Financial Statements

Report of Independent Auditors

December 31, 2019 and 2018

SMUD®

0084-20

SACRAMENTO MUNICIPAL UTILITY DISTRICT
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INDEPENDENT AUDITORS' REPORT

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

Report on the Financial Statements

We have audited the accompanying financial statements of Sacramento Municipal Utility District, as of and for the years ended December 31, 2019 and 2018, and the related notes to the financial statements, which collectively comprise Sacramento Municipal Utility District's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these 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 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 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 financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the 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 Sacramento Municipal Utility District's preparation and fair presentation of the 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 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 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 financial statements referred to above present fairly, in all material respects, the financial position of Sacramento Municipal Utility District as of December 31, 2019 and 2018, and the respective changes in financial position and cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 3 to the financial statements, Sacramento Municipal Utility District adopted the provisions of Governmental Accounting Standards Board Statement No. 83 – *Certain Asset Retirement Obligations,* effective January 1, 2019. 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 basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic 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 basic financial statements, and other knowledge we obtained during our audit of the basic 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 have issued our report dated February 21, 2020, 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 21, 2020

Sacramento Municipal Utility District
Management's Discussion and Analysis - Unaudited
For the Years Ended December 31, 2019 and 2018

Using this Financial Report

This annual financial report for Sacramento Municipal Utility District (SMUD) consists of management's discussion and analysis and the financial statements, including notes to financial statements. The 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, 2019 and 2018. This discussion and analysis should be read in conjunction with the financial statements and accompanying notes, which follow this section.

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

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

The 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 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 1.5 million – most of Sacramento County and small adjoining portions of Placer and Yolo Counties. Its purpose is to enhance the quality of life for its customers and community through creative energy solutions. 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 June 2017, the Board approved a 1.0 percent rate increase in both 2018 and 2019 for commercial customers and a 1.5 percent rate increase in 2018 for residential customers and approved the Time of Day (TOD) rate as the standard rate for residential customers in 2019. In 2018, SMUD began rolling out the transition to TOD rates, as well as changes to its

Energy Assistance Program Rate (EAPR), which supports low-income customers. TOD rates better align with the cost of providing electricity, send more accurate price signals to customers, and give customers the opportunity to better manage their electricity bills by shifting usage to lower-cost time periods. Changes to EAPR help ensure SMUD provides the greatest support to customers most in need to save energy and money through a combination of rate design, energy-efficiency investments, pilot programs and education. The 2018 Rate Action also changed the Economic development rate and Rule 16 fees, which will help spur regional economic development, support job creation, and provide incentives to businesses located in disadvantaged communities. In June 2019, the Board approved a 3.75 percent rate increase in 2020, and a 3.0 percent rate increase effective October 1, 2020, for all customer classes. Additionally, the Board approved a restructuring of the commercial rates and increases in the fixed bill components, such as the System Infrastructure Fixed Charge and demand charges along with a decrease in energy charges. Customers will be transitioned to the new rate structures in January 2021. Even with these increases, SMUD's rates continue to remain amongst the lowest in the state. In 2019, the average system rate was 36.5 percent below the average rate of the nearest investor-owned utility.

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 the region's carbon footprint, and enhance the vitality of the 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, taking into consideration the impact of capital expenditures and other factors on cash flow.

Financial & Operational Highlights

In 2018, SMUD updated its 5-Year Strategic plan to ensure work is aligned with fulfilling the Board's Strategic Directions and customers' expectations for safe, reliable, affordable and environmentally responsible energy, while adapting to a rapidly changing industry, technology advances and growing customer expectations. The Board adopted aggressive carbon reduction goals as part of the Integrated Resource Plan (IRP) and was accepted by the California Energy Commission as meeting requirements of Senate Bill 350 in 2019. The plan sets a greenhouse gas (GHG) target of net zero by 2040, which SMUD will achieve through a commitment to procuring local renewable energy whenever feasible, and significant investment in electrification of the local building and transportation sectors. In addition, SMUD divested ownership of its natural gas reserves in order to align with the IRP. Together, these efforts are expected to reduce GHG emissions in the Sacramento region by 64 percent, delivering significant benefits to the community and regional economy. The Board approved SMUD's inaugural wildfire mitigation plan as part of the efforts to enhance reliability across its system and SMUD joined the CAISO's Energy Imbalance Market, creating significant financial, operational and resource value for the organization. In August 2019, SMUD reopened its rehabilitated Headquarters building which attained LEED Gold certification for its environmentally sustainable design.

SMUD continued to maintain its strong bond ratings of AA by two of the three major rating agencies and exceeded the Board's policy for a minimum fixed charge coverage ratio of 1.50 times of annual budgets. SMUD issued Green Bonds for the first time to reimburse $75.0 million for the Headquarters renovation and the remaining debt was paid off for two of the thermal plants, leaving only one of five thermal plants with debt. SMUD ended the year strong with more than 140 days cash on hand and over $140.0 million in the rate stabilization funds. In addition, approximately 34.4 percent of contract dollars were awarded to small, local businesses and $15.0 million along with leadership support was pledged to establish the California Mobility Center to create a regional hub for fostering innovation in the clean transportation sector, supporting SMUD's clean transportation and sustainable communities initiatives.

In 2019, SMUD was recognized by its residential and commercial customers as the top California utility by J.D. Power, receiving our highest scores ever. SMUD received an industry community service award for several of its significant campaigns: SMUD Cares, Shine awards, Home Performance Program and Powering Futures Scholarships and was the only utility to be ranked on Forbes' 500 List of America's Best Mid-Size Employers of 2019. SMUD also received recognition for its efforts in innovations and environmental stewardship. SMUD continued its partnership with Habitat for Humanity by establishing a 2-year partnership to incentivize electrification and EV-ready homes and install rooftop solar. Building electrification programs resulted in a partnership with D.R. Horton to build more than 100 new all-electric homes. And through SMUD's Smart Homes Program SMUD received commitments from local and national homebuilders to build approximately 1,900 new all electric homes by the end of 2022. SMUD has continued to grow its Greenergy® program and is now one of the largest of its kind in the nation. 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 700 jobs.

In July 2014, FERC issued a fifty year license for the Upper American River Project (UARP) which 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. SMUD's other power generation facilities include a 3 MW of solar photovoltaic installations, a 102 MW Solano Wind Project, and five local gas-fired power plants with total capacity of approximately 1,103 MW. Also, in April 2018, SMUD exercised its option to repurchase the Solano Wind Phase 3 plant consisting of 128 MW. In addition, SMUD has entered into 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. At December 31, 2019 and 2018, the liability for these contract payments was $63.4 million and $58.8 million, respectively.

As of December 2019, SMUD's total reservoir storage in the UARP was about 53 percent of capacity, approximately 7 percent below the historical average for this date. SMUD manages its reservoirs to maximize water storage going into the summer season and thereby preserving generating capacity during SMUD's high load months. Although reservoir levels in the UARP are only slightly below historical averages, there remains the potential for wide swings in precipitation from year to year and dry conditions could return again in any year. In years with below average rainfall, SMUD may have to generate or purchase replacement energy at additional cost. 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 2019, $18.4 million was transferred into the HRSF due to above average precipitation. The balance in the HRSF at December 31, 2019 and 2018 was $82.4 million and $64.1 million, respectively.

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. Due to excess deliveries by WAPA, $10.7 million was transferred to the RSF in 2019 and deficits in deliveries in 2018 resulted in a $4.9 million transfer from the RSF in 2018. SMUD also participates in carbon allowance auctions under California Assembly Bill 32 (AB-32), the Global Warming Solutions Act. Proceeds from these auctions are recognized with related expenses. When proceeds from these auctions exceed related expenses the difference is deferred into future years. SMUD participates in the Low Carbon Fuel Standards (LCFS) program under AB-32, which is designed to reduce greenhouse gas emissions associated with the lifecycle of transportation fuels used in California. SMUD receives credits from this program which are then sold. Revenue from these sales are recognized with related expenses. When proceeds from these sales exceed related expenses the difference is deferred into future years. Excess proceeds from AB-32 auctions and LCFS credit sales are transferred into the RSF and amounted to $15.6 million and $2.3 million, respectively in 2019. At December 31, 2019 and 2018, the balance of the RSF was $61.2 million and $32.6 million, respectively.

Decommissioning

SMUD has 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 costs of decommissioning. Shipment of the previously stored Class B and Class C radioactive waste was completed in November 2014 to a low-level radioactive waste facility located in Andrews, Texas. The remaining Phase II decommissioning activities required for termination of the possession-only license commenced in 2015. In September 2017, SMUD formally requested the termination of the possession-only license and termination of the possession-only license was completed in 2018.

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. The DOE has yet to fulfill its contractual obligation to provide a permanent waste disposal site. SMUD has filed a series of successful lawsuits against the federal government for recovery of the past spent fuel costs, with recoveries to date in excess of $104.0 million. SMUD will continue to pursue cost recovery claims until the DOE fulfills its obligation.

In 2019, SMUD implemented GASB Statement of Governmental Accounting Standards (SGAS) No. 83, ***"Certain Asset Retirement Obligations"***. This standard establishes the criteria for determining the timing and pattern of recognition of a liability and a corresponding deferred outflow of resources for Asset Retirement Obligations (ARO). It also 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.

The total Accrued Decommissioning balance in the Statements of Net Position, including Rancho Seco and other ARO's, amounted to $91.7 million and $96.1 million as of December 31, 2019 and 2018, respectively.

Employee Relations and Benefits

Effective January 2018, SMUD began operating under a new four-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. Both contracts contain a no-strike/no-lockout clause effective during the life of the agreements. In 2018 the Public Safety Officers' Association gained recognition and in October 2019 SMUD began operating under an MOU for the Public Safety Officers' Association that is effective through 2022. This contract also contains a no-strike/no-lockout clause effective during the life of the agreement.

SMUD participates in the California Public Employees' Retirement System (PERS), an agent multiple-employer public employee defined benefit pension plan. SMUD reports the Net Pension Liability (NPL), which is the difference between the actuarial present value of projected pension benefit payments attributable to employees' past service and the pension plan's fiduciary net position, in its Statements of Net Position. At December 31, 2019 and 2018, the NPL was $467.6 million and $454.0 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 as of December 31, 2019 and 2018, the balance of the regulatory asset for pension amounted to $391.6 million and $408.7 million, respectively. Amortization of the regulatory asset began in 2018 over a period of 25 years. In 2019 SMUD developed a ten year funding strategy for the unfunded liability and made an additional $45.0 million in supplemental contributions to the plan as part of this strategy.

SMUD provides other postemployment 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. In 2018, SMUD implemented 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. SMUD is required to report the Net OPEB Liability (NOL), which is the difference between the actuarial present value of projected OPEB benefit payments attributable to employees' past service and the OPEB plan's fiduciary net position, in its Statements of Net Position. At December 31, 2019 and 2018, the NOL was $32.2 million and $22.1 million, respectively. SMUD elected to follow accounting for regulated operations under GASB No. 62 and recorded a regulatory asset as of December 31, 2017, in the amount of $319.3 million to account for the net effect of required prior period adjustments to recognize the NOL. Amortization of the regulatory asset will begin in 2020 over a period of 25 years.

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 include policies on cyber security, regulations related to transmission access, the North American Electric Reliability Corporation reliability standards, anti-market manipulation rules, and GHG emissions. Legislation at the state level includes bills that provide for GHG standards and greater investment in energy efficiency, mandate rooftop solar, renewable portfolio standards, wildfire mitigation and ongoing regulatory proceedings related to Sacramento - San Joaquin River Bay - Delta processes.

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, debt issuance costs, pension costs, and OPEB costs. As of December 31, 2019 and 2018, total regulatory assets were $766.8 million and $809.8 million, respectively. SMUD also has regulatory credits that cover costs related to contributions in aid of construction, the RSF and HRSF, EAPR reserves, SB-1, grant revenues, and Transmission Agency of Northern California operations costs. As of December 31, 2019 and 2018, total regulatory credits were $489.5 million and $442.7 million, respectively.

FINANCIAL POSITION

CONDENSED STATEMENTS OF NET POSITION

	2019	December 31, 2018 (restated)*	2017*
		(millions of dollars)	
Assets			
Electric Utility Plant - net	$ 3,626	$ 3,517	$ 3,354
Restricted and Designated Assets	173	120	121
Current Assets	977	960	1,200
Noncurrent Assets	1,562	1,620	1,205
Total Assets	6,338	6,217	5,880
Deferred Outflows of Resources	238	229	291
Total Assets and Deferred Outflows of Resources	$ 6,576	$ 6,446	$ 6,171
Liabilities			
Long-Term Debt - net	$ 2,944	$ 2,639	$ 2,342
Current Liabilities	491	766	607
Noncurrent Liabilities	731	730	996
Total Liabilities	4,166	4,135	3,945
Deferred Inflows of Resources	606	586	714
Net Position			
Net Investment in Capital Assets	1,285	1,271	1,011
Restricted	87	91	59
Unrestricted	432	363	442
Total Net Position	1,804	1,725	1,512
Total Liabilities, Deferred Inflows of Resources, and Net Position	$ 6,576	$ 6,446	$ 6,171

*See Note 3 of the financial statements for discussion on the restatement of the December 31, 2018 Statement of Net Position. 2017 data was not restated.

