154	46,916	51,257	175,742	5,234	281	838,334
	11	75,953	227,230	3,859	55,690	136,151	45,457	47,011	175,769	5,244	280	772,643
	12	117,109	282,111	2,547	61,129	138,854	45,391	46,553	169,354	5,253	279	868,579

Table 14 Pro Forma Consolidated Income Statement

PRO FORMA CONSOLIDATED INCOME STATEMENT
2017-2019 ($ Millions)

	2017 Budget	2018 Projection	2019 Projection
Operating Revenues:			
Billed Sales	$ 1,405.1	$ 1,386.5	$ 1,382.7
EAPR/MED Discounts	(47.1)	(47.1)	(43.0) [1]
Recommended Revenue Adjustment		16.5	24.0
Uncollectable Electric Sales	(5.4)	(5.4)	(5.3)
Net Sales	**1,352.6**	**1,350.5**	**1,358.4**
Other Revenue	15.0	24.4	24.1
Total Revenue	**1,367.6**	**1,374.9**	**1,382.5**
Operating Expenses:			
Commodity	468.9	427.6	445.5
Energy Operations	68.6	78.2	87.1
Energy Assets	194.2	201.6	197.9
Customer/Commodity	99.0	104.6	109.0
Internal	43.0	43.7	42.6
Technology	24.2	24.1	25.7
Corporate	43.5	46.9	48.9
Public Good (excluding EAPR/MED Discount)	66.7	60.6	63.0 [1]
Total Operations	**1,008.1**	**987.3**	**1,019.7**
Depreciation, Depletion, and Amortization	192.6	204.7	207.1
Total Operating Expenses	**1,200.7**	**1,192.0**	**1,226.8**
Net Operating Income	**166.9**	**182.9**	**155.7**
Other (Income) Expenses:			
Interest Income and Other	(10.9)	(9.3)	(9.4)
Other Non Cash	(32.8)	23.5	22.6
Total Interest Income & Other	**(43.7)**	**14.2**	**13.2**
Interest Expense			
Interest Expense	82.9	86.6	83.2
Net Interest Charges	**82.9**	**86.6**	**83.2**
Change in net position - Net Income (Loss)	**$ 127.7**	**$ 82.1**	**$ 59.3**
Cash Available for Fixed Debt Service	$ 424.4	$ 394.8	$ 368.1
Interest Payments	93.7	93.3	88.4
Principal Payments	139.4	125.9	132.0
Total Fixed Debt Service	**233.1**	**219.2**	**220.5**
Fixed Charge Coverage Ratio	**1.82**	**1.80**	**1.67**

[1] Reflects $3.8M of Net impact of EAPR restructure in 2019; offset by corresponding increase in public good expenses for EAPR Energy Efficiency

Table 15 Pro Forma Capital Expenditures

PRO FORMA CAPITAL EXPENDITURES
2017-2019 ($ Millions)

	2017 Budget	2018 Projection	2019 Projection
Energy Operations	9.2	14.2	22.7
Energy Assets	207.6	251.3	175.3
Customer/Community	3.0	3.2	3.1
Internal	75.6	52.2	25.8
Technology	65.7	74.4	64.0
Total Capital	361.0	395.3	291.0

Table 16 Pro Forma Consolidated Sources and Uses of Cash

PRO FORMA CONSOLIDATED SOURCES AND USES OF CASH
2017-2019 ($ Millions)

	2017 Budget	2018 Projection	2019 Projection
Operating Sources of Funds:			
Receipt from Customers	1,352.6	1,334.3	1,330.8
Recommended Revenue Adjustment		16.3	27.6
Other Electric Revenue	25.5	23.9	23.3
Total Operating Sources of Funds:	**1,378.2**	**1,374.5**	**1,381.7**
Operating Uses of Funds:			
Net Operating Expenses	529.5	551.1	566.5
Commodity Expenses	439.2	400.6	421.0
Total Operating Uses of Funds:	**968.7**	**951.7**	**897.6**
Net Source of Funds from Operations:	**409.5**	**422.8**	**394.1**
Financing Sources of Funds:			
Issuance of Debt	-	100.0	130.0
Total Financing Sources of Funds:	**-**	**100.0**	**130.0**
Financing Uses of Funds:			
Capital & Reserve Expenditures	361.6	395.8	291.0
Principal Payments on Debt	132.2	118.7	126.8
Net Loans	1.0	0.4	(0.1)
Interest Payments on Debt	92.7	95.3	90.7
Net Use of Funds from Financing:	**587.5**	**610.2**	**508.5**
Investing Sources of Funds:			
Interest Income	9.0	7.6	7.7
Net Source of Funds from Investing:	**9.0**	**7.6**	**7.7**
Net Source/ (Use) of Funds	(169.0)	(79.8)	23.3

Annual Sales Data Tables

Table 17 Annual Sales Data by Rate Schedule - 2015

SACRAMENTO MUNICIPAL UTILITY DISTRICT
ANNUAL SALES DATA BY RATE SCHEDULE - 2015
UNAUDITED

	RATE CATEGORY	2015 MONTHLY AVERAGE OF CUSTOMERS	BILLED THIS YEAR KWH	BILLED THIS YEAR REVENUE	ESTIMATED UNBILLED - DEC. 31, 2015 KWH	ESTIMATED UNBILLED - DEC. 31, 2015 REVENUE
AGRICULTURAL	AOD	4	309,506	49,385.93	1,503	713.00
	AON	4	62,225	7,420.96	0	0.00
	ASD	540	55,283,120	6,740,938.20	2,194,219	308,621.00
	ASN	1,883	22,100,991	3,017,927.83	628,845	93,893.00
	ASN-BH	1	27,120	3,377.75	2,098	260.00
	Various*	0	0	(93.18)	0	0.00
TOTAL AGRICULTURAL		**2,432**	**77,782,962**	**9,818,957.49**	**2,826,665**	**403,487.00**
COMMERCIAL AND INDUSTRIAL						
SMALL	GEV_FC	3	25,505	4,504.23	0	0.00
	GFN	465	64,675	56,026.38	2,649	2,590.00
	GSN	4	84,471	12,132.36	346	67.00
	GSN_T	55,070	760,638,495	110,042,697.45	44,032,412	6,360,887.00
	GSN_1	0	0	0.00	0	0.00
	GSN_2	0	0	0.00	0	0.00
	GSN_3	0	0	0.00	0	0.00
	GT4S1	0	0	0.00	0	0.00
	Various*	0	(19,157,000)	(1,077,675.36)	0	0.00
TOTAL SMALL		**55,541**	**741,656,146**	**109,037,685.06**	**44,035,407**	**6,363,544.00**
LARGE	GSS_S	2	405,746	49,318.47	0	0.00
	GSS_T	7,761	1,810,108,653	238,891,373.16	104,765,891	13,766,396.00
	GSS_S1	0	0	0.00	0	0.00
	GSS_S2	0	0	0.00	0	0.00
	GT4S2	0	0	0.00	0	0.00
	GUP_S	60	26,663,489	3,610,587.02	1,945,951	211,177.00
	GUS_S	410	558,400,131	68,610,765.41	33,632,896	3,432,155.00
	GUS_S1	0	0	0.00	0	0.00
	GUS_S2	0	0	0.00	0	0.00
	Sub-total	8,233	2,395,578,019	311,162,044.06	140,344,738	17,409,728.00
	GUP_M	15	17,685,984	2,160,299.91	1,537,055	146,743.00
	GUP_M1	0	0	0.00	0	0.00
	GUS_M	231	592,145,296	68,187,570.15	35,362,558	3,397,550.00
	GUS_M1	0	0	0.00	0	0.00
	GUS_M2	0	0	0.00	0	0.00
	GUT_M	4	3,319,684	464,955.19	211,909	32,397.00
	Sub-total	250	613,150,964	70,812,825.25	37,111,522	3,576,690.00
	GDT_99	2	122,475,250	10,060,264.12	9,972,068	775,504.00
	GNT_04	0	0	0.00	0	0.00
	GNT_05	1	67,235,729	5,549,169.24	1,965,777	155,569.00
	GUP_L	42	390,320,829	40,006,092.54	22,333,926	2,124,034.00
	GUP_L1	0	0	0.00	0	0.00
	GUS_L	87	661,688,553	74,225,859.66	42,407,571	4,355,749.00
	GUS_L1	0	0	0.00	0	0.00
	GUS_L2	0	0	0.00	0	0.00
	GUT_L	21	698,628,377	67,159,958.50	42,112,224	3,789,523.00
	GUT_L19	1	3,701,203	766,493.54	335,568	124,931.00
	GUT_L2	0	0	0.00	0	0.00
	GUT_L99	0	0	0.00	0	0.00
	Various*	0	0	(886,046.39)	0	0.00
	Sub-total	154	1,944,049,941	196,881,791.21	119,127,134	11,325,310
TOTAL LARGE		**8,637**	**4,952,778,924**	**578,856,660.52**	**296,583,394**	**32,311,728**
TOTAL COMMERCIAL AND INDUSTRIAL		**64,178**	**5,694,435,070**	**687,894,345.58**	**340,618,801**	**38,675,272**
STREET LIGHTS	SL_CODM	41	736,881	98,553.26	20,480	2,751.00
	SL_COM	312	52,927,254	3,892,457.37	1,585,019	123,366.00
	SL_COM_M	24	138,154	12,396.59	15,884	1,457.00
	SL_DOM	647	7,440,617	2,662,296.57	248,169	91,403.00
	SL_TSF	6	613,924	105,424.80	16,064	2,782.00
	Various*	0	0	(10,437.76)	0	0.00
TOTAL STREET LIGHTS		**1,029**	**61,856,830**	**6,760,690.83**	**1,885,616**	**221,759.00**
INTERSECTION LGHT	TS	1,763	5,953,572	679,526.40	402,399	46,003.00
	TS_F	53	75,804	10,549.83	2,962	437.00
	Various*	0	0	0.00	0	0.00
TOTAL INTERSECTION LIGHTS		**1,816**	**6,029,376**	**690,076.23**	**405,361**	**46,440.00**
NIGHT LIGHTS	NLGT @	4,723	3,740,127	1,167,139.84	169,241	54,136.00
	Various*	0	0	0.00	0	0.00
TOTAL NIGHT LIGHTS		**4,723**	**3,740,127**	**1,167,139.84**	**169,241**	**54,136.00**

SACRAMENTO MUNICIPAL UTILITY DISTRICT
ANNUAL SALES DATA BY RATE SCHEDULE - 2015
UNAUDITED

	RATE CATEGORY	2015 MONTHLY AVERAGE OF CUSTOMERS	BILLED THIS YEAR KWH	BILLED THIS YEAR REVENUE	ESTIMATED UNBILLED - DEC. 31, 2015 KWH	ESTIMATED UNBILLED - DEC. 31, 2015 REVENUE
RESIDENTIAL	RPEV_1	428	6,209,386	755,357.70	467,183	52,960.00
	RSCH	12,383	140,872,944	18,165,975.32	9,312,676	1,124,646.00
	RSCH_E	1,270	12,715,940	1,081,492.03	814,648	67,093.00
	RSCH_E_SP	32	281,527	22,616.07	16,668	1,317.00
	RSCH_EL	93	1,105,602	81,213.42	70,954	5,270.00
	RSCH_L	197	2,716,801	306,316.40	175,389	19,419.00
	RSCH_SP	225	2,441,252	313,134.94	155,791	19,029.00
	RSEH	76,537	638,633,135	89,885,870.49	41,532,838	5,603,296.00
	RSEH_E	25,721	217,785,240	19,195,716.15	13,091,473	1,147,404.00
	RSEH_E_SP	302	2,781,517	252,470.22	154,868	13,765.00
	RSEH_EL	1,084	10,374,593	749,600.97	632,704	46,609.00
	RSEH_L	662	7,513,508	904,825.92	463,910	55,687.00
	RSEH_SP	579	5,554,529	755,351.06	365,433	48,837.00
	RSMM	92	29,356,868	3,523,398.07	1,680,171	196,753.00
	RTCH	8	148,518	19,157.48	7,610	880.00
	RTE5	5	162,935	20,683.36	12,107	1,379.00
	RTEH	103	1,884,100	246,246.37	102,700	11,461.00
	RTEV4S	3	4,405	364.83	316	25.00
	RWCH	1,626	28,216,513	3,546,938.95	2,285,564	271,313.00
	RWCH_E	83	1,346,045	116,645.22	111,618	10,206.00
	RWCH_E_SP	4	58,277	4,507.60	4,473	392.00
	RWCH_EL	9	206,010	18,709.30	15,297	1,432.00
	RWCH_L	28	570,811	66,996.96	49,992	5,719.00
	RWCH_SP	29	455,913	55,481.30	40,747	4,821.00
	RWEH	2,398	40,638,809	5,463,289.02	3,334,583	435,411.00
	RWEH_E	271	5,002,486	489,267.02	364,792	35,728.00
	RWEH_E_SP	6	107,188	10,134.37	8,750	675.00
	RWEH_EL	8	163,336	15,627.59	14,405	1,711.00
	RWEH_L	33	612,972	76,804.52	49,502	5,935.00
	RWEH_SP	33	522,891	68,039.31	44,012	5,804.00
	Various*	0	0	0.00	0	0.00
	Sub-total	124,253	1,158,444,051	146,212,231.96	75,381,174	9,194,977.00
	RSGH	338,772	2,803,321,843	411,309,567.13	142,641,552	20,577,977.00
	RSGH_E	67,122	510,737,530	47,892,977.38	24,365,658	2,184,769.00
	RSGH_E_SP	994	7,562,836	703,676.31	324,264	28,416.00
	RSGH_EL	2,705	24,135,762	1,853,355.48	1,187,916	82,336.00
	RSGH_L	3,762	39,094,893	4,946,371.22	1,966,275	240,310.00
	RSGH_SP	4,442	36,766,652	5,249,198.10	1,843,343	259,372.00
	RTG5	39	681,301	91,519.26	37,039	4,424.00
	RTGH	165	2,272,686	310,792.45	87,861	9,924.00
	RWGH	3,486	47,100,617	6,617,902.34	3,383,482	459,150.00
	RWGH_E	297	3,756,362	363,440.75	260,534	24,738.00
	RWGH_E_SP	6	74,910	6,250.32	7,687	673.00
	RWGH_EL	10	169,948	15,744.73	12,949	1,070.00
	RWGH_L	53	728,011	91,742.51	58,280	6,491.00
	RWGH_SP	50	619,113	81,623.78	40,363	5,136.00
	Various*	0	0	(2,434,077.56)	0	0.00
	Subtotal	421,903	3,477,022,464	477,100,084.20	176,217,203	23,884,786.00
TOTAL RESIDENTIAL		**546,155**	**4,635,466,515**	**623,312,316.16**	**251,598,377**	**33,079,763.00**
TOTAL ALL CLASSES		**615,610**	**10,479,310,880**	**1,329,643,526.13**	**597,504,061**	**72,480,857.00**

Customer count per Monthly General Ledger Balancing Report totals (SMUD properties excluded).
@ Night Light customers not included in customer count.
* Manual adjustments to billings, unreconciled differences within SAP, and other adjustments.

Table 18 Annual Sales Data by Rate Schedule - 2016

SACRAMENTO MUNICIPAL UTILITY DISTRICT
ANNUAL SALES DATA BY RATE SCHEDULE - 2016
UNAUDITED

	RATE CATEGORY	2016 MONTHLY AVERAGE OF CUSTOMERS (a)	BILLED THIS YEAR KWH	BILLED THIS YEAR REVENUE	ESTIMATED UNBILLED - DEC. 31, 2016 KWH	ESTIMATED UNBILLED - DEC. 31, 2016 REVENUE
AGRICULTURAL	AOD	4	259,006	46,577.51	873	1,001.41
	AON	4	54,379	6,581.59	0	0.00
	ASD	542	52,832,266	6,526,809.31	1,899,160	272,548.48
	ASN	1,892	19,991,530	2,816,177.34	529,009	81,527.99
	ASN-BH	1	21,840	2,866.28	1,950	245.31
	(b) Various	0	0	(90.04)	0	0.00
TOTAL AGRICULTURAL		**2,444**	**73,159,021**	**9,398,921.99**	**2,430,992**	**355,323.19**
COMMERCIAL AND INDUSTRIAL						
SMALL	GEV_FC	4	37,174	6,415.41	0	0.00
	GFN	466	64,623	56,846.41	2,834	2,658.61
	GSN	1	20,125	3,358.46	0	0.00
	GSN_T	55,352	761,094,447	111,996,765.23	43,459,835	6,347,789.33
	(b) Various	0	(24,739,000)	(1,288,084.44)	0	0.00
TOTAL SMALL		**55,822**	**736,477,369**	**110,775,301.07**	**43,462,669**	**6,350,447.94**
LARGE	GSS_S	0	(2,482)	(381.12)	0	0.00
	GSS_T	7,833	1,806,911,513	244,016,887.32	104,191,571	13,887,389.88
	GUP_S	64	27,634,068	3,882,130.37	1,710,805	185,624.64
	GUS_S	404	551,826,094	69,079,403.29	33,996,131	3,490,951.67
	Sub-total	8,301	2,386,369,193	316,978,039.86	139,898,507	17,563,966.19
	GUP_M	13	22,906,459	2,716,545.15	1,726,546	168,300.45
	GUS_M	224	554,338,161	65,058,812.68	33,468,649	3,249,398.16
	GUT_M	4	3,104,562	419,979.81	203,369	24,782.58
	Sub-total	241	580,349,182	68,195,337.64	35,398,564	3,442,481.19
	GDT_99	2	121,005,659	10,150,075.33	9,325,594	726,406.88
	GNT_05	2	209,396,873	17,772,110.71	7,188,215	607,492.25
	GNT_06	0	3,525,883	380,162.90	1,041,016	113,003.11
	GNT_07	0	14,907,305	1,622,000.49	7,530,203	815,730.52
	GUP_L	39	367,991,291	38,553,141.01	20,805,859	2,006,354.26
	GUS_L	91	632,124,010	73,230,373.10	36,251,287	3,807,575.44
	GUT_L	22	565,088,692	55,706,166.06	37,631,962	3,403,086.71
	GUT_L19	1	700,128	655,793.34	0	54,289.00
	(b) Various	0	0	(894,737.21)	0	0.00
	Sub-total	158	1,914,739,841	197,175,085.73	119,774,136	11,533,938.17
TOTAL LARGE		**8,700**	**4,881,458,216**	**582,348,463.23**	**295,071,207**	**32,540,385.55**
TOTAL COMMERCIAL AND INDUSTRIAL		**64,522**	**5,617,935,585**	**693,123,764.30**	**338,533,876**	**38,890,833.49**
STREET LIGHTS	SL_CODM	40	729,997	98,822.66	21,266	2,859.87
	SL_COM	312	44,865,705	3,566,586.22	1,624,337	126,947.95
	SL_COM_M	70	333,816	31,898.63	30,707	3,017.03
	SL_DOM	647	6,124,127	2,541,889.50	197,899	89,004.57
	SL_TSF	6	622,560	106,488.15	17,260	2,998.86
	(b) Various	0	0	(1,475.99)	0	0.00
TOTAL STREET LIGHTS		**1,076**	**52,676,205**	**6,344,209.17**	**1,891,469**	**224,828.28**
INTERSECTION LGHT	TS	1,779	5,771,118	676,729.87	404,033	46,678.39
	TS_F	53	75,804	10,757.21	3,028	454.34
	(b) Various	0	0	0.00	0	0.00
TOTAL INTERSECTION LIGHTS		**1,832**	**5,846,922**	**687,487.08**	**407,061**	**47,132.73**
NIGHT LIGHTS	NLGT	4,637	3,682,669	1,157,817.43	172,149	54,793.07
	(b) Various	0	0	0.00	0	0.00
TOTAL NIGHT LIGHTS	(c)	**4,637**	**3,682,669**	**1,157,817.43**	**172,149**	**54,793.07**

SACRAMENTO MUNICIPAL UTILITY DISTRICT
ANNUAL SALES DATA BY RATE SCHEDULE - 2016
UNAUDITED

		RATE CATEGORY	2016 MONTHLY AVERAGE OF CUSTOMERS (a)	BILLED THIS YEAR KWH	BILLED THIS YEAR REVENUE	ESTIMATED UNBILLED - DEC. 31, 2016 KWH	ESTIMATED UNBILLED - DEC. 31, 2016 REVENUE
RESIDENTIAL		RPEV_1	542	7,985,567	988,719.24	390,851	46,242.31
		RSCH	11,657	132,845,200	17,863,433.46	7,974,547	969,926.14
		RSCH_E	1,220	12,087,024	1,096,866.08	679,238	56,556.68
		RSCH_E_SP	30	263,933	22,661.40	14,680	1,198.02
		RSCH_EL	88	1,042,561	80,272.23	67,806	5,222.33
		RSCH_L	187	2,430,467	285,340.89	148,044	15,481.13
		RSCH_SP	210	2,295,531	306,689.35	138,098	16,960.95
		RSEH	77,507	659,423,230	95,674,992.92	39,045,760	5,276,306.38
		RSEH_E	25,625	212,193,553	19,437,001.84	11,240,728	958,802.76
		RSEH_E_SP	261	2,287,356	209,149.61	113,626	9,839.98
		RSEH_EL	1,140	10,662,252	794,353.71	607,588	40,807.13
		RSEH_L	682	7,738,876	941,768.05	461,232	50,922.14
		RSEH_SP	507	4,944,440	684,737.44	291,720	37,872.42
		RSMM	92	29,296,169	3,800,758.41	1,648,933	213,119.48
		RTCH	0	14,264	1,652.60	0	0.00
		RTE5	0	20,759	2,370.20	0	0.00
		RTEH	5	240,285	27,601.50	0	0.00
		RTEV4S	0	479	39.03	0	0.00
		RWCH	1,557	27,010,243	3,529,342.18	1,924,884	225,029.64
		RWCH_E	81	1,293,871	119,193.38	94,795	8,537.48
		RWCH_E_SP	3	48,922	4,139.85	2,818	247.29
		RWCH_EL	6	90,465	7,360.20	6,427	441.82
		RWCH_L	26	541,929	64,847.24	35,360	3,837.52
		RWCH_SP	28	456,719	58,470.00	35,417	4,185.37
		RWEH	2,468	42,953,442	5,860,958.39	3,189,640	408,237.09
		RWEH_E	255	4,582,480	447,005.93	298,647	25,185.08
		RWEH_E_SP	4	69,853	6,198.77	3,814	299.06
		RWEH_EL	9	189,721	18,558.42	13,181	1,102.17
		RWEH_L	39	722,462	88,508.59	57,296	6,105.11
		RWEH_SP	31	483,981	63,351.81	35,858	4,477.70
	(b)	Various	0	0	0.00	0	0.00
		Sub-total	124,258	1,164,216,034	152,486,342.72	68,520,988	8,386,943.18
		RSGH	342,594	2,857,291,628	431,929,516.71	142,343,943	21,073,754.46
		RSGH_E	66,301	489,534,888	46,832,765.07	22,072,053	1,947,563.52
		RSGH_E_SP	876	6,347,696	590,995.55	265,813	23,270.19
		RSGH_EL	2,842	24,900,921	1,948,288.52	1,171,289	79,937.07
		RSGH_L	3,854	39,515,184	5,052,705.22	1,948,435	237,272.36
		RSGH_SP	3,913	32,868,728	4,805,000.10	1,610,795	231,066.64
		RTG5	1	74,847	8,893.56	0	0.00
		RTGH	9	224,497	26,515.53	0	0.00
		RWGH	3,505	48,293,364	6,996,931.18	3,208,147	440,788.51
		RWGH_E	292	3,779,588	380,914.24	250,660	23,690.88
		RWGH_E_SP	5	69,911	6,158.85	4,502	382.44
		RWGH_EL	12	204,754	18,959.60	14,243	1,284.28
		RWGH_L	54	734,430	94,152.17	54,571	5,918.19
		RWGH_SP	44	546,786	74,105.93	32,221	4,223.74
	(b)	Various	0	0	(2,838,326.59)	0	0.00
		Subtotal	424,302	3,504,387,222	495,927,575.64	172,976,672	24,069,152.28
		RT01	1,162	10,299,339	1,380,942.69	997,175	125,332.14
		RT01_E	48	310,868	32,605.77	36,473	3,874.82
		RT01_EL	2	16,186	426.08	1,347	49.85
		RT01_L	14	125,613	15,051.01	15,344	1,599.57
	(b)	Various	0	0	0.00	0	0.00
		Subtotal	1,226	10,752,006	1,429,026	1,050,339	130,856.38
TOTAL RESIDENTIAL			**549,787**	**4,679,355,262**	**649,842,944**	**242,547,999**	**32,586,951.84**
TOTAL ALL CLASSES	(c)		**624,297**	**10,432,655,664**	**1,360,555,144**	**585,983,546**	**72,159,862.60**

(a) Customer count is defined as the number of active electric contracts per the Monthly General Ledger Balancing Report, excluding SMUD properties.
(b) Manual adjustments to billings and other adjustments.
(c) Night Light customers contracts are included in "Total All Classes" count beginning in 2016.

Appendix I

NERA Marginal Cost Study Review Letter

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NERA
ECONOMIC CONSULTING

Amparo Nieto
Associate Director

NERA Economic Consulting
777 South Figueroa St.
Suite 1950
Los Angeles, CA 90017

December 6, 2016

Resource Planning and Pricing (RP&P) Department
Sacramento Municipal Utility District
6301 S Street, Mailstop A451
Sacramento, CA 95817-1899

Dear RP&P Staff,

NERA Economic Consulting (NERA) was engaged by the Sacramento Municipal Utility District (SMUD) to provide an independent review of SMUD's 2016 Marginal Cost of Service (MCS) Study and its proposed residential Time of Use (TOU) rates for the period 2017 - 2019. NERA was primarily responsible for assessing SMUD's marginal cost methods and whether the results of the MCS study were appropriately considered in the determination of cost allocation by rate class as well as in the proposed rate design.

Documents Reviewed

In conducting our review, we reviewed SMUD's draft marginal cost model and marginal cost study report,[1] SMUD's Capital Expansion Plans[2], and SMUD's draft report titled "2017 Residential Time-of-Use Rate (RT02) Design Study"[3]. Additionally, NERA requested clarification on any questions arising from the review of the documentation. Although a comprehensive review of the study was performed, NERA did not audit the input data to the MCS model or the rate models employed by SMUD.

Key Findings of Review:

Based upon our review, NERA concludes the following:

1. SMUD's MCS study relies on broadly accepted marginal cost methodologies for use in electric utility ratemaking. It adequately produces estimates of how SMUD's costs are expected to change with additions of energy, demand and customers over time.

[1] The latest draft information that NERA reviewed was dated November 17, 2016.
[2] "Distribution System Five Year Plan, 2016-2020, Distribution Services", June 2015, and "2015 Grid Planning – Ten Year Assessment", December 2015.
[3] The latest draft that NERA reviewed was dated November 30, 2016

2. We confirmed that the assumed cost drivers for the various components of the study appropriately reflect SMUD's network planning and operational processes, as well as forward-looking wholesale market conditions in the region.

3. SMUD's MCS study correctly captures differences in marginal cost of serving load throughout the day in each month at different voltage levels of service, as well as marginal facilities and customer-related costs by customer type.

4. The study also appropriately factors in the impact of environmentally-related policies such as the state Renewable Portfolio Standard (RPS) on incremental costs associated with meeting load.

5. NERA has provided recommendations for future refinement of a few aspects of the MCS study to the extent that the required data is available.

6. SMUD's proposed 2017-2019 TOU residential rates include time-differentiated price signals that reasonably reflect the underlying marginal cost by rate period. The proposed TOU volumetric rate levels are constrained by SMUD's decision on the monthly system infrastructure fixed charge and the absence of a per-kW facilities charge that would recover the marginal cost of local distribution facilities.