ASSETS AND DEFERRED OUTFLOWS OF RESOURCES

Electric Utility Plant - net

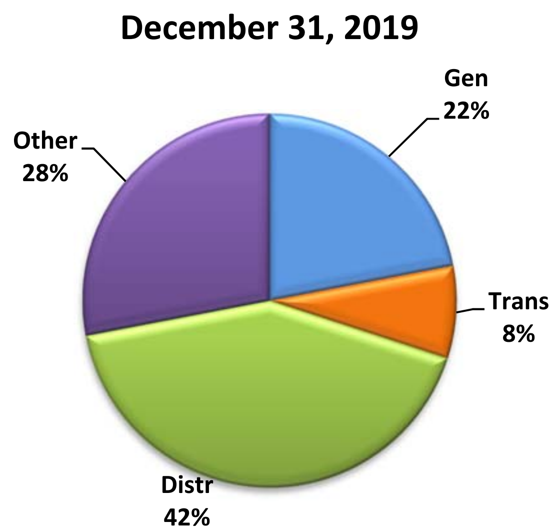
2019 compared to 2018

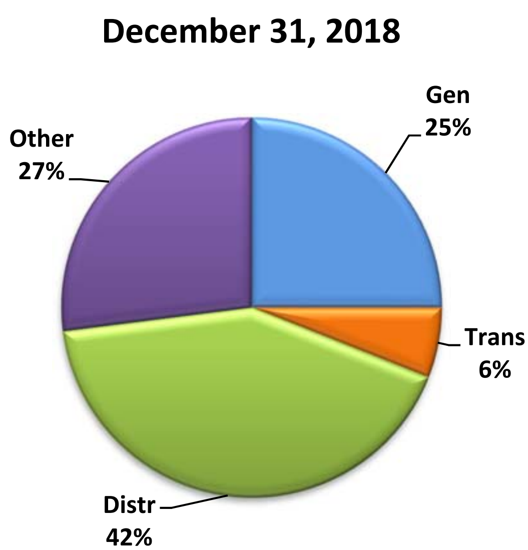
As of December 31, 2019, SMUD has invested approximately $3,625.9 million in electric utility plant assets and construction work in progress (CWIP) net of accumulated depreciation. Electric Utility Plant - net makes up about 55 percent of SMUD's Total Assets and Deferred Outflows of Resources, which is unchanged compared to 2018. In 2019, SMUD capitalized approximately $420.4 million of additions to electric utility plant in the Statements of Net Position. The additions were primarily due to the renovation of the Headquarters building, distribution line work, purchases related to the replacement of bulk substations, investments in software and hardware and major overhauls in the Joint Power Authorities (JPAs). These additions were offset by the divestment of the Rosa gas reserves, retirement of distribution assets, fleet equipment and communication equipment.

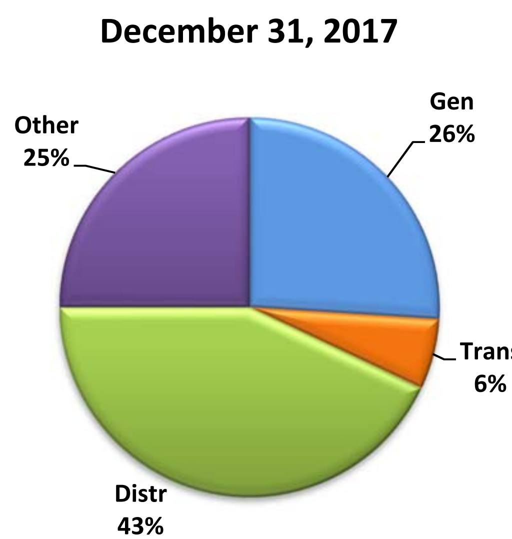
2018 compared to 2017

As of December 31, 2018, SMUD has invested approximately $3,516.0 million in electric utility plant assets and construction work in progress (CWIP) net of accumulated depreciation. Electric Utility Plant - net makes up about 55 percent of SMUD's Total Assets and Deferred Outflows of Resources, which is similar to 2017. In 2018, SMUD capitalized approximately $237.7 million of additions to electric utility plant in the Statements of Net Position. The additions were primarily due to distribution line work, major overhauls in the Joint Power Authorities (JPAs), investments in software and hardware and purchases related to the replacement of bulk substations. These additions were offset by the retirement of communication equipment, distribution assets, fleet equipment, software and hardware equipment, and JPA assets.

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

2019 compared to 2018

SMUD's restricted and designated assets are comprised of debt service reserves, nuclear decommissioning trust funds, rate stabilization fund, and other third party agreements or Board actions, less the current portion. These assets increased $53.0 million during 2019. The increase was due to transfers of $47.0 million to the RSF (including the HRSF), as a result of above average precipitation, higher energy deliveries from WAPA and excess AB-32 auction and LCFS credit sales. In addition, there was an increase of third party agreements of $16.4 million, offset by a decrease of $10.6 million in revenue bond, debt service and construction reserves and the current portion.

2018 compared to 2017

SMUD's restricted and designated assets are comprised of debt service reserves, nuclear decommissioning trust funds, rate stabilization fund, and other third party agreements or Board actions, less the current portion. These assets decreased $1.0 million during 2018. The decrease was due to an increase of $31.5 million in the current portion, offset by an increase of $30.2 million in revenue bond, debt service and construction reserves.

Current Assets

2019 compared to 2018

Total current assets increased $16.8 million in 2019. Unrestricted cash and cash equivalents increased $44.3 million, regulatory costs to be recovered within one year increased by $12.8 million, and prepayments and other increased by $7.7 million. These increases were offset by a decrease of restricted and designated cash and cash equivalents of $27.6 million and prepaid gas of $22.2 million.

2018 compared to 2017

Total current assets decreased $239.8 million in 2018. Restricted and designated cash and cash equivalents decreased $157.8 million. Prepayments and other decreased by $129.0 million mainly due to the repurchase of the Solano Wind Phase 3 plant in April 2018. These decreases were offset by a total increase of restricted and designated investments, wholesale and other receivables, inventories, and prepaid gas of $62.0 million.

Noncurrent Assets

2019 compared to 2018

Total noncurrent assets decreased $58.8 million. Regulatory costs for future recovery decreased by $43.0 million and prepayments and other decreased by $14.6 million.

2018 compared to 2017

Total noncurrent assets increased $416.0 million. Prepaid gas increased by $498.8 million mainly due to a new prepaid gas contract. Regulatory costs for future recovery decreased by $83.7 million partially due to implementation of GASB No. 83 which reduced the decommissioning regulatory asset.

Deferred Outflows of Resources

2019 compared to 2018

Total deferred outflows of resources decreased by $9.4 million due to an increase in deferred pension and OPEB outflows of $14.2 million offset by a decrease in unamortized bond losses of $4.2 million.

2018 compared to 2017

Total deferred outflows of resources decreased by $64.1 million due to a decrease in deferred pension outflows of $40.0 million and a decrease in the value of hedging derivative instruments and amortization of bond losses of $27.4 million.

LIABILITIES AND DEFERRED INFLOWS OF RESOURCES

Long-Term Debt - net

2019 compared to 2018

In July 2019, SMUD issued $191.9 million of 2019 Series G Revenue Bonds, $100.0 million of 2019 Series A Subordinated Revenue Bonds, and $100.0 million of 2019 Series B Subordinated Revenue Bonds. The 2019 Series G Bonds have a fixed coupon rate of 2.375 percent to 5.0 percent and amortize from 2029 to 2041. The 2019 Series A Bonds have a fixed interest coupon rate of 5.0 percent, amortized from 2041 to 2049, with a mandatory remarketing purchase in April 2023. The 2019 Series B Bonds have a fixed coupon interest rate of 5.0 percent, amortized from 2041 to 2049, with a mandatory remarketing purchase in April 2025. Proceeds from 2019 Series G Bonds, the 2019 Series A Bonds and the 2019 Series B Bonds were used to refund outstanding commercial paper.

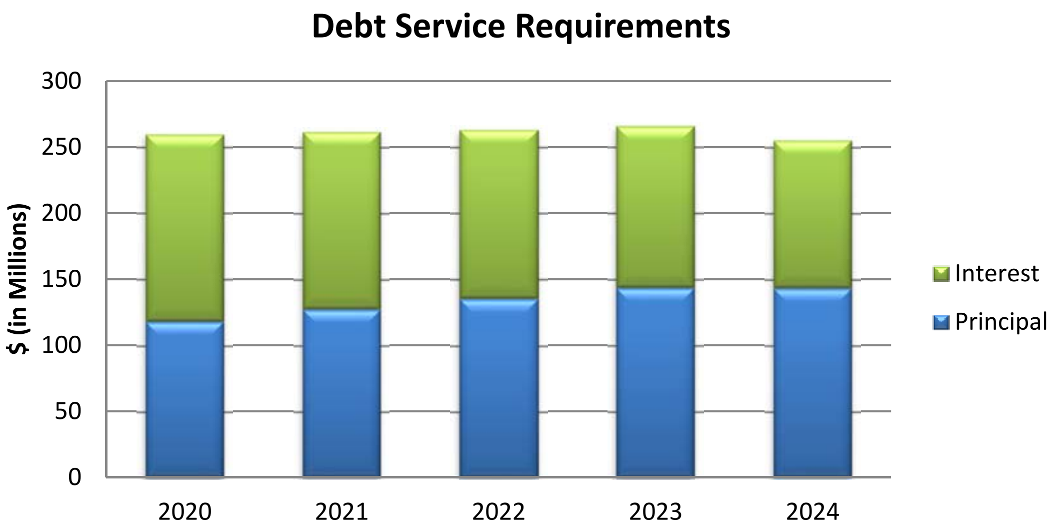
In September 2019, CVFA defeased $5.4 million of 2009 Series Bonds maturing on July 2020, along with the accrued interest using CVFA's available funds. The corresponding amount was placed in an irrevocable trust which has a balance of $5.6 million at December 31, 2019. In addition, SCA defeased $12.9 million of 2009 Series Bonds maturing July 2020 and July 2021, along with the accrued interest using SCA's available funds and $7.9 million from SMUD. The corresponding amount was placed in an irrevocable trust which has a balance of $13.7 million as of December 31, 2019. The defeasances resulted in a current accounting loss of $0.8 million which is included in Interest on Debt in the Statements of Revenues, Expenses, and Changes in Net Position.

2018 compared to 2017

In July 2018, SMUD issued $165.5 million of 2018 Series F Revenue Refunding Bonds. The purpose of this transaction was to refund the fixed rate debt associated with 2008 Series U Bonds. Proceeds from the 2018 Series F Bonds, in addition to $7.5 million of proceeds from terminating the Wells Fargo and Bank of America variable-to-fixed interest rate swaps and $5.0 million from funds on hand defeased all the outstanding Series 2008 U Bonds, totaling $204.2 million. Bonds were defeased through a legal defeasance, and accordingly, the liability for the defeased bonds has been removed from Long-Term Debt - net in the Statements of Net Position. The refunding resulted in the recognition of a deferred accounting gain of $0.2 million, which is being amortized over the life of the refunding issue. The termination payments of the interest rate swaps are being amortized over the life of the refunding issue. The 2018 refunding reduced future aggregate debt service payments by $42.6 million and resulted in a total economic gain of $39.1 million, which is the difference between the present value of the old and new debt service payments.

NCEA issued $539.6 million of 2018 Commodity Supply Revenue Bonds in December 2018 maturing in June 2049, with mandatory tender purchase in June 2024. The 2018 Commodity Supply Revenue Bonds have fixed interest rates of 4.0 percent to 5.0 percent. The proceeds of the offering were used to finance the prepayment of a thirty-year commodity contract. NCEA is obligated to pay the debt service on the bonds. SMUD's obligation is limited to the purchase and payment for the commodity tendered for delivery by NCEA.

The following table shows SMUD's future debt service requirements through 2024 as of December 31, 2019:



As of December 31, 2019, 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

2019 compared to 2018

Total current liabilities decreased $274.4 million during 2019. The decrease was mainly due to decreases in commercial paper, accounts payables, and long-term debt due within one year of $308.3 million, offset by an increase in interest payable, and hedging derivative instruments maturing within one year of $26.3 million.

2018 compared to 2017

Total current liabilities increased $158.4 million during 2018. The increase was mainly due to increases in commercial paper, accounts and purchased power payables, and long-term debt due within one year of $171.0 million, offset by a decrease in customer deposits of $19.5 million.

Noncurrent Liabilities

2019 compared to 2018

Total noncurrent liabilities increased $1.0 million during 2019. The increase was mainly due to a $13.6 million increase in the net pension liability and a $10.1 million increase in the net OPEB liability, offset by a decrease in investment and hedging derivative investments of $19.4 million and a decrease in accrued decommissioning of $4.5 million.

2018 compared to 2017

Total noncurrent liabilities decreased $265.5 million during 2018. The decrease was mainly due to a $111.8 million decrease in the net pension liability and a $78.8 million decrease in the net OPEB liability. Accrued decommissioning decreased by $65.9 million partially due to implementation of GASB No. 83 which changed how the decommissioning liability is measured.

Deferred Inflows of Resources

2019 compared to 2018
Total deferred inflows of resources increased $18.4 million. Regulatory credits increased by $46.8 million. This increase was offset by a decrease in deferred pension inflows of $16.8 million and OPEB inflows of $12.2 million.

2018 compared to 2017
Total deferred inflows of resources decreased $130.2 million. Financing obligation and other decreased by $201.3 million mainly due to the repurchase of the Solano Wind Phase 3 plant. This decrease was offset by an increase in deferred OPEB inflows of $50.4 million and deferred pension inflows of $29.8 million.

RESULTS OF OPERATIONS

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

	December 31,		
	2019	2018 (restated)*	2017*
		(millions of dollars)	
Operating revenues	$ 1,559	$ 1,595	$ 1,559
Operating expenses	(1,363)	(1,353)	(1,343)
Operating income	196	242	216
Other revenues/(expenses)	(19)	57	59
Interest charges	(98)	(90)	(97)
Change in net position	79	209	178
Net position - beginning of year	1,725	1,516	1,334
Net position - end of year	$ 1,804	$ 1,725	$ 1,512

*See Note 3 of the financial statements for discussion on the restatement of the December 31, 2018 Statement of Revenue, Expenses and Changes in Net Position. 2017 data was not restated.

Operating Revenues

2019 compared to 2018
Total operating revenues decreased $36.2 million in 2019. Rate stabilization transfers decreased by $50.2 million. In 2019, SMUD transferred $28.6 million to the RSF as a result of higher energy deliveries from WAPA and excess proceeds from AB-32 auctions and LCFS credit sales. SMUD also transferred $18.4 million to the HRSF as a result of above average precipitation. In 2018, $4.9 million was transferred from the RSF and $1.7 million was transferred to the HRSF.

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 2019, energy sales were lower by $15.1 million as compared to 2018 due to lower energy prices offset by higher energy sales. Surplus gas sales were higher than 2018 by $8.2 million due to higher gas prices and an increase in the volume of gas sold.

Residential, commercial and industrial revenues increased by $26.2 million compared to 2018 due to the rate increase that occurred in 2019.

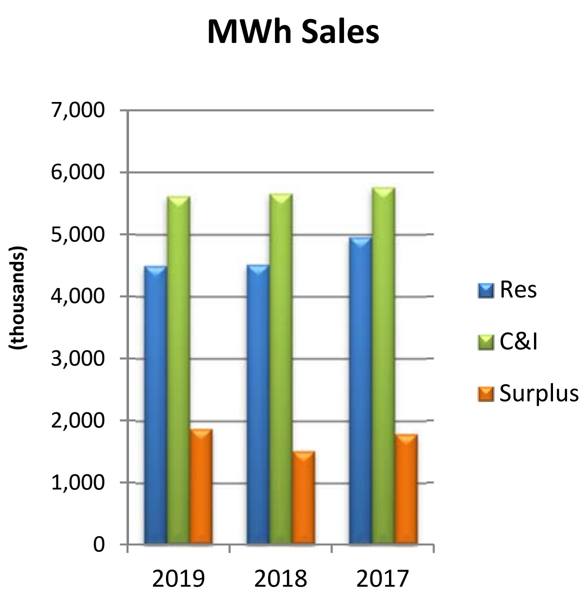
2018 compared to 2017
Total operating revenues increased $36.1 million in 2018. Rate stabilization transfers increased by $67.9 million. In 2018, SMUD transferred $4.9 million from the RSF, while $1.7 million was transferred to the HRSF. In 2017, $52.4 million was transferred to the HRSF and $12.3 million was transferred to the RSF.

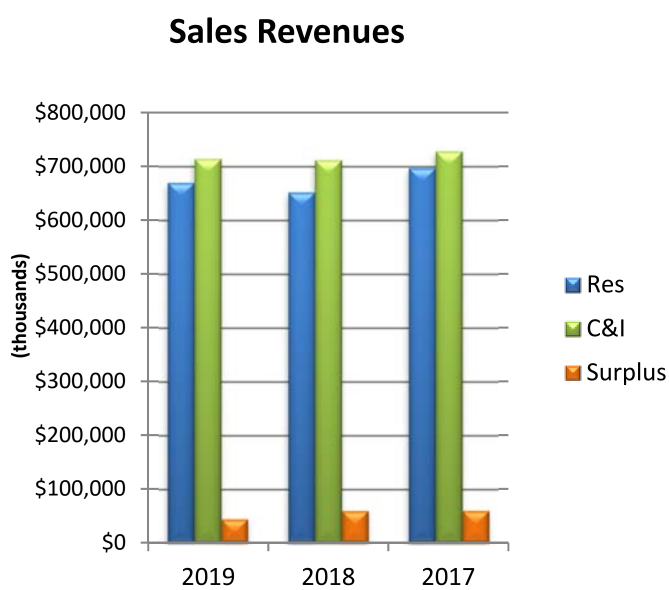
Wholesale revenues are comprised of both surplus gas and energy sales which are part of the operational strategy in managing fuel and energy costs. In 2018, surplus gas sales were higher than 2017 by $8.4 million due to higher gas prices and an increase in the volume of gas sold. Energy sales were slightly lower in 2018 by $0.2 million as compared to 2017 due to higher prices and lower energy sales.

Senate Bill - 1 and public good deferral revenue increased by $16.4 million due to funds being spent on solar initiatives and energy efficiency programs for EAPR customers.

These increases to operating revenues were offset by a decrease in retail sales of $63.1 million due to lower demand.

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:



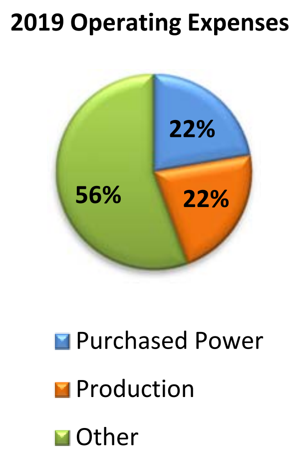


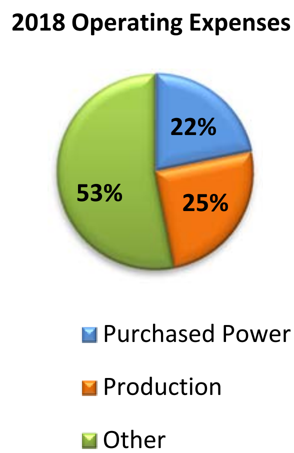
Operating Expenses

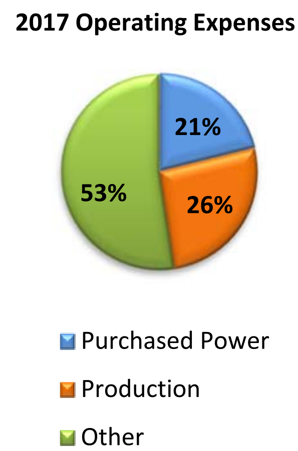
2019 compared to 2018
Total operating expenses increased $10.0 million compared to 2018. Administrative, general and customer and maintenance expenses increased by $32.6 million. These expenses were offset by decreases of purchased power, production and transmission and distribution expenses of $24.1 million mainly due to lower fuel costs.

2018 compared to 2017
Total operating expenses increased $10.0 million compared to 2017. Regulatory deferrals collected in rates increased by $10.6 million mainly due to the amortization of the regulatory asset for pension costs related to implementation of GASB No. 68.

The following charts show the breakdown of operating expenses:







Other Revenues

2019 compared to 2018
Total other revenues were $77.0 million lower in 2019. The decrease in other revenue as compared to 2018 is due to the divestment of SMUD's interest in the Rosa gas properties resulting in a loss of $52.1 million. Additionally, in 2018 other revenue included a gain of $46.7 million from the repurchase of the Solano Wind Phase 3 plant. These decreases in other revenue were offset by lower arbitration payments of $17.0 million.

2018 compared to 2017
Total other revenues were $1.2 million lower in 2018. In 2018, an arbitration award was paid in the amount of $17.8 million, whereas in 2017, $27.1 million was received from the Rancho Seco judgement. Other revenue included a gain of $46.7 million from the repurchase of the Solano Wind Phase 3 plant. In addition, net fee-based expense increased by $8.2 million, offset by lower investment expense of $8.0 million.

SACRAMENTO MUNICIPAL UTILITY DISTRICT
STATEMENTS OF NET POSITION

	December 31, 2019	December 31, 2018 (restated)
	(thousands of dollars)	
ASSETS		
ELECTRIC UTILITY PLANT		
Plant in service	$ 6,227,374	$ 6,027,201
Less accumulated depreciation and depletion	(2,955,316)	(2,939,377)
Plant in service - net	3,272,058	3,087,824
Construction work in progress	353,802	428,249
Total electric utility plant - net	3,625,860	3,516,073
RESTRICTED AND DESIGNATED ASSETS		
Revenue bond and debt service reserves	116,527	123,509
Nuclear decommissioning trust fund	8,798	8,566
Rate stabilization fund	143,669	96,694
Other funds	29,953	13,533
Less current portion	(125,870)	(122,210)
Total restricted and designated assets	173,077	120,092
CURRENT ASSETS		
Unrestricted cash and cash equivalents	255,578	211,252
Unrestricted investments	195,435	183,983
Restricted and designated cash and cash equivalents	41,717	38,003
Restricted and designated investments	84,153	84,207
Receivables - net:		
Retail customers	152,264	157,436
Wholesale and other	44,271	48,368
Regulatory costs to be recovered within one year	37,622	24,803
Investment derivative instruments maturing within one year	488	20
Hedging derivative instruments maturing within one year	8,732	4,524
Inventories	71,719	68,969
Prepaid gas to be delivered within one year	20,866	43,062
Prepayments and other	20,453	12,762
Total current assets	933,298	877,389
NONCURRENT ASSETS		
Unrestricted investments	43,962	83,044
Regulatory costs for future recovery	766,808	809,810
Prepaid gas	715,772	721,186
Prepaid power and capacity	795	1,003
Hedging derivative instruments	7,986	10,480
Energy efficiency loans - net	23,262	23,867
Credit support collateral deposits	4,400	5,900
Due from affiliated entity	28,858	25,311
Prepayments and other	13,703	22,856
Total noncurrent assets	1,605,546	1,703,457
TOTAL ASSETS	6,337,781	6,217,011
DEFERRED OUTFLOWS OF RESOURCES		
Accumulated decrease in fair value of hedging derivatives	85,194	85,769
Deferred pension outflows	105,868	103,031
Deferred other postemployment benefits outflows	26,658	15,330
Deferred asset retirement obligations outflows	1,956	2,105
Unamortized bond losses	18,802	22,997
TOTAL DEFERRED OUTFLOWS OF RESOURCES	238,478	229,232
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	$ 6,576,259	$ 6,446,243

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

SACRAMENTO MUNICIPAL UTILITY DISTRICT
STATEMENTS OF NET POSITION

	December 31, 2019	December 31, 2018 (restated)
	(thousands of dollars)	
LIABILITIES		
LONG-TERM DEBT - net	$ 2,943,795	$ 2,638,732
CURRENT LIABILITIES		
Commercial paper notes	50,000	288,750
Accounts payable	103,829	146,803
Purchased power payable	26,997	27,408
Credit support collateral obligation	3,235	2,488
Long-term debt due within one year	118,305	144,885
Accrued decommissioning	5,649	5,562
Interest payable	49,832	35,803
Accrued salaries and compensated absences	45,403	42,960
Investment derivative instruments maturing within one year	2,235	1,743
Hedging derivative instruments maturing within one year	41,374	29,085
Customer deposits and other	44,379	40,179
Total current liabilities	491,238	765,666
NONCURRENT LIABILITIES		
Net pension liability	467,647	454,044
Net other postemployment benefits liability	32,211	22,066
Accrued decommissioning	86,054	90,570
Investment derivative instruments	8,769	15,328
Hedging derivative instruments	43,820	56,684
Self insurance and other	92,304	91,292
Total noncurrent liabilities	730,805	729,984
TOTAL LIABILITIES	4,165,838	4,134,382
DEFERRED INFLOWS OF RESOURCES		
Accumulated increase in fair value of hedging derivatives	16,718	15,004
Regulatory credits	489,486	442,718
Deferred pension inflows	45,996	62,766
Deferred other postemployment benefits inflows	42,859	55,024
Unamortized bond gains	7,516	8,649
Unearned revenue	3,569	2,338
TOTAL DEFERRED INFLOWS OF RESOURCES	606,144	586,499
NET POSITION		
Net investment in capital assets	1,284,694	1,271,017
Restricted:		
Revenue bond and debt service	60,744	80,193
Other funds	26,828	11,155
Unrestricted	432,011	362,997
TOTAL NET POSITION	1,804,277	1,725,362
COMMITMENTS, CLAIMS AND CONTINGENCIES (Notes 17 and 18)		
TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION	$ 6,576,259	$ 6,446,243