7. SMUD's choice of TOU rate periods considered the recent history of hourly marginal energy cost profiles, as well as customers' ability to effectively respond to peak charges. NERA recommends revisiting the definitions of peak, mid-peak and off-peak periods in future TOU rate reviews to make sure that they remain generally appropriate and consistent with the expected hourly patterns of SMUD's marginal cost components.

8. SMUD's proposed TOU residential rate design represents a significant improvement over the existing residential rates towards achieving more efficient price signals and increased intra-class equity.

Best regards,

Amparo Nieb

Amparo Nieto
Associate Director

Proposed Residential Time-of-Day (5-8 p.m. Peak) Rate

Proposed Rate Design

SMUD proposes the following two-part rate design comprised of a monthly fixed charge and an energy charge which varies by season and time period as shown in Table 19:

Table 19 Proposed Rate Design

Season and Charge Components	Unit	2018 Proposed with 1.5% Rate Increase
System Infrastructure Fixed Charge	per month	$ 20.30
Summer Peak	per kWh	$ 0.2835
Summer Mid-Peak	per kWh	$ 0.1611
Summer Off-Peak	per kWh	$ 0.1166
Non-Summer Peak	per kWh	$ 0.1338
Non-Summer Off-Peak	per kWh	$ 0.0969

This rate design is influenced by SMUD's marginal cost of service and reflects the state of California's power markets and SMUD operations.

Proposed Time-of-Day Periods

In 2011, SMUD's Board adopted the SmartPricing Options (SPO) Pilot rates, which tested three time-of-use rate designs featuring a 3-hour peak pricing period. The study concluded that customers were able to successfully react to higher prices established over 3-hours and conserve. Learning from the SPO study and in conjunction with Board Strategic Direction SD-2[12], this time-based rate design continues to signal the three hours where market energy prices have been highest for SMUD with the non-summer peak price and the summer peak price both between 5p.m. and 8p.m. on weekdays. The proposed rate design balances cost of service, simplicity, customer acceptance and complies with SD-2 policy.

In addition to the summer peak period, a summer mid-peak period between noon and midnight was established to further better align prices with the costs of electricity when it is used and better match how SMUD incurs power supply cost.

System Infrastructure Fixed Charge (SIFC)

The SIFC is comprised of the marginal meter costs, customer service and accounting, uncollectible as well as a portion of the marginal cost of the service-line and transformer (i.e., distribution facilities) partly recovered by the $20 fixed charge established by Board resolution 11-08-06.

[12] Board Strategic Direction SD-2 Competitive Rates establishes the rate principles that prices should reflect the cost of energy when it used, and in particular, should signal the need to reduce energy use during SMUD's high-cost peak periods.

Time-of-Day Energy Charges

SMUD's energy charges are comprised of generation (capacity and energy), ancillary service, RPS compliance, transmission and distribution capacity marginal costs, including losses, which are developed on an 8,760 hour basis and summarized by month, day types (weekday or weekend including holidays) and hour. For each time-of-day period, an average price is calculated from the corresponding summarized hourly prices weighted by the class's average hourly energy delivered.

In addition, the residual cost of distribution facilities are recouped as an energy charge. Distribution facilities costs are allocated 25% evenly as a per kwh amount across all hours and 75% (less the amount recouped in the $20 monthly SIFC after meter costs, customer service and accounting and unbilled) on an hourly basis weighted by the hourly distribution of residential monthly non-coincident peak (12 NCP) demands divided by the class's average hourly energy delivered.

Public Goods expenses for energy efficiency, low-income and medical assistance, advanced and renewable technologies, and research and development (R&D) expenses are estimated to be $0.0096 per kWh in 2018 and have been added evenly across all hours.

The total energy marginal cost by time periods is shown in as follows in Table 20:

Table 20 Total Marginal Cost by Time Period ($/kWh)

Time Period	Energy, Ancillary Service & RPS Cost	Generation Capacity	Trans & Dist.	Residual Distribution Facilities	Public Good	Total Marginal Cost	Total MC Adjusted with Scalar*
Summer Peak	$0.0713	$0.0680	$0.0689	$0.0371	$0.0096	$0.2548	$0.2793
Summer Mid-Peak	$0.0580	$0.0253	$0.0248	$0.0270	$0.0096	$0.1447	$0.1586
Summer Off-Peak	$0.0484	$0.0126	$0.0102	$0.0239	$0.0096	$0.1048	$0.1149
Non-Summer Peak	$0.0612	$0.0096	$0.0000	$0.0398	$0.0096	$0.1202	$0.1318
Non-Summer Off-Peak	$0.0491	$0.0013	$0.0000	$0.0271	$0.0096	$0.0872	$0.0955

*Scalar = 9.6%

The marginal price signals in this study were developed using the historical 2013 average residential load shape, a year displaying historically typical weather characteristics for SMUD service area. As evidenced in SMUD's SPO study, introducing residential customers to Time-of-Day pricing as the standard rate for the forecast period is anticipated to result in the shifting of load from high price peak and mid-peak periods to lower price periods. Accordingly, the reconciliation of marginal costs to rate revenue is accomplished through increasing final marginal cost energy charges by a scalar of 9.6% to achieve a revenue neutral rate design for the 2019 budget period prior to adjusting rates with the proposed rate increase.

Staff proposes a residential rate increase of 1.5% in 2018. Table 19 shows the rate increase applied to residential charges.

(end of report)

Appendix II

Summary of the Residential TOD Rate Transition

Time-of-Day (4-7 p.m. Peak) Rate

- Effective July 1, 2017
  - This rate is closed to all customers except those who have a PEV or pre-2018[13] NEM Customer.
  - This rate is the standard rate for new or transferring pre-2018 NEM customers. These customers can elect the Legacy rate as an alternative rate.
- Effective January 1, 2018
  - Pre-2018 NEM Customers may remain on this closed rate until December 31, 2022.
  - Between January 1, 2018 and January 1, 2023 if a Pre-2018 NEM Customer on this rate category elects any open rate, the customer cannot return to this rate.
  - Pre-2018 NEM customers may enroll in the TOD (5-8 p.m. Peak) Rate at any time; however, once enrolled in this rate, the customer cannot return to the TOD (4-7 p.m. Peak) Rate.
  - Existing customers on the TOD (4-7 p.m. Peak) Rate who are not Pre-2018 customers will transition as determined by SMUD to the standard TOD (5-8 p.m. Peak) Rate no later than December 31, 2019 and will no longer be eligible for this rate.
- Effective after December 31, 2022
  - This rate will be eliminated for Pre-2018 NEM Customers and remove from the rates book. Grandfathered customers will then transition to SMUD's residential standard rate.

Time-of-Day (5-8 p.m. Peak) Rate

- Effective January 1, 2018
  - Non-eligible customers - Residential Master Metered (RSMM) and non-digital communicating meter customers.
  - This rate becomes available to any new or existing residential PEV customer.

[13]Pre-2018 NEM Customer - those grandfathered customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD before January 1, 2018.

- The Residential PEV Pilot Program is closed. Existing customers on the pilot will transition to the TOD (5-8 p.m. Peak) Rate beginning the first full bill cycle in January 2018. All residential usage will be recorded on a single residence billing meter. These customers may elect the Legacy Rate until it is closed for enrollment, or the Fixed Rate as an alternative.

- Effective September 1, 2018
  - Customers on SPO Pilot rates will begin to transition to the TOD (5-8 p.m. Peak) Rate beginning in September 2018, and complete transition no later than January 31, 2019
  - Existing eligible customers on the Legacy Rate will gradually transition to the TOD (5-8 p.m. Peak) Rate beginning in September 2018, and complete transition no later than December 31, 2019.
  - After transitioned to the TOD (5-8 p.m. Peak) Rate, eligible customers can elect the Fixed Rate as an alternative rate.
- Effective October 1, 2018
  - This rate is the standard rate for all SMUD customers opening a new account via a move-in or transfer of service to new premises. If eligible, move-in and transfer customers may elect the Fixed Rate as an alternative.
- Effective January 1, 2019
  - Post-2018[14] NEM customers must be on the TOD (5-8 p.m. Peak) Rate.
  - Customers with wells will begin transitioning to the TOD (5-8 p.m. Peak) Rate.

Fixed Rate

- Effective September 1, 2018
  - The Fixed Rate is available as the alternative rate for customers who opt out of the standard TOD (5-8 p.m. Peak) Rate.
  - Analog and non-digital communicating meter customers will transition to the Fixed Rate no later than December 31, 2019.
  - Post-2018 NEM and RSMM Customers are not eligible for this rate.

Legacy Rate

- Effective July 1, 2017
  - This rate is the standard rate for SMUD's residential customers except for pre-2018 NEM customers.
  - Pre-2018 NEM customers enrolled on the Legacy Rate may remain on this closed rate until December 31, 2022. If a pre-2018 PV customer in this rate category elects any open rate, the customer cannot return to this rate.
- Effective September 1, 2018

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[14] Post-2018 NEM Customers – those customers who have an eligible renewable electrical generation facility under Rate Schedule 1-NEM that was approved for installation by SMUD on or after January 1, 2018.

  - This rate is closed for enrollment to all post-2018 NEM Customers.
  - The Legacy Rate will no longer be an available rate option to residential customers who have been transitioned to the standard TOD (5-8 p.m. Peak) Rate or the opt out Fixed Rate.
  - All other existing customers who are not eligible for Rate Schedule R-TOD will transition to the alternative Fixed Rate under this Rate Schedule R no later than December 31, 2019.
  - This rate will be terminated after December 31, 2022.

Master Meter Mobile Parks Rate

- Effective January 1, 2019
  - Master-metered customers on the Legacy Rate will be transitioned to the new rate category RSMM no later than December 31, 2019.

All the recommended prices and changes are specified in the modified rate schedules included in Volume 2 of this Report.

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Consolidated Financial Statements

Report of Independent Auditors

December 31, 2016 and 2015

SMUD®

0105-17

SACRAMENTO MUNICIPAL UTILITY DISTRICT
TABLE OF CONTENTS

INDEPENDENT AUDITORS' REPORT

To the Board of Directors of
Sacramento Municipal Utility District
Sacramento, California

Report on the Financial Statements

We have audited the accompanying consolidated financial statements of Sacramento Municipal Utility District and its blended component units, which comprise the Consolidated Statements of Net Position as of December 31, 2016 and 2015, and the related Consolidated Statements of Revenues, Expenses and Changes in Net Position, and Consolidated Statements of Cash Flows for the years then ended and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control over financial reporting relevant to the Sacramento Municipal Utility District's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Sacramento Municipal Utility District's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Sacramento Municipal Utility District and its blended component units at December 31, 2016 and 2015, and the changes in their financial position and their cash flows for the years then ended, in accordance with accounting principles generally accepted in the United States of America.

To the Board of Directors of
Sacramento Municipal Utility District

Emphasis of Matter

As discussed in Note 3, the Sacramento Municipal Utility District has adopted the provisions of GASB Statement No. 72, *Fair Value Measurement and Application,* and GASB Statement No. 82, *Pension Issues – an Amendment of GASB Statements No. 67, No. 68, and No. 73* effective January 1, 2015. Accordingly, the accounting changes have been retroactively applied to prior periods presented. Our opinion is not modified with respect to this matter.

Other Matter

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis and Schedule of Funding Progress information as listed in the table of contents be presented to supplement the financial statements. Such information, although not a part of the consolidated financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the consolidated financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the consolidated financial statements, and other knowledge we obtained during our audit of the consolidated financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we will also issue a report on our consideration of Sacramento Municipal Utility District’s internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements, and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Sacramento Municipal Utility District’s internal control over financial reporting and compliance.

Baker Tilly Virchow Krause, LLP

Madison, Wisconsin
February 17, 2017

Sacramento Municipal Utility District
Management's Discussion and Analysis
(Unaudited)

Using this Financial Report

This annual financial report for Sacramento Municipal Utility District (SMUD) consists of management's discussion and analysis and the consolidated financial statements, including notes to the financial statements. The Consolidated Financial Statements consist of the Statements of Net Position, the Statements of Revenue, Expenses and Changes in Net Position and the Statements of Cash Flows.

SMUD maintains its accounting records in accordance with Generally Accepted Accounting Principles for proprietary funds as prescribed by the Governmental Accounting Standards Board (GASB). SMUD's accounting records generally follow the Uniform System of Accounts for Public Utilities and Licensees prescribed by the Federal Energy Regulatory Commission (FERC), except as it relates to accounting for contributions of utility property in aid of construction.

Overview of the Financial Statements

The following discussion and analysis of the financial performance of SMUD provides an overview of the financial activities for the years ended December 31, 2016 and 2015. This discussion and analysis should be read in conjunction with the consolidated financial statements and accompanying notes, which follow this section.

The Consolidated Statements of Net Position provide information about the nature and amount of resources and obligations at a specific point in time.

The Consolidated Statements of Revenues, Expenses and Changes in Net Position report all of SMUD's revenues and expenses for the periods shown.

The Consolidated Statements of Cash Flows report the cash provided and used by operating activities, as well as other cash sources, such as investment income and debt financing, and other cash uses such as payments for debt service and capital additions.

The Notes to Consolidated Financial Statements provide additional detailed information to support the financial statements.

Nature of Operations

Under provisions of California's Municipal Utility District Act, the citizens of Sacramento voted in 1923 to form their own electric utility – SMUD. The independently run community-owned utility began operations on December 31, 1946 and is not subject to regulation or oversight by the California Public Utilities Commission. It is now the sixth largest community-owned electric utility in the nation.

Governed by an elected board of directors (Board), SMUD has the rights and powers to fix rates and charges for commodities and services it furnishes, incur indebtedness, and issue bonds or other obligations. SMUD is responsible for the acquisition, generation, transmission and distribution of electric power to its service area with a population of approximately 1.4 million – most of Sacramento County and small adjoining portions of Placer and Yolo Counties. Its purpose is to provide solutions for meeting customers' electrical energy needs with a vision of empowering customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve the region.

The Board has independent authority to set SMUD's rates and charges. Changes in rates require a public hearing and formal action by the Board. In August 2013, the Board approved a 2.5 percent rate increase effective January 1, 2014, and an additional 2.5 percent rate increase effective January 1, 2015. The rate increases were designed to achieve a fixed charge ratio of at least 1.5. In July 2015, the Board approved another 2.5 percent rate increase for both 2016 and 2017 to allow for additional investments in technology and infrastructure. The Board also approved an optional residential Time of Use (TOU) rate that would be made available in 2016 and 2017 and declared its intent to make TOU rates the standard for residential customers in 2018. The TOU rate structure puts SMUD at the industry forefront by setting the stage to better align rates with the actual cost of electricity. Even with these increases, SMUD's rates continue to remain amongst the lowest in the state. In 2016, the average system rate was 29.2 percent below the nearest investor owned utility's average rate.

SMUD's vision is to be the trusted partner with its customers and the community, providing innovative solutions to ensure energy affordability and reliability, improve the environment, reduce our region's carbon footprint, and enhance the vitality of our community. SMUD's business strategy focuses on serving its customers in a progressive, forward looking manner, addressing current regulatory and legislative issues and potential competitive forces. This includes ensuring financial stability by establishing rates that provide acceptable cash coverage of all fixed charges on a consolidated basis, taking into consideration the impact of capital expenditures and other factors on cash flow.

Financial & Operational Highlights

In 2016, SMUD continued working toward realizing the vision of meeting increased customer expectations and improving operational efficiencies. SMUD launched its 5-year strategic plan which is the blueprint for transforming the new business model and also developed the Distributed Energy Resource strategy which provides guidance for technology investments for success in the changing utility environment. SMUD continues to experience the strongest bond ratings in almost 30 years by having its credit rating confirmed at AA- by all three major rating agencies. In addition to exceeding the fixed debt service coverage goal, the refunding of a portion of SMUD's bonds and locking in lower interest rates for additional debt to be refunded in 2018 produced significant long-term savings exceeding $50.0 million. SMUD was recognized by its residential customers as the top California utility for the 15th consecutive year by J.D. Power and was again ranked first among midsize utilities in the West and No. 1 in California for the 11th consecutive year for business customer satisfaction. In addition, SMUD ranked first nationally in the large utility category for Corporate Citizenship and Belief of Supporting Local Development. The White House recognized SMUD for its "strong commitment to reducing greenhouse gas emissions in all of its operations, including a net long-term reduction of 90 percent from our 1990 levels by 2050." The Senate Bill (SB)-1 program was fully subscribed in 2016 which provides for 4,400 residential solar PV interconnections and 50 commercial PV systems with over 30 megawatts (MW) of customer-sited PV. SMUD's reliability compliance risk management program continued to receive external recognition, earning SMUD the privilege of being part of the Western Electricity Coordinating Council's Self-Logging Program for 2016 and 2017, trusting SMUD to manage oversight internally for most compliance matters. Development of the 10.88 MW Rancho Seco Solar Project was completed and will supply renewable energy for the commercial SolarShares program. The SolarShares program supports the 20-year agreement with the Sacramento Kings and the California Department of General Services, as well as CalTrans. Electricity from SolarShares will displace about 2,000 metric tons of CO_2 emissions per year, which is the equivalent of taking about 400 cars off the road. Other accomplishments include hosting the first of its kind Tiny House Competition for college and university students to help cultivate the next generation of energy leaders and offering the first paid course at the state-accredited training facility, the Sacramento Power Academy. Through its economic development program, SMUD played a key role in the attraction, retention and expansion of several companies in its service territory which led to the creation of over 1,600 jobs.

In July 2014, FERC issued a new fifty year license for the Upper American River Project (UARP), which included authority to build the Iowa Hill pumped-storage project. The UARP consists of three relatively large storage reservoirs and eight powerhouses containing eleven turbines. The UARP is one of SMUD's lowest cost power sources. In addition to providing clean hydroelectric power and operational flexibility, it provides habitat for fish and wildlife and a variety of recreational opportunities, including camping, fishing, boating, hiking, horseback riding, mountain biking, and cross-country skiing. The combined capacity of the UARP is approximately 673 MW and represents about 15 percent of SMUD's average annual retail energy requirements. The Iowa Hill pumped-storage project was a proposed 3 unit, 400 MW variable speed powerhouse and in December 2015, after much analysis, SMUD made the decision to terminate the Iowa Hill pumped-storage project as it was determined to no longer be financially feasible (Board approved February 2016). SMUD's other power generation facilities include 3 MW of solar photovoltaic installations, the 102 MW Solano Wind Project, and five local gas-fired power plants with total capacity of approximately 1,012 MW. In addition, SMUD has several power purchase agreements to help meet its remaining power requirements.

As part of the hydro relicensing process, SMUD entered into long-term contracts to provide certain services to four different government agencies – U.S. Department of Interior Bureau of Land Management, U.S. Department of Agriculture Forest Service, El Dorado County, and the California Department of Parks and Recreation. The aggregate present value of all contract payments of $57.8 million was recorded as a liability at December 31, 2016.

While some effects of the long-term drought remain in California, SMUD had near normal snowfall and above average rainfall in its UARP watershed in 2016. A Hydro Rate Stabilization Fund (HRSF) was established to help absorb higher energy costs when hydroelectric production is down and to serve as a buffer against unexpected financial developments. In April 2015, $3.1 million was transferred from the HRSF as a result of the effect of the drought, which brought the balance of the HRSF to zero. Accordingly, SMUD applied an automatic 12-month Hydro Generation Adjustment (HGA) surcharge of 1.3 percent to its customer's electric bills. In April 2016, $10.0 million was transferred to the HRSF as a result of higher precipitation and the HGA was removed. The $10.0 million balance in the HRSF at December 31, 2016 is an indicator of the significant impact of the rainfall and snowfall in 2016 as compared to just a year ago when the reserves were depleted as a result of the drought.

SMUD also has a long-term agreement with the Western Area Power Administration (WAPA) to purchase power generated by the Central Valley Project, a series of federal hydroelectric facilities operated by the U.S. Bureau of Reclamation. SMUD uses a Rate Stabilization Fund (RSF) to offset any excess or deficits in WAPA energy deliveries. In 2016 and 2015, WAPA's deliveries fell short which resulted in a $5.1 million and $12.0 million transfer from the RSF, respectively. At December 31, 2016 and 2015, the balance of the RSF was $25.2 million and $30.3 million, respectively.

Decommissioning

During 2014, SMUD made significant progress toward completing the Decommissioning Plan for its Rancho Seco nuclear facility, which was shut down in 1989. The plan consists of two phases that allow SMUD to terminate its possession-only license. Phase I of the decommissioning was completed at the end of 2008. Phase II consists of a storage period for the Class B and Class C radioactive waste overseen by the existing facility staff, followed by shipment of the waste for disposal, and then complete termination of the possession-only license. SMUD also established and funded an external decommissioning trust fund as part of its assurance to the Nuclear Regulatory Commission (NRC) to pay for the cost of decommissioning. In September 2013, SMUD entered into a contract with the operator of a low-level radioactive waste facility located in Andrews, Texas. Shipment of the previously stored Class B and Class C radioactive waste was completed in November 2014. The disposal and shipment costs totaling over $22.0 million were funded from the decommissioning trust fund. The remaining Phase II decommissioning activities that will lead to termination of the possession-only license began during 2015 and was completed in early 2017. The Accrued Decommissioning balance in the Consolidated Statements of Net Position includes $148.0 million and $150.4 million for costs related to Rancho Seco as of December 31, 2016 and 2015, respectively.

As part of the Decommissioning Plan, the nuclear fuel and Greater Than Class C (GTCC) radioactive waste is being stored in a dry storage facility constructed by SMUD and licensed separately by the NRC. The U.S. Department of Energy (DOE), under the Nuclear Waste Policy Act of 1982, was responsible for permanent disposal of used nuclear fuel and GTCC radioactive waste and SMUD contracted with the DOE for removal and disposal of that waste. In 1998, SMUD filed a suit against the DOE for breach-of-contract because the DOE never provided a permanent waste disposal site. In February 2015, SMUD received $22.5 million from the U. S. Court of Claims for the period 2004 through 2009. In June 2015, SMUD filed a suit against DOE for costs incurred from 2010 through at least June 2015.

Employee Relations and Benefits

Effective January 1, 2013, SMUD began operating under a new five year memorandum of understanding (MOU) with both of its collective bargaining units, the International Brotherhood of Electrical Workers Local Union 1245 and the Organization of SMUD Employees.

SMUD participates in the California Public Employees' Retirement System (PERS), an agent multiple-employer public employee defined benefit pension plan. In 2015, SMUD implemented GASB Statement of Governmental Accounting Standards (SGAS) No. 68 ***"Accounting and Financial Reporting for Pensions – An Amendment of GASB Statement No. 27"*** (GASB No. 68). The primary objective of GASB No. 68 is to improve accounting and financial reporting by state and local governments for pensions. Under GASB No. 68, SMUD is required to report the net pension liability (i.e., the difference between the total pension liability and the pension plan's net position or market value of assets) in its Consolidated Statements of Net Position. This standard requires shorter amortization periods for recognition of non-investment gains and losses and actuarial assumption changes, as well as for recognition of investment gains and losses. GASB No. 68 also separates financial reporting from funding requirements for pension plans. Prior to this new guidance, a liability was recognized only to the extent that contributions made to the plan were less than the actuarially calculated contributions. At December 31, 2016 and 2015, the Net Pension Liability was $499.2 million and $381.3 million, respectively. SMUD elected to follow accounting for regulated operations under GASB SGAS No. 62 ***"Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements"*** (GASB No. 62) and recorded a regulatory asset as of December 31, 2014, in the amount of $425.7 million to account for the net effect of required prior period adjustments to recognize the net pension liability. Amortization of the regulatory asset will begin in 2018 over a period of 25 years.

SMUD provides postemployment healthcare benefits (OPEB) to all employees who retire from SMUD, and their dependents, in accordance with SMUD policy and MOUs. These benefits are funded through the PERS California Employer's Retiree Benefit Trust, an agent multiple-employer plan. SMUD opted to make additional $17.9 million and $22.0 million contributions to the trust in 2016 and 2015, respectively. At June 30, 2016, the plan was 59.7 percent funded and the balance of the OPEB asset at December 31, 2016 and 2015 was $127.9 million and $96.1 million, respectively.

Developments in the Energy Market

New developments in the energy market at both the federal and state level kept SMUD on high alert as it continued to monitor and address the potential impacts on the organization. Legislation at the federal level includes the Executive Order "Improving Critical Infrastructure Security" on cyber security, the Energy Policy Act of 1992 related to federal regulation of transmission access that includes FERC Order 1000, the North American Electric Reliability Corporation reliability standards, anti-market manipulation rules, and greenhouse gas emissions. Legislation at the state level includes Assembly Bill 32 Global Warming Solutions Act of 2006 (AB 32) establishing the cap-and-trade program for carbon allowances, SB-1 solar program, SB-2 1X the California Renewable Energy Resources Act that codifies the Renewable Portfolio Standards target, and SB-350 Clean Energy and Pollution Reduction Act of 2015, further defined the renewable portfolio standards.

Significant Accounting Policies

In accordance with GASB No. 62, the Board has taken regulatory actions for ratemaking that result in the deferral of expense and revenue recognition. These actions result in regulatory assets and liabilities. SMUD has regulatory assets that cover costs related to decommissioning, derivative financial instruments, SB-1 solar investments, debt issuance costs, and pension costs. As of December 31, 2016 and 2015, total regulatory assets were $598.4 and $623.3, respectively. SMUD also has regulatory credits that cover costs related to contributions in aid of construction, the RSF and HRSF, Energy Assistance Program Rate (EAPR) reserves, SB-1, grant revenues, and Transmission Agency of Northern California operations costs. As of December 31, 2016 and 2015, total regulatory credits were $370.2 million and $353.8 million, respectively.

FINANCIAL POSITION

CONDENSED CONSOLIDATED STATEMENTS OF NET POSITION

	December 31,		
	2016	2015 (Restated)*	2014*
		(millions of dollars)	
Assets			
Electric Utility Plant - net	$ 3,345	$ 3,324	$ 3,332
Restricted and Designated Assets	57	47	137
Current Assets	1,084	1,021	1,062
Noncurrent Assets	1,188	1,236	1,245
Total Assets	$ 5,674	$ 5,628	$ 5,776
Deferred Outflows of Resources	279	263	219
Total Assets and Deferred Outflows of Resources	$ 5,953	$ 5,891	$ 5,995
Liabilities			
Long-Term Debt - net	$ 2,504	$ 2,674	$ 2,882
Current Liabilities	630	650	661
Noncurrent Liabilities	840	766	682
Total Liabilities	$ 3,974	$ 4,090	$ 4,225
Deferred Inflows of Resources	645	663	757
Net Position			
Net Investment in Capital Assets	816	658	485
Restricted	77	71	127
Unrestricted	441	409	401
Total Liabilities, Deferred Inflows of Resources, and Net Position	$ 5,953	$ 5,891	$ 5,995

*See Note 3 of the financial statements for discussion on the restatement of the December 31, 2015 Consolidated Statement of Net Position. 2014 data was not restated.