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

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

	Year Ended December 31, 2019	Year Ended December 31, 2018 (restated)
	(thousands of dollars)	
OPERATING REVENUES		
Residential	$ 666,477	$ 642,789
Commercial and industrial	714,001	711,484
Street lighting and other	43,321	49,081
Wholesale	145,915	152,793
Senate Bill - 1 revenue deferral	2,765	2,754
AB-32 revenue	26,936	29,810
LCFS revenue	3,825	-0-
Public good deferral	2,959	3,540
Rate stabilization fund transfers	(46,975)	3,204
Total operating revenues	1,559,224	1,595,455
OPERATING EXPENSES		
Operations:		
Purchased power	303,566	294,116
Production	296,612	333,024
Transmission and distribution	86,230	83,326
Administrative, general and customer	257,464	237,511
Public good	63,572	55,269
Maintenance	135,420	122,787
Depreciation	189,469	196,845
Depletion	4,103	7,041
Regulatory amounts collected in rates	26,389	22,894
Total operating expenses	1,362,825	1,352,813
OPERATING INCOME	196,399	242,642
NON-OPERATING REVENUES AND EXPENSES		
Other revenues and (expenses):		
Interest income	16,639	14,945
Investment expense	(3,700)	(1,542)
Other income (expense) - net	(32,573)	43,926
Total other revenues and (expenses)	(19,634)	57,329
Interest charges:		
Interest on debt	104,960	94,902
Allowance for funds used during construction	(7,110)	(4,624)
Total interest charges	97,850	90,278
Total non-operating revenues and (expenses)	(117,484)	(32,949)
CHANGE IN NET POSITION	78,915	209,693
NET POSITION - BEGINNING OF YEAR	1,725,362	1,515,669
NET POSITION - END OF YEAR	$ 1,804,277	$ 1,725,362

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

SACRAMENTO MUNICIPAL UTILITY DISTRICT
STATEMENTS OF CASH FLOWS

	Year Ended December 31, 2019	2018
	(thousands of dollars)	
CASH FLOWS FROM OPERATING ACTIVITIES		
Receipts from customers	$ 1,423,897	$ 1,403,217
Receipts from surplus power sales	42,809	59,732
Receipts from surplus gas sales	110,407	86,157
Receipts from steam sales	5,905	4,317
Other receipts	24,866	29,104
Receipts (payments) for credit support collateral	647	(5,276)
(Issuance) repayment of energy efficiency loans to customers - net	887	(1,980)
Payments to employees - payroll and other	(366,815)	(358,591)
Payments for wholesale power	(308,987)	(286,577)
Payments for gas purchases	(167,218)	(155,087)
Payments to vendors/others	(345,286)	(369,049)
Payments for decommissioning	(5,179)	(5,448)
Net cash provided by operating activities	415,933	400,519
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES		
Proceeds from bond issuance, net of premium	-0-	567,063
Repayment of debt	(34,560)	(31,305)
Prepaid gas supply expenditures	-0-	(541,900)
Receipts from federal and state grants	10,333	16,714
Interest on debt	(21,223)	(10,953)
Net cash used in noncapital financing activities	(45,450)	(381)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Construction expenditures	(330,412)	(341,047)
Proceeds from land sales	878	113
Payments for gas fields divestment	(8,521)	-0-
Contributions in aid of construction	15,959	16,927
Net proceeds from bond issues	475,623	199,285
Repayments and refundings of debt	(128,685)	(421,434)
Issuance of commercial paper	161,250	88,750
Repayments of commercial paper	(400,000)	-0-
Interest on debt	(99,822)	(99,795)
Net cash used in capital and related financing activities	(313,730)	(557,201)
CASH FLOWS FROM INVESTING ACTIVITIES		
Sales and maturities of securities	686,547	263,745
Purchases of securities	(703,118)	(141,413)
Interest and dividends received	16,105	15,107
Investment revenue/expenses - net	(3,682)	(1,560)
Net cash provided by (used in) investing activities	(4,148)	135,879
Net increase (decrease) in cash and cash equivalents	52,605	(21,184)
Cash and cash equivalents at the beginning of the year	255,503	276,687
Cash and cash equivalents at the end of the year	$ 308,108	$ 255,503
Cash and cash equivalents included in:		
Unrestricted cash and cash equivalents	$ 255,578	$ 211,252
Restricted and designated cash and cash equivalents	41,717	38,003
Restricted and designated assets (a component of the total of $173,077 and $120,092 at December 31, 2019 and 2018, respectively)	10,813	6,248
Cash and cash equivalents at the end of the year	$ 308,108	$ 255,503

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

SACRAMENTO MUNICIPAL UTILITY DISTRICT
SUPPLEMENTAL CASH FLOW INFORMATION

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

	Year Ended December 31, 2019	2018 (restated)
	(thousands of dollars)	
Operating income	$ 196,399	242,642
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation	189,469	196,845
Depletion	4,103	7,041
Regulatory amortization	26,389	22,894
Amortization of advance capacity and other	3,264	1,693
Amortization of prepaid gas supply	27,610	34,587
Amortization of deferred inflows for asset retirement obligation	300	273
Amortizaton of deferred inflows for unearned revenue	(64)	-0-
Revenue deferred to (recognized from) regulatory credits - net	41,251	(9,498)
Other (receipts) payments - net	(6,729)	(20,014)
Changes in operating assets, deferred outflows, liabilities and deferred inflows:		
Receivables - retail customers, wholesale and other	14,211	(11,838)
Inventories, prepayments and other	(7,852)	-0-
Credit support collateral deposits	1,500	(10,964)
Deferred pension outflows	(2,837)	(4,400)
Deferred other postemployment benefits outflows	(11,328)	40,003
Payables and accruals	(51,429)	(3,393)
Credit support collateral obligation	747	31,291
Decommissioning	(5,179)	(876)
Net pension liability	13,603	(5,448)
Net other postemployment benefits liability	10,145	(111,756)
Deferred pension inflows	(16,770)	(78,800)
Deferred other postemployment benefits inflows	(12,165)	29,845
Deferred unearned revenue	1,295	50,392
Net cash provided by operating activities	$ 415,933	$ 400,519

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

	Year Ended December 31, 2019	2018 (restated)
	(thousands of dollars)	
Amortization of debt related (expenses) and premiums - net	$ 30,797	$ 18,602
(Loss) Gain on debt extinguishment and refundings	(731)	236
Unrealized holding gain (loss)	4,165	(186)
Change in valuation of derivative financial instruments	8,824	11,131
Amortization of revenue for assets contributed in aid of construction	16,904	16,531
Allowance for funds used during construction	7,110	4,624
Construction expenditures included in accounts payable	81,902	69,639
Gain on repurchase of Solano Wind Phase 3 plant	-0-	46,712
Losses on asset retirements - net	(3)	(15,817)
Loss on gas fields divestment	(43,609)	-0-
(Loss) gain on sale of land	(618)	85
Loss on sale of vehicles	(224)	-0-
Write-off inventory	-0-	(552)
Write-off capital projects and preliminary surveys	(13,614)	(862)

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

Sacramento Municipal Utility District
Notes to Financial Statements
As of and for the Years Ended December 31, 2019 and 2018

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

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.

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 its service territory. 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 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 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 (U.S.) 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 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), the Northern California Gas Authority No. 1 (NCGA), and the Northern California Energy Authority (NCEA). 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 to sell the natural gas to SMUD. The primary purpose of NCEA is to prepay for commodities in the form of natural gas and electricity and to sell the commodities 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 five 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 Electric Utility Plant, retirements are recorded against Accumulated Depreciation and the retired portion of Electric 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 average annual composite depreciation rates for 2019 and 2018 were 3.1 percent and 3.4 percent, respectively. Depreciation is calculated using the following estimated lives:

Generation	8 to 80 years
Transmission and Distribution	7 to 50 years
Gas Pipeline	15 to 90 years
General	5 to 90 years

Investment in Joint Powers Authority (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 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 Statements of Revenues, Expenses and Changes in Net Position (see Note 5).

Investment in Gas Properties. In 2018, SMUD had 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 used 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 were capitalized as a component of Plant in Service in the 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 were expensed. SMUD had purchased proven reserves and had not participated in exploratory drilling. Capitalized costs of producing gas properties, after considering estimated residual salvage values, were 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 was reported as a component of Plant in Service. In 2019, SMUD sold the Rosa Unit gas properties. The loss on sale was $52.1 million and included as Other Income – Net in the Statements of Revenues, Expenses and Changes in Net Position.

Restricted and Designated Assets. Cash, cash equivalents, and investments, which are restricted by regulation or under terms of certain agreements for payments to third parties are included as restricted assets. Restricted assets include Revenue bond and debt service reserves, Nuclear decommissioning trust fund, and $29.3 million and $12.9 million of Other funds as of December 31, 2019 and 2018, respectively. Board actions limiting the use of such funds are included as designated assets. Designated assets include the Rate Stabilization fund and $0.6 million of Other funds as of December 31, 2019 and 2018. When SMUD restricts or designates funds for a specific purpose, and restricted and designated and unrestricted resources are available for use, it is SMUD's policy to use restricted and designated 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.

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. Interest earnings on the Trust Fund assets are recorded as Interest Income and are accumulated in the Trust Fund.

Asset Retirement Obligations (ARO). SMUD implemented Statement of Governmental Accounting Standards (SGAS) No. 83, ***"Certain Asset Retirement Obligations"*** in 2019 (see Note 3). SMUD records asset retirement obligations (ARO) for tangible capital assets when an obligation to decommission facilities is legally required. SMUD recognizes AROs for its Rancho Seco nuclear power plant and for the CVFA power plant facility (see Note 13). The Rancho Seco ARO is recorded as Accrued Decommissioning and the unfunded portion of the ARO is recorded as current and noncurrent Regulatory Costs for Future Recovery (see Note 8) in the Statements of Net Position. Other AROs are recorded as Accrued Decommissioning and a corresponding Deferred Asset Retirement Obligation Outflows in the Statements of Net Position.

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. GASB No. 83 requires the measurement of the ARO to be based on the probability weighting of potential outcomes. Due to the low probability that these leases will be terminated, a liability has not been recorded.

Cash and Cash Equivalents. Cash and cash equivalents include all debt instruments purchased with an original maturity of 90 days or less, deposits held at financial institutions, all investments in the Local Agency Investment Fund (LAIF), and money market 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.

Investments. SMUD's investments are reported at fair value in accordance with SGAS No. 72, ***"Fair Value Measurement and Application"*** (see Note 12). Realized and unrealized gains and losses are included in Other Income - net in the 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, 2019 and 2018, unbilled revenues were $69.4 million for each year.

Purchased Power Expenses. A portion of SMUD's power needs are provided through power purchase agreements (PPA). Expenses from such agreements, along with associated transmission costs paid to other utilities, are charged to Purchased Power expense in the 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 payments. 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 units, NCGA and NCEA, entered into guaranteed investment contracts and are exposed to credit risk related to nonperformance by its investment provider. For NCGA, the investment provider provides collateral if their credit ratings fall below agreed upon levels. SMUD holds deposits by counterparties and an investment provider and records the amounts as Credit Support Collateral Obligation in the Statements of Net Position.

Collateral deposits that SMUD has with counterparties are recorded as Credit Support Collateral Deposits in the Statements of Net Position.

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 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 Statements of Revenues, Expenses and Changes in Net Position.

The summarized activity of the changes in the allowance for doubtful accounts during 2019 and 2018 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, 2019	$ 1,509	$ 2,188	$ (907)	$ 2,790
December 31, 2018	$ 1,524	$ 779	$ (794)	$ 1,509
Retail Customers:				
December 31, 2019	$ 6,005	$ 3,137	$ (6,098)	$ 3,044
December 31, 2018	$ 3,172	$ 8,916	$ (6,083)	$ 6,005
Energy Efficiency Loans:				
December 31, 2019	$ 637	$ (483)	$ 526	$ 680
December 31, 2018	$ 677	$ (444)	$ 404	$ 637

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 Financial Accounting Standards Board (FASB) and American Institute of Certified Public Accountants Pronouncements,"*** which requires that the effects of the ratemaking 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 ratemaking 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. Compensated absences are recorded as Accrued Salaries and Compensated Absences in the Statements of Net Position. At December 31, 2019 and 2018, the total estimated liability for vacation and other compensated absences was $27.7 million and $27.2 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 in the Statements of Net Position and amortized as a component of Interest on Debt in the 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 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 2019 and 2018 was 2.4 percent and 2.3 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 in its 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 in the 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 natural gas-fueled power plants and for energy prices on purchased power for SMUD's retail load (see Note 9).

Solano Wind Sale and Purchase. SMUD entered into an agreement to sell the Solano Wind Phase 3 plant in December 2011 with a corresponding PPA for all output of the plant. The plant began commercial operation in April 2012 and SMUD received all output generated. Under the terms of the various agreements, SMUD had 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. In October 2017, SMUD submitted its notice of intent to exercise this option upon the sixth anniversary of commercial operation. In April 2018, SMUD purchased the plant back and recorded the gain on purchase of $46.7 million as Other Income – Net in the Statements of Revenues, Expenses and Changes in Net Position.

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 as Prepayments and Other under Current Assets in the 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, for the former Community Linen Rental Services Property, and obligations for several land sites, including one where it will be building a substation (see Note 18). At December 31, 2019 and 2018, the total pollution remediation liability was $17.8 million and $17.3 million, respectively, and recorded as either Current Liabilities, Customer Deposits and Other or Noncurrent Liabilities, Self Insurance and Other in the 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. Effective July 1, 2014, SMUD received a 50-year hydro license. 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, 2019 and 2018, the liability for these contract payments was $63.4 million and $58.8 million, respectively, and recorded as either Current Liabilities, Customer Deposits and Other or Noncurrent Liabilities, Self Insurance and Other in the Statements of Net Position (see Note 17).

Assembly Bill 32. California Assembly Bill (AB) 32 was an effort by the State of California to set a greenhouse gas (GHG) emissions reduction goal into law, and initially was set through 2020. In 2015, the state established a 2030 goal for GHG emissions at 40 percent below 1990 levels, and in July of 2017 AB-398 was approved by the Governor. Central to these initiatives is the Cap and Trade program, which covers major sources of GHG emissions in the State including power plants. AB-398 extended Cap and Trade through 2030. The Cap and Trade program includes an enforceable emissions cap that will decline over time. The State distributes allowances, which are tradable permits, equal to the emissions allowed under the cap. Sources under the cap are required 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 2018 and 2019. In a normal water year, SMUD expects its free allocation of allowances from the California Air Resources Board (CARB) 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 continues to monitor new legislation and proposed programs that could impact AB-32 and its subsequent extensions.

In addition, Low Carbon Fuel Standards (LCFS) was enacted through AB-32. The CARB is responsible for the adoption and implementation of LCFS and has established a program for LCFS credits. The LCFS program is designed to reduce greenhouse gas emissions associated with the lifecycle of transportation fuels used in California. SMUD participates in the program and receives LCFS credits from CARB. The LCFS credits are sold to parties that have a compliance obligation. CARB requires that LCFS credit sales proceeds be spent in a way to benefit current or future Electric Vehicle drivers in California, for both commercial and residential vehicles.

Net Pension Liability (NPL). The NPL is the difference between the actuarial present value of projected pension benefit payments attributable to employees' past service and the pension plan's fiduciary net position (see Note 14).

Net Other Postemployment Benefit (OPEB) Liability (NOL). SMUD implemented SGAS No. 75, ***"Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions,"*** (GASB No. 75) in 2018. The NOL is the difference between the actuarial present value of projected OPEB benefit payments attributable to employee's past service and the OPEB plan's fiduciary net position (see Note 15).

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 Statements of Revenues, Expenses and Changes in Net Position. Contributions of capital are valued at acquisition value. For ratemaking 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 in the Statements of Revenues, Expenses and Changes in Net Position.

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 natural disasters, such as storm or fire 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 2019, SMUD recorded $0.4 million of grant proceeds and recognized $0.4 million as a component of Other Income - net in the Statements of Revenues, Expenses and Changes in Net Position, and $9.4 thousand as a Regulatory Credit. During 2018, SMUD recorded $4.6 million of grant proceeds and recognized $3.5 million as a component of Other Income - net in the Statements of Revenues, Expenses and Changes in Net Position, and $1.2 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 2019 and 2018 due to budget sequestration by the federal government. SMUD recognized $9.2 million in revenues in both 2019 and 2018 for its Build America Bonds, as a component of Other Income - net, in the 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 Statements of Revenues, Expenses and Changes in Net Position.

Subsequent Events. Subsequent events for SMUD have been evaluated through February 21, 2020, which is the date that the financial statements were available to be issued.

Reclassifications. Certain amounts in the 2018 Financial Statements have been reclassified in order to conform to the 2019 presentation.

Recent Accounting Pronouncements. In January 2017, GASB issued SGAS No. 84, ***"Fiduciary Activities"*** (GASB No. 84). This statement establishes standards of accounting and financial reporting for fiduciary activities. GASB No. 84 establishes criteria for identifying fiduciary activities of all state and local governments. The focus of the criteria generally is on (1) whether a government is controlling the assets of the fiduciary activity and (2) the beneficiaries with whom a fiduciary relationship exists. An activity meeting the criteria should be reported in a fiduciary fund in the basic financial statements. Governments with activities meeting the criteria should present a statement of fiduciary net position and a statement of changes in fiduciary net position. The statement of fiduciary net position reports the assets, deferred outflows of resources, liabilities, deferred inflows of resources, and fiduciary net position of the fiduciary activities. The statement of changes in fiduciary net position reports the additions to and deductions from the fiduciary fund(s). This statement also provides for the recognition of a liability to the beneficiaries in a fiduciary fund when an event has occurred that compels the government to disburse fiduciary resources. This statement is effective for SMUD in 2019. SMUD has assessed the financial statement impact of adopting the new statement, and SMUD has no fiduciary activities to report.

In June 2017, GASB issued SGAS No. 87, ***"Leases"*** (GASB No. 87). The objective of this statement is to better meet the information needs of financial statement users by improving accounting and financial reporting for leases by governments. GASB No. 87 requires recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. It establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under GASB No. 87, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources. The lease liability should be measured at the present value of payments expected to be made during the lease term. As payments are made the lease liability is reduced and an outflow of resources (interest expense) is recognized for the interest on the liability. The lease asset should be amortized in a systematic and rational manner over the shorter of the lease term or the useful life of the underlying asset. The lease receivable should be measured at the present value of the lease payments expected to be received during the lease term. Any payments received are first allocated to accrued interest receivable and then to lease receivable. The deferred inflow of resources should be recognized as inflows of resources (revenue) in a systematic and rational manner over the term of the lease. The lessor should not derecognize the asset underlying the lease. A lease is defined as a contract that conveys control of the right to use another entity's nonfinancial asset (the underlying asset) as specified in the contract for a period of time in an exchange or exchange-like transaction. Examples of nonfinancial assets include buildings, land, vehicles, and equipment. Any contract that meets this definition should be accounted for under the leases guidance, unless specifically excluded in this statement. The lease term is defined as the period during which a lessee has a noncancellable right to use an underlying asset, plus the following periods, if applicable. A short-term lease is defined as a lease that, at the commencement of the lease term, has a maximum possible term under the lease contract of 12 months (or less), including any options to extend, regardless of their probability of being exercised. Lessees and lessors should recognize short-term lease payments as outflows of resources (expenses) or inflows of resources (revenues), respectively, based on the payment provisions of the lease contract. This statement is effective for SMUD in 2020. SMUD is currently assessing the financial statement impact of adopting this statement.

In March 2018, GASB issued SGAS No. 88, ***"Certain Disclosures Related to Debt, Including Direct Borrowings and Direct Placements"*** (GASB No. 88). The primary objective of this statement is to improve the information that is disclosed in notes to financial statements related to debt, including direct borrowings and direct placements. GASB No. 88 also clarifies which liabilities should be included when disclosing information related to debt. This statement defines debt for purposes of disclosure in notes to financial statements as a liability that arises from a contractual obligation to pay cash (or other assets that may be used in lieu of cash) in one or more payments to settle an amount that is fixed at the date the contractual obligation is established. GASB No. 88 also requires additional information related to debt be disclosed, including unused lines of credits; assets pledged as collateral for the debt; and terms specified in debt agreements related to significant events of default with finance-related consequences, significant termination events with finance-related consequences, and significant subjective acceleration clauses. This statement also requires that existing and additional information be provided for direct borrowings and direct placements of debt separately from other debt. This statement is effective for SMUD in 2019. SMUD will include additional note disclosures related to debt in Notes 10 and 11.

In June 2018, GASB issued SGAS No. 89, ***"Accounting for Interest Cost Incurred before the End of a Construction Period"*** (GASB No. 89). The objectives of this statement are (1) to enhance the relevance and comparability of information about capital assets and the cost of borrowing for a reporting period and (2) to simplify accounting for interest cost incurred before the end of a construction period. GASB No. 89 establishes accounting requirements for interest cost incurred before the end of a construction period. This statement requires that interest cost incurred before the end of a construction period be recognized as an expense in the period in which the cost is incurred for financial statements. As a result, interest cost incurred before the end of a construction period will not be included in the historical cost of a capital asset reported in a business-type activity. The GASB has allowed that provided the criteria for regulated operations are met and the entity has elected regulatory accounting, qualifying interest cost may be capitalized as a regulatory asset. This statement is effective for SMUD in 2020. SMUD has assessed the financial statement impact of adopting the new statement and its impact is not material. SMUD will discontinue capitalizing interest costs in 2020 when GASB 89 is implemented.

In August 2018, GASB issued SGAS No. 90, ***"Majority Equity Interests"*** (GASB No. 90). The objectives of this statement are to improve the consistency and comparability of reporting a government's majority equity interest in a legally separate organization and to improve the relevance of financial statement information for certain component units. GASB No. 90 defines a majority equity interest and specifies that a majority equity interest in a legally separate organization should be reported as an investment if a government's holding of the equity interest meets the definition of an investment. A majority equity interest that meets the definition of an investment should be measured using the equity method. For all other holdings of a majority equity interest, a government should report the legally separate organization as a component unit. The government should report an asset related to the majority equity interest using the equity method. This statement is effective for SMUD in 2019. SMUD has assessed the financial statement impact of adopting the new statement, and SMUD will continue to use the equity method to record investments in majority equity interests that are not component units.

In May 2019, GASB issued SGAS No. 91, ***"Conduit Debt Obligations"*** (GASB No. 91). The objectives of this statement are to provide a single method of reporting conduit debt obligations by issuers and eliminate diversity in practice associated with (1) commitments extended by issuers, (2) arrangements associated with conduit debt obligations, and (3) related note disclosures. This statement achieves those objectives by clarifying the existing definition of a conduit debt obligation; establishing that a conduit debt obligation is not a liability of the issuer; establishing standards for accounting and financial reporting of additional commitments and voluntary commitments extended by issuers and arrangements associated with conduit debt obligations; and improving required note disclosures. A conduit debt obligation is defined as a debt instrument having all of the following characteristics: (a) there are at least three parties involved: (1) an issuer, (2) a third-party obligor, and (3) a debt holder or a debt trustee; (b) the issuer and the third-party obligor are not within the same financial reporting entity; (c) the debt obligation is not a parity bond of the issuer, nor is it cross-collateralized with other debt of the issuer; (d) the third-party obligor or its agent, not the issuer, ultimately receives the proceeds from the debt issuance; and (e) the third-party obligor, not the issuer, is primarily obligated for the payment of all amounts associated with the debt obligation (debt service payments). All conduit debt obligations involve the issuer making a limited commitment. Some issuers extend additional commitments or voluntary commitments to support debt service in the event the third party is, or will be, unable to do so. An issuer should not recognize a conduit debt obligation as a liability, however, an issuer should recognize a liability associated with an additional commitment or a voluntary commitment to support debt service if certain recognition criteria are met. This statement is effective for SMUD in 2021. SMUD is currently assessing the financial statement impact of adopting this statement.

NOTE 3. ACCOUNTING CHANGE

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.

Prior to implementation of GASB No. 83 in 2019, SMUD followed FASB Accounting Standards Codification (ASC) 410, ***"Asset Retirement and Environmental Obligations"*** (FASB ASC 410). FASB ASC 410 required measurement of the liability based on the present value of the decommissioning costs. Under FASB ASC 410 when an ARO liability is recognized, a corresponding capital asset is recognized. GASB No. 83 changed the ARO measurement and reporting for the Rancho Seco nuclear power plant and the CVFA power plant facility (see Notes 2 and 13). The Rancho Seco and CVFA ARO's are now measured based on the current value of outlays expected to be incurred. SMUD continues to use regulatory accounting for the Rancho Seco ARO and records the corresponding ARO as a regulatory asset. For the CVFA ARO, the corresponding ARO is now recorded as Deferred Asset Retirement Obligation Outflows instead of Plant in Service. The implementation impacted the Statements of Net Position when the accrued decommissioning liability and corresponding assets were adjusted. The implementation also impacted the Statements of Revenues, Expenses and Changes in Net Position as operating expenses for production operations and depreciation were also adjusted.