ASSETS AND DEFERRED OUTFLOWS OF RESOURCES

Electric Utility Plant - net

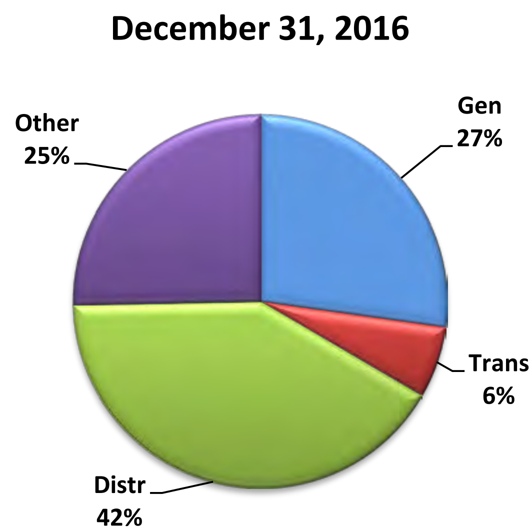
2016 compared to 2015

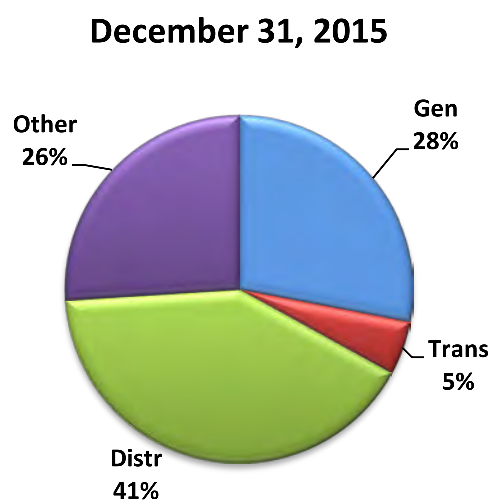
As of December 31, 2016, SMUD has invested approximately $3,345.0 million in electric utility plant assets and construction work in progress (CWIP) net of accumulated depreciation. Electric Utility Plant - net makes up about 56 percent of SMUD's Total Assets and Deferred Outflow of Resources, which is similar to 2015. In 2016, SMUD capitalized approximately $173.1 million of additions to electric utility plant in the Consolidated Statements of Net Position. The additions were primarily due to distribution line work, major overhauls in the JPAs and purchases related to the replacement of bulk substations. These additions were offset by the retirement of communication equipment, fleet assets, and hardware equipment.

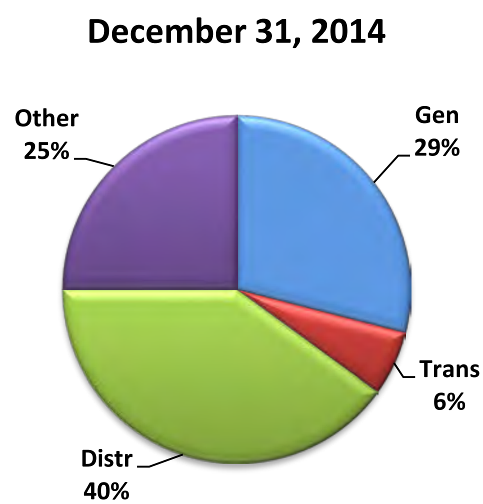
2015 compared to 2014

As of December 31, 2015, SMUD has invested approximately $3,324.0 million in electric utility plant assets and construction work in progress (CWIP) net of accumulated depreciation. Electric Utility Plant - net makes up about 56 percent of SMUD's Total Assets and Deferred Outflow of Resources, which is about four percent less than 2014. In 2015, SMUD capitalized approximately $123.0 million of additions to electric utility plant in the Consolidated Statements of Net Position. The additions were primarily due to distribution line work and purchases related to the replacement of bulk substations. These additions were offset by the retirement of a portion of SMUD's headquarters building in preparation for a major renovation, some fleet assets, and some hardware equipment.

The following charts show the breakdown of Electric Utility Plant - net by major plant category – Generation (Gen), Transmission (Trans), Distribution (Distr), and Other:







Restricted and Designated Assets

2016 compared to 2015

SMUD's restricted and designated assets are comprised of debt service reserves, nuclear decommissioning trust funds, rate stabilization reserves, and other third party agreements or Board actions, less the current portion. These assets increased $9.3 million during 2016. The increase was due to a net transfer of $4.9 million to the RSF (including the HRSF) as a result of higher precipitation and lower energy deliveries from WAPA, an increase of $2.5 million in both the revenue bond and debt service reserves and other funds, and a decrease of $1.9 million in current portion.

2015 compared to 2014

SMUD's restricted and designated assets are comprised of debt service reserves, nuclear decommissioning trust funds, rate stabilization reserves, and other third party agreements or Board actions, less the current portion. These assets decreased $89.5 million during 2015. The decrease was due to a transfer of $15.1 million from the RSF (including the HRSF) as a result of lower precipitation and lower energy deliveries from WAPA, and a $16.2 million reduction in revenue bond and debt service reserves. In addition, there was a decrease of $57.5 million in the other funds due to the release of various restricted funds of the component units, Sacramento Municipal Utility District Financing Authority (SFA) and Sacramento Power Authority (SPA), as a result of SFA's bond refunding and SPA's bond redemptions.

Current Assets

2016 compared to 2015
Current assets increased $63.7 million in 2016. The unrestricted investments increased by $101.7 million, along with a total increase of $6.9 million in receivables - net and prepaid gas to be delivered in one year. This increase was offset by total decreases of $23.2 million in unrestricted cash and cash equivalents, regulatory costs to be recovered in one year, inventories, and prepayments, along with a decrease of $20.5 million in credit support collateral deposits.

2015 compared to 2014
Current assets decreased $41.1 million in 2015. The unrestricted cash and cash equivalents and investments decreased by $78.9 million. This decrease was offset by increases in credit support collateral deposits of $19.7 million, along with a total increase of $18.3 million in receivables - net, inventories, prepaid gas to be delivered within one year, and prepayments.

Noncurrent Assets

2016 compared to 2015
Total noncurrent assets decreased $47.4 million. There were reductions in regulatory costs for future recovery, prepaid gas, prepaid power and capacity, energy efficiency loans - net and credit support collateral deposits of $80.6 million offset by increases in due from affiliated entity and prepayments and other of $34.3 million.

2015 compared to 2014
Total noncurrent assets decreased $9.5 million mainly due to a decrease in prepaid gas of $27.8 million, offset by a $21.8 million increase in credit support collateral deposits.

Deferred Outflows of Resources

2016 compared to 2015
Total deferred outflows of resources increased $15.9 million due to a total of $90.6 million increase in deferred pension outflows and amortization of bond losses, offset by a decrease of $74.7 million in the value of hedging derivative instruments.

2015 compared to 2014
Total deferred outflows of resources increased $44.2 million due to a $47.9 million increase in the value of hedging derivative instruments and deferred pension outflows, offset by $3.7 million amortization of bond losses.

LIABILITIES AND DEFERRED INFLOWS OF RESOURCES

Long-Term Debt - net

2016 compared to 2015

In June 2016, SMUD issued $149.9 million of 2016 Series D Electric Revenue Refunding Bonds. Proceeds from the 2016 Series Bonds were used to refund $125.4 million of the outstanding 2008 Series U Bonds, and $43.6 million of outstanding 2011 Series X Bonds, through a legal defeasance, and accordingly, the liability for the defeased bonds has been removed from Long-Term Debt in the Consolidated Statements of Net Position. The refunding resulted in the recognition of a deferred accounting loss of $12.6 million, which is being amortized over the life of the refunding issue. The 2016 refunding reduced future aggregate debt service payments by $27.2 million and resulted in a total economic gain of $23.4 million, which is the difference between the present value of the old and new debt service payments.

In October and November of 2016, SMUD completed transactions to convert all of the outstanding 2008 Series J, 2008 Series K, 2012 Series L, and 2012 Series M Bonds to direct placements, totaling $341.9 million (see Note 10). As part of each transaction, new bonds were issued to defease the old bonds, and as a result, the reimbursement agreements with Bank of America, State Street, and US Bank were terminated. The scheduled principal payments remain unchanged unless the bonds aren't successfully remarketed at the end of the term. Accordingly, SMUD has recorded such bonds as Long-Term Debt, less amounts due within one year in the Consolidated Statements of Net Position. No additional deferred gain or loss or economic gain resulted from these transactions.

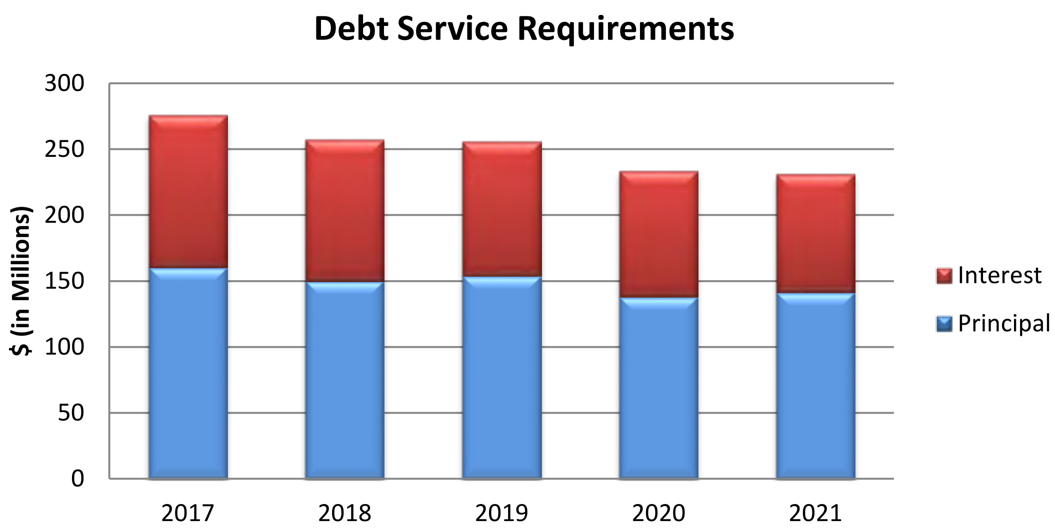
2015 compared to 2014

SMUD's long-term debt includes the component units' debt and consists of a variety of financial instruments, including interest rate swap agreements, subordinated electric revenue bonds and variable rate bonds. Proceeds from the bonds provide financing for various capital improvement projects, component unit capital projects, and the prepayment of a 20 year supply of natural gas.

In June 2015, SFA issued $193.3 million of 2015 Series Cosumnes Project Revenue Refunding Bonds. Proceeds from the 2015 Series Bonds and $24.8 million of available funds were used to refund $233.2 million of the outstanding 2006 Series Bonds through a legal defeasance, and accordingly, the liability for the defeased bonds was removed from Long-Term Debt in the Consolidated Statements of Net Position. The refunding resulted in the recognition of a deferred accounting loss of $4.4 million, which is being amortized over the life of the refunding issue, and a current period loss of $0.03 million which is included in Interest on Debt in the Consolidated Statements of Revenues, Expenses and Changes in Net Position. As a result of the refunding, future aggregate debt service payments are reduced by $46.7 million and there is a total economic gain of $35.5 million.

In January and July 2015, SPA redeemed $29.9 million and the remaining $41.4 million, respectively, of the 2005 Series Bonds maturing July 2015 through July 2022, along with the accrued interest. The redemptions resulted in a current accounting loss of $0.2 million, which is included in Interest on Debt in the Consolidated Statements of Revenues, Expenses and Changes in Net Position.

The following table shows SMUD's future debt service requirements through 2021 as of December 31, 2016:



As of December 31, 2016, SMUD's bonds had an underlying rating of "AA-" from Standard & Poor's, "AA-" from Fitch, and "Aa3" from Moody's. Some of SMUD's bonds are insured and are rated by the rating agencies at the higher of the insurer's rating or SMUD's underlying rating.

Current Liabilities

2016 compared to 2015
Current liabilities decreased $19.8 million during 2016. The difference is mainly due to decreases in investment and hedging derivative instruments maturing within one year of $43.0 million, offset by increases in long-term debt due within one year and customer deposits and other totaling $24.1 million.

2015 compared to 2014
Current liabilities decreased $11.8 million during 2015. Current portion of long-term debt decreased $18.4 million and accounts payable decreased $6.7 million, offset by an increase of $13.5 million in hedging derivative instruments maturing within one year.

Noncurrent Liabilities

2016 compared to 2015
Noncurrent liabilities increased $74.3 million during 2016. The increase was mainly due to a $117.9 million increase in the net pension liability, offset by a $47.5 million decrease in investment and hedging derivative instruments.

2015 compared to 2014
Noncurrent liabilities increased $84.8 million during 2015. The increase was mainly due to a $54.6 million increase in the net pension liability and a $33.6 million increase in investment and hedging derivative instruments.

Deferred Inflows of Resources

2016 compared to 2015

Total deferred inflows of resources decreased $17.9 million due to a $22.4 million reduction in deferred pension inflows and $10.6 million for Solano Phase 3 wind facilities. These reductions were offset by a $16.4 million increase in regulatory credits due to a $4.9 million net transfer to the rate stabilization funds as a result of higher precipitation and lower energy deliveries from WAPA, and a $10.0 million reserve for future expenditures for energy efficiency programs for EAPR customers.

2015 compared to 2014

Total deferred inflows of resources decreased $94.6 million mainly due to a $63.8 million reduction in deferred pension inflows. Other reductions include $15.1 million in regulatory credits for transfers from the rate stabilization funds as a result of lower precipitation and lower energy deliveries from WAPA, and $10.2 million for the Solano Phase 3 wind facilities.

RESULTS OF OPERATIONS

CONDENSED CONSOLIDATED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

		December 31,	
	2016	2015 (restated)*	2014*
		(millions of dollars)	
Operating revenues	$ 1,495	$ 1,479	$ 1,529
Operating expenses	(1,240)	(1,271)	(1,320)
Operating income	255	208	209
Other revenues	43	35	79
Interest charges	(103)	(113)	(122)
Change in net position	195	130	166
Net position - beginning of year	1,139	1,009	847
Net position - end of year	$ 1,334	$ 1,139	$ 1,013

*See Note 3 of the financial statements for discussion on the restatement of the December 31, 2015 Consolidated Statement of Revenue, Expenses and Changes in Net Position. 2014 data was not restated.

Operating Revenues

2016 compared to 2015

Operating revenues decreased $16.1 million in 2016 mainly due to higher retail revenues of $29.2 million offset by a $10.0 million deferral for public good. As of December 31, 2016, the number of customers remained flat at 626,460.

In 2016, SMUD transferred $5.1 million from the RSF and $10.0 million to the HRSF. In 2015, transfers from both the RSF and HRSF were made in the amounts of $12.0 million and $3.1 million, respectively. The 1.3 percent HGA surcharge that was implemented in 2015 was removed from customers' billings in 2016 as a result of higher precipitation.

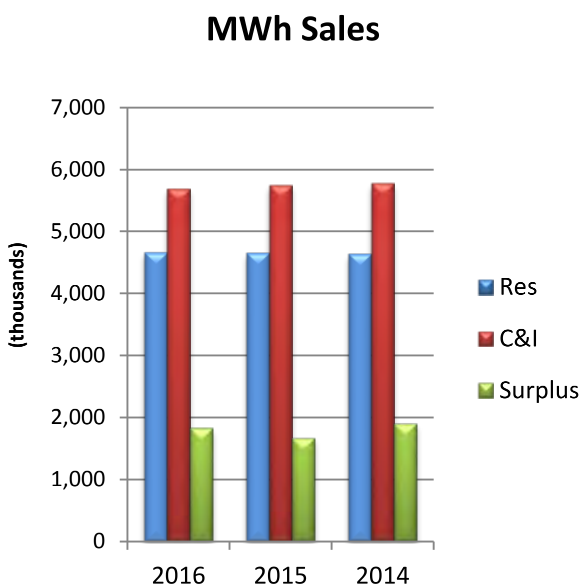
Wholesale revenues are comprised of both surplus gas and energy sales which are part of the operational strategy in managing fuel and energy costs. In 2016, surplus gas sales were lower than 2015 by $55.2 million due to lower gas prices and less gas sold. Energy sales were higher in 2016 by $7.2 million as compared to 2015 due to higher prices and higher energy sales.

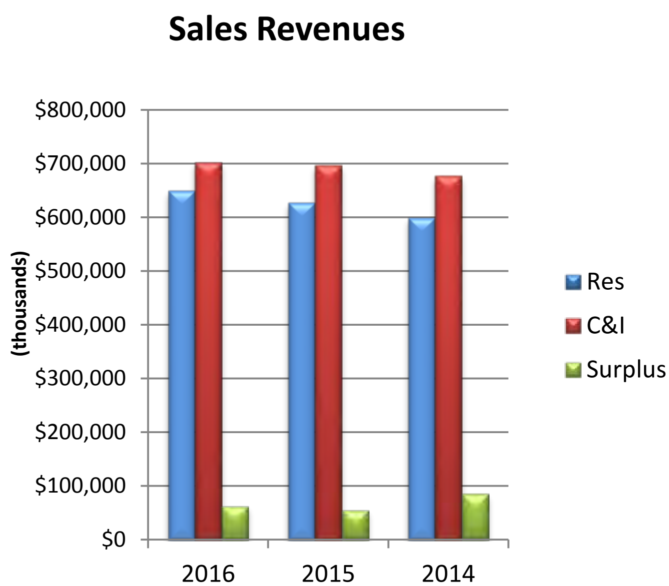
2015 compared to 2014
Operating revenues decreased $50.6 million in 2015. Approximately $47.2 million from retail sales includes the 2.5 percent rate increase that went into effect January 1, 2015. As of December 31, 2015, the number of customers increased to 621,990 at a slightly higher average revenue per kilowatt hour as compared to the end of 2014.

In 2015 and 2014, SMUD transferred $12.0 million and $11.8 million from the RSF and $3.1 million and $24.3 million from the HRSF, respectively. The transfer from the HRSF caused the fund to be depleted and subsequently the 1.3 percent HGA surcharge was implemented.

Wholesale revenues are comprised of both surplus gas and energy sales which are part of the operational strategy in managing fuel and energy costs. In 2015, surplus gas sales were lower than 2014 by $55.2 million due to lower gas prices and less gas sold. Energy sales were also lower in 2015 by $29.0 million as compared to 2014 due to lower prices and lower energy sales.

The following charts show the megawatt hour (MWh) sales, and sales revenue for the past three years by surplus energy sales (Surplus), commercial and industrial (C&I) and residential (Res) customers:



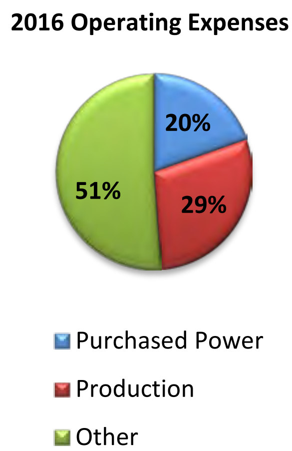


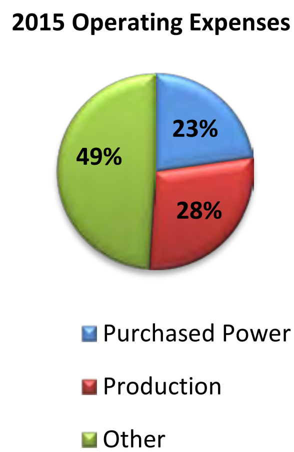
Operating Expenses

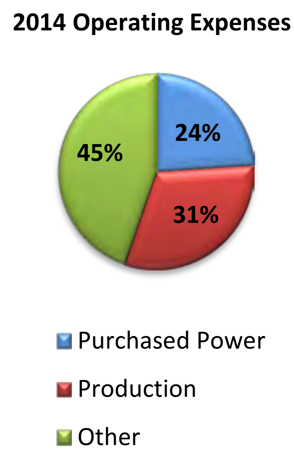
2016 compared to 2015
Operating expenses decreased $31.0 million compared to 2015. Operations which includes purchased power, production, transmission and distribution, and depletion, decreased by $40.9 million mainly due to lower gas and power prices as well as lower volumes. This decrease was offset by a $9.9 million increase in the remaining other operating costs.

2015 compared to 2014
Operating expenses decreased $49.1 million compared to 2014. Operations which includes purchased power, production, transmission and distribution, and depletion, decreased by $69.7 million mainly due to lower gas and power prices as well as lower volumes. This decrease was offset by a $19.9 million increase in administrative, general and customer costs.

The following charts show the breakdown of operating expenses:







Other Revenues

2016 compared to 2015
Other revenues were $8.0 million higher in 2016, which was mainly attributable to a $17.9 million refund from PG&E, offset by higher ineffective gas swaps, lower equity earnings from affiliate and lower grant revenues.

2015 compared to 2014
Other revenues were $44.1 million lower in 2015, which was partially attributable to the difference in the amount of settlement proceeds received related to the Rancho Seco nuclear waste disposal litigation. In 2015 and 2014, SMUD received settlement proceeds of $22.5 million and $53.1 million, respectively. In addition, $16.9 million was written off for the terminated Iowa Hill Project.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
CONSOLIDATED STATEMENTS OF NET POSITION

	DECEMBER 31, 2016	DECEMBER 31, 2015 (Restated)
	(thousands of dollars)	
ASSETS		
ELECTRIC UTILITY PLANT		
Plant in service	$ 5,781,353	$ 5,637,649
Less accumulated depreciation and depletion	(2,652,574)	(2,489,820)
Plant in service - net	3,128,779	3,147,829
Construction work in progress	216,081	176,071
Total electric utility plant - net	3,344,860	3,323,900
RESTRICTED AND DESIGNATED ASSETS		
Revenue bond and debt service reserves	115,465	114,231
Nuclear decommissioning trust fund	8,357	8,292
Rate stabilization fund	35,154	30,251
Other funds	10,487	9,262
Less current portion	(112,722)	(114,574)
Total restricted and designated assets	56,741	47,462
CURRENT ASSETS		
Unrestricted cash and cash equivalents	209,282	214,390
Unrestricted investments	442,752	341,036
Restricted and designated cash and cash equivalents	43,104	43,518
Restricted and designated investments	69,618	71,056
Receivables - net:		
Retail customers	163,629	166,205
Wholesale and other	31,100	24,714
Regulatory costs to be recovered within one year	11,523	21,242
Investment derivative instruments maturing within one year	420	-0-
Hedging derivative instruments maturing within one year	7,881	7,740
Inventories	55,644	61,486
Prepaid gas to be delivered within one year	30,909	27,768
Credit support collateral deposits	-0-	20,523
Prepayments	18,785	21,278
Total current assets	1,084,647	1,020,956
NONCURRENT ASSETS		
Regulatory costs for future recovery	586,895	602,104
Prepaid gas	256,935	287,844
Prepaid power and capacity	129,847	135,332
Investment derivative instruments	175	-0-
Hedging derivative instruments	20,389	21,721
Energy efficiency loans - net	23,586	29,039
Credit support collateral deposits	1,500	24,997
Due from affiliated entity	18,975	16,208
Prepayments and other	149,702	118,169
Total noncurrent assets	1,188,004	1,235,414
TOTAL ASSETS	5,674,252	5,627,732
DEFERRED OUTFLOWS OF RESOURCES		
Accumulated decrease in fair value of hedging derivatives	124,895	199,621
Deferred pension outflows	116,253	27,643
Unamortized bond losses	38,053	36,085
Total deferred outflows of resources	279,201	263,349
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	$ 5,953,453	$ 5,891,081

The accompanying notes are an integral part of these consolidated financial statements.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
CONSOLIDATED STATEMENTS OF NET POSITION

	DECEMBER 31, 2016	DECEMBER 31, 2015 (Restated)
	(thousands of dollars)	
LIABILITIES		
LONG-TERM DEBT - net	$ 2,504,650	$ 2,674,120
CURRENT LIABILITIES		
Commercial paper notes	200,000	200,000
Accounts payable	72,796	68,485
Purchased power payable	18,552	21,677
Credit support collateral obligation	3,937	4,389
Long-term debt due within one year	160,585	152,060
Accrued decommissioning	6,439	8,822
Interest payable	35,754	37,898
Accrued salaries and compensated absences	36,926	34,034
Investment derivative instruments maturing within one year	6,521	12,579
Hedging derivative instruments maturing within one year	28,234	65,200
Customer deposits and other	59,907	44,304
Total current liabilities	629,651	649,448
NONCURRENT LIABILITIES		
Net pension liability	499,228	381,341
Accrued decommissioning	153,121	152,359
Investment derivative instruments	9,641	19,377
Hedging derivative instruments	96,661	134,422
Self insurance and other liabilities	81,952	78,815
Total noncurrent liabilities	840,603	766,314
TOTAL LIABILITIES	3,974,904	4,089,882
DEFERRED INFLOWS OF RESOURCES		
Accumulated increase in fair value of hedging derivatives	28,270	29,461
Regulatory credits	370,212	353,821
Deferred pension inflows	25,187	47,579
Financing obligation and other	220,957	231,673
Total deferred inflows of resources	644,626	662,534
NET POSITION		
Net investment in capital assets	816,295	658,199
Restricted		
Revenue bond and debt service	70,197	66,383
Other funds	6,710	5,034
Unrestricted	440,721	409,049
TOTAL NET POSITION	1,333,923	1,138,665
COMMITMENTS, CLAIMS AND CONTINGENCIES (Notes 17 and 18)		
TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION	$ 5,953,453	$ 5,891,081

The accompanying notes are an integral part of these consolidated financial statements.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
CONSOLIDATED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

	Year Ended December 31, 2016	Year Ended December 31, 2015 (Restated)
	(thousands of dollars)	
OPERATING REVENUES		
Residential	$ 645,430	$ 621,830
Commercial and industrial	702,690	697,044
Street lighting and other	40,687	36,734
Wholesale	88,090	82,052
Senate Bill - 1 revenue deferral	(5,142)	(4,181)
AB-32 revenue	37,981	30,214
Public good deferral	(10,000)	-0-
Rate stabilization fund transfers	(4,903)	15,055
Total operating revenues	1,494,833	1,478,748
OPERATING EXPENSES		
Operations:		
Purchased power	243,031	288,835
Production	350,382	349,862
Transmission and distribution	76,290	74,924
Administrative, general and customer	191,658	186,376
Public good	65,210	70,073
Maintenance	104,913	95,378
Depreciation	184,043	188,928
Depletion	12,103	9,094
Regulatory amounts collected in rates	12,127	7,299
Total operating expenses	1,239,757	1,270,769
OPERATING INCOME	255,076	207,979
NON-OPERATING REVENUES AND EXPENSES		
Other revenues and (expenses):		
Interest income	8,646	7,511
Investment expense	(13,134)	(11,045)
Other income - net	47,565	38,574
Total other revenues and (expenses)	43,077	35,040
Interest charges:		
Interest on debt	105,141	114,760
Allowance for funds used during construction	(2,246)	(1,818)
Total interest charges	102,895	112,942
CHANGE IN NET POSITION	195,258	130,077
NET POSITION - BEGINNING OF YEAR	1,138,665	1,008,588
NET POSITION - END OF YEAR	$ 1,333,923	$ 1,138,665

The accompanying notes are an integral part of these consolidated financial statements.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31, 2016	Year Ended December 31, 2015 (Restated)
	(thousands of dollars)	
CASH FLOWS FROM OPERATING ACTIVITIES		
Receipts from customers	$ 1,387,897	$ 1,339,541
Receipts from surplus power sales	61,370	56,014
Receipts from surplus gas sales	24,976	27,580
Receipts from steam sales	3,998	4,221
Other receipts	58,950	51,288
Payments/receipts for credit support collateral	43,568	(37,291)
Issuance/repayment of energy efficiency loans - net	5,824	4,685
Payments to employees - payroll and other	(279,360)	(264,726)
Payments for wholesale power	(249,919)	(297,805)
Payments for gas purchases	(194,279)	(221,485)
Payments to vendors/others	(300,456)	(326,570)
Payments for decommissioning	(9,111)	(6,966)
Net cash provided by operating activities	553,458	328,486
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES		
Repayment of debt	(25,925)	(23,685)
Receipts from federal and state grants	9,600	12,798
Interest on debt	(13,221)	(14,206)
Net cash used in noncapital financing activities	(29,546)	(25,093)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Construction expenditures	(197,465)	(181,849)
Contributions in aid of construction	14,491	14,710
Net proceeds from bond issues	-0-	223,708
Repayments and refundings of debt	(126,855)	(413,655)
Interest on debt	(103,860)	(110,795)
Net cash used in capital and related financing activities	(413,689)	(467,881)
CASH FLOWS FROM INVESTING ACTIVITIES		
Sales and maturities of securities	227,820	396,660
Purchases of securities	(332,209)	(303,985)
Interest and dividends received	7,864	8,089
Investment revenue/expenses - net	(13,509)	(10,754)
Net cash provided by (used in) investing activities	(110,034)	90,010
Net increase (decrease) in cash and cash equivalents	189	(74,478)
Cash and cash equivalents at the beginning of the year	262,583	337,061
Cash and cash equivalents at the end of the year	$ 262,772	$ 262,583
Cash and cash equivalents included in:		
Unrestricted cash and cash equivalents	$ 209,282	$ 214,390
Restricted and designated cash and cash equivalents	43,104	43,518
Restricted and designated assets (a component of the total of $56,741 (and $47,462 at December 31, 2016 and 2015, respectively)	10,386	4,675
Cash and cash equivalents at the end of the year	$ 262,772	$ 262,583

The accompanying notes are an integral part of these consolidated financial statements.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
SUPPLEMENTAL CASH FLOW INFORMATION

A reconciliation of the consolidated statements of cash flows operating activities to operating income as follows:

	Year Ended December 31,	
	2016	2015 (Restated)
	(thousands of dollars)	
Operating income	$ 255,076	$ 207,979
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation	184,043	188,928
Depletion	12,103	9,094
Regulatory amortization	12,127	7,299
Amortization of advance capacity & other	(1,427)	(1,363)
Amortization of prepaid gas supply	27,768	24,893
Revenue recognized from regulatory credits - net	20,045	(16,213)
Other receipts/payments	17,532	25,361
Changes in operating assets, deferred outflows, liabilities and deferred inflows:		
Receivables - retail customers, wholesale and other	4,929	(6,113)
Inventories, prepayments and other	(24,319)	(41,646)
Credit support collateral deposits	44,020	(41,520)
Deferred pension outflows	(88,610)	(5,155)
Payables and accruals	4,239	(11,134)
Credit support collateral obligation	(452)	4,229
Decommissioning	(9,111)	(6,966)
Net pension liability	117,887	54,639
Deferred pension inflows	(22,392)	(63,826)
Net cash provided by operating activities	$ 553,458	$ 328,486

The supplemental disclosure of noncash financing and investing activities is as follows:

	Year Ended December 31,	
	2016	2015 (Restated)
	(thousands of dollars)	
Net amortization of debt related (expenses) and premiums	$ 9,135	$ 5,884
Unrealized holding loss	(543)	(411)
Change in valuation of derivative financial instruments	89,925	(52,669)
Amortization of revenue for assets contributed in aid of construction	18,988	18,647
Allowance for funds used during construction	2,246	1,818
Construction expenditures included in accounts payable	20,141	19,115
Bond proceeds deposited into an escrow account for purposes of refunding long-term debt	186,324	-0-

The accompanying notes are an integral part of these consolidated financial statements.

Sacramento Municipal Utility District
Notes To Consolidated Financial Statements

NOTE 1. ORGANIZATION

The Sacramento Municipal Utility District (SMUD) was formed and operates under the State of California Municipal Utility District Act (Act). The Act gives SMUD the rights and powers to fix rates and charges for commodities or services it furnishes, and to incur indebtedness and issue bonds or other obligations.

SMUD is responsible for the acquisition, generation, transmission, and distribution of electric power to its service area, which includes most of Sacramento County and small adjoining portions of Placer and Yolo Counties. The Board of Directors (Board) determines SMUD's rates.

As a community-owned utility, SMUD is not subject to regulation or oversight by the California Public Utilities Commission.

SMUD is exempt from payment of federal and state income taxes and, under most circumstances, real and personal property taxes. SMUD is not exempt from real and personal property taxes on assets it holds outside of California. In addition, SMUD is responsible for the payment of a portion of the property taxes associated with its real property in California that lies outside of its service area.

NOTE 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Method of Accounting. SMUD's accounting records are maintained in accordance with Generally Accepted Accounting Principles (GAAP) for proprietary funds as prescribed by the Governmental Accounting Standards Board (GASB). SMUD's accounting records generally follow the Uniform System of Accounts for Public Utilities and Licensees prescribed by the Federal Energy Regulatory Commission (FERC), except as it relates to the accounting for contributions of utility property in aid of construction. SMUD's Consolidated Financial Statements are reported using the economic resources measurement focus and the accrual basis of accounting. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of the related cash flows. Electric revenues and costs that are directly related to the acquisition, generation, transmission, and distribution of electricity are reported as operating revenues and expenses. All other revenues and expenses are reported as non-operating revenues and expenses.

Use of Estimates. The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

The Financial Reporting Entity. These Consolidated Financial Statements include SMUD and its component units. Although the component units are legally separate from SMUD, they are blended into and reported as part of SMUD because of the extent of their operational and financial relationships with SMUD. All significant inter-component transactions have been eliminated in consolidation.

Component Units. The component units include the Central Valley Financing Authority (CVFA), the Sacramento Cogeneration Authority (SCA), the Sacramento Municipal Utility District Financing Authority (SFA), the Sacramento Power Authority (SPA), and the Northern California Gas Authority No. 1 (NCGA). The primary purpose of CVFA, SCA, SFA and SPA is to own and operate electric utility plants that supply power to SMUD. The primary purpose of NCGA is to prepay for natural gas and to sell the natural gas to SMUD. SMUD's Board comprises the Commissions that govern these entities (see Note 6).

Plant in Service. Capital assets are generally defined by SMUD as tangible assets with an initial, individual cost of more than three thousand dollars and an estimated useful life in excess of two years. The cost of additions to Plant in Service and replacement property units is capitalized. Repair and maintenance costs are charged to expense when incurred. When SMUD retires portions of its Utility Plant, retirements are recorded against Accumulated Depreciation and the retired portion of Utility Plant is removed from Plant in Service. The costs of removal and the related salvage value, if any, are charged or credited as appropriate to Accumulated Depreciation. SMUD generally computes depreciation on Plant in Service on a straight-line, service-life basis. The consolidated average annual composite depreciation rates for 2016 and 2015 were 3.3 and 3.5 percent, respectively. Depreciation is calculated using the following estimated lives:

Generation	5 to 80 years
Transmission and Distribution	15 to 50 years
Gas Pipeline	5 to 90 years
General	5 to 60 years

Investment in Joint Powers Agency (JPA). SMUD's investment in the Transmission Agency of Northern California (TANC) is accounted for under the equity method of accounting and is reported as a component of Plant in Service. SMUD's share of the TANC debt service costs and operations and maintenance expense, inclusive of depreciation, is included in Transmission and Distribution expense in the Consolidated Statements of Revenues, Expenses and Changes in Net Position (see Note 5).

SMUD's investment in the Balancing Authority of Northern California (BANC) is accounted for under the equity method of accounting. SMUD's share of the BANC operations and maintenance expense is included in Transmission and Distribution expense in the Consolidated Statements of Revenues, Expenses and Changes in Net Position (see Note 5).

Investment in Gas Properties. SMUD has an approximate 21 percent non-operating ownership interest in the Rosa Unit gas properties in New Mexico of which, SMUD's portion of the extracted gas is transported for use in its component unit natural gas-fired power plants (see Note 6). SMUD uses the successful efforts method of accounting for its investment in gas producing properties. Costs to acquire mineral interests in gas properties, to drill and equip exploratory wells that find proved reserves, and to drill and equip development wells are capitalized as a component of Plant in Service on the Consolidated Statements of Net Position. Costs to drill exploratory wells that do not find proved reserves, geological and geophysical costs, and costs of carrying and retaining unproved properties are expensed. SMUD has purchased proven reserves and has not participated in exploratory drilling. Capitalized costs of producing gas properties, after considering estimated residual salvage values, are depleted by the unit-of–production method based on the estimated future production of the proved developed producing wells. SMUD's investment in gas properties is reported as a component of Plant in Service.

Restricted and Designated Assets. Cash, cash equivalents, and investments, which are restricted under terms of certain agreements for payments to third parties or Board actions limiting the use of such funds, are included as restricted assets. When SMUD restricts funds for a specific purpose, and both restricted and unrestricted resources are available for use, it is SMUD's policy to use restricted resources first, then unrestricted resources as they are needed.

Restricted Bond Funds. SMUD's Indenture Agreements (Indenture) requires the maintenance of minimum levels of reserves for debt service on the 1997 Series K Bonds and the 2003 Series R Bonds. In 2015, the 2003 Series R Bonds were paid off and only the reserve for debt service for the 1997 Series K Bonds existed at December 31, 2016 and 2015.

Nuclear Decommissioning Trust Fund. SMUD made annual contributions to its Nuclear Decommissioning Trust Fund (Trust Fund) through 2008 to cover the cost of its primary decommissioning activities associated with the Rancho Seco facility. Primary decommissioning excludes activities associated with the spent fuel storage facility after 2008 and most non-radiological decommissioning tasks. SMUD determined early in 2008 that there were enough funds in the trust to complete the radiological decommissioning of the Rancho Seco nuclear plant site, and stopped contributing to the Trust Fund (see Note 13). Interest earnings on the Trust Fund assets are recorded as Interest Income and are accumulated in the Trust Fund.

Accrued Decommissioning. SMUD accrues decommissioning costs related to Utility Plant when an obligation to decommission facilities is legally required. Adjustments are made to such liabilities based on estimates by SMUD staff in accordance with FASB ASC 410, "***Asset Retirement and Environmental Obligations***" (FASB ASC 410). For active plants, such costs are included in the Utility Plant's cost and as a component of Operating Expense over the Utility Plant's life. Expenditures for decommissioning activities are recorded as reductions to Accrued Decommissioning liability. Changes in the Rancho Seco decommissioning liability estimates arising from inflation, annual accretion, and other changes to the cost assumptions are recorded to Accrued Decommissioning with a corresponding adjustment to the related regulatory deferral. The current portion of the Accrued Decommissioning liability represents SMUD's estimate of actual expenditures in the next year, as set forth in the annual budget.

SMUD has identified potential retirement obligations related to certain generation, distribution and transmission facilities. SMUD's non-perpetual leased land rights generally are renewed continuously because SMUD intends to utilize these facilities indefinitely. Since the timing and extent of any potential asset retirements are unknown, the fair value of any obligations associated with these facilities cannot be reasonably estimated. Accordingly, a liability has not been recorded.

At December 31, 2016 and 2015, SMUD's Accrued Decommissioning balance in the Consolidated Statements of Net Position relating to Rancho Seco was $148.0 million and $150.4 million, respectively (see Note 13). The Accrued Decommissioning balance in the Consolidated Statements of Net Position relating to other electricity generation and gas production facilities totaled $11.6 million and $10.8 million as of December 31, 2016 and 2015, respectively.

Cash and Cash Equivalents. Cash and cash equivalents include all debt instruments purchased with an original maturity of 90 days or less, all investments in the Local Agency Investment Fund (LAIF), and money market mutual funds. LAIF has an equity interest in the State of California (State) Pooled Money Investment Account (PMIA). PMIA funds are on deposit with the State's Centralized Treasury System and are managed in compliance with the California Government Code according to a statement of investment policy which sets forth permitted investment vehicles, liquidity parameters, and maximum maturity of investments. SMUD's deposits with LAIF comprise cash representing demand deposits up to a $65.0 million maximum and cash equivalents representing amounts which may be withdrawn once per month after a thirty-day period (see Note 7).

Investments. SMUD's investments are reported at fair value in accordance with Statement of Governmental Accounting Standards (SGAS) No. 72, ***"Fair Value Measurement and Application,"*** (see Note 3). Realized and unrealized gains and losses are included in Other Income – Net in the Consolidated Statements of Revenues, Expenses and Changes in Net Position. Premiums and discounts on zero coupon bonds are amortized using the effective interest method. Premiums and discounts on other securities are amortized using the straight-line method, which approximates the effective interest method.

Electric Operating Revenues. Electric revenues are billed on the basis of monthly cycle bills and are recorded as revenue when the electricity is delivered. SMUD records an estimate for unbilled revenues earned from the dates its retail customers were last billed to the end of the month. At December 31, 2016 and 2015, unbilled revenues were $72.2 million and $72.5 million, respectively.

Purchased Power Expenses. A portion of SMUD's power needs are provided through power purchase agreements. Expenses from such agreements, along with associated transmission costs paid to other utilities, are charged to Purchased Power expense on the Consolidated Statements of Revenues, Expenses and Changes in Net Position in the period the power is received. The costs, or credits, associated with energy swap agreements (gas and electric) or other arrangements that affect the net cost of Purchased Power are recognized in the period in which the underlying power delivery occurs. Contract termination payments and adjustments to prior billings are included in Purchased Power expense once the payments or adjustments can be reasonably estimated.

Advanced Capacity Payments. Some long-term agreements to purchase energy or capacity from other providers call for up-front payment. Such costs are generally recorded as an asset and amortized over the length of the contract.

Credit and Market Risk. SMUD enters into forward purchase and sales commitments for physical delivery of gas and electricity with utilities and power marketers. SMUD is exposed to credit risk related to nonperformance by its wholesale counterparties under the terms of these contractual agreements. In order to limit the risk of counterparty default, SMUD has a wholesale counterparty risk policy which includes using the credit agency ratings of SMUD's counterparties and other credit services, credit enhancements for counterparties that do not meet an acceptable risk level, and the use of standardized agreements that allow for the netting of positive and negative exposures associated with a single counterparty. SMUD is also subject to similar requirements for many of its gas and power purchase agreements. SMUD uses a combination of cash and securities to satisfy its collateral requirements to counterparties. SMUD's component unit, NCGA, entered into a guaranteed investment contract and is exposed to credit risk related to nonperformance by its investment provider. The investment provider provides collateral if their credit ratings fall below agreed upon levels. At December 31, 2016 and 2015, respectively, SMUD held $3.9 million and $4.4 million on deposit by counterparties and an investment provider. The amount is recorded as unrestricted cash and current restricted cash with an associated current liability. At December 31, 2016 and 2015, SMUD posted cash collateral of $1.5 million and $45.5 million, respectively, with counterparties.

Accounts Receivable and Allowance for Doubtful Accounts. Accounts Receivable is recorded at the invoiced amount and does not bear interest, except for accounts related to energy efficiency loans. SMUD recognizes an estimate of uncollectible accounts for its receivables related to electric service, energy efficiency loans, and other non-electric billings, based upon its historical experience with collections and current energy market conditions. For large wholesale receivable balances, SMUD determines its bad debt reserves based on the specific credit issues for each account. SMUD records bad debts for its estimated uncollectible accounts related to electric service as a reduction to the related operating revenues in the Consolidated Statements of Revenues, Expenses and Changes in Net Position. SMUD records bad debts for its estimated uncollectible accounts related to energy efficiency loans and other non-electric billings in Administrative, General and Customer expense in the Consolidated Statements of Revenues, Expenses and Changes in Net Position.

The summarized activity of the changes in the allowance for doubtful accounts during 2016 and 2015 is presented below:

	Balance at beginning of Year	Additions	(Write-offs) and Recoveries	Balance at end of Year
	(thousands of dollars)			
Other Non-Electric:				
December 31, 2016	$ 1,771	$ 663	$ (1,603)	$ 831
December 31, 2015	$ 1,993	$ 691	$ (913)	$ 1,771
Retail Customers:				
December 31, 2016	$ 3,116	$ 3,920	$ (4,639)	$ 2,397
December 31, 2015	$ 3,017	$ 5,514	$ (5,415)	$ 3,116
Energy Efficiency Loans:				
December 31, 2016	$ 1,041	$ (953)	$ 716	$ 804
December 31, 2015	$ 1,327	$ (873)	$ 587	$ 1,041

Regulatory Deferrals. The Board has the authority to establish the level of rates charged for all SMUD services. As a regulated entity, SMUD's financial statements are prepared in accordance with SGAS Statement No. 62, ***"Codification of Accounting and financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements,"***

which requires that the effects of the rate-making process be recorded in the financial statements. Accordingly, certain expenses and credits, normally reflected in Change in Net Position as incurred, are recognized when included in rates and recovered from, or refunded to, customers. SMUD records various regulatory assets and credits to reflect rate-making actions of the Board (see Note 8).

Materials and Supplies. Materials and supplies are stated at average cost, which approximates the first-in, first-out method.

Compensated Absences. SMUD accrues vacation leave and compensatory time when employees earn the rights to the benefits. SMUD does not record sick leave as a liability until it is taken by the employee, since there are no cash payments made for sick leave when employees terminate or retire. At December 31, 2016 and 2015, the total estimated liability for vacation and other compensated absences was $24.9 million and $23.9 million, respectively.

Public Good. Public Good expenses consist of non-capital expenditures for energy efficiency programs, low income subsidies, renewable energy resources and technologies, and research and development.

Gains/Losses on Bond Refundings. Gains and losses resulting from bond refundings are included as a component of Deferred Inflows of Resources or Deferred Outflows of Resources on the Consolidated Statements of Net Position and amortized as a component of Interest on Debt in the Consolidated Statements of Revenues, Expenses and Changes in Net Position over the shorter of the life of the refunded debt or the new debt using the effective interest method.

Gains/Losses on Bond Defeasances or Extinguishments. Gains and losses resulting from bond defeasances or extinguishments that were not financed with the issuance of new debt are included as a component of Interest on Debt in the Consolidated Statements of Revenues, Expenses and Changes in Net Position.

Allowance for Funds Used During Construction (AFUDC). SMUD capitalizes, as an additional cost of Construction Work In Progress (CWIP), AFUDC, which represents the cost of borrowed funds used for such purposes. The amount capitalized is determined by a formula prescribed by FERC. The AFUDC rate for 2016 and 2015 was 2.3 percent and 2.8 percent, of eligible CWIP, respectively.

Derivative Financial Instruments. SMUD records derivative financial instruments (interest rate swap and gas price swap agreements, certain wholesale sales agreements, certain power purchase agreements and option agreements) at fair value on its Consolidated Statements of Net Position. SMUD does not enter into agreements for speculative purposes. Fair value is estimated by comparing contract prices to forward market prices quoted by third party market participants and/or provided in relevant industry publications. SMUD is exposed to risk of nonperformance if the counterparties default or if the swap agreements are terminated. SMUD reports derivative financial instruments with remaining maturities of one year or less and the portion of long-term contracts with scheduled transactions over the next twelve months as current on the Consolidated Statements of Net Position (see Note 9).

Interest Rate Swap Agreements. SMUD enters into interest rate swap agreements to modify the effective interest rates on outstanding debt (see Notes 9 and 10).

Gas and Electricity Price Swap and Option Agreements. SMUD uses forward contracts to hedge the impact of market volatility on gas commodity prices for its gas-fueled power plants and for energy prices on purchased power for SMUD's retail load (see Note 9).

Solano Wind Sale. SMUD entered into an agreement to sell the Solano Wind Phase 3 plant in December 2011 with a corresponding Power Purchase Agreement for all output of the plant. In April 2012, under the terms of the Construction Management Agreement, SMUD, on behalf of the purchaser, completed construction of the plant, with the revenue recognition from the transaction, which was accounted for as a financing agreement, to occur over the life of the contracts. Pursuant to the Facility Administration Agreement, SMUD will perform services at the facility under the direction and for the benefit of the purchaser. Pursuant to the ground and property lease, SMUD is leasing the site to the purchaser for a term of twenty years with an option to extend for five additional years.

The sale proceeds have been recorded as Deferred Inflows of Resources on the Consolidated Statements of Net Position and are amortized as Purchased Power Expense on the Consolidated Statements of Revenues, Expenses and Changes in Net Position over the life of the agreement. Sale proceeds in the amount of $63.1 million were received in 2013. The prepayment for purchased power over the life of the contract has been recorded as Prepaid Power and Capacity on the Consolidated Statements of Net Position and are amortized as Purchased Power Expense on the Consolidated Statements of Revenues, Expenses and Changes in Net Position over the life of the agreement (see Note 17 for language about the Power Purchase Agreement).

Precipitation Hedge Agreements. SMUD enters into non-exchange traded precipitation hedge agreements to hedge the cost of replacement power caused by low precipitation years (Precipitation Agreements). SMUD records the intrinsic value of the Precipitation Agreements on the Consolidated Statements of Net Position. Settlement of the Precipitation Agreements is not performed until the end of the period covered (water year ended September 30). The intrinsic value of a Precipitation Agreement is the difference between the expected results from a monthly allocation of the cumulative rainfall amounts, in an average rainfall year, and the actual rainfall during the same period.

Insurance Programs. SMUD records liabilities for unpaid claims at their present value when they are probable in occurrence and the amount can be reasonably estimated. SMUD records a liability for unpaid claims associated with general, auto, workers' compensation, and short-term and long-term disability based upon estimates derived by SMUD's claims administrator or SMUD staff. The liability comprises the present value of the claims outstanding, and includes an amount for claim events incurred but not reported based upon SMUD's experience (see Note 16).

Pollution Remediation. SGAS No. 49, ***"Accounting and Financial Reporting for Pollution Remediation Obligations,"*** (GASB No. 49) requires that a liability be recognized for expected outlays for remediating existing pollution when certain triggering events occur. SMUD recorded a pollution remediation obligation for its North City Substation, which was built on a former landfill and also for the Former Community Linen Rental Services Property (see Note 18). In 2016, SMUD identified and recorded a pollution remediation obligation for a land site where it will be building a substation (see Note 18) and in 2015, SMUD identified and recorded a pollution remediation obligation for its Headquarters building that it will be renovating. At December 31, 2016 and 2015, the total pollution remediation liability was $35.3 million and $19.7 million, respectively, and recorded as either Current Liabilities, Customer Deposits and Other or Noncurrent Liabilities, Self Insurance and Other Liabilities in the Consolidated Statements of Net Position. Costs were estimated using the expected cash flow technique prescribed under GASB No. 49, including only amounts that are reasonably estimable.

Hydro License. SMUD owns and operates the Upper American River Hydroelectric Project (UARP). The original license to construct and operate the UARP was issued in 1957 by FERC. In 2014, SMUD received a new hydro license for a term of 50 years, effective July 1, 2014. As part of the hydro licensing process, SMUD entered into four contracts with government agencies whereby SMUD makes annual payments to them for various services for the term of the license. At December 31, 2016 and 2015, the liability for these contract payments was $57.8 million and $55.0 million, respectively, and recorded as either Current Liabilities, Customer Deposits and Other or Noncurrent Liabilities, Self Insurance and Other Liabilities in the Consolidated Statements of Net Position (see Note 17).

Assembly Bill 32. California Assembly Bill 32 (AB-32) is an effort by the State of California to set a 2020 greenhouse gas emissions reduction goal into law. The goal is to reach a statewide emission limit of 427 million metric tons of carbon dioxide equivalent of greenhouse gases (GHG). Central to this initiative is the implementation of a cap and trade program, which covers major sources of GHG emissions in the State including power plants. The cap and trade program includes an enforceable emissions cap that will decline over time. The State will distribute allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources under the cap will need to surrender allowances and offsets equal to their emissions at the end of each compliance period. SMUD is subject to AB-32 and participated in the program auctions in 2015 and 2016. In a normal water year, SMUD expects its free allocation of allowances from the Air Resources Board to cover its compliance costs associated with electricity delivered to its retail customers. SMUD expects to recover compliance costs associated with wholesale power sales costs through its wholesale power sales revenues. SMUD is monitoring legislation and proposed programs that would impact AB-32.

Net Pension Liability (NPL). SMUD implemented SGAS No. 68 ***"Accounting and Financial Reporting for Pensions – An Amendment of GASB Statement No. 27"*** (GASB No. 68) in 2015. Under GASB No. 68, the NPL is the difference between the actuarial present value of projected pension benefit payments attributable to employees' past service and the Plan's fiduciary net position. At December 31, 2016 and 2015, the NPL was $499.2 million and $381.3 million, respectively (see Note 14).

Net Position. SMUD classifies its net position into three components as follows:

- Net investment in capital assets – This component of net position consists of capital assets, net of Accumulated Depreciation, reduced by the outstanding debt balances, net of unamortized debt expenses. Deferred inflows and outflows of resources that are attributable to the acquisition, construction or improvement of those assets or related debt are also included.
- Restricted – This component of net position consists of assets with constraints placed on their use, either externally or internally. Constraints include those imposed by debt indentures (excluding amounts considered in net capital, above), grants or laws and regulations of other governments, or by law through constitutional provisions or enabling legislation or by the Board. These restricted assets are reduced by liabilities and deferred inflows of resources related to those assets.
- Unrestricted – This component of net position consists of net amount of the assets, deferred outflows of resources, liabilities, and deferred inflows of resources that do not meet the definition of "Net investment in capital assets" or "Restricted."

Contributions in Aid of Construction (CIAC). SMUD records CIAC from customer contributions, primarily relating to expansions to SMUD's distribution facilities, as Other Income - Net in the Consolidated Statements of Revenues, Expenses and Changes in Net Position. Contributions of capital are valued at estimated market cost. For rate-making purposes, the Board does not recognize such revenues when received; rather, CIAC is included in revenues as such costs are amortized over the estimated useful lives of the related distribution facilities.

Revenues and Expenses. SMUD distinguishes operating revenues and expenses from non-operating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with SMUD's principal ongoing operations. The principal operating revenues of SMUD are charges to customers for sales and services. Operating expenses include the cost of sales and services, administrative expenses, and depreciation on capital assets. All revenues and expenses not meeting this definition are reported as non-operating revenues and expenses.

Grants. SMUD receives grant proceeds from federal and state assisted programs for its projects which include, but are not limited to, advanced and renewable technologies, electric transportation, and energy efficiency. SMUD also periodically receives grant proceeds from federal or state assistance programs as partial reimbursements for costs it has incurred as a result of storm damages. When applicable, these programs may be subject to financial and compliance audits pursuant to regulatory requirements. SMUD considers the possibility of any material disallowances to be remote. During 2016, SMUD recorded $0.5 million of grant proceeds and recognized $0.3 million as a component of Other Income - Net, in the Consolidated Statements of Revenues, Expenses and Changes in Net Position, and $0.2 million as a Regulatory Credit. During 2015, SMUD recorded $3.0 million of grant proceeds and recognized $2.5 million as a component of Other Income - Net, in the Consolidated Statements of Revenues, Expenses and Changes in Net Position, and $0.5 million as a Regulatory Credit (see Note 8).

In 2010, SMUD issued taxable Build America Bonds. SMUD receives an interest subsidy from the federal government equal to 35 percent of the interest paid (see Note 10). SMUD received reduced subsidy payments in 2016 and 2015 due to budget sequestration by the federal government. SMUD recognized $9.1 million in revenues in 2016 and also in 2015 for its Build America Bonds, as a component of Other Income - Net, in the Consolidated Statements of Revenues, Expenses and Changes in Net Position.

Customer Sales and Excise Taxes. SMUD is required by various governmental authorities, including states and municipalities, to collect and remit taxes on certain customer sales. Such taxes are presented on a net basis and excluded from revenues and expenses in the Consolidated Statements of Revenues, Expenses and Changes in Net Position.