SMUD has restated amounts of the affected balances within the financial statements for the period ended December 31, 2018 as follows:

STATEMENT OF NET POSITION

	December 31, 2018 (restated)	December 31, 2018
	(thousands of dollars)	
Electric Utility Plant		
Plant in service	$ 6,027,201	$ 6,029,451
Less accumulated depreciation and depletion	(2,939,377)	(2,941,127)
Current Assets		
Regulatory costs to be recovered within one year	24,803	19,240
Noncurrent Assets		
Regulatory costs for future recovery	809,810	886,276
Deferred Outflows of Resources		
Deferred asset retirement obligation outflows	2,105	-0-
Noncurrent Liabilities		
Accrued decommissioning	90,570	164,276
Net Position		
Net investment in capital assets	*1,271,017	1,275,517
Restricted: Revenue bond and debt service	*80,193	76,193
Unrestricted	362,997	358,089

STATEMENT OF REVENUE, EXPENSES AND CHANGES IN NET POSITION

	December 31, 2018 (restated)	December 31, 2018
	(thousands of dollars)	
Operating Expenses		
Operations: Production	$ 333,024	$ 333,504
Depreciation	196,845	196,920
Change in Net Position	209,693	209,138
Net Position - Beginning of Year	1,515,669	1,511,816

*Balances include reclassifications not related to the restatement

NOTE 4. ELECTRIC UTILITY PLANT

The summarized activity of SMUD's Electric Utility Plant during 2019 is presented below:

	Balance January 1, 2019	Additions	Transfers and Disposals	Balance December 31, 2019
		(thousands of dollars)		
Nondepreciable Electric Utility Plant:				
Land and land rights	$ 139,625	$ 3,418	$ (752)	$ 142,291
CWIP	428,249	342,545	(416,992)	353,802
Total nondepreciable electric utility plant	567,874	345,963	(417,744)	496,093
Depreciable Electric Utility Plant:				
Generation	1,632,081	38,956	(813)	1,670,224
Transmission	336,407	54,637	(748)	390,296
Distribution	2,337,484	96,264	(6,340)	2,427,408
Investment in gas properties	206,624	36	(206,660)	-0-
Investment in JPAs	19,012	3,832	-0-	22,844
Intangibles	426,267	69,836	(452)	495,651
General	929,701	156,812	(7,853)	1,078,660
	5,887,576	420,373	(222,866)	6,085,083
Less: accumulated depreciation and depletion	(2,932,724)	(192,524)	176,898	(2,948,350)
Less: accumulated amortization on JPAs	(6,653)	(313)	-0-	(6,966)
	(2,939,377)	(192,837)	176,898	(2,955,316)
Total depreciable plant	2,948,199	227,536	(45,968)	3,129,767
Total Electric Utility Plant - net	$ 3,516,073	$ 573,499	$ (463,712)	$ 3,625,860

The summarized activity of SMUD's Electric Utility Plant during 2018 is presented below:

	Balance January 1, 2018	Additions	Transfers and Disposals	Balance December 31, 2018 (restated)
	(thousands of dollars)			
Nondepreciable Electric Utility Plant:				
Land and land rights	$ 138,147	$ 1,506	$ (28)	$ 139,625
CWIP	280,692	380,877	(233,320)	428,249
Total nondepreciable electric utility plant	418,839	382,383	(233,348)	567,874
Depreciable Electric Utility Plant:				
Generation	1,695,217	29,208	(92,344)	1,632,081
Transmission	310,195	27,287	(1,075)	336,407
Distribution	2,246,154	101,195	(9,865)	2,337,484
Investment in gas properties	206,617	7	-0-	206,624
Investment in JPAs	15,210	3,802	-0-	19,012
Intangibles	413,245	18,854	(5,832)	426,267
General	889,592	57,371	(17,262)	929,701
	5,776,230	237,724	(126,378)	5,887,576
Less: accumulated depreciation and depletion	(2,834,954)	(201,880)	104,110	(2,932,724)
Less: accumulated amortization on JPAs	(6,340)	(313)	-0-	(6,653)
	(2,841,294)	(202,193)	104,110	(2,939,377)
Total depreciable plant	2,934,936	35,531	(22,268)	2,948,199
Total Electric Utility Plant - net	$ 3,353,775	$ 417,914	$ (255,616)	$ 3,516,073

NOTE 5. INVESTMENT IN JOINT POWERS AUTHORITY

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 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 Pacific Gas and Electric Company's (PG&E) 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. On July 1, 2014, an amendment returned to the City of Roseville all rights and obligations related to the COTP entitlements, which decreased SMUD's COTP entitlement by 13 MW.

Effective July 1, 2014, SMUD entered into a 25-year long-term layoff agreement with TANC and certain members that 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 $191.8 million (unaudited) at December 31, 2019, 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. SMUD recorded transmission expenses related to TANC of $17.9 million and $18.4 million in 2019 and 2018, respectively.

Summary financial information for TANC is presented below:

	December 31,	
	2019 (Unaudited)	2018 (Unaudited)
	(thousands of dollars)	
Total Assets	$ 345,739	$ 351,219
Total Deferred Outflows of Resources	1,240	1,956
Total Assets and Deferred Outflows of Resources	$ 346,979	$ 353,175
Total Liabilities	$ 312,470	$ 329,023
Total Net Position	34,509	24,152
Total Liabilities and Net Position	$ 346,979	$ 353,175
Changes in Net Position for the Six Months Ended December 31	$ (413)	$ (63)

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

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 Area (BAA) operations was transferred from SMUD to BANC. BANC performs FERC approved BAA reliability functions that are managed by North American Electric Reliability Corporation (NERC), nationally, and by Western Electricity Coordinating Council functions in the west. SMUD recorded expenses related to BANC of $2.1 million in 2019 and $2.9 million in 2018.

Summary financial information for BANC is presented below:

	December 31,	
	2019 (Audited)	2018 (Audited)
	(thousands of dollars)	
Total Assets	$ 6,184	$ 3,994
Total Liabilities	$ 6,184	$ 3,994
Total Net Position	-0-	-0-
Total Liabilities and Net Position	$ 6,184	$ 3,994
Changes in Net Position for the Year Ended December 31	$ -0-	$ -0-

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

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 42 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 602 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 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.

NCEA. NCEA is a JPA formed by SMUD and the SFA. NCEA has a prepaid natural gas and electricity (commodity) contract with J. Aron & Company LLC (J. Aron) expiring in 2049, which is financed primarily by NCEA revenue bonds. SMUD has contracted with NCEA to purchase all the commodity delivered by J. Aron to NCEA, based on market prices. NCEA 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. NCEA can terminate the prepaid commodity contract under certain circumstances, including a failure by J. Aron to meet its commodity delivery obligation to NCEA. If this occurs, J. Aron will be required to make a termination payment to NCEA based on the unamortized prepayment proceeds received by J. Aron.

The summarized activity of SMUD's component units for 2019 is presented below:

CONDENSED STATEMENTS OF NET POSITION
December 31, 2019
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA	NCEA
Assets						
Electric Utility Plant - net	$ 37,248	$ 56,309	$ 220,676	$ 55,074	$ -0-	$ -0-
Restricted Assets	-0-	-0-	-0-	-0-	-0-	2,840
Current Assets	11,418	26,939	54,906	20,487	33,422	27,096
Noncurrent Assets	2	2	998	2	180,564	535,991
Total Assets	48,668	83,250	276,580	75,563	213,986	565,927
Deferred Outflows of Resources	1,955	-0-	2,195	-0-	-0-	-0-
Total Assets and Deferred Outflows of Resources	$ 50,623	$ 83,250	$ 278,775	$ 75,563	$ 213,986	$ 565,927
Liabilities						
Long-Term Debt - net	$ -0-	$ -0-	$ 126,571	$ -0-	$ 181,935	$ 561,820
Current Liabilities	3,370	4,952	33,257	5,502	21,937	10,876
Noncurrent Liabilities	8,529	-0-	-0-	-0-	-0-	77
Total Liabilities	11,899	4,952	159,828	5,502	203,872	572,773
Net Position	38,724	78,298	118,947	70,061	10,114	(6,846)
Total Liabilities and Net Position	$ 50,623	$ 83,250	$ 278,775	$ 75,563	$ 213,986	$ 565,927

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
December 31, 2019
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA	NCEA
Operating Revenues	$ 23,858	$ 36,208	$ 157,200	$ 27,732	$ 33,472	$ 16,438
Operating Expenses	26,046	33,947	120,562	31,106	25,133	2,682
Operating Income (Loss)	(2,188)	2,261	36,638	(3,374)	8,339	13,756
Non-Operating Revenues and Expenses						
Other Revenues	114	363	376	142	850	-0-
Interest Charges and Other	(534)	(1,211)	(3,962)	-0-	(9,280)	(16,091)
Change in Net Position Before Distributions and Contributions	(2,608)	1,413	33,052	(3,232)	(91)	(2,335)
Distribution to Member	-0-	-0-	-0-	-0-	(953)	-0-
Member Contributions and Adjustments	-0-	7,902	-0-	-0-	80	88
Change in Net Position	(2,608)	9,315	33,052	(3,232)	(964)	(2,247)
Net Position – Beginning of Year	41,332	68,983	85,895	73,293	11,078	(4,599)
Net Position – End of Year	$ 38,724	$ 78,298	$ 118,947	$ 70,061	$ 10,114	$ (6,846)

CONDENSED STATEMENTS OF CASH FLOWS
December 31, 2019
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA	NCEA
Net Cash Provided by Operating Activities	$ 6,382	$ 10,855	$ 42,686	$ 3,295	$ 35,948	$ 13,135
Net Cash Provided by (Used in) Noncapital Financing Activities	-0-	7,902	-0-	-0-	(45,135)	(11,601)
Net Cash Used in Capital Financing Activities	(11,345)	(20,698)	(46,462)	(2,774)	-0-	-0-
Net Cash Provided by Investing Activities	135	351	389	134	787	8,656
Net Increase (Decrease) in Cash and Cash Equivalents	(4,828)	(1,590)	(3,387)	655	(8,400)	10,190
Cash and Cash Equivalents at the Beginning of the Year	9,139	17,593	24,037	8,931	21,715	763
Cash and Cash Equivalents at the End of the Year	$ 4,311	$ 16,003	$ 20,650	$ 9,586	$ 13,315	$ 10,953

The summarized activity of SMUD's component units for 2018 is presented below:

CONDENSED STATEMENTS OF NET POSITION
December 31, 2018
(thousands of dollars)

	CVFA (restated)	SCA	SFA	SPA	NCGA	NCEA
Assets						
Electric Utility Plant - net	$ 43,740	$ 64,171	$ 230,315	$ 59,643	$ -0-	$ -0-
Restricted Assets	-0-	-0-	-0-	-0-	-0-	2,478
Current Assets	19,596	30,453	74,372	20,356	50,818	22,027
Noncurrent Assets	19	61	1,103	2	198,303	539,238
Total Assets	63,355	94,685	305,790	80,001	249,121	563,743
Deferred Outflows of Resources	2,236	283	2,593	-0-	-0-	-0-
Total Assets and Deferred Outflows of Resources	$ 65,591	$ 94,968	$ 308,383	$ 80,001	$ 249,121	$ 563,743
Liabilities						
Long-Term Debt - net	$ 5,515	$ 13,250	$ 138,049	$ -0-	$ 198,610	$ 566,893
Current Liabilities	10,365	12,735	84,439	6,708	39,433	1,449
Noncurrent Liabilities	8,379	-0-	-0-	-0-	-0-	-0-
Total Liabilities	24,259	25,985	222,488	6,708	238,043	568,342
Net Position	41,332	68,983	85,895	73,293	11,078	(4,599)
Total Liabilities and Net Position	$ 65,591	$ 94,968	$ 308,383	$ 80,001	$ 249,121	$ 563,743

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
December 31, 2018
(thousands of dollars)

	CVFA (restated)	SCA	SFA	SPA	NCGA	NCEA
Operating Revenues	$ 27,276	$ 52,109	$ 154,235	$ 36,421	$ 43,760	$ -0-
Operating Expenses	27,265	47,031	131,133	39,549	34,761	4,045
Operating Income (Loss)	11	5,078	23,102	(3,128)	8,999	(4,045)
Non-Operating Revenues and Expenses						
Other Revenues (Expenses)	1,339	1,347	(12,427)	109	876	-0-
Interest Charges and Other	(690)	(1,096)	(4,270)	-0-	(10,645)	(555)
Change in Net Position Before Distributions and Contributions	660	5,329	6,405	(3,019)	(770)	(4,600)
Distribution to Member	-0-	(10,000)	-0-	-0-	(881)	-0-
Member Contributions and Adjustments	-0-	-0-	-0-	-0-	69	1
Change in Net Position	660	(4,671)	6,405	(3,019)	(1,582)	(4,599)
Net Position – Beginning of Year	40,672	73,654	79,490	76,312	12,660	-0-
Net Position – End of Year	$ 41,332	$ 68,983	$ 85,895	$ 73,293	$ 11,078	$ (4,599)

CONDENSED STATEMENTS OF CASH FLOWS
December 31, 2018
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA	NCEA
Net Cash Provided by (Used in) Operating Activities	$ 6,134	$ 14,388	$ 37,216	$ 3,664	$ 42,770	$ (3,320)
Net Cash Provided by (Used in) Noncapital Financing Activities	-0-	(10,000)	-0-	-0-	(43,140)	25,163
Net Cash Used in Capital Financing Activities	(5,867)	(7,401)	(38,231)	(2,024)	-0-	-0-
Net Cash Provided by (Used in) Investing Activities	107	256	243	94	846	(21,080)
Net Increase (Decrease) in Cash and Cash Equivalents	374	(2,757)	(772)	1,734	476	763
Cash and Cash Equivalents at the Beginning of the Year	8,765	20,350	24,809	7,197	21,239	-0-
Cash and Cash Equivalents at the End of the Year	$ 9,139	$ 17,593	$ 24,037	$ 8,931	$ 21,715	$ 763

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, NCGA's and NCEA's annual financial reports may be obtained from their Executive Office at P.O. Box 15830, Sacramento, California 95852 or online at www.smud.org.