Rancho Seco Litigation. In June 1983, SMUD and the United States (U.S.) Department of Energy (DOE) entered into a contract whereby the DOE would build a repository for the acceptance and disposal of SMUD's spent nuclear fuel (SNF) and/or high-level radioactive waste (HLW). SMUD paid the DOE a total of approximately $40.0 million in fees under the contract, thus satisfying its obligation of performance under the contract. DOE did not build a repository and therefore breached its obligation under the contract to commence acceptance of SNF and HLW by January 31, 1998. As a result, SMUD incurred costs to design, license, and fabricate its own on-site storage facility for the long term dry storage of its spent fuel at Rancho Seco. SMUD filed a suit against the DOE in 2009 which covered costs incurred from 2004 through 2009. In February 2015, SMUD received an award for $22.5 million from the U.S. Court of Claims which was recorded as Other Income – Net in the Consolidated Statements of Revenues, Expenses and Changes in Net Position. In June 2015, SMUD filed a suit against DOE which covered the costs incurred from 2010 through at least June 2015.

Pacific Gas & Electric (PG&E) Refund. In June 2016, SMUD received a $17.9 million refund from PG&E in association with the PG&E 2010 natural gas transmission pipeline explosion in San Bruno. The California Public Utilities Commission imposed a penalty on PG&E requiring them to provide a one-time bill credit to natural gas customers on their June 2016 bills based on usage for a prescribed time period. The $17.9 million refund was recorded as Other Income – Net in the Consolidated Statements of Revenues, Expenses and Changes in Net Position and passed through to the component units.

Subsequent Events. Subsequent events for SMUD have been evaluated through February 17, 2017, which is the date that the financial statements were available to be issued.

Reclassifications. Certain amounts in the 2015 Consolidated Financial Statements have been reclassified in order to conform to the 2016 presentation.

Recent Accounting Pronouncements. In June 2015, GASB issued SGAS No. 75, ***"Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions"*** (GASB No. 75). The primary objective of GASB No. 75 is to improve accounting and financial reporting by state and local governments for postemployment benefits other than pensions (other postemployment benefits or OPEB). This statement replaces the requirements of SGAS No. 45 ***"Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions,"*** as amended, and SGAS No. 57 ***"OPEB Measurements by Agent Employers and Agent Multiple-Employer Plans."*** This statement establishes standards for measuring and recognizing liabilities, deferred outflows and deferred inflows of resources, and expenses. For defined benefit OPEB, GASB No. 75 identifies the methods and assumptions that are required to be used to project benefit payments, discount projected benefit payments to their actuarial present value, and attribute that present value to periods of employee service. Note disclosure and required supplementary information requirements about defined benefit OPEB also are addressed. In addition, this statement details the recognition and disclosure requirements for employers with payables to defined benefit OPEB plans that are administered through trusts that meet the specified criteria. This statement is effective for SMUD in 2018. SMUD is currently assessing the financial statement impact of adopting this statement.

In June 2015, GASB issued SGAS No. 76, ***"The Hierarchy of Generally Accepted Accounting Principles for State and Local Governments"*** (GASB No. 76). GASB No. 76 established the hierarchy of GAAP for state and local governments.

This statement supersedes SGAS No. 55, ***"The Hierarchy of Generally Accepted Accounting Principles for State and Local Governments."*** The GAAP hierarchy sets forth what constitutes GAAP for all state and local governmental entities. It establishes the order of priority of pronouncements and other sources of accounting and financial reporting guidance that a governmental entity should apply. Category A is comprised of GASB statements. Category B includes GASB Technical Bulletins, GASB Implementation Guides, and literature of the AICPA cleared by the GASB. This statement is effective for SMUD in 2016. SMUD has assessed the financial statement impact of adopting the new statement, and its impact is not material.

In November 2016, GASB issued SGAS No. 83, ***"Certain Asset Retirement Obligations"*** (GASB No. 83). An Asset Retirement Obligation (ARO) is a legally enforceable liability associated with the retirement of a tangible capital asset. A government that has legal obligations to perform future asset retirement activities related to its tangible capital assets should recognize a liability based on the guidance in this statement. GASB No. 83 establishes the criteria for determining the timing and pattern of recognition of a liability and a corresponding deferred outflow of resources for AROs. Recognition occurs when the liability is both incurred and reasonably estimable. The determination of when the liability is incurred should be based on the occurrence of external laws, regulations, contracts, or court judgments, together with the occurrence of an internal event that obligates the government to perform the asset retirement activities. GASB No. 83 requires the measurement of the ARO be based on the probability weighted best estimate of the current value of outlays expected to be incurred, and adjusted for general inflation or deflation at least annually. It requires a government to evaluate all relevant factors at least annually to determine whether the effects of one or more of the factors are expected to significantly change the estimated asset retirement outlays. The ARO should only be remeasured when the result of the evaluation indicates a significant change in the estimated outlays. GASB No. 83 also requires disclosures of descriptive information about the nature of a government's AROs including the methods and assumptions used for the estimates of the liabilities, the estimated remaining useful life of the associated tangible capital assets, how any funding and assurance requirements are being met, and the amount of any assets restricted for payment of the AROs (if not separately displayed in the financial statements). If a liability for an ARO (or portions thereof) has been incurred by a government but is not yet recognized because it is not reasonably estimable, the government should disclose that fact and the reasons therefor. This statement is effective for SMUD in 2019. SMUD is currently assessing the financial statement impact of adopting this statement. SMUD currently records AROs following the FASB guidance (see **Accrued Decommissioning** under Note 2).

NOTE 3. ACCOUNTING CHANGE

In February 2015, GASB issued SGAS No. 72, ***"Fair Value Measurement and Application"*** (GASB No. 72). GASB No. 72 addresses accounting and financial reporting issues related to fair value measurements. This statement requires investments to be measured at fair value. An investment is defined as a security or other asset that (a) a government holds primarily for the purpose of income or profit and (b) has a present service capacity based solely on its ability to generate cash or to be sold to generate cash. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (described as an exit price) in an orderly transaction between market participants at the measurement date. This statement requires valuation techniques that are appropriate in the circumstances and for which sufficient data are available to be used to measure fair value. The valuation techniques should be consistent with one or more of the following approaches: the market approach, the cost approach, or the income approach. This statement establishes a hierarchy of inputs to the valuation techniques used to measure fair value. The hierarchy has three levels. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are inputs, other than quoted prices, included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs reflecting SMUD's own assumptions developed from the best information available in the circumstances. A fair value takes into account the highest and best use for a nonfinancial asset. This statement requires disclosures to be made about fair value measurements, the level of fair value hierarchy, valuation techniques and changes in valuation techniques, and for nonrecurring fair value measurements, the reason(s) for the measurement.

This statement is effective for SMUD in 2016. SMUD implemented GASB No. 72 for investments and derivative financial instruments that are measured at fair value on a recurring basis. The implementation changed the valuation of the interest rate swap agreements. As a result, SMUD restated the December 31, 2015 Consolidated Statement of Net Position and the Supplemental Cash Flow Information to reflect this change for comparative purposes. The disclosures are presented in a table displaying the major categories of assets and liabilities measured at fair value and separated into the level of the hierarchy on which the fair value is based (see Note 12).

In March 2016, GASB issued SGAS No. 82, ***"Pension Issues – An amendment of GASB Statements No. 67, No. 68, and No. 73"*** (GASB No. 82). The objective of GASB No. 82 is to address certain issues that have been raised with respect to GASB No. 67, No. 68, and No. 73 regarding (1) the presentation of payroll-related measures in required supplementary information, (2) the selection of assumptions and the treatment of deviations from the guidance in an Actuarial Standard of Practice for financial reporting purposes, and (3) the classification of payments made by employers to satisfy employee (plan member) contribution requirements. GASB No. 82 changed the required presentation of covered-employee payroll, which is the payroll of employees that are provided with pensions through a pension plan, to instead require the presentation of covered payroll, defined as the payroll on which contributions to a pension plan are based. This measure is used in ratios in the schedules of required supplementary information. GASB No. 82 clarifies that payments made by an employer to satisfy contribution requirements that are identified by the pension plan terms as plan member contribution requirements should be classified as plan member contributions for purposes of GASB No. 67 and as employee contributions for purposes of GASB No. 68. It also requires that an employer's expense and expenditures for those amounts be recognized in the period for which the contribution is assessed and classified in the same manner as the employer classifies similar compensation other than pensions (for example, as salaries and wages or as fringe benefits).

SMUD implemented GASB No. 82 in 2016. The implementation changed the classification of payments made by SMUD to satisfy employee (plan member) contribution requirements. As a result, SMUD restated the December 31, 2015 Consolidated Statement of Net Position, the Consolidated Statement of Revenues, Expenses and Changes in Net Position, and the Supplemental Cash Flow Information to reflect this change for comparative purposes. SMUD has updated the required presentation of payroll-related measures to use covered payroll, instead of covered-employee payroll, in ratios in the schedules of required supplementary information.

SMUD has restated amounts of the affected balances within the financial statements for the period ended December 31, 2015, as follows:

CONSOLIDATED STATEMENT OF NET POSITION

	December 31,	
	2015 (Restated)	2015
	(thousands of dollars)	
Noncurrent Assets		
Regulatory costs for future recovery	$ 602,104	$ 602,934
Hedging derivative instruments	21,721	23,275
Deferred Outflows of Resources		
Deferred pension outflows	27,643	31,303
Noncurrent Liabilities		
Investment derivative instruments	19,377	20,207
Deferred Inflows of Resources		
Accumulated increase in fair value of hedging derivatives	29,461	31,015
Net Position		
Unrestricted	*409,049	411,661

CONSOLIDATED STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

	December 31,	
	2015 (Restated)	2015
	(thousands of dollars)	
Operating Expenses		
Operations:		
Production	$ *349,862	$ 346,550
Transmission and distribution	*74,924	73,909
Administrative, general and customer	*186,376	190,013
Public good	70,073	70,122
Maintenance	95,378	95,635
Change in Net Position	130,077	128,956
Net Position – Beginning of Year	1,008,588	1,013,369
Net Position – End of Year	1,138,665	1,142,325

SUPPLEMENTAL CASH FLOW INFORMATION

	December 31,	
	2015 (Restated)	2015
	(thousands of dollars)	
Operating income	$ *207,979	$ 203,783
Changes in operating assets, deferred outflows, liabilities and deferred inflows:		
Deferred pension outflows	(5,155)	(4,034)
Supplemental disclosure of noncash financing and investment activities		
Change in valuation of derivative financial instruments	(52,669)	(51,945)

*Balances include reclassifications not related to the restatement.

NOTE 4. UTILITY PLANT

The summarized activity of SMUD's Utility Plant during 2016 is presented below:

	Balance December 31, 2015	Additions	Transfers and Disposals	Balance December 31, 2016
	(thousands of dollars)			
Nondepreciable Utility Plant:				
Land and land rights	$ 130,052	$ 5,324	$ (36)	$ 135,340
CWIP	176,071	217,050	(177,040)	216,081
Total nondepreciable utility plant	306,123	222,374	(177,076)	351,421
Depreciable Utility Plant:				
Generation	1,651,815	19,736	(1,864)	1,669,687
Transmission	301,944	3,521	(39)	305,426
Distribution	2,112,536	77,576	(10,626)	2,179,486
Investment in gas properties	206,579	42	-0-	206,621
Investment in JPAs	16,448	-0-	(799)	15,649
Intangibles	357,283	32,083	(1,317)	388,049
General	860,992	40,183	(20,080)	881,095
	5,507,597	173,141	(34,725)	5,646,013
Less: accumulated depreciation and depletion	(2,484,106)	(195,844)	33,403	(2,646,547)
Less: accumulated amortization on JPAs	(5,714)	(313)	-0-	(6,027)
	(2,489,820)	(196,157)	33,403	(2,652,574)
Total depreciable plant	3,017,777	(23,016)	(1,322)	2,993,439
Total Utility Plant - net	$ 3,323,900	$ 199,358	$ (178,398)	$ 3,344,860

The summarized activity of SMUD's Utility Plant during 2015 is presented below:

	Balance December 31, 2014	Additions	Transfers and Disposals	Balance December 31, 2015
	(thousands of dollars)			
Nondepreciable Utility Plant:				
Land and land rights	$ 127,914	$ 2,142	$ (4)	$ 130,052
CWIP	111,594	185,219	(120,742)	176,071
Total nondepreciable utility plant	239,508	187,361	(120,746)	306,123
Depreciable Utility Plant:				
Generation	1,632,980	15,917	2,918	1,651,815
Transmission	292,920	7,849	1,175	301,944
Distribution	2,052,254	64,313	(4,031)	2,112,536
Investment in gas properties	206,198	381	-0-	206,579
Investment in JPAs	14,165	2,283	-0-	16,448
Intangibles	346,268	11,925	(910)	357,283
General	902,314	20,562	(61,884)	860,992
	5,447,099	123,230	(62,732)	5,507,597
Less: accumulated depreciation and depletion	(2,349,241)	(197,462)	62,597	(2,484,106)
Less: accumulated amortization on JPAs	(5,401)	(313)	-0-	(5,714)
	(2,354,642)	(197,775)	62,597	(2,489,820)
Total depreciable plant	3,092,457	(74,545)	(135)	3,017,777
Total Utility Plant - net	$ 3,331,965	$ 112,816	$ (120,881)	$ 3,323,900

SMUD is planning a major renovation of its Headquarters building. In 2015, the building was vacated and SMUD retired many of the assets related to this building in the amount of $50.9 million. The retired assets were removed from Plant in Service and recorded against Accumulated Depreciation.

NOTE 5. INVESTMENT IN JOINT POWERS AGENCY

TANC. SMUD and fourteen other California municipal utilities are members of TANC, a JPA. TANC, along with the other California municipal utilities, own and operate the California-Oregon Transmission Project (COTP), a 500-kilovolt transmission line between central California and southern Oregon. SMUD is obligated to pay approximately 39.0 percent of TANC's COTP debt service and operations costs in exchange for entitlement to approximately 536 megawatts (MW) of TANC's 1,390 MW transfer capability. Additionally, SMUD has a 48 MW share of TANC's 300 MW firm, bi-directional transmission over PG&E's system between PG&E's Tesla and Midway substations (SOT). The total entitlement shares for the COTP and SOT described above include the long-term agreements listed below.

In 2009, SMUD entered into a 15-year long-term layoff agreement with TANC and certain members, expiring January 31, 2024. This agreement provides for the assignment of all rights and obligations of the City of Palo Alto and the City of Roseville related to their COTP and SOT entitlements. This agreement increased SMUD's COTP entitlement by 36 MW and SOT entitlement by 2 MW. Effective July 1, 2014, an amendment provides for the return to the City of Roseville of all rights and obligations related to the COTP entitlements, which decreased SMUD's COTP entitlement by 13 MW.

In 2014, SMUD entered into a 25-year long-term layoff agreement with TANC and certain members effective July 1, 2014. This agreement provides for the assignment of all rights and obligations of Northern California Power Agency and partial rights and obligations of the City of Santa Clara related to their COTP entitlements. This agreement increased SMUD's COTP entitlements by 130 MW.

The long-term debt of TANC, which totals $216.2 million (unaudited) at December 31, 2016, is collateralized by a pledge and assignment of net revenues of TANC supported by take or pay commitments of SMUD and other members. Should other members default on their obligations to TANC, SMUD would be required to make additional payments to cover a portion of such defaulted payments, up to 25 percent of its current obligation.

Copies of the TANC annual financial reports may be obtained from SMUD at P.O. Box 15830, Sacramento, California 95852.

SMUD recorded transmission expenses related to TANC of $15.7 million and $24.5 million in 2016 and 2015, respectively.

Summary financial information for TANC is presented below:

	December 31,	
	2016 (Unaudited)	2015 (Unaudited)
	(thousands of dollars)	
Total Assets	$ 336,742	$ 404,375
Total Deferred Outflows of Resources	4,140	3,262
Total Assets and Deferred Outflows of Resources	$ 340,882	$ 407,637
Total Liabilities	$ 327,296	$ 392,555
Total Deferred Inflows of Resources	-0-	44
Total Net Position	13,586	15,038
Total Liabilities, Deferred Inflows of Resources and Net Position	$ 340,882	$ 407,637
Changes in Net Position for the Six Months Ended December 31	$ 3	$ -0-

BANC. SMUD, City of Redding, City of Roseville, Modesto Irrigation District (MID), City of Shasta Lake, and Trinity Public Utilities District are members of BANC, a JPA formed in 2009. In 2011, operational control of Balancing Authority (BA) operations was transferred from SMUD to BANC. BANC performs FERC approved BA reliability functions that are managed by North American Electric Reliability Corporation (NERC), nationally, and by Western Electricity Coordinating Council functions in the west.

Copies of the BANC annual financial reports may be obtained from SMUD at P.O. Box 15830, Sacramento, California 95852.

SMUD recorded expenses related to BANC of $2.0 million in 2016 and $1.6 million in 2015.

Summary financial information for BANC is presented below:

	December 31,	
	2016 (Audited)	2015 (Audited)
	(thousands of dollars)	
Total Assets	$ 1,594	$ 824
Total Liabilities	$ 1,594	$ 824
Total Net Position	-0-	-0-
Total Liabilities and Net Position	$ 1,594	$ 824
Changes in Net Position for the Year Ended December 31	$ -0-	$ -0-

NOTE 6. COMPONENT UNITS

CVFA Carson Cogeneration Project. CVFA is a JPA formed by SMUD and the Sacramento Regional County Sanitation District. CVFA operates the Carson Project, a 65 MW (net) natural gas-fired cogeneration facility and a 43 MW (net) natural gas-fired simple cycle peaking plant. The revenue stream to pay the CVFA bonds' debt service is provided by a "take-or-pay" power purchase agreement between SMUD and CVFA.

SCA Procter & Gamble Cogeneration Project. SCA is a JPA formed by SMUD and the SFA. SCA operates the Procter & Gamble Project, a 136 MW (net) natural gas-fired cogeneration facility and a 50 MW (net) natural gas-fired simple cycle peaking plant. The revenue stream to pay the SCA bonds' debt service is provided by a "take-or-pay" power purchase agreement between SMUD and SCA.

SFA Cosumnes Power Plant Project. SFA is a JPA formed by SMUD and MID. SFA operates the Cosumnes Power Plant Project, a 501 MW (net) natural gas-fired, combined cycle facility. The revenue stream to pay the SFA bonds' debt service is provided by a "take-or-pay" power purchase agreement between SMUD and SFA.

SPA Campbell Soup Cogeneration Project. SPA is a JPA formed by SMUD and the SFA. SPA operates the Campbell Soup Project, a 160 MW (net) natural gas-fired cogeneration facility, and the McClellan Project, a 72 MW (net) natural gas-fired simple cycle peaking plant.

NCGA. NCGA is a JPA formed by SMUD and the SFA. NCGA has a prepaid gas contract with Morgan Stanley Capital Group (MSCG) expiring in 2027, which is financed primarily by NCGA revenue bonds. SMUD has contracted with NCGA to purchase all of the gas delivered by MSCG to NCGA, based on market prices. NCGA is obligated to pay the principal and interest on the bonds. Neither SMUD nor SFA is obligated to make debt service payments on the bonds. NCGA can terminate the prepaid gas contract under certain circumstances, including a failure by MSCG to meet its gas delivery obligation to NCGA or a drop in MSCG's credit rating below a specified level. If this occurs, MSCG will be required to make a termination payment to NCGA based on the unamortized prepayment proceeds received by MSCG.

As described in Note 2, all of the activities and balances of the component units are blended into and reported as part of SMUD because of the extent of their operational and financial relationships with SMUD. Copies of CVFA's, SCA's, SFA's, SPA's and NCGA's annual financial reports may be obtained from their Executive Office at P.O. Box 15830, Sacramento, California 95852 or online at SMUD.org.

The summarized activity of SMUD's component units for 2016 is presented below:

CONDENSED STATEMENTS OF NET POSITION
December 31, 2016
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA
Assets					
Electric Utility Plant - net	$ 51,674	$ 77,777	$ 234,671	$ 72,233	$ -0-
Restricted Assets	-0-	-0-	-0-	-0-	1
Current Assets	19,580	29,882	63,780	18,138	55,347
Noncurrent Assets	88	139	1,308	3	258,079
Total Assets	71,342	107,798	299,759	90,374	313,427
Deferred Outflows of Resources	505	758	3,528	-0-	-0-
Total Assets and Deferred Outflows of Resources	$ 71,847	$ 108,556	$ 303,287	$ 90,374	$ 313,427
Liabilities					
Long-Term Debt - net	$ 15,907	$ 25,549	$ 170,479	$ -0-	$ 264,475
Current Liabilities	13,321	14,440	61,612	8,256	35,279
Noncurrent Liabilities	9,726	-0-	-0-	-0-	-0-
Total Liabilities	38,954	39,989	232,091	8,256	299,754
Net Position	32,893	68,567	71,196	82,118	13,673
Total Liabilities and Net Position	$ 71,847	$ 108,556	$ 303,287	$ 90,374	$ 313,427

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
December 31, 2016
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA
Operating Revenues	$ 35,854	$ 56,602	$ 210,631	$ 44,719	$ 40,338
Operating Expenses	33,295	51,541	196,941	49,179	27,943
Operating Income	2,559	5,061	13,690	(4,460)	12,395
Non-Operating Revenues and Expenses					
Other Revenues	1,607	2,999	10,021	3,378	707
Interest Charges and Other	(1,169)	(1,618)	(4,670)	-0-	(12,973)
Change in Net Position Before Distributions and Contributions	2,997	6,442	19,041	(1,082)	129
Distribution to Member	-0-	-0-	-0-	-0-	(748)
Member Contributions and Adjustments	-0-	-0-	-0-	-0-	71
Change in Net Position	2,997	6,442	19,041	(1,082)	(548)
Net Position – Beginning of Year	29,896	62,125	52,155	83,200	14,221
Net Position – End of Year	$ 32,893	$ 68,567	$ 71,196	$ 82,118	$ 13,673

CONDENSED STATEMENTS OF CASH FLOWS
December 31, 2016
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA
Net Cash Provided by Operating Activities	$ 9,498	$ 15,257	$ 39,808	$ 8,661	$ 39,769
Net Cash Provided by (Used in) Noncapital Financing Activities	-0-	-0-	-0-	-0-	(39,893)
Net Cash Used in Capital Financing Activities	(8,965)	(11,328)	(38,835)	(7,028)	-0-
Net Cash Provided by Investing Activities	5	28	33	5	693
Net Increase in Cash and Cash Equivalents	538	3,957	1,006	1,638	569
Cash and Cash Equivalents at the Beginning of the Year	6,372	12,240	21,698	4,157	20,085
Cash and Cash Equivalents at the End of the Year	$ 6,910	$ 16,197	$ 22,704	$ 5,795	$ 20,654

The summarized activity of SMUD's component units for 2015 is presented below:

CONDENSED STATEMENTS OF NET POSITION
December 31, 2015
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA
Assets					
Electric Utility Plant - net	$ 53,394	$ 80,484	$ 244,251	$ 71,838	$ -0-
Current Assets	16,183	26,373	57,170	20,190	51,507
Noncurrent Assets	123	179	1,414	3	289,108
Total Assets	69,700	107,036	302,835	92,031	340,615
Deferred Outflows of Resources	775	1,071	4,098	-0-	-0-
Total Assets and Deferred Outflows of Resources	$ 70,475	$ 108,107	$ 306,933	$ 92,031	$ 340,615
Liabilities					
Long-Term Debt - net	$ 20,828	$ 31,316	$ 198,415	$ -0-	$ 292,870
Current Liabilities	10,680	14,666	56,363	8,831	33,524
Noncurrent Liabilities	9,071	-0-	-0-	-0-	-0-
Total Liabilities	40,579	45,982	254,778	8,831	326,394
Net Position	29,896	62,125	52,155	83,200	14,221
Total Liabilities and Net Position	$ 70,475	$ 108,107	$ 306,933	$ 92,031	$ 340,615

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
December 31, 2015
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA
Operating Revenues	$ 35,390	$ 61,255	$ 214,564	$ 55,209	$ 38,871
Operating Expenses	33,678	54,535	195,615	54,068	25,106
Operating Income	1,712	6,720	18,949	1,141	13,765
Non-Operating Revenues and Expenses					
Other Revenues	1	2	183	24	649
Interest Charges and Other	(1,401)	(1,856)	(9,280)	(1,856)	(13,981)
Change in Net Position Before Distributions and Contributions	312	4,866	9,852	(691)	433
Distribution to Member	-0-	(800)	(62,000)	(6,000)	(698)
Member Contributions and Adjustments	-0-	-0-	-0-	28,200	102
Change in Net Position	312	4,066	(52,148)	21,509	(163)
Net Position – Beginning of Year	29,584	58,059	104,303	61,691	14,384
Net Position – End of Year	$ 29,896	$ 62,125	$ 52,155	$ 83,200	$ 14,221

CONDENSED STATEMENTS OF CASH FLOWS
December 31, 2015
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA
Net Cash Provided by Operating Activities	$ 7,674	$ 14,269	$ 36,251	$ 8,453	$ 42,983
Net Cash Provided by (Used in) Noncapital Financing Activities	-0-	(800)	(62,000)	52,105	(38,589)
Net Cash Used in Capital Financing Activities	(6,675)	(9,851)	(37,294)	(74,998)	-0-
Net Cash Provided by Investing Activities	1	1	14,861	6,581	649
Net Increase (Decrease) in Cash and Cash Equivalents	1,000	3,619	(48,182)	(7,859)	5,043
Cash and Cash Equivalents at the Beginning of the Year	5,372	8,621	69,880	12,016	15,042
Cash and Cash Equivalents at the End of the Year	$ 6,372	$ 12,240	$ 21,698	$ 4,157	$ 20,085

NOTE 7. CASH, CASH EQUIVALENTS, AND INVESTMENTS

Cash Equivalents and Investments. SMUD's investment policy is governed by the California State and Municipal Codes and its Indenture, which allow SMUD's investments to include: obligations which are unconditionally guaranteed by the U.S. Government or its agencies or instrumentalities; direct and general obligations of the State or any local agency within the State; bankers' acceptances; commercial paper; certificates of deposit; repurchase agreements; corporate notes; and taxable government and tax-exempt money market portfolios. SMUD's investment policy includes restrictions for investments relating to maximum amounts invested as a percentage of total portfolio and with a single issuer, maximum maturities, and minimum credit ratings.

Credit Risk. This is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. To mitigate this risk, SMUD limits investments to those rated, at a minimum, "A-1" or equivalent for commercial paper and "A" or equivalent for medium-term corporate notes by a nationally recognized rating agency.

Custodial Credit Risk. This is the risk that, in the event of the failure of a depository financial institution or counterparty to a transaction, SMUD's deposits may not be returned or SMUD will not be able to recover the value of its deposits, investments or collateral securities that are in the possession of another party. SMUD does not have a deposit policy for custodial credit risk.

As of December 31, 2016 and 2015, $11.3 million and $23.2 million in deposits were uninsured, respectively. The bank balance is also, per a depository pledge agreement between SMUD and SMUD's bank, collateralized at 122 percent and 117 percent of the collective funds on deposit (increased by the amount of accrued but uncredited interest, reduced by deposits covered by FDIC) at December 31, 2016 and 2015, respectively. At December 31, 2016, SMUD had money market mutual funds of $111.3 million which were uninsured. At December 31, 2015, SMUD had money market mutual funds and a deposit account, totaling $109.3 million which were uninsured. SMUD's investments and money market mutual funds are held in SMUD's name.

Concentration of Credit Risk. This is the risk of loss attributed to the magnitude of an entity's investment in a single issuer. SMUD places no limit on the amounts invested in any one issuer for repurchase agreements and federal agency securities. The following are the concentrations of risk greater than five percent in either year:

	December 31,	
Investment Type:	2016	2015
Federal Home Loan Banks	19%	21%
Freddie Mac	34%	24%
Federal Farm Credit Bank	2%	7%
Corporate Note – Bank of New York	4%	7%
Corporate Note – Wells Fargo & Company	2%	9%
Corporate Note – Wells Fargo Bank	6%	4%

Interest Rate Risk. This is the risk of loss due to the fair value of an investment declining due to interest rates rising. Though SMUD has restrictions as to the maturities of some of the investments, it does not have a formal policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates.