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 and reverse repurchase agreements; medium term corporate notes; LAIF; and money market funds. 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 short-term investments and "A" or equivalent for medium-term corporate notes by a nationally recognized rating agency, with the exception of the Guaranteed Investment Contracts (GICs) held by NCEA. NCEA GICs are rated at the credit rating of the commodity supplier, or, if not rated, the guarantor of the commodity supplier which is currently Goldman Sachs rated as "BBB+".

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 and investments 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 or investment policy for custodial credit risk.

As of December 31, 2019 and 2018, $5.5 million and $15.3 million in deposits were uninsured, respectively. The bank balance is also, per a depository pledge agreement between SMUD and SMUD's bank, collateralized at 131 percent and 135 percent of the collective funds on deposit (increased by the amount of accrued but uncredited interest, reduced by deposits covered by Federal Deposit Insurance Corporation) at December 31, 2019 and 2018, respectively. SMUD had money market funds of $103.4 million and $92.3 million which were uninsured at December 31, 2019 and 2018, respectively. SMUD's investments and money market 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,	
	2019	2018
Investment Type:		
Fannie Mae	1%	6%
Federal Home Loan Banks	27%	23%
Freddie Mac	12%	10%
Federal Farm Credit Bank	N/A	20%
Commercial Paper – Toyota Motor Credit Corp	10%	N/A
Corporate Note – Berkshire Hathaway	N/A	7%
Corporate Note – Wells Fargo Bank	5%	6%
Corporate Note – Apple Inc	9%	N/A
Guaranteed Investment Contracts	3%	6%

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. SMUD is exposed to interest rate risk on its interest rate swaps (see Note 9).

The following schedules indicate the credit and interest rate risk at December 31, 2019 and 2018. The credit ratings listed are from Standard & Poor's (S&P) or Moody's. (N/A is defined as not applicable to the rating disclosure requirements.)

At December 31, 2019, SMUD's cash, cash equivalents, and investments consist of the following:

		Remaining Maturities (in years)			
Description	Credit Rating	Less Than 1	1-5	More Than 5	Total Fair Value
		(thousands of dollars)			
Cash and Cash Equivalents:					
Cash	N/A	$ 1,093	$ -0-	$ -0-	$ 1,093
LAIF	Not Rated	104,742	-0-	-0-	104,742
Money Market Funds	AAAm	103,367	-0-	-0-	103,367
Deposit at Notice	N/A	51,432	-0-	-0-	51,432
Commercial Paper	A-1+/A-1	47,474	-0-	-0-	47,474
Total cash and cash equivalents		308,108	-0-	-0-	308,108
Investments:					
Fannie Mae	AA+	3,030	-0-	-0-	3,030
Federal Farm Credit Bank	AA+	-0-	15,001	-0-	15,001
Federal Home Loan Bank	AA+	111,844	-0-	-0-	111,844
Freddie Mac	AA+	27,984	20,308	-0-	48,292
U.S. Treasury Obligations	AAA	105,116	20,167	-0-	125,283
Corporate Notes	AAA/AA+/AA-/A+/A	6,302	114,897	-0-	121,199
Municipal Bonds	AA/AA-	15,063	33,013	-0-	48,076
Guaranteed Investment Contracts	BBB+	10,249	2,840	-0-	13,089
Total investments		279,588	206,226	-0-	485,814
Total cash, cash equivalents, and investments		$ 587,696	$ 206,226	$ -0-	$ 793,922

At December 31, 2018, 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	$ 6,683	$ -0-	$ -0-	$ 6,683
LAIF	Not Rated	88,401	-0-	-0-	88,401
Money Market Funds	AAAm	92,343	-0-	-0-	92,343
Deposit at Notice	N/A	26,572	-0-	-0-	26,572
Commercial Paper	A-1	16,626	-0-	-0-	16,626
Fannie Mae	N/A	9,944	-0-	-0-	9,944
Federal Home Loan Bank	N/A	14,934	-0-	-0-	14,934
Total cash and cash equivalents		255,503	-0-	-0-	255,503
Investments:					
Fannie Mae	AA+	9,538	-0-	-0-	9,538
Federal Farm Credit Bank	AA+	44,572	23,717	-0-	68,289
Federal Home Loan Bank	AA+	62,075	2,517	-0-	64,592
Freddie Mac	AA+	10,226	24,662	-0-	34,888
U.S. Treasury Obligations	AA+	43,735	123,684	-0-	167,419
Corporate Notes	AAA/AA/AA-/A+	79,442	4,953	-0-	84,395
Municipal Bonds	AA-	-0-	14,877	-0-	14,877
Guaranteed Investment Contracts	BBB+	18,602	2,478	-0-	21,080
Total investments		268,190	196,888	-0-	465,078
Total cash, cash equivalents, and investments		$ 523,693	$ 196,888	$ -0-	$ 720,581

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

	December 31, 2019	2018
	(thousands of dollars)	
Cash, Cash Equivalents, and Investments:		
Revenue bond reserve and debt service funds:		
Revenue bond reserve fund	$ 4,748	$ 5,617
Debt service fund	73,250	64,951
Component unit bond reserve and debt service funds	38,529	52,941
Total revenue bond reserve and debt service funds	116,527	123,509
Nuclear decommissioning trust fund	8,798	8,566
Rate stabilization fund	143,669	96,694
Component unit other restricted funds	8,707	6,142
Escrow fund	20,592	6,737
Other restricted funds	654	654
Unrestricted funds	494,975	478,279
Total cash, cash equivalents, and investments	$ 793,922	$ 720,581

NOTE 8. REGULATORY DEFERRALS

The Board has taken various regulatory actions that result in differences between the recognition of revenues and expenses for ratemaking purposes and their treatment under generally accepted accounting principles for non-regulated entities (see Note 2). These actions result in regulatory assets and deferred inflow of resources, 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 for the Rancho Seco nuclear power plant 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 deferred inflow of resource is utilized (see Note 9).

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 is amortized through 2019 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 is being amortized over a period of 25 years starting in 2018.

OPEB. SMUD established a regulatory asset for OPEB costs related to the implementation of GASB No. 75 which requires SMUD to record a net OPEB liability. The regulatory asset will be amortized over a period of 25 years starting in 2020.

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

	December 31,	
	2019	2018 (restated)
	(thousands of dollars)	
Regulatory Costs:		
Decommissioning	$ 81,076	$ 87,336
Derivative financial instruments	10,517	17,052
Debt issuance costs	1,882	2,243
Pension	391,626	408,653
OPEB	319,329	319,329
Total regulatory costs	804,430	834,613
Less: regulatory costs to be recovered within one year	(37,622)	(24,803)
Total regulatory costs for future recovery - net	$ 766,808	$ 809,810

Regulatory Credits

CIAC. In 2019 and 2018, SMUD added CIAC totaling $18.8 million and $19.0 million, respectively, to Regulatory Credits in the Statements of Net Position and recorded $12.8 million and $12.3 million of amortization, respectively, to Other Income - net in the 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 2019, $10.7 million was transferred from revenue to the RSF as a result of higher than budgeted energy deliveries from Western Area Power Administration (Western). In 2018, $4.9 million was transferred to revenue from the RSF as a result of lower than budgeted energy deliveries from Western.

SMUD participates in the carbon allowance auctions under AB-32, the Global Warming Solutions Act (see Note 2). The Board authorized deferral of AB-32 auction proceeds to match the revenue recognition with the related expenses. The difference between the auction proceeds received and the funds spent on AB-32 programs are deferred into future years. In 2019, the Board authorized transferring the difference into the RSF and $15.6 million was transferred from revenue to the RSF.

SMUD sells LCFS credits under AB-32, the Global Warming Solutions Act (see Note 2). In 2019, the Board authorized deferral of LCFS credit sales to match the revenue recognition with the related expenses. The difference between the LCFS credit sales and the funds spent on LCFS programs are deferred into future years. The Board authorized transferring the difference into the RSF and $2.3 million was transferred from revenue to the RSF.

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 6 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 reaches the 6 percent cap, the Board may authorize a hydro rebate to customers or direct the funds for another purpose. In 2019 and 2018, $18.4 million and $1.7 million, respectively, 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 2018-2020. In 2019 and 2018, $3.0 million and $3.5 million was spent on energy efficiency programs for EAPR customers, respectively.

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. SMUD has spent less than it collected in SB-1 revenues and has recorded a regulatory credit. Collection of the solar surcharge ended in December 2017 when total collections reached $130.0 million. For both 2019 and 2018, $2.8 million was spent for SB-1 programs.

Grant Revenues. In 2009, SMUD was awarded several large grants under the American Recovery and Reinvestment Act, which provided significant reimbursements for capital expenditures. In 2010, the Board authorized the deferral of grant income for capital expenditures as regulatory liabilities. Thus, this regulatory credit was 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,	
	2019	2018
	(thousands of dollars)	
Regulatory Credits:		
CIAC	$ 267,041	$ 260,999
Rate stabilization	61,231	32,641
Hydro rate stabilization	82,438	64,054
EAPR	3,501	6,460
Senate Bill 1	6,529	9,294
Grant revenues	39,888	43,959
TANC operations costs	28,858	25,311
Total regulatory credits	$ 489,486	$ 442,718

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 in the Statements of Net Position. Accumulated gains and losses from derivatives that do not meet the effectiveness tests are deferred for ratemaking purposes as regulatory assets on the Statements of Net Position (see Note 8).