The following schedules indicate the credit and interest rate risk at December 31, 2016 and 2015. The credit ratings listed are from Standard & Poors (S&P) or Moody's. (N/A is defined as not applicable to the rating disclosure requirements.)

At December 31, 2016, SMUD's cash, cash equivalents, and investments consist of the following:

Description	Credit Rating	Remaining Maturities (in years) Less Than 1	1-5	More than 5	Total Fair Value
		(thousands of dollars)			
Cash and Cash Equivalents:					
Cash	N/A	$ 1,614	$ -0-	$ -0-	$ 1,614
LAIF	Not Rated	130,689	-0-	-0-	130,689
Money Market Mutual Funds	AAAm	111,323	-0-	-0-	111,323
Deposit at Notice	N/A	2,446	-0-	-0-	2,446
Commercial Paper	A-1	16,700	-0-	-0-	16,700
Total cash and cash equivalents		262,772	-0-	-0-	262,772
Investments:					
Fannie Mae	AA+	-0-	19,488	-0-	19,488
Federal Farm Credit Bank	AA+	-0-	9,891	-0-	9,891
Federal Home Loan Bank	AA+	34,924	63,597	-0-	98,521
Freddie Mac	AA+	139,886	34,777	-0-	174,663
Financing Corp FICO	Aaa	-0-	13,808	-0-	13,808
U.S. Treasury Obligations	N/A	14,999	43,760	-0-	58,759
Corporate Notes	AAA/AA/AA-/A+/A	76,043	74,062	-0-	150,105
Municipal Bonds	AA-	23,082	-0-	-0-	23,082
Commercial Paper	AA-	10,408	-0-	-0-	10,408
Total investments		299,342	259,383	-0-	558,725
Total cash, cash equivalents, and investments		$ 562,114	$ 259,383	$ -0-	$ 821,497

At December 31, 2015, SMUD's cash, cash equivalents, and investments consist of the following:

Description	Credit Rating	Remaining Maturities (in years) Less Than 1	1-5	More than 5	Total Fair Value
		(thousands of dollars)			
Cash and Cash Equivalents:					
Cash	N/A	$ 19,861	$ -0-	$ -0-	$ 19,861
LAIF	Not Rated	119,223	-0-	-0-	119,223
Money Market Mutual Funds	AAAm/NR	72,102	-0-	-0-	72,102
Money Market Deposit Account	N/A	37,490	-0-	-0-	37,490
Deposit at Notice	N/A	1,593	-0-	-0-	1,593
Commercial Paper	A-1	12,314	-0-	-0-	12,314
Total cash and cash equivalents		262,583	-0-	-0-	262,583
Investments:					
Federal Farm Credit Bank	AA+	14,934	15,505	-0-	30,439
Federal Home Loan Bank	AA+	74,975	19,880	-0-	94,855
Freddie Mac	AA+	-0-	104,759	-0-	104,759
U.S. Treasury Obligations	N/A	8,197	14,945	-0-	23,142
Corporate Notes	AA+/AA/A+/A	109,796	66,643	-0-	176,439
Municipal Bonds	AA/AA-	1,500	23,745	-0-	25,245
Total investments		209,402	245,477	-0-	454,879
Total cash, cash equivalents, and investments		$ 471,985	$ 245,477	$ -0-	$ 717,462

SMUD's cash, cash equivalents, and investments are classified in the Consolidated Statements of Net Position as follows:

	December 31, 2016	December 31, 2015
	(thousands of dollars)	
Total Cash, Cash Equivalents, and Investments:		
Revenue bond reserve and debt service funds:		
Revenue bond reserve fund	$ 7,395	$ 7,395
Debt service fund	68,964	67,545
Component unit bond reserve and debt service funds	39,106	39,291
Total revenue bond reserve and debt service funds	115,465	114,231
Nuclear decommissioning trust fund	8,357	8,292
Rate stabilization fund	35,154	30,251
Component unit other restricted funds	3,777	4,228
Escrow fund	6,056	1,200
Other restricted funds	654	3,834
Unrestricted funds	652,034	555,426
Total cash, cash equivalents, and investments	$ 821,497	$ 717,462

NOTE 8. REGULATORY DEFERRALS

The Board has taken various regulatory actions that result in differences between the recognition of revenues and expenses for rate-making purposes and their treatment under generally accepted accounting principles for non-regulated entities (see Note 2). These actions result in regulatory assets and liabilities, which are summarized in the tables below. Changes to these balances, and their inclusion in rates, occur only at the direction of the Board.

Regulatory Assets (Costs)

Decommissioning. SMUD's regulatory asset relating to the unfunded portion of its decommissioning liability is being collected through interest earnings on the Trust Fund. Nuclear fuel storage costs and non-radiological decommissioning costs have been collected in rates since 2009.

Derivative Financial Instruments. SMUD's regulatory costs and/or credits relating to investment derivative instruments are intended to defer the net difference between the fair value of derivative instruments and their cost basis, if any. Investment derivative instruments are reflected in rates at contract cost and as such, the balance is charged or credited into rates as the related asset or liability is utilized (see Note 9).

Senate Bill 1. SMUD implemented a per kilowatt hour solar surcharge, effective January 1, 2008 in order to fund investments in solar required by Senate Bill 1 (SB-1). The difference between the surcharge revenues received and the funds spent on solar initiatives will be recognized or deferred into future years. In 2016, SMUD spent less than it collected in SB-1 revenues and has recorded a regulatory credit.

Debt Issuance Costs. SMUD established a regulatory asset for costs incurred in connection with the issuance of debt obligations, principally underwriter fees and legal costs. The regulatory asset will be amortized through 2017 for the portion related to SMUD's debt issuance costs and over the life of the bonds for the portion related to the component units' debt issuance costs. Debt issuance costs after December 31, 2013 are expensed.

Pension. SMUD established a regulatory asset for pension costs related to the implementation of GASB No. 68 which requires SMUD to record a net pension liability. The regulatory asset will be amortized over a period of 25 years starting in 2018.

SMUD's total regulatory costs for future recovery are presented below:

		December 31,	
	2016		2015
	(thousands of dollars)		
Regulatory Costs:			
Decommissioning	$ 149,258		$ 149,192
Derivative financial instruments	15,567		31,957
Senate Bill 1	-0-		3,217
Debt issuance costs	7,913		13,300
Pension	425,680		425,680
Total regulatory costs	598,418		623,346
Less: regulatory costs to be recovered within one year	(11,523)		(21,242)
Total regulatory costs for future recovery - net	$ 586,895		$ 602,104

Regulatory Credits

CIAC. In 2016 and 2015, SMUD added CIAC totaling $15.6 million and $16.9 million, respectively, to Regulatory Credits in the Consolidated Statements of Net Position and recorded $11.4 million and $10.9 million of amortization, respectively, to Other Income - Net in the Consolidated Statements of Revenues, Expenses and Changes in Net Position. SMUD's regulatory credit relating to CIAC is intended to offset the revenue and expense associated with this accounting treatment. Thus, this regulatory credit is being amortized into rates over the depreciable lives of the related assets in order to offset the earnings effect of these non-exchange transactions.

Rate Stabilization. SMUD's regulatory credit relating to Rate Stabilization is intended to defer the need for future rate increases when costs exceed existing rates. At the direction of the Board, amounts may be either transferred into this fund (which reduces revenues), or amounts are transferred out of this fund (which increases revenues). The Board authorizes Rate Stabilization Fund (RSF) transfers on an event driven basis. In 2016, $5.1 million was transferred from the RSF to revenue as a result of lower than budgeted energy deliveries from Western Area Power Administration (Western).

Hydro Rate Stabilization. The Hydro Rate Stabilization Fund (HRSF) was established through the Hydro Generation Adjustment (HGA) mechanism, which helps manage volatility in energy costs. The HGA mechanism applies a formula based on precipitation and wholesale electricity prices to calculate needed withdrawals from or deposits to the HRSF. The maximum balance of the HRSF is 5 percent of the budgeted retail revenue and the maximum annual transfer in or out of the HRSF is 4 percent of budgeted retail revenue. If the HRSF is depleted, SMUD will apply a hydro rate surcharge to customers' bills up to 4 percent. When the HRSF is fully replenished, a wet year can trigger a hydro rebate or credit on the customers' bills. In 2016, $10.0 million was transferred from revenue to the HRSF as a result of high precipitation.

Energy Assistance Program Rate (EAPR). In 2016, The Board authorized SMUD to transfer $10.0 million of revenue to a regulatory credit related to EAPR. This regulatory credit is intended to offset future expenditures for energy efficiency programs for EAPR customers from the period 2017-2020.

Grant Revenues. In 2009, SMUD was awarded several large grants under the ARRA, which provided large amounts of reimbursements for capital expenditures. In 2010, the Board authorized the deferral of grant income for capital expenditures as regulatory liabilities. Thus, this regulatory credit will be deferred to match the depreciable lives of the related capital assets in order to offset the earnings effect of these non-exchange transactions.

TANC Operations Costs. SMUD's regulatory asset relating to deferred TANC costs comprises the difference between its cash payments made to TANC and its share of TANC's accrual-based costs of operations. This regulatory asset is being collected in rates over the life of TANC's assets during the period that cash payments to TANC exceed TANC's accrual-based costs. SMUD's cash payments to TANC exceeded TANC's accrual-based costs and SMUD has recorded a regulatory credit.

SMUD’s total regulatory credits for future revenue recognition are presented below:

	December 31, 2016	December 31, 2015
	(thousands of dollars)	
Regulatory Credits:		
CIAC	$ 251,623	$ 247,413
Rate stabilization	25,188	30,251
Hydro rate stabilization	9,966	-0-
EAPR	10,000	-0-
Senate Bill 1	1,925	-0-
Grant revenues	52,535	59,949
TANC operations costs	18,975	16,208
Total regulatory credits	$ 370,212	$ 353,821

NOTE 9. DERIVATIVE FINANCIAL INSTRUMENTS

To help provide stable electric rates and to meet the forecasted power needs of its retail customers reliably, SMUD enters into various physical and financial fixed price purchase contracts for electricity and natural gas. These fixed price contracts and swap agreements are intended to hedge the exposure due to highly volatile commodity prices. SMUD also enters into interest rate swap agreements to reduce interest rate risk. SMUD utilizes these derivative financial instruments to mitigate its exposure to certain market risks associated with ongoing operations. SMUD has established policies set by an executive committee for the use of derivative financial instruments for trading purposes. These contracts are evaluated pursuant to SGAS No. 53 ***“Accounting and Financial Reporting for Derivative Instruments”*** (GASB No. 53) to determine whether they meet the definition of derivative instruments, and if so, whether they effectively hedge the expected cash flows associated with interest rate and commodity price risk exposures.

SMUD applies hedge accounting for derivatives that are deemed effective hedges. Under hedge accounting, the increase or (decrease) in the fair value of a hedge is reported as a Deferred Inflow or Deferred Outflow on the Consolidated Statements of Net Position. Derivatives that do not meet the effectiveness tests are deferred for rate-making purposes as regulatory assets or liabilities on the Consolidated Statements of Net Position (see Note 8).

During 2016 and 2015, SMUD executed numerous new gas and power related purchase agreements, some of which are recorded as hedging or investment derivatives and are therefore included in the following table. All hedging or investment derivatives are recorded at fair value on the Consolidated Statements of Net Position.

For electricity and gas derivatives, fair values are estimated by comparing contract prices to forward market prices quoted by an independent external pricing service. When external quoted market prices are not available for derivative contracts, SMUD uses an internally developed valuation model utilizing short term observable inputs. For interest rate derivatives, SMUD calculates the fair value by discounting the expected cash flows at their corresponding zero coupon rate.

The following is a summary of the fair values, changes in fair value and notional amounts of derivative instruments, grouped by trading strategy, outstanding at December 31, 2016 (amounts in thousands; gains shown as positive amounts, losses as negative):

	2016 Changes in Fair Value		Fair Value at December 31, 2016		
	Current Amount	Noncurrent Amount	Current Amount	Noncurrent Amount	Notional
Cash Flow Hedges:					
(thousands of dollars)					
(thousands of Dekatherms (Dth))					
Asset: Investment Derivative Instruments					
Gas – Commodity	$ 401	$ 175	$ 401	$ 175	1,795 Dth
Gas – Transportation	19	-0-	19	-0-	380 Dth
Total Investment Derivative Instruments	$ 420	$ 175	$ 420	$ 175	
Asset: Hedging Derivative Instruments					
Gas – Basis	$ (323)	$ -0-	$ -0-	$ -0-	
Gas – Commodity	29	622	833	622	7,013 Dth
Gas – Storage	298	-0-	343	-0-	1,428 Dth
Gas – Transportation	(237)	-0-	47	-0-	2,600 Dth
Interest Rate	374	(1,954)	6,658	19,767	$331,190
Total Hedging Derivative Instruments	$ 141	$ (1,332)	$ 7,881	$ 20,389	
Liability: Investment Derivative Instruments					
Gas – Basis	$ (34)	$ -0-	$ 34	$ -0-	225 Dth
Gas – Commodity	4,785	5,949	2,259	1,255	6,885 Dth
Gas – Transportation	(30)	-0-	30	-0-	155 Dth
Interest Rate	1,337	3,787	4,198	8,386	$151,830
Total Investment Derivative Instruments	$ 6,058	$ 9,736	$ 6,521	$ 9,641	
Liability: Hedging Derivative Instruments					
Gas – Basis	$ (352)	$ -0-	$ 515	$ -0-	5,925 Dth
Gas – Commodity	37,062	37,761	27,387	96,661	104,117 Dth
Gas – Storage	190	-0-	191	-0-	930 Dth
Gas – Transportation	66	-0-	141	-0-	1,458 Dth
Total Hedging Derivative Instruments	$ 36,966	$ 37,761	$ 28,234	$ 96,661	

The following is a summary of the fair values, changes in fair value and notional amounts of derivative instruments, grouped by trading strategy, outstanding at December 31, 2015 (amounts in thousands; gains shown as positive amounts, losses as negative):

	2015 Changes in Fair Value		Fair Value at December 31, 2015		
	Current Amount	Noncurrent Amount	Current Amount	Noncurrent Amount	Notional
Cash Flow Hedges:					
(thousands of dollars)					
(thousands of Dekatherms (Dth))					
Asset: Investment Derivative Instruments					
Gas – Transportation	$ (39)	$ -0-	$ -0-	$ -0-	
Total Investment Derivative Instruments	$ (39)	$ -0-	$ -0-	$ -0-	
Asset: Hedging Derivative Instruments					
Gas – Basis	$ (237)	$ (179)	$ 323	$ -0-	1,830 Dth
Gas – Commodity	(56)	-0-	804	-0-	1,293 Dth
Gas – Storage	3	-0-	45	-0-	233 Dth
Gas – Transportation	(739)	(149)	284	-0-	1,830 Dth
Interest Rate	(256)	(3,654)	6,284	21,721	$131,030
Total Hedging Derivative Instruments	$ (1,285)	$ (3,982)	$ 7,740	$ 21,721	
Liability: Investment Derivative Instruments					
Gas – Basis	$ 331	$ -0-	$ -0-	$ -0-	
Gas – Commodity	(2,455)	(2,976)	7,044	7,204	10,443 Dth
Interest Rate	1,840	3,487	5,535	12,173	$192,430
Total Investment Derivative Instruments	$ (284)	$ 511	$ 12,579	$ 19,377	
Liability: Hedging Derivative Instruments					
Gas – Basis	$ 2,127	$ -0-	$ 163	$ -0-	465 Dth
Gas – Commodity	(15,079)	(34,116)	64,449	134,422	111,609 Dth
Gas – Storage	(363)	-0-	381	-0-	1,835 Dth
Gas – Transportation	(158)	-0-	207	-0-	1,240 Dth
Total Hedging Derivative Instruments	$ (13,473)	$ (34,116)	$ 65,200	$ 134,422	

Objectives and Terms of Hedging Derivative Instruments. The objectives and terms of SMUD's hedging derivative instruments that were outstanding at December 31, 2016 are summarized in the table below. The table is aggregated by the trading strategy. Credit ratings of SMUD's counterparties can be found in the table under Credit Risk. Details of SMUD's interest rate derivative instruments can be found in Note 10.

	Notional Amount Dth	Beginning Date	Ending Date	Minimum Price/Dth	Maximum Price/Dth
Gas – Basis	5,925	01/01/17	12/31/17	$ (0.99)	$ (0.96)
Gas – Commodity	111,130	01/01/08	12/31/22	2.75	7.17
Gas – Storage	2,358	01/01/17	03/31/17	.10	.43
Gas – Transportation	4,058	01/01/17	03/31/17	(0.18)	.11

The objectives and terms of SMUD's hedging derivative instruments that were outstanding at December 31, 2015 are summarized in the table below. The table is aggregated by the trading strategy.

	Notional Amount Dth	Beginning Date	Ending Date	Minimum Price/Dth	Maximum Price/Dth
Gas – Basis	2,295	01/01/16	12/31/16	$ (0.82)	$ (0.25)
Gas – Commodity	112,902	01/01/08	12/31/22	2.82	7.17
Gas – Storage	2,068	01/01/16	12/31/16	.15	.62
Gas – Transportation	3,070	01/01/16	12/31/16	(0.19)	.29

SMUD hedges its interest rate exposure with several swaps. One swap is used to convert some of the interest expense associated with fixed rate bonds to a variable rate interest expense. SMUD also has two forward starting swaps that are designed to partially fix the interest expense associated with variable rate bonds (see Note 10).

SMUD hedges its power and natural gas costs so that it can offer predictable rates to its retail electric customers and support its credit rating. SMUD maintains a risk management program to control the price, credit, and operational risks arising from its power and natural gas market activities. Under the program, authorized SMUD employees assemble a portfolio of swaps, futures, and forward contracts over time with the goal of making SMUD's purchased power and fuel budget more predictable.

These hedged risks include those related to interest rate and commodity price fluctuations associated with certain forecasted transactions, including interest rate risk on long-term debt, and forward purchases of gas and electricity to meet load.

Derivatives Not Designated as Hedging Instruments

Gas and Electric Contracts. SMUD utilizes certain gas swap and electric swap agreements under GASB No. 53 not designated as hedging derivative instruments to mitigate exposure to changes in the market price of natural gas and electricity. The fair value of each agreement, excluding the actual settlements to be paid or received as of the end of the period, is recorded on the Consolidated Statements of Net Position in either Current or Noncurrent Assets, Investment Derivative Instruments if in an asset position or Current or Noncurrent Liabilities, Investment Derivative Instruments if in a liability position. An offsetting amount is included in Current or Noncurrent Regulatory Costs or Regulatory Credits for future recovery in the Consolidated Statements of Net Position. The actual settlement payable is recorded in Accounts Payable on the Consolidated Statements of Net Position, and the actual settlement receivable is recorded in Receivables – Net: Other on the Consolidated Statements of Net Position. The payments and receipts of the actual settlement are recorded as Investment Expense in the Consolidated Statements of Revenues, Expenses and Changes in Net Position.

Interest Rate Contracts. SMUD utilizes certain interest rate swap agreements not designated as hedging derivative instruments under GASB No. 53 to mitigate exposure to fluctuations in interest rates. The fair value of each agreement, excluding the balance of interest to be paid or received as of the end of the period, is recorded on the Consolidated Statements of Net Position in either Current or Noncurrent Assets, Investment Derivative Instruments if in an asset position or Current or Noncurrent Liabilities, Investment Derivative Instruments if in a liability position. An offsetting amount is included in Current or Noncurrent Regulatory Costs or Deferred Outflows or Inflows of Resources in the Consolidated Statements of Net Position. The interest receivable is recorded in Receivables – Net: Other on the Consolidated Statements of Net Position, and the accrued interest is recorded in Interest Payable on the Consolidated Statements of Net Position. The payments or receipts of the actual settlement are recorded as Investment Expense in the Consolidated Statements of Revenues, Expenses and Changes in Net Position.

The Board has deferred recognition of the effects of reporting the fair value of Investment Derivative Instruments for rate-making purposes, and maintains regulatory accounts to defer the accounting impact of these accounting adjustments (see Note 8). Market values may have changed significantly since December 31, 2016.

Interest Rate Risk. This is the risk that changes in interest rates will adversely affect the fair values of SMUD's interest rate swaps. SMUD is exposed to interest rate risk on its interest rate swaps.

Basis Risk. This is the risk that arises when a hedged item and a derivative that is attempting to hedge that item are based on different indices. SMUD is exposed to basis risk when it hedges its natural gas purchases, which are priced at various locations, and with NYMEX futures contracts, which settle based on the price at Henry Hub, Louisiana. SMUD enters into basis swaps to hedge against this risk.

Termination Risk. This is the risk that a derivative will terminate prior to its scheduled maturity due to a contractual event. Contractual events include bankruptcy, illegality, default, credit events upon merger, and other events. One aspect of termination risk is that SMUD would lose the hedging benefit of a derivative that becomes subject to a termination event. Another aspect of termination risk is that, if at the time of termination the mark to market value of the derivative was a liability to SMUD, SMUD could be required to pay that amount to the counterparty. Termination risk is associated with all of SMUD's derivatives up to the fair value amounts.

Credit Risk. This is the risk of loss resulting when the counterparty is unable or unwilling to fulfill its present and future financial obligations. SMUD can be exposed to significant counterparty credit risk on all derivative instruments. SMUD seeks to minimize credit risk by transacting with creditworthy counterparties. SMUD has established and maintained strict counterparty credit guidelines. SMUD continuously monitors counterparty credit risk and utilizes numerous counterparties to diversify the exposure to potential defaults. Under certain conditions as outlined in SMUD's credit risk management policy, SMUD may require additional credit support under its trading agreements.

Some of SMUD's derivative master agreements contain credit contingent provisions that enable SMUD to maintain unsecured credit as a result of positive investment quality credit ratings from each of the major credit rating agencies. If SMUD's credit rating were to be downgraded, there could be a step-down in SMUD's unsecured credit thresholds, and SMUD's counterparties would require additional collateral. If SMUD's credit rating were to decrease below investment grade, SMUD's unsecured credit thresholds would be reduced to zero, and counterparties to the derivative instruments would demand ongoing full collateralization on derivative instruments in net out of the money positions (see Note 2).

The counterparties' current credit rating at December 31, 2016 is shown in the table below. The credit ratings listed are from S&P or Moody's.

Counterparty Gas Contracts:	Counterparty Credit Rating
Barclays Bank PLC	A-
Bank of Montreal	A+
Cargill Inc.	A
Citigroup Inc.	BBB+
J.P. Morgan Ventures Energy Corp.	A-
Macquarie Bank Limited	A
Merrill Lynch	Baa1
Morgan Stanley Capital Group, Inc.	BBB+
Royal Bank of Canada	AA-
Interest Rate Contracts:	
Goldman Sachs Capital Markets, L.P.	BBB+
Goldman Sachs Mitsui Marine Derivative Products, L.P.	AA-
Morgan Stanley Capital Services, Inc.	BBB+
Wells Fargo & Company	AA-
Bank of America Corporation	A+

NOTE 10. LONG-TERM DEBT

SMUD's total long-term debt is presented below:

	December 31, 2016	December 31, 2015
	(thousands of dollars)	
Electric revenue bonds, 3.0%-6.32%, 2017-2041	$ 1,676,315	$ 1,786,080
Subordinated electric revenue bonds, index rates, 2017-2041	341,850	344,850
Total electric revenue bonds	2,018,165	2,130,930
Component unit project revenue bonds, 3.0%-5.25%, 2017-2030	220,925	253,375
Gas supply prepayment bonds, index rates, 2007-2027	292,870	318,795
Total long-term debt outstanding	2,531,960	2,703,100
Bond premiums - net	133,275	123,080
Total long-term debt	2,665,235	2,826,180
Less: amounts due within one year	(160,585)	(152,060)
Total long-term debt - net	$ 2,504,650	$ 2,674,120

The summarized activity of SMUD’s long-term debt during 2016 is presented below:

	December 31, 2015	Additions	Payments or Amortization	December 31, 2016	Amounts Due Within One Year
			(thousands of dollars)		
Electric revenue bonds	$ 1,786,080	$ 149,890	$ (259,655)	$ 1,676,315	$ 95,155
Subordinate electric revenue bonds	344,850	341,850	(344,850)	341,850	3,000
Component unit project revenue bonds	253,375	-0-	(32,450)	220,925	34,035
Gas supply prepayment bonds	318,795	-0-	(25,925)	292,870	28,395
Total	2,703,100	491,740	(662,880)	2,531,960	$ 160,585
Unamortized premiums - net	123,080	36,437	(26,242)	133,275	
Total long-term debt	$ 2,826,180	$ 528,177	$ (689,122)	$ 2,665,235	

The summarized activity of SMUD’s long-term debt during 2015 is presented below:

	December 31, 2014	Additions	Payments or Amortization	December 31, 2015	Amounts Due Within One Year
			(thousands of dollars)		
Electric revenue bonds	$ 1,873,105	$ -0-	$ (87,025)	$ 1,786,080	$ 90,685
Subordinate electric revenue bonds	347,850	-0-	(3,000)	344,850	3,000
Component unit project revenue bonds	373,670	193,335	(313,630)	253,375	32,450
Gas supply prepayment bonds	342,480	-0-	(23,685)	318,795	25,925
Total	2,937,105	193,335	(427,340)	2,703,100	$ 152,060
Unamortized premiums - net	115,026	30,373	(22,319)	123,080	
Total long-term debt	$ 3,052,131	$ 223,708	$ (449,659)	$ 2,826,180	

At December 31, 2016 scheduled annual principal maturities and interest are as follows:

	Principal	Interest	Total
		(thousands of dollars)	
2017	$ 160,585	$ 115,438	$ 276,023
2018	150,010	107,548	257,558
2019	154,145	101,906	256,051
2020	138,160	95,602	233,762
2021	141,730	89,613	231,343
2022 – 2026 (combined)	719,530	358,984	1,078,514
2027 – 2031 (combined)	481,735	210,416	692,151
2032 – 2036 (combined)	450,095	96,526	546,621
2037 – 2041 (combined)	135,970	16,785	152,755
Total Requirements	$ 2,531,960	$ 1,192,818	$ 3,724,778

Interest in the preceding table includes interest requirements for fixed rate debt at their stated rates, variable rate debt covered by interest rate swaps at their fixed rate, and variable rate debt not covered by interest rate swaps using the debt interest rate of 70 percent of 1 month London Interbank Offered Rate (LIBOR) plus a fixed fee. The LIBOR rate is based on the rate in effect at December 31, 2016 for the issues.

The following bonds have been issued and are outstanding at December 31, 2016:

Date	Issue	Final Maturity	Interest Rate	Original Amount	Outstanding Amount
Electric Revenue Bonds					
06/15/1997	1997 Series K Bonds	07/01/2024	5.25% - 5.9%	$ 131,030,000	$ 131,030,000
06/09/2008	2008 Series U Bonds	08/15/2028	3.0% - 5.0%	521,730,000	256,490,000
05/15/2009	2009 Series V Bonds	05/15/2036	6.322%	200,000,000	200,000,000
07/29/2010	2010 Series W Bonds	05/15/2036	6.156%	250,000,000	250,000,000
10/04/2011	2011 Series X Bonds	08/15/2028	1.5% - 5.0%	325,550,000	243,825,000
05/31/2012	2012 Series Y Bonds	08/15/2033	3.0% - 5.0%	196,945,000	191,175,000
05/21/2013	2013 Series A Bonds	08/15/2041	3.75% - 5.0%	132,020,000	132,020,000
05/21/2013	2013 Series B Bonds	08/15/2033	3.0% - 5.0%	118,615,000	118,615,000
08/20/2013	2013 Series C Bonds	08/15/2017	5.0%	57,780,000	3,270,000
07/14/2016	2016 Series D Bonds	08/15/2028	2.0% - 5.0%	149,890,000	149,890,000
JPA Electric Revenue Bonds					
08/19/2009	2009 CVFA Bonds	07/01/2020	2.25% - 5.25%	$ 48,920,000	$ 20,285,000
08/19/2009	2009 SCA Bonds	07/01/2021	4.0% - 5.25%	57,530,000	30,100,000
06/03/2015	2015 SFA Bonds	07/01/2030	2.0% - 5.0%	193,335,000	170,540,000
05/31/2007	2007B NCGA#1 Bonds	07/01/2027	Index Rate	668,470,000	292,870,000
Subordinated Electric Revenue Bonds					
10/27/2016	2016 Series N Bonds	08/15/2041	Index Rate	$ 72,000,000	$ 72,000,000
10/27/2016	2016 Series O Bonds	08/15/2041	Index Rate	72,000,000	72,000,000
11/16/2016	2016 Series P Bonds	08/15/2028	Index Rate	120,000,000	120,000,000
11/16/2016	2016 Series Q Bonds	08/15/2028	Index Rate	77,850,000	77,850,000

2016 Bond Refunding. In June 2016, SMUD issued $149.9 million of 2016 Series D Electric Revenue Refunding Bonds. Proceeds from the 2016 Series Bonds were used to refund $125.4 million of the outstanding 2008 Series U Bonds, and $43.6 million of outstanding 2011 Series X Bonds, through a legal defeasance, and accordingly, the liability for the defeased bonds has been removed from Long-Term Debt in the Consolidated Statements of Net Position. The refunding resulted in the recognition of a deferred accounting loss of $12.6 million, which is being amortized over the life of the refunding issue. The 2016 refunding reduced future aggregate debt service payments by $27.2 million and resulted in a total economic gain of $23.4 million, which is the difference between the present value of the old and new debt service payments.

2016 Conversion to Direct Placement. In October and November of 2016, SMUD completed transactions to convert all of the outstanding 2008 Series J, 2008 Series K, 2012 Series L, and 2012 Series M Bonds to direct placements, totaling $341.9 million (see Direct Purchase Agreements below). As part of each transaction, new bonds were issued to defease the old bonds, and as a result, the reimbursement agreements with Bank of America, State Street, and US Bank were terminated. The scheduled principal payments remain unchanged unless the bonds aren't successfully remarketed at the end of the term. Accordingly, SMUD has recorded such bonds as Long-Term Debt, less amounts due within one year in the Consolidated Statements of Net Position. No additional deferred gain or loss or economic gain resulted from these transactions.

2015 Bond Refunding. In June 2015, SFA issued $193.3 million of 2015 Series Cosumnes Project Revenue Refunding Bonds. Proceeds from the 2015 Series Bonds and $24.8 million of available funds were used to refund $233.2 million of the outstanding 2006 Series Bonds through a legal defeasance, and accordingly, the liability for the defeased bonds has been removed from Long-Term Debt in the Consolidated Statements of Net Position. The refunding resulted in the recognition of a deferred accounting loss of $4.4 million, which is being amortized over the life of the refunding issue, and a current period loss of $0.03 million which is included in Interest on Debt in the Consolidated Statement of Revenues, Expenses, and Changes in Net Assets. The 2015 refunding reduced future aggregate debt service payments by $46.7 million and resulted in a total economic gain of $35.5 million, which is the difference between the present value of the old and new debt service payments.

2015 Bond Redemptions. In January and July 2015, SPA redeemed $29.9 million and the remaining $33.8 million of 2005 Series Bonds maturing July 2016 through July 2022, along with the accrued interest, respectively. The redemptions resulted in a current accounting loss of $0.2 million, which is included in Interest on Debt in the Consolidated Statements of Revenues, Expenses and Changes in Net Position.

Interest Rate Swap Agreements. A summary of SMUD's five interest rate swap agreements are as follows. The credit ratings listed are from S&P,

Notional Amount (thousands)	SMUD Pays	Fixed Rate	Floating Rate	Termination Date	Counterparty Credit Rating
$ 131,030	Variable	5.154%	SIFMA	07/01/24	BBB+
50,755	Fixed	4.345%	70% of LIBOR	08/15/18	AA-
101,075	Fixed	2.894%	63% of LIBOR	08/15/28	BBB+
79,714	Fixed	1.172%	70% of LIBOR	08/15/28	AA-
120,446	Fixed	1.113%	70% of LIBOR	08/15/28	A+

SMUD has a fixed-to-variable interest rate swap agreement with a notional amount of $131.0 million, which is equivalent to the principal amount of SMUD's 1997 Series K Electric Revenue Bonds. Under this swap agreement, SMUD pays a variable rate equivalent to the Securities Industry and Financial Markets Association (SIFMA) Index (0.72 percent at December 31, 2016) and receives fixed rate payments of 5.154 percent. In connection with the swap agreement, SMUD has a put option agreement, also with a notional amount of $131.0 million, which gives the counterparty the right to sell to SMUD, at par, either the 1997 Series K Bonds, or a portfolio of securities sufficient to defease the 1997 Series K Bonds. SMUD receives fixed rate payments of 0.268 percent in connection with the put option agreement. The exercise of the option terminates the swap at no cost to SMUD. The term of both the swap and the put is equal to the maturity of the 1997 Series K Bonds.

SMUD has two variable-to-fixed interest rate swap agreements with a combined notional amount of $151.8 million originally entered into for the purpose of fixing the effective interest rate associated with certain of its subordinated bonds that were refunded during 2008. The notional values of the two swaps are amortized over the life of the respective swap agreements. SMUD can terminate all swap agreements at any time, with payment or receipt of the fair market value of the swaps as of the date of termination. The obligations of SMUD under the swap agreements are not secured by a pledge of revenues of SMUD's electric system or any other property of SMUD.

Additionally, in June 2016, SMUD executed variable-to-fixed interest rate swap agreements with Wells Fargo and Bank of America with a combined notional amount of $200.2 million. These were entered into for the purpose of fixing the effective interest rate associated with subordinated bonds that are expected to be issued in July of 2018. The swaps do not take effect until July 12, 2018. The notional values of the two swaps are amortized over the life of their respective swap agreements. SMUD can terminate both swap agreements at any time, with payment or receipt of the fair market value of the swaps as of the date of termination. Additionally, on August 15, 2023 and for the remaining life of the swaps, the swaps can be terminated at no cost to SMUD. The obligations of SMUD under the swap agreements are not secured by a pledge of revenues of SMUD's electric system or any other property of SMUD.

Component Unit Interest Rate Swap Agreements. NCGA has three interest rate swap agreements, which are summarized as follows. The credit ratings listed are from S&P.

Notional Amount (thousands)	NCGA Pays	Fixed Rate	Floating Rate	Termination Date	Credit Support Provider Credit Rating
$ 28,395	Fixed	4.062%	67% of LIBOR +.60%	07/01/17	BBB+
65,865	Fixed	4.144%	67% of LIBOR +.63%	07/01/19	BBB+
198,610	Fixed	4.304%	67% of LIBOR +.72%	07/01/27	BBB+

At December 31, 2016 NCGA had three variable-to-fixed interest rate swap agreements with a counterparty for the purpose of fixing the effective interest rate associated with the 2007 Series B Bonds. NCGA pays the counterparty a fixed rate on the notional amount and receives a floating rate equal to 67 percent of the three month LIBOR (1.0 percent at December 31, 2016) plus an interest rate spread, as specified in each swap agreement. The total notional amount of the three swaps at December 31, 2016 was $292.9 million and was equivalent to the outstanding principal balance on the NCGA Bonds. The swaps are amortized over the life of their respective swap agreements in a manner corresponding to the principal repayment schedule of the NCGA Bonds. Early termination of the swaps would occur upon termination of the prepaid agreement for any reason. Upon early termination, the swaps would have no value to either party.

Subordinated Electric Revenue Bonds. Payment of and interest on the Subordinated Electric Revenue Bonds is subordinate to the payment of the principal and interest on SMUD's Electric Revenue Bonds.

Direct Purchase Agreements. On October 31, 2016, SMUD completed two transactions in which US Bank and State Street purchased all of the outstanding 2012 Series L and Series M Bonds, respectively. As a result of these transactions, SMUD issued the 2016 Series N and the Series O Bonds for the purpose of defeasing the 2012 Series L and Series M bonds, respectively. SMUD pays interest on both series on a monthly basis at the rate of 70 percent of one-month LIBOR plus a fixed fee. The terms are three and a half years, at the end of which SMUD can remarket the bonds, utilize another interest rate mode, or if remarketing is unsuccessful, pay the bonds over five years. The scheduled principal payments for the 2016 Series N and Series O bonds are the same as the defeased 2012 Series L and Series M bonds, respectively, unless the bonds aren't successfully remarketed at the end of the term.

On November 16, 2016 SMUD completed a transaction in which Bank of America purchased all of the outstanding 2008 Series J and 2008 Series K Bonds. As a result of this transaction, the bonds have been renamed the 2016 Series P and the 2016 Series Q Bonds, and SMUD pays interest on a monthly basis at the rate of 70 percent of one-month LIBOR plus a fixed fee. The term is three years, at the end of which SMUD can remarket the bonds, utilize another interest rate mode, or if remarketing is unsuccessful, pay the bonds over five years. The scheduled principal payments remain unchanged unless the bonds aren't successfully remarketed at the end of the term.

Component Unit Bonds. The component units of SMUD have each issued bonds to finance their respective projects. The revenue stream to pay CVFA, SCA, and SFA bonds' debt service is provided by "take-or-pay" power purchase agreements, and is therefore not dependent on the successful operation of the projects. SMUD guarantees to make payments sufficient to pay principal and interest and all other payments required to be made under the CVFA's, SCA's, and SFA's indenture of trust. CVFA, SCA, and SFA are not required to repay SMUD for any amounts paid under this guarantee. The revenue stream to pay NCGA bonds' debt service is provided by a "take-and-pay" purchase agreement. Therefore, principal and interest associated with these bonds are paid solely from the revenues and receipts collected in connection with the operation of the project. Most operating revenues earned by NCGA are collected from SMUD in connection with the sale of gas to SMUD. The ability for NCGA to service debt is dependent on various parties (particularly MSCG, as gas supplier) meeting their contractual obligations.

Callable Bonds. SMUD has $791.9 million of Electric Revenue Bonds that are currently callable, $450.0 million of which are fixed rate Build America Bonds debt and $341.9 million of subordinate bonds. SMUD also has $730.6 million of bonds that become callable from 2018 through 2026, and these bonds can be called until maturity.

Collateral. The principal and interest on SMUD's bonds are payable exclusively from, and are collateralized by a pledge of, the net revenues of SMUD's electric system. Neither the credit nor the taxing power of SMUD is pledged to the payment of the bonds and the general fund of SMUD is not liable for the payment thereof.

Covenants. SMUD's bond resolutions contain various covenants that include requirements to maintain minimum debt service coverage ratios, certain other financial ratios, stipulated minimum funding of revenue bond reserves, and various other requirements including a rate covenant to raise rates to maintain minimum debt service coverage.

SMUD has pledged future net electric revenues, component unit net project revenues, and net gas supply prepayment revenues to repay, in electric revenue, component unit project revenue, and gas supply prepayment revenue bonds issued from 1997 through 2016. Proceeds from the bonds provided financing for various capital improvement projects, component unit capital projects, and the prepayment of a twenty-year supply of natural gas. The bonds are payable solely from the net revenues generated by SMUD's electrical sales, component unit project revenues, and gas supply prepayment revenues and are payable through 2041 at December 31, 2016.

GASB Statement No. 48, ***"Sales and Pledges of Receivables and Future Revenues and Intra-Entity Transfers of Assets and Future Revenues"***, disclosures for pledged revenues are as follows:

	December 31,	
	2016	2015
	(thousands of dollars)	
Pledged future revenues	$ 2,531,960	$ 2,703,100
Principal and interest payments for the year ended	$ 269,141	$ 255,471
Total net revenues for the year ended	$ 786,764	$ 814,910
Total remaining principal and interest to be paid	$ 3,724,778	$ 3,992,623
Annual principal and interest payments as a percent of net revenues		
For the year ended	34%	31%

NOTE 11. COMMERCIAL PAPER NOTES

SMUD issues Commercial Paper Notes (Notes) to finance or reimburse capital expenditures. At December 31, 2016 and 2015 Notes outstanding totaled $200.0 million. The average interest rate for the Notes outstanding at December 31, 2016 was .75 percent and the average term was 68 days. SMUD has a $204.9 million letter of credit agreement, and there have not been any term advances under it.

The summarized activity of SMUD's Notes during 2016 and 2015 is presented below:

	Balance at Beginning of Year	Additions	Reductions	Balance at End of Year
		(thousands of dollars)		
December 31, 2016	$ 200,000	$ -0-	$ -0-	$ 200,000
December 31, 2015	$ 200,000	$ -0-	$ -0-	$ 200,000

NOTE 12. FAIR VALUE MEASUREMENT

Effective January 1, 2016, SMUD adopted GASB No. 72 as discussed in Note 3. GASB No. 72 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). SMUD utilizes market data or assumptions that market participants would use in pricing the asset or liability, including assumptions about risk and the risks inherent in the inputs to the valuation technique.

GASB No. 72 establishes a fair value hierarchy that prioritizes the inputs used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy defined by GASB No. 72 are as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2 inputs are inputs other than quoted prices included in Level 1 that are observable for an asset or liability, either directly or indirectly.
- Level 3 inputs are unobservable inputs that reflect SMUD's own assumptions about factors that market participants would use in pricing the asset or liability.

The valuation methods of the fair value measurements are disclosed below.

- LAIF – uses the fair value of the pool's share price multiplied by the number of shares held. This pool can include a variety of investments such as U.S. government securities, federal agency securities, negotiable certificates of deposit, bankers' acceptances, commercial paper, corporate bonds, bank notes, and other investments. The fair values of the securities are generally based on quoted market prices.
- Money Market Mutual Funds – uses a net asset value. Money market mutual funds may include several different underlying short term obligations, including corporates, U.S. Treasuries, U.S. Government Agency Obligations, and municipal securities. Certain investments within the fund may be deemed unobservable and not considered to be in an active market.
- U.S. Government Agency Obligations – uses a market based approach which considers yield, price of comparable securities, coupon rate, maturity, credit quality and dealer-provided prices.
- U.S. Treasury Obligations – uses a market approach based on institutional bond quotes. Evaluations are based on various market and industry inputs.
- Corporate Notes – uses a market based approach. Evaluations are based on various market and industry inputs.
- Municipal Bonds – uses a market approach based on institutional bond quotes. Evaluations are based on various market and industry inputs.
- Investment Derivative Instruments:
  - Interest rate swap agreements – uses the present value technique. The fair value of the interest rate swap agreements are calculated by discounting the expected cash flows at their corresponding zero coupon rate. The cash flows are estimated based on a 1-month LIBOR forward curve from Bloomberg, and assuming SIFMA is equal to 70 percent of 1-month LIBOR.
  - Gas related agreements – uses the market approach based on monthly quoted prices from an independent external pricing service. The fair values for natural gas and electricity derivative financial instruments are calculated based on prevailing market quotes in active markets (i.e., Henry Hub and So Cal) where identical contracts are available.

The following table identifies the level within the fair value hierarchy that SMUD's financial assets and liabilities were accounted for on a recurring basis as of December 31, 2016 and 2015, respectively. As required by GASB No. 72, financial assets and liabilities are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. SMUD's assessment of the significance of a particular input to the fair value measurement requires judgment, and may affect the valuation of the fair value of liabilities and their placement within the fair value hierarchy levels.

Recurring Fair Value Measures

	At fair value as of December 31, 2016		
	Level 1	Level 2	Total
	(thousands of dollars)		
Investments, including cash and cash equivalents:			
LAIF	$ -0-	$ 130,689	$ 130,689
Money Market Mutual Funds	-0-	111,323	111,323
U.S. Government Agency Obligations	-0-	267,609	267,609
U.S. Treasury Obligations	58,759	-0-	58,759
Corporate Notes	-0-	150,105	150,105
Municipal Bonds	-0-	23,082	23,082
Total Investments, including cash and cash equivalents	$ 58,759	$ 682,808	$ 741,567
Investment Derivative Instrument Assets:			
Gas related agreements	$ 595	$ -0-	$ 595
Total Investment Derivative Instrument Assets	$ 595	$ -0-	$ 595
Investment Derivative Instrument Liabilities:			
Gas related agreements	$ 3,578	$ -0-	$ 3,578
Interest rate swap agreements	-0-	12,584	12,584
Total Investment Derivative Instrument Liabilities	$ 3,578	$ 12,584	$ 16,162

	At fair value as of December 31, 2015		
	Level 1	Level 2	Total
	(thousands of dollars)		
Investments, including cash and cash equivalents:			
LAIF	$ -0-	$ 119,223	$ 119,223
Money Market Mutual Funds	-0-	72,102	72,102
U.S. Government Agency Obligations	-0-	215,119	215,119
U.S. Treasury Obligations	23,142	-0-	23,142
Corporate Notes	-0-	176,439	176,439
Municipal Bonds	-0-	25,245	25,245
Total Investments, including cash and cash equivalents	$ 23,142	$ 608,128	$ 631,270
Investment Derivative Instrument Liabilities:			
Gas related agreements	$ 14,248	$ -0-	$ 14,248
Interest rate swap agreements	-0-	17,708	17,708
Total Investment Derivative Instrument Liabilities	$ 14,248	$ 17,708	$ 31,956

NOTE 13. RANCHO SECO DECOMMISSIONING LIABILITY

Background. The Rancho Seco decommissioning liability relates to the nuclear decommissioning of the former 913 MW nuclear power plant, which terminated commercial operations in 1989 and the separately licensed Independent Spent Fuel Storage Installation (ISFSI) facility. Nuclear decommissioning is the process of safely removing nuclear facilities from service and reducing residual radioactivity to a level that permits termination of the Nuclear Regulatory Commission (NRC) license, and release of the property for unrestricted use. The NRC has approved SMUD's decommissioning plan for the nuclear power plant, which delineates a phased process, and the first phase of physical work was completed in 2008. Decommissioning of the ISFSI will occur after the DOE removes the spent nuclear fuel and high level waste from the site.

In 2009, the NRC released all of the land formerly under the Part 50 license for unrestricted use with the exception of the 1 acre fenced area around the Interim Onsite Storage Building that was previously used to store low-level radioactive waste produced during the decommissioning of the nuclear reactor facility. This waste was disposed of in 2014. The decommissioning of that remaining facility began in 2015 and was completed in January 2017. With the submittal of the Final Status Survey Summary Report and accompanying License Amendment Request, the former operating license issued under Part 50 should be terminated in 2017.

The DOE, under the Nuclear Waste Policy Act of 1982, is responsible for permanent disposal of spent nuclear fuel and high-level radioactive waste which are currently in storage at the ISFSI. SMUD has a contract with the DOE for the removal and disposal of spent nuclear fuel and high-level (greater than class "C": GTCC) radioactive waste. All of SMUD's spent fuel and GTCC waste are currently stored in sealed canisters in the ISFSI. However, the date when fuel and GTCC waste removal will be complete is uncertain. In 2010, the DOE formally withdrew the application for licensing of Yucca Mountain as a high-level waste repository, essentially removing Yucca Mountain as an option for disposal of SMUD's used nuclear fuel. The DOE also announced in January 2010 the creation of a Blue Ribbon Commission to study alternatives for developing a repository for the nation's used nuclear fuel. The Commission provided a final report on alternatives in January 2012. The DOE evaluated the recommendations and published the report "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste" in January 2013. The next phase of the process will be for Congress and the President of the United States to consider the recommendations and enact legislation to implement the recommendations. At this time, there is no credible information available to determine when the DOE would remove the used nuclear fuel from the Rancho Seco facility. The ISFSI will remain under the regulation of the NRC until the nuclear fuel and GTCC radioactive waste are removed and the site is decommissioned.

Asset Retirement Obligations (ARO). These financial statements reflect SMUD's current estimate of its obligation for the cost of decommissioning (including the cost of managing the Storage Facility until it can be decommissioned) under the requirements of FASB ASC 410, based on studies completed each year. Each year, SMUD evaluates the estimate of costs of decommissioning and there was an increase in costs in the 2016 study. The ARO estimate assumes all spent nuclear fuel will be removed from the site by 2035.

Rancho Seco's ARO is presented below:

	December 31,	
	2016	2015
	(thousands of dollars)	
Active decommissioning	$ 13,787	$ 15,696
Spent fuel management	134,183	134,676
Total ARO	$ 147,970	$ 150,372
Less: current portion	(6,439)	(8,822)
Total non-current portion of ARO	$ 141,531	$ 141,550

The summarized activity of the Rancho Seco ARO during 2016 and 2015 are presented below. The annual adjustments include a savings computed as the difference between the fair value of the obligation as if the decommissioning activities were performed by a third party and the amount actually incurred by SMUD performing the decommissioning activities.

	December 31, 2016	December 31, 2015
	(thousands of dollars)	
ARO at beginning of year	$ 150,372	$ 152,077
Accretion	7,429	7,510
Expenditures	(9,207)	(7,408)
Change in study	2,033	(1,108)
Annual adjustments	(2,657)	(699)
ARO at end of year	$ 147,970	$ 150,372

NOTE 14. PENSION PLANS

Summary of Significant Accounting Policies. For purposes of measuring net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the pension plan (Plan) and additions to/deductions from the Plan's fiduciary net position have been determined on the same basis as they are reported by the California Public Employees' Retirement System (PERS) Financial Office. For this purpose, benefit payments (including refunds of employee contributions) are recognized when currently due and payable in accordance with the benefit terms. Investments are reported at fair value.

GASB No. 68 requires that the reported results must pertain to liability and asset information within certain defined timeframes. The following timeframes are used for the year ended:

	December 31, 2016	December 31, 2015
Valuation date	June 30, 2015	June 30, 2014
Measurement date	June 30, 2016	June 30, 2015

Plan Description and Benefits Provided. SMUD participates in PERS, an agent multiple-employer public employee defined benefit pension plan. PERS provides retirement and disability benefits, annual cost-of-living adjustments, and death benefits to plan members and beneficiaries. PERS acts as a common investment and administrative agent for participating public entities within the State. Benefit provisions and all other requirements are established by State statute and SMUD policies. The pension plan provides retirement benefits, survivor benefits, and death and disability benefits based upon employee's years of credited service, age, and final compensation. A full description of the pension plan regarding number of employees covered, benefit provision, assumptions (for funding, but not accounting purposes), and membership information are included in the annual actuarial valuation reports as of June 30, 2015 and June 30, 2014. These reports and the PERS' audited financial statements are publicly available and can be obtained at the PERS' website at www.calpers.ca.gov.

Employees Covered by Benefit Terms. The following employees were covered by the benefit terms for the year ended:

	December 31, 2016	December 31, 2015
Inactive employees or beneficiaries currently receiving benefit payments	2,718	2,657
Inactive employees entitled to but not yet receiving benefit payments	944	940
Active employees	2,014	1,974
Total employees covered by benefit terms	5,676	5,571

Contributions. Section 20814(c) of the California Public Employees' Retirement Law requires that the employer contribution rates for all public employers be determined on an annual basis by the actuary and shall be effective on the July 1 following notice of a change in the rate. The total plan contributions are determined through PERS' annual actuarial valuation process. The actuarially determined rate is the estimated amount necessary to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. The employer is required to contribute the difference between the actuarially determined rate and the contribution rate of employees. For the PERS fiscal year ended June 30, 2016 and 2015, the average active employee contribution rate is 6.9 percent of annual pay for both years, and the employer's contribution rate is 14.1 percent and 12.0 percent of annual payroll, respectively. Employer contribution rates may change if plan contracts are amended. For the year ended December 31, 2016 and 2015, SMUD made contributions recognized by the pension plan in the amount of $27.6 million and $22.5 million, respectively.

Net Pension Liability. SMUD's NPL at December 31, 2016 and 2015 was measured at June 30, 2016 and 2015, respectively. The total pension liability used to calculate the NPL was determined by actuarial valuations as of June 30, 2015 and 2014 rolled forward using generally accepted actuarial procedures to the June 30, 2016 and 2015 measurement dates.

Actuarial Methods and Assumptions. The actuarial methods and assumptions used for the December 31, 2016 and December 31, 2015 total pension liabilities are as follows:

Actuarial Cost Method	Entry age normal
Discount Rate	7.65%
Inflation	2.75%
Salary Increases	Varies by entry age and service
Mortality Rate Table	The mortality table used was developed based on PERS' specific data. The table includes 20 years of mortality improvements using Society of Actuaries Scale BB.
Post Retirement Benefit Increase	Contract COLA up to 2.75% until Purchase Power Protection Allowance Floor on Purchasing Power applies, 2.75% thereafter

All other actuarial assumptions used for both years were based on the results of an actuarial experience study for the period from 1997 to 2011, including updates to salary increase, mortality and retirement rates.

Discount Rates. The discount rate used to measure the total pension liability for the years ended December 31, 2016 and 2015 was 7.65 percent. To determine whether the municipal bond rate should be used in the calculation of a discount rate for each plan, PERS stress tested plans that would most likely result in a discount rate that would be different from the actuarially assumed discount rate. The tests revealed the assets would not run out. Therefore, the 7.65 percent discount rate used for both valuations is appropriate and the use of the municipal bond rate calculation is not deemed necessary. The long-term expected discount rate of 7.65 percent is applied to all plans in the Public Employees Retirement Fund. The cash flows used in the testing were developed assuming that both members and employers will make their required contributions on time and as scheduled in all future years.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. Using historical returns of all the funds' asset classes, expected compound (geometric) returns were calculated over the short-term (first 10 years) and the long-term (11-60 years) using a building-block approach.

The table below reflects long-term expected real rate of return by asset class. The rate of return was calculated using the capital market assumptions applied to determine the discount rate and asset allocation. The target allocation shown below was adopted by the PERS' Board effective on July 1, 2015.