During 2019 and 2018, 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 in the 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 value, changes in fair value and notional amounts of derivative instruments, grouped by trading strategy, outstanding at December 31, 2019 (amounts in thousands; gains shown as positive amounts, losses as negative):

	2019 Changes in Fair Value		Fair Value at December 31, 2019		
	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	$ 49	$ -0-	$ 69	$ -0-	150 Dth
Gas – Storage	141	-0-	141	-0-	295 Dth
Gas – Transportation	278	-0-	278	-0-	310 Dth
Total Investment Derivative Instruments	$ 468	$ -0-	$ 488	$ -0-	
Asset: Hedging Derivative Instruments					
Gas – Commodity	$ 1,055	$ 13	$ 1,517	$ 13	2,835 Dth
Gas – Storage	154	-0-	391	-0-	687 Dth
Gas – Transportation	2,729	-0-	5,326	-0-	14,320 Dth
Interest Rate	270	(2,507)	1,498	7,973	$215,500
Total Hedging Derivative Instruments	$ 4,208	$ (2,494)	$ 8,732	$ 7,986	
Liability: Investment Derivative Instruments					
Gas – Commodity	$ 195	$ 6,938	$ 1,173	$ 1,665	2,433 Dth
Gas – Storage	(191)	-0-	191	-0-	295 Dth
Gas – Transportation	(93)	-0-	93	-0-	310 Dth
Interest Rate	(403)	(379)	778	7,104	$85,625
Total Investment Derivative Instruments	$ (492)	$ 6,559	$ 2,235	$ 8,769	
Liability: Hedging Derivative Instruments					
Gas – Basis	$ 3,651	$ -0-	$ -0-	$ -0-	
Gas – Commodity	(15,857)	14,984	40,859	41,700	61,957 Dth
Gas – Storage	(124)	-0-	515	-0-	688 Dth
Gas – Transportation	41	-0-	-0-	-0-	
Interest Rate	-0-	(2,120)	-0-	2,120	$157,785
Total Hedging Derivative Instruments	$ (12,289)	$ 12,864	$ 41,374	$ 43,820	

The following is a summary of the fair value, changes in fair value and notional amounts of derivative instruments, grouped by trading strategy, outstanding at December 31, 2018 (amounts in thousands; gains shown as positive amounts, losses as negative):

	2018 Changes in Fair Value		Fair Value at December 31, 2018		
	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	$ 20	$ -0-	$ 20	$ -0-	78 Dth
Gas – Storage	(1)	-0-	-0-	-0-	
Total Investment Derivative Instruments	$ 19	$ -0-	$ 20	$ -0-	
Asset: Hedging Derivative Instruments					
Gas – Basis	$ (265)	$ -0-	$ -0-	$ -0-	
Gas – Commodity	(64)	(228)	462	-0-	1,768 Dth
Gas – Storage	235	-0-	237	-0-	683 Dth
Gas – Transportation	2,545	-0-	2,597	-0-	10,333 Dth
Interest Rate	(795)	(7,651)	1,228	10,480	$103,455
Total Hedging Derivative Instruments	$ 1,656	$ (7,879)	$ 4,524	$ 10,480	
Liability: Investment Derivative Instruments					
Gas – Commodity	$ (268)	$ 4,703	$ 1,368	$ 8,603	10,890 Dth
Interest Rate	(822)	(1,072)	375	6,725	$90,950
Total Investment Derivative Instruments	$ (1,090)	$ 3,631	$ 1,743	$ 15,328	
Liability: Hedging Derivative Instruments					
Gas – Basis	$ 3,651	$ -0-	$ 3,651	$ -0-	7,300 Dth
Gas – Commodity	(2,217)	(21,461)	25,002	56,684	66,890 Dth
Gas – Storage	189	-0-	391	-0-	1,295 Dth
Gas – Transportation	(38)	-0-	41	-0-	155 Dth
Total Hedging Derivative Instruments	$ 1,585	$ (21,461)	$ 29,085	$ 56,684	

Objectives and Terms of Hedging Derivative Instruments. The objectives and terms of SMUD's hedging derivative instruments that were outstanding at December 31, 2019 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 – Commodity	67,375	01/01/08	12/31/22	$ .43	$ 7.17
Gas – Storage	1,965	01/01/20	10/31/20	.24	3.02
Gas – Transportation	14,940	01/01/20	12/31/20	(1.51)	.69

The objectives and terms of SMUD's hedging derivative instruments that were outstanding at December 31, 2018 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	7,300	01/01/19	12/31/19	$ (1.44)	$ (1.43)
Gas – Commodity	68,658	01/01/08	12/31/22	2.61	7.17
Gas – Storage	1,978	01/01/19	12/31/19	.24	1.60
Gas – Transportation	10,488	01/01/19	12/31/19	(.62)	.97

SMUD hedges its interest rate exposure with swaps. One swap is used to convert some of the interest expense associated with fixed rate bonds to a variable rate interest expense. SMUD has two forward starting swaps that are designed to synthetically fix the interest expense associated with refunding bonds that are expected to be issued to refund the 2011 Series X and 2012 Series Y bonds in 2021 and 2022, respectively (see Note 10). SMUD also has a swap that is designed to fix the interest expense associated with commercial paper (see Note 11).

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.

The 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 in the 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 Statements of Net Position. The actual settlement payable is recorded in Accounts Payable in the Statements of Net Position, and the actual settlement receivable is recorded in Receivables - net: Wholesale and Other in the Statements of Net Position. The payments and receipts of the actual settlement are recorded as Investment Expense in the 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 in the 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 Statements of Net Position. The interest receivable is recorded in Receivables - net: Wholesale and Other in the Statements of Net Position and the accrued interest is recorded in Interest Payable in the Statements of Net Position. The payments or receipts of the actual settlement are recorded as Investment Expense in the 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 ratemaking purposes, and maintains regulatory accounts to defer the accounting impact of these accounting adjustments (see Note 8). Fair values may have changed significantly since December 31, 2019.

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.

Counterparty 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 was 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 was 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' credit ratings at December 31, 2019 and 2018 are shown in the table below. The credit ratings listed are from S&P or Moody's.

	December 31, 2019	December 31, 2018
Counterparty Gas Contracts:		
Bank of Montreal	A+	A+
Barclays Bank PLC	A	A
Citigroup Inc.	BBB+	BBB+
EDF Trading Group	Baa2	Baa2
J.P. Morgan Ventures Energy Corp.	A-	A-
Merrill Lynch	A3	A3
Morgan Stanley Capital Group, Inc.	BBB+	BBB+
Shell Trading Market Risk	A	A
Interest Rate Contracts:		
Goldman Sachs Capital Markets, L.P.	BBB+	AA-
Morgan Stanley Capital Services, Inc.	A+	A+
J. Aron	BBB+	N/A

NOTE 10. LONG-TERM DEBT

SMUD's total long-term debt is presented below:

	December 31, 2019	December 31, 2018
	(thousands of dollars)	
Electric revenue bonds, 2.0%-6.32%, 2020-2041	$ 1,778,040	$ 1,673,590
Subordinated electric revenue bonds, 5.0%, 2020-2049	200,000	-0-
Total electric revenue bonds	1,978,040	1,673,590
Component unit project revenue bonds, 5.0%, 2020-2030	120,795	162,055
Gas and Commodity supply revenue bonds, index rates and 4.0%-5.0%, 2020-2049	738,225	772,785
Total long-term debt outstanding	2,837,060	2,608,430
Bond premiums - net	225,040	175,187
Total long-term debt	3,062,100	2,783,617
Less: amounts due within one year	(118,305)	(144,885)
Total long-term debt - net	$ 2,943,795	$ 2,638,732

The summarized activity of SMUD's long-term debt during 2019 is presented below:

	January 1, 2019	Additions	Defeasance Payments or Amortization	December 31, 2019	Amounts Due Within One Year
			(thousands of dollars)		
Electric revenue bonds	$ 1,673,590	$ 191,875	$ (87,425)	$ 1,778,040	$ 92,920
Subordinate electric revenue bonds	-0-	200,000	-0-	200,000	-0-
Component unit project revenue bonds	162,055	-0-	(41,260)	120,795	8,710
Gas and Commodity supply revenue bonds	772,785	-0-	(34,560)	738,225	16,675
Total	2,608,430	391,875	(163,245)	2,837,060	$ 118,305
Unamortized premiums - net	175,187	83,748	(33,895)	225,040	
Total long-term debt	$ 2,783,617	$ 475,623	$ (197,140)	$ 3,062,100	

The summarized activity of SMUD's long-term debt during 2018 is presented below:

	January 1, 2018	Additions	Payments or Amortization	December 31, 2018	Amounts Due Within One Year
			(thousands of dollars)		
Electric revenue bonds	$ 1,783,660	$ 165,515	$ (275,585)	$ 1,673,590	$ 87,425
Subordinate electric revenue bonds	88,750	-0-	(88,750)	-0-	-0-
Component unit project revenue bonds	186,890	-0-	(24,835)	162,055	22,900
Gas and Commodity supply revenue bonds	264,475	539,615	(31,305)	772,785	34,560
Total	2,323,775	705,130	(420,475)	2,608,430	$ 144,885
Unamortized premiums - net	150,440	53,682	(28,935)	175,187	
Total long-term debt	$ 2,474,215	$ 758,812	$ (449,410)	$ 2,783,617	

At December 31, 2019 scheduled annual principal maturities and interest are as follows:

	Principal	Interest	Total
		(thousands of dollars)	
2020	$ 118,305	$ 141,168	$ 259,473
2021	127,390	134,182	261,572
2022	135,115	128,024	263,139
2023	143,515	122,231	265,746
2024	143,310	111,821	255,131
2025 – 2029 (combined)	720,580	442,919	1,163,499
2030 – 2034 (combined)	463,300	289,129	752,429
2035 – 2039 (combined)	437,040	156,576	593,616
2040 – 2044 (combined)	278,180	77,469	355,649
2045 – 2049 (combined)	270,325	29,312	299,637
Total requirements	$ 2,837,060	$ 1,632,831	$ 4,469,891

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 70.0 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, 2019 for the issues. The 2019 Series A and 2019 Series B put Bonds assume a 3.0 percent fixed rate coupon after mandatory remarketing. The 2018 NCEA put Bonds assume a 4.0 percent fixed rate coupon after mandatory remarketing. Principal in the preceding table includes known principal payments and the amortization schedule for mandatory remarketing bonds.

The following bonds have been issued and are outstanding at December 31, 2019:

Date	Issue	Final Maturity	Interest Rate	Original Amount	Outstanding Amount
				(thousands of dollars)	
Electric Revenue Bonds					
06/15/1997	1997 Series K Bonds	07/01/2024	5.25% - 5.9%	$ 131,030	$ 88,470
05/15/2009	2009 Series V Bonds	05/15/2036	6.322%	200,000	200,000
07/29/2010	2010 Series W Bonds	05/15/2036	6.156%	250,000	250,000
10/04/2011	2011 Series X Bonds	08/15/2028	1.5% - 5.0%	325,550	188,440
05/31/2012	2012 Series Y Bonds	08/15/2033	3.0% - 5.0%	196,945	175,065
05/21/2013	2013 Series A Bonds	08/15/2041	3.75% - 5.0%	132,020	132,020
05/21/2013	2013 Series B Bonds	08/15/2033	3.0% - 5.0%	118,615	90,635
07/14/2016	2016 Series D Bonds	08/15/2028	2.0% - 5.0%	149,890	139,805
12/14/2017	2017 Series E Bonds	08/15/2028	5.0%	202,500	170,755
07/12/2018	2018 Series F Bonds	08/15/2028	5.0%	165,515	150,975
07/25/2019	2019 Series G Bonds	08/15/2041	2.375% - 5.0%	191,875	191,875
Subordinated Electric Revenue Bonds					
07/25/2019	2019 Series A Bonds	08/15/2049	5.0%	100,000	100,000
07/25/2019	2019 Series B Bonds	08/15/2049	5.0%	100,000	100,000
JPA Revenue Bonds					
06/03/2015	2015 SFA Bonds	07/01/2030	2.0% - 5.0%	193,335	120,795
05/31/2007	2007B NCGA#1 Bonds	07/01/2027	Index Rate	668,470	198,610
12/19/2018	2018 NCEA Bonds	07/01/2049	4.0% - 5.0%	539,615	539,615

2019 Bond Issuances. In July 2019, SMUD issued $191.9 million of 2019 Series G Revenue Bonds, $100.0 million of 2019 Series A Subordinated Revenue Bonds, and $100.0 million of 2019 Series B Subordinated Revenue Bonds. The 2019 Series G Bonds have a fixed coupon rate of 2.375 percent to 5.0 percent and amortize from 2029 to 2041. The 2019 Series A Bonds have a fixed interest coupon rate of 5.0 percent, amortized from 2041 to 2049, with a mandatory remarketing purchase in April 2023. The 2019 Series B Bonds have a fixed coupon interest rate of 5.0 percent, amortized from 2041 to 2049, with a mandatory remarketing purchase in April 2025. Proceeds from 2019 Series G Bonds, the 2019 Series A Bonds and the 2019 Series B Bonds were used to refund outstanding commercial paper.

Component Unit Bond Defeasances. In September 2019, CVFA defeased $5.4 million of 2009 Series Bonds maturing on July 2020, along with the accrued interest using CVFA's available funds. The corresponding amount was placed in an irrevocable trust which has a balance of $5.6 million at December 31, 2019. In addition, SCA defeased $12.9 million of 2009 Series Bonds maturing July 2020 and July 2021, along with the accrued interest using SCA's available funds and $7.9 million from SMUD. The corresponding amount was placed in an irrevocable trust which has a balance of $13.7 million as of December 31, 2019. The defeasances resulted in a current accounting loss of $0.8 million which is included in Interest on Debt in the Statements of Revenues, Expenses and Changes in Net Position.

2018 Commodity Supply Revenue Bonds. NCEA issued $539.6 million of 2018 Commodity Supply Revenue Bonds in December 2018 maturing in June 2049, with mandatory tender purchase in June 2024. The 2018 Commodity Supply Revenue Bonds have fixed interest rates of 4.0 percent to 5.0 percent. The proceeds of the offering were used to finance the prepayment of a thirty-year commodity contract. As discussed in Note 6, NCEA is obligated to pay the debt service on the bonds. SMUD's obligation is limited to the purchase and payment for the commodity tendered for delivery by NCEA.

2018 Bond Refunding. In July 2018, SMUD issued $165.5 million of 2018 Series F Revenue Refunding Bonds. The purpose of this transaction was to refund the fixed rate debt associated with 2008 Series U bonds. Proceeds from the 2018 Series F bonds, in addition to $7.5 million of proceeds from terminating the Wells Fargo and Bank