Asset Class	Current Target Allocation	Real Return Years 1-10	Real Return Years 11+
Global Equity	51.0%	5.25%	5.71%
Global Fixed Income	20.0%	.99%	2.43%
Inflation Sensitive	6.0%	.45%	3.36%
Private Equity	10.0%	6.83%	6.95%
Real Estate	10.0%	4.50%	5.13%
Infrastructure and Forestland	2.0%	4.50%	5.09%
Liquidity	1.0%	(.55%)	(1.05%)

Changes in the NPL:

The following table shows the changes in NPL recognized over the year ended December 31, 2016:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
		(thousands of dollars)	
Balance at December 31, 2015	$ 1,971,468	$ 1,590,127	$ 381,341
Changes recognized for the measurement period:			
Service cost	29,044	-0-	29,044
Interest	147,497	-0-	147,497
Differences between expected and actual experience	(8,357)	-0-	(8,357)
Contributions – employer	-0-	27,645	(27,645)
Contributions – employee	-0-	15,271	(15,271)
Net investment income	-0-	8,316	(8,316)
Benefit payments	(99,155)	(99,155)	-0-
Administrative expense	-0-	(969)	969
Other	-0-	34	(34)
Net changes	69,029	(48,858)	117,887
Balances at December 31, 2016	$ 2,040,497	$ 1,541,269	$ 499,228

The following table shows the changes in NPL recognized over the year ended December 31, 2015:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
		(thousands of dollars)	
Balance at December 31, 2014	$ 1,940,486	$ 1,613,784	$ 326,702
Changes recognized for the measurement period:			
Service cost	27,991	-0-	27,991
Interest	142,468	-0-	142,468
Differences between expected and actual experience	(10,613)	-0-	(10,613)
Changes of assumptions	(34,228)	-0-	(34,228)
Contributions – employer	-0-	22,499	(22,499)
Contributions – employee	-0-	14,503	(14,503)
Net investment income	-0-	35,797	(35,797)
Benefit payments	(94,636)	(94,636)	-0-
Administrative expense	-0-	(1,795)	1,795
Other	-0-	(25)	25
Net changes	30,982	(23,657)	54,639
Balances at December 31, 2015	$ 1,971,468	$ 1,590,127	$ 381,341

Sensitivity of the NPL to Changes in the Discount Rate. The following presents the NPL of the Plan as of the measurement date, calculated using the current discount rate, as well as what the net pension liability would be if it were calculated using a discount rate that is 1 percentage-point lower or 1 percentage-point higher than the current discount rate:

	1% Decrease (6.65%)	Current Discount Rate (7.65%)	1% Increase (8.65%)
		(thousands of dollars)	
Plan's NPL, December 31, 2016	$ 762,987	$ 499,228	$ 280,048
Plan's NPL, December 31, 2015	638,876	381,341	167,583

Pension Plan Fiduciary Net Position. Detailed information about the pension plan's fiduciary net position is available in the separately issued Plan financial statements and can be obtained at the PERS' website at www.calpers.ca.gov.

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions. For the year ended December 31, 2016 and 2015, SMUD recognized pension expense of $39.2 million and $13.3 million, respectively.

At December 31, 2016 and December 31, 2015, SMUD reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	December 31,			
	2016		2015	
	(thousands of dollars)			
Deferred outflows of resources:				
Differences between projected and actual earnings on pension plan investments	$	83,954	$	-0-
Employer's contributions to the Plan subsequent to the measurement of total pension liability		32,299		27,643
Total deferred outflows or resources	$	116,253	$	27,643
Deferred inflows of resources:				
Differences between expected and actual experience	$	(10,518)	$	(7,580)
Changes in assumptions		(14,669)		(24,448)
Differences between projected and actual earnings on pension plan investments		-0-		(15,551)
Total deferred inflows of resources	$	(25,187)	$	(47,579)

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year ended December 31:		
2017	$	28,413
2018		2,519
2019		37,971
2020		22,163
2021		-0-
Thereafter		-0-

Other Plans. SMUD provides its employees with two cash deferred compensation plans: one pursuant to Internal Revenue Code (IRC) Section 401(k) (401(k) Plan) and one pursuant to IRC Section 457 (457 Plan) (collectively, the Plans). The Plans are contributory plans in which SMUD's employees contribute the funds. Each of SMUD's eligible full-time or permanent part-time employees may participate in either or both Plans, and amounts contributed are vested immediately. Such funds are held by a Trustee in trust for the employees upon retirement from SMUD service and, accordingly, are not subject to the general claims of SMUD's creditors. SMUD is responsible for ensuring compliance with IRC requirements concerning the Plans and has the fiduciary duty of reasonable care in the selection of investment alternatives, but neither SMUD, nor its Board or officers have any liability for market variations in the Plans' asset values. SMUD employees are responsible for determining how their funds are to be invested and pay all ongoing fees related to the Plans. The Plans are currently not subject to discrimination testing, nor the requirements of the Employee Retirement Income Security Act of 1974. SMUD employees participating in the Plans are allowed to contribute a portion of their gross income not to exceed the annual dollar limits prescribed by the IRC.

SMUD makes annual contributions to the 401(k) Plan on behalf of certain employees pursuant to a memorandum of understanding with both of its collective bargaining units. SMUD also matches non-represented employee contributions to the 401(k) Plan up to a set amount. SMUD made contributions into the 401(k) Plan of $3.9 million in 2016 and $3.5 million in 2015. SMUD does not match employee contributions, nor make contributions on behalf of its employees to the 457 Plan. Participating employees made contributions into both Plans totaling $19.7 million in 2016 and $18.5 million in 2015.

NOTE 15. OTHER POSTEMPLOYMENT BENEFITS

SMUD provides postemployment healthcare benefits, in accordance with SMUD policy and negotiated agreements with employee representation groups in a single employer defined benefit plan, to all employees who retire from SMUD, and their dependents. SMUD also provides postemployment healthcare benefits to covered employees who are eligible for disability retirement. SMUD contributes the full cost of coverage for retirees hired before January 1, 1991, and a portion of the cost based on credited years of service for retirees hired after January 1, 1991. SMUD also contributes a portion of the costs of coverage for these retirees' dependents. Retirees are required to contribute the portion that is not paid by SMUD. The benefits, benefit levels, retiree contributions and employer contributions are governed by SMUD and can be amended by SMUD through its personnel manual and union contracts. At June 30, 2016, 5,084 postemployment participants, including retirees, spouses of retirees, surviving spouses, and eligible dependents, were eligible to participate in SMUD's healthcare benefits program.

OPEB arises from an exchange of salaries and benefits for employee services rendered, and refers to postemployment benefits other than pension benefits such as postemployment healthcare benefits. SMUD considers the following benefits to be OPEB: Medical, Dental and Long-Term Disability.

Plan Description. SMUD is a member of the California Employers Retiree Benefit Trust (CERBT) for prefunding of OPEB obligations. The CERBT Fund is an IRC Section 115 Trust set up for the purpose of receiving employer contributions to prefund health and other postemployment benefits for retirees and their beneficiaries. The plan is an agent multiple employer plan administered by PERS, which provides medical, dental and long-term disability benefits for retirees and their beneficiaries. Any changes to these benefits would be approved by SMUD's Board and unions. To obtain a CERBT report, please contact PERS at 888-CALPERS.

The funding of a plan occurs when the following events take place: the employer makes payments of benefits directly to or on behalf of a retiree or beneficiary; the employer makes premium payments to an insurer; or the employer irrevocably transfers assets to a trust or other third party acting in the role of trustee, where the plan assets are dedicated to the sole purpose of the payments of the plan benefits, and creditors of the government do not have access to those assets.

Funding Policy. SMUD has elected to net fund to PERS, so the contributions are the Annual Required Contribution (ARC) less the estimated cash flow for retiree benefit costs for each year. SMUD can elect to put in additional contributions into the trust, and in 2016 and 2015 funded an additional $17.9 million and $22.0 million to the CERBT, respectively. In 2016 and 2015, the net ARC contribution to the CERBT was $6.6 million for each year. During 2016 and 2015, SMUD made healthcare benefit contributions by paying actual medical costs of $20.7 million and $17.4 million, respectively.

Funding Status and Funding Progress. At June 30, 2016 and 2015, SMUD estimates that the actuarially determined accumulated postemployment benefit obligation was approximately $377.0 million and $319.4 million, respectively. At June 30, 2016 and 2015, the plan was 59.7 and 55.2 percent funded, respectively. The covered payroll (annual payroll of active employees covered by the plan) at June 30, 2016 and 2015, was $210.3 million and $191.4 million, respectively. The ratio of the unfunded actuarial accrued liability (UAAL) to covered payroll was 72.3 percent at June 30, 2016.

Annual OPEB Cost. The annual OPEB cost (expense) is calculated based on the ARC of the employer, an amount actuarially determined in accordance with the parameters of SGAS No. 45, "***Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions.***" The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover the normal cost each year and amortize any unfunded actuarial liabilities (or funding excess) over a period not to exceed 30 years. For 2016, SMUD's annual OPEB Cost (expense) was $13.4 million.

The following table shows the components of SMUD's annual OPEB cost for the year, the amount actually paid in premiums, and changes in the net OPEB asset:

	Year Ended December 31,	
	2016	2015
	(thousands of dollars)	
Annual required contribution	$ 14,760	$ 28,815
Interest on net OPEB asset	(6,772)	(5,720)
Annual required contribution adjustment	5,455	4,595
Annual OPEB cost	13,443	27,690
Contributions made	(45,270)	(46,047)
Changes in net OPEB asset	(31,827)	(18,357)
Net OPEB asset, beginning of year	(96,080)	(77,723)
Net OPEB asset, end of year	$ (127,907)	$ (96,080)

SMUD's net OPEB asset is recorded as a component of Prepayments and other on the Consolidated Statements of Net Position.

SMUD's annual OPEB cost, the percentage of annual OPEB cost contributed to the plan, and the net OPEB asset for 2016 and the two preceding years is as follows:

Year Ending	Annual OPEB Cost	Percentage of Annual OPEB Cost Contributed	Net OPEB Asset
	(thousands of dollars)		
December 31, 2016	$ 13,443	377%	$ (127,907)
December 31, 2015	27,690	166%	(96,080)
December 31, 2014	29,380	239%	(77,723)

Actuarial Methods and Assumptions. Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employer and plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing the benefit costs between the employer and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce the effects of short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations.

The entry age normal was used in the June 30, 2016 and 2015 actuarial valuations. The actuarial assumptions used for the June 30, 2016 and 2015 valuations were 7.25 investment rate of return (net of administrative expenses) and a 3.0 percent inflation assumption for both years. The actuarial assumptions for an annual healthcare cost trend growth rate for 2016 and 2017 was based on actual premiums and ranged from 6.5 to 6.7 percent for 2018. Starting July 1, 2015, the UAAL is amortized as a level percentage of payroll over a closed 30-year period. At June 30, 2016 and 2015 the actuarial value of the assets was $225.0 and $176.2 million, respectively.

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality and the healthcare cost trends. Amounts determined regarding the funded status of the plan and the ARC of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future. The schedule of funding progress, presented as RSI following the notes to the financial statements, presents multiyear trend information that shows whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liabilities for benefits.

NOTE 16. INSURANCE PROGRAMS AND CLAIMS

SMUD is exposed to various risks of loss related to torts, theft of and destruction to assets, errors and omissions, and natural disasters. In addition, SMUD is exposed to risks of loss due to injuries to, and illnesses of, its employees. SMUD carries commercial insurance coverage to cover most claims in excess of specific dollar thresholds, which range from $5 thousand to $2.5 million per claim with total excess liability insurance coverage limits for most claims of $140.0 million. SMUD's property insurance coverage is based on the replacement value of the asset. There have been no significant reductions in insurance coverage, and in some cases, certain coverages increased. In 2016, 2015 and 2014, the insurance policies in effect have adequately covered all settlements of the claims against SMUD. No claims have exceeded the limits of property or liability insurance in any of the past three years.

The claims liability is included as a component of Self Insurance, Unearned Revenue and Other in the Consolidated Statements of Net Position.

SMUD's total claims liability, comprising claims received and claims incurred but not reported, at December 31, 2016, 2015 and 2014 is presented below:

	2016	2015	2014
		(thousands of dollars)	
Workers' compensation claims	$ 10,820	$ 10,983	$ 11,220
General and auto claims	2,227	698	825
Short and long-term disability claims	212	343	121
Claims liability	$ 13,259	$ 12,024	$ 12,166

Changes in SMUD's total claims liability during 2016, 2015, and 2014 are presented below:

	2016	2015	2014
		(thousands of dollars)	
Claims liability, beginning of year	$ 12,024	$ 12,166	$ 12,351
Add: provision for claims, current year	2,304	1,827	2,122
Increase in provision for claims in prior years	5,638	2,782	2,930
Less: payments on claims attributable to current and prior years	(6,707)	(4,751)	(5,237)
Claims liability, end of year	$ 13,259	$ 12,024	$ 12,166

NOTE 17. COMMITMENTS

Electric Power and Gas Supply Purchase Agreements. SMUD has numerous power purchase agreements with other power producers to purchase capacity, transmission, and associated energy to supply a portion of its load requirements. SMUD has minimum take-or-pay commitments for energy on some contracts. SMUD has numerous long-term natural gas supply, gas transportation and gas storage agreements with Canadian and U.S. companies to supply a portion of the consumption needs of SMUD's natural gas-fired power plants, which expire through 2040.

At December 31, 2016, the approximate minimum obligations for the "take-or-pay" contracts over the next five years are as follows:

	Electric	Gas
	(thousands of dollars)	
2017	$ 42,984	$ 14,212
2018	39,212	14,345
2019	38,819	14,632
2020	36,925	14,935
2021	29,399	15,248

At December 31, 2016, the approximate minimum obligations for the remaining contracts, assuming the energy or gas is delivered over the next five years, are as follows:

	Electric	Gas
	(thousands of dollars)	
2017	$ 120,921	$ 134,036
2018	152,429	111,366
2019	156,699	100,237
2020	164,115	97,854
2021	107,577	91,647

Contractual Commitments beyond 2021 – Electricity. Several of SMUD's purchase power and transmission contracts extend beyond the five-year summary presented above. These contracts expire between 2022 and 2043 and provide for power under various terms and conditions. SMUD estimates its annual minimum commitments under the take or pay contracts ranges between $29.4 million in 2022 and $7.3 million in 2033. SMUD estimates its annual minimum commitments under the remaining contracts, assuming the energy is delivered, ranges between $107.5 million in 2022 and $0.2 million in 2043. SMUD's largest purchase power source (in volume) is the Western Base Resource contract, whereby SMUD receives 25.4 percent of the amount of energy made available by Western, which represents an equal share of their revenue requirement. The Western contract expires on December 31, 2024.

Contractual Commitments beyond 2021 – Gas. Several of SMUD's natural gas supply, gas transportation and gas storage contracts extend beyond the five-year summary presented above. These contracts expire between 2022 and 2040 and provide for transportation and storage under various terms and conditions. SMUD estimates its annual minimum commitments under the take or pay contracts ranges between $15.5 million in 2022 and $1.1 million in 2040. SMUD estimates its annual minimum commitments under the remaining contracts, assuming the gas is delivered, ranges between $93.4 million in 2020 and $13.9 million in 2040.

Solano Wind. In December 2011, SMUD entered into an agreement to sell the Solano Wind Phase 3 project (see Note 2). SMUD will buy all output from the plant under the terms of the Power Purchase Agreement. The plant began commercial operation in April 2012 and SMUD receives all output generated. Under the terms of the various agreements, SMUD has the option to buy the plant back upon the sixth, eighth, or fifteenth anniversary of the commercial operation date or the end of the delivery term.

Gas Price Swap Agreements. SMUD has entered into numerous variable to fixed rate swaps with notional amounts totaling 129,977,500 Dths for the purpose of fixing the rate on SMUD's natural gas purchases for its gas-fueled power plants and gas indexed electric contracts. These gas price swap agreements result in SMUD paying fixed rates ranging from $2.75 to $7.17 per Dth. The swap agreements expire periodically from January 2017 through December 2022.

Gas Transport Capacity Agreements. SMUD has numerous long-term natural gas transport capacity agreements with Canadian and U.S. companies to transport natural gas to SMUD's natural gas-fired power plants from the supply basins in Alberta to the California-Oregon border and from supply basins in the southwest and Rocky Mountains to the Southern California border. These gas transport capacity agreements provide for the delivery of gas into SMUD-owned pipeline capacity within California. The gas transport capacity agreements provide SMUD with 56,700 Dth per day (Dth/d) of natural gas pipeline capacity from the North, including the Canadian Basins through 2023 and 51,300 Dth/d from the Southwest or Rocky Mountain Basins through at least 2019.

Gas Storage Agreements. SMUD also has an agreement for the storage of up to 2.0 million Dth of natural gas at regional facilities through March 2018.

Hydro License Agreements. SMUD has a hydro license for a term of 50 years effective July 1, 2014 (see Note 2). SMUD entered into four contracts with government agencies whereby SMUD makes annual payments to them for various services for the term of the license. Each contract is adjusted annually by an inflation index. The present value of the sum of the annual payments is $57.8 million at December 31, 2016.

Construction Contracts. In June 2016, the SMUD Board authorized a contract for the design and build of the South Fork Powerhouse and Boating Flow Release Facility located in El Dorado County, California. The contract price is a not-to-exceed amount of $14.2 million and the contract term ends December 31, 2018. The DOE has committed to fund approximately $1.5 million of the project through a grant award to SMUD (see Note 2).

NOTE 18. CLAIMS AND CONTINGENCIES

FERC Administrative Proceedings. SMUD is involved in a number of FERC administrative proceedings related to the operation of wholesale energy markets, regional transmission planning, gas transportation, and the development of NERC reliability standards. While these proceedings are complex and numerous, they generally fall into the following categories: (i) filings initiated by the California Independent System Operator Corporation (CAISO) (or other market participants) to adopt/modify the CAISO Tariff and/or establish market design and behavior rules; (ii) filings initiated by existing transmission owners (i.e., PG&E and the other Investor Owned Utilities) to pass through costs to their existing wholesale transmission customers; (iii) filings initiated by FERC or market participants to establish market design and behavior rules or to complain about or investigate market behavior by certain market participants; (iv) filings initiated by transmission owners under their transmission owner tariffs for the purpose of establishing a regional transmission planning process; (v) filings initiated by providers of firm gas transportation service under the Natural Gas Act; and (vi) filings initiated by NERC to develop reliability standards applicable to owners, users, and operators of the bulk electric system. SMUD's management believes that the ultimate resolution of these matters will not have a material adverse effect on SMUD's financial position, liquidity or results of operations.

Construction Matters. SMUD contracts with various firms to design and construct facilities for SMUD. Currently, SMUD is party to various claims, legal actions and complaints relating to such construction projects. SMUD's management believes that the ultimate resolution of these matters will not have a material adverse effect on SMUD's financial position, liquidity or results of operations.

Environmental Matters. SMUD was one of many potentially responsible parties that had been named in a number of actions relating to environmental claims and/or complaints. SMUD has resolved these environmental claims and/or complaints and entered into settlement agreements and/or consent orders. These settlement agreements and consent orders have statutory reopener provisions which allow regulatory agencies to seek additional funds for environmental remediation under certain limited circumstances. While SMUD believes it is unlikely that any of the prior settlement agreements or consent orders will be reopened, the possibility exists. If any of the settlement agreements or consent orders is reopened, SMUD management does not believe that the outcome will have a material adverse impact on SMUD's financial position, liquidity or results of operations.

North City Remediation. In 1950, SMUD purchased property (North City Site) from the City of Sacramento and the Western Railroad Company. Portions of the North City Site prior to the sale had been operated as a municipal landfill by the City of Sacramento. SMUD currently operates a bulk substation on the North City Site. SMUD intends to assure compliance with State standards at closed landfill sites and is in the process of determining the appropriate remediation for the North City Site. In 2009, SMUD recorded a liability related to the investigation, design and remediation necessary for the North City Site in the amount of $12.0 million estimated for the entire project. As the owner of the North City Site, SMUD will have a role in the remediation selection and activities, as may those who operated or used the North City Site for landfill purposes. SMUD has estimated its exposure to such costs based on its proportionate share of the remedy. However, should others become unable to participate due to insolvency or are otherwise unable to pay their share of the costs, SMUD's share of remediation costs would increase. SMUD's management does not believe this will occur. Even if SMUD were to ultimately be responsible for all remediation costs associated with the North City Site, SMUD management believes that the outcome of these remediation costs will not have a material adverse impact on SMUD's financial position, liquidity or results of operations.

Station E. In April 2012, after conducting extensive drilling onsite to determine the presence of hazardous and solid waste onsite, SMUD entered into a purchase and sale agreement for property south and southwest of the North City Substation, to use for developing a new substation to replace North City. In August 2015, while conducting excavation onsite in preparation for construction, SMUD contractors encountered quantities of solid and hazardous waste onsite in excess of what initial drilling indicated. SMUD is currently working with the County of Sacramento in its capacity as the solid waste local enforcement agency for approval of a Partial Clean Closure and Post-closure Land Use Plan (Plan) to allow development of the site for use as a substation while removing and disposing of hazardous waste and installing a cap over areas where waste will remain. SMUD has recorded an estimated liability related to implementing the Plan in the amount of $16.1 million. SMUD is exploring recovery options from the parties that likely disposed of the hazardous waste onsite. Even if SMUD were to ultimately be responsible for all remediation costs associated with the Station E Site, SMUD management believes that the outcome of these remediation costs will not have a material adverse impact on SMUD's financial position, liquidity or results of operations.

Former Community Linen Rental Services (Community) Property. In 1981, SMUD purchased property from Community located at 1824 and 1826 61st Street (Site). That same year, Community sold its linen business and equipment to Mission Laundry (Mission). SMUD continued to lease portions of the property to Mission until 1985. SMUD settled with these businesses and waived a potential future legal claim for cleanup funding. The property to the north of the Site was owned by Kramer Carton Company (Kramer) and used for 60 years as a carton manufacturing facility. Based on environmental investigations, it has been determined there is contamination at the Kramer property, at the Site, and at areas south of the Kramer property. The contamination appears to emanate primarily from the Site, with some, albeit minor, contribution from the Kramer property. In 2016 SMUD purchased the Kramer Carton property from then-owner Willamette Capital Management, Ltd. (Willamette) at a price that reflected the estimated costs to clean both onsite soil contamination and the site's proportional contribution to groundwater contamination, and waived further contribution from Willamette. Preliminary environmental investigations of the Kramer property, the Site and areas south of the Kramer property indicate that total remediation costs will likely exceed $2.0 million. SMUD has recorded a liability for the estimated costs of the remediation. Although SMUD does not believe it is the source of the contamination, it appears that one or more of its predecessors in interest may be the cause of most of the contamination. Moreover, since Kramer is bankrupt, it is unclear whether it would be beneficial for SMUD to take legal action for contribution. Even if SMUD were to ultimately be responsible for all remediation costs associated with the Site, SMUD's management believes that the remediation of the Site will not have a material adverse impact on SMUD's financial position, liquidity or results of operations.

Buena Vista Biomass Power LLC. On October 2, 2015, SMUD informed Buena Vista Biomass Power, LLC (Buena Vista) of its intent to terminate its existing power purchase agreement (PPA) in accordance with the terms of the PPA, due to Buena Vista's failure to meet its contractual obligations. On December 4, Buena Vista informed SMUD that it disputed SMUD's right to terminate. On December 21, SMUD issued Buena Vista a termination notice, effective December 31, 2015. At the same time, the parties entered into a short term power purchase agreement effective January 1, 2016, while the parties attempted to negotiate a longer term arrangement on commercial terms acceptable to both parties. The short term agreement expired on February 29, 2016, and further negotiations with Buena Vista proved unsuccessful. Buena Vista filed an arbitration demand against SMUD on June 7, 2016. In the demand, Buena Vista claims damages against SMUD in the amount of $120.0 million on a theory of wrongful termination. SMUD is defending the action and expects to prevail due to the clear language in the PPA which allows for termination for failure to meet contractual energy production figures for multiple consecutive years. The arbitration hearing is set to commence on July 31, 2017 and the parties are currently engaging in the discovery process. However, SMUD management does not believe that the outcome will have a material adverse impact on SMUD's financial position, liquidity or results of operations.

Other Matters. Currently, SMUD is party to various claims, legal actions and complaints relating to its operations, including but not limited to: property damage and personal injury, contract disputes, torts, and employment matters. SMUD's management believes that the ultimate resolution of these matters will not have a material adverse effect on SMUD's financial position, liquidity or results of operations.

NOTE 19. SUBSEQUENT EVENT

In January and February 2017, SMUD experienced property damage from a series of winter storms. SMUD is currently assessing the amount of the damage and is pursuing claims under SMUD property insurance policies as well as with several Federal and State agencies.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

Schedule of Changes in Net Pension Liability and Related Ratios During the Measurement Period

Pension. The schedule of changes in NPL and related ratios is presented below for the years for which SMUD has available data. SMUD will add to this schedule each year and when it reaches 10 years it will contain the last 10 years data which will then be updated each year going forward.

	December 31,		
	2016	2015	2014
		(thousands of dollars)	
Total pension liability:			
Service cost	$ 29,044	$ 27,991	$ 28,170
Interest	147,497	142,468	137,546
Differences between expected and actual experience	(8,357)	(10,613)	-0-
Changes of assumptions	-0-	(34,228)	-0-
Benefit payments, including refunds of employee contributions	(99,155)	(94,636)	(90,175)
Net change in total pension liability	69,029	30,982	75,541
Total pension liability, beginning of year	1,971,468	1,940,486	1,864,945
Total pension liability, end of year (a)	$ 2,040,497	$ 1,971,468	$ 1,940,486
Plan fiduciary net position:			
Contributions – employer	$ 27,645	$ 22,499	$ 21,511
Contributions – employee	15,271	14,503	15,346
Net investment income	8,316	35,797	245,659
Benefit payments, including refunds of employee contributions	(99,155)	(94,636)	(90,175)
Administrative expense	(969)	(1,795)	(2,028)
Other changes	34	(25)	-0-
Net change in plan fiduciary net position	(48,858)	(23,657)	190,313
Plan fiduciary net position, beginning of year	1,590,127	1,613,784	1,423,471
Plan fiduciary net position, end of year (b)	$ 1,541,269	$ 1,590,127	$ 1,613,784
Net pension liability, end of year (a)-(b)	$ 499,228	$ 381,341	$ 326,702
Plan fiduciary net position as a percentage of the total pension liability	75.5%	80.7%	83.2%
Covered payroll	$ 207,119	$ 197,481	$ 191,439
Net pension liability as a percentage of covered payroll	241.0%	193.1%	170.7%

Notes to Schedule

Benefit Changes: The figures above do not include any liability impact that may have resulted from plan changes which occurred after the June 30, 2015 valuation date. This applies for voluntary benefit changes as well as any offers of two years additional service credit.

Changes in Assumptions: There were no changes in assumptions.

Schedule of Plan Contributions

Pension. The schedule of pension contributions is presented below for the years for which SMUD has available data. SMUD will add to this schedule each year and when it reaches 10 years it will contain the last 10 years data which will then be updated each year going forward.

	December 31,		
	2016	2015	2014
		(thousands of dollars)	
Actuarially determined contribution	$ 27,645	$ 22,499	$ 21,511
Contributions in relation to the actuarially determined contribution	(27,645)	(22,499)	(21,511)
Contribution deficiency (excess)	$ -0-	$ -0-	$ -0-
Covered payroll	$ 222,133	$ 213,627	$ 195,394
Contributions as a percentage of covered payroll	12.5%	10.5%	11.0%

Notes to Schedule

The actuarial methods and assumptions used to set the actuarially determined contributions for the year ended December 31, 2016 was derived from the June 30, 2013 funding valuation report.

Actuarial cost method	Entry age normal
Amortization method/period	For details, see June 30, 2013 Funding Valuation Report
Asset valuation method	Market value of assets. For details, see June 30, 2013 Funding Valuation Report
Inflation	2.75%
Salary increases	Varies by entry age and service
Payroll growth	3.0%
Investment rate of return	7.5% Net of pension plan investment and administrative expenses; includes inflation
Retirement age	The probabilities of retirement are based on the 2010 PERS Experience Study for the period from 1997 to 2007
Mortality	The probabilities of mortality are based on the 2010 PERS Experience Study for the period from 1997 to 2007. Pre-retirement and post-retirement mortality rates include 5 years of projected mortality improvement using Scale AA published by the Society of Actuaries.

There were no changes in methods or assumptions used to determine the actuarially determined contributions for the years reported above.

Schedule of Funding Progress

OPEB. The schedule of funding progress for the other postemployment benefit healthcare plan is presented below for the three recent years for which SMUD has available data:

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
		(thousands of dollars)				
06/30/2016	$ 225,044	$ 377,045	$ 152,001	59.7%	$ 210,341	72.3%
06/30/2015	$ 176,239	$ 319,431	$ 143,192	55.2%	$ 191,414	74.8%
06/30/2014	$ 129,493	$ 505,142	$ 375,649	25.6%	$ 187,151	200.7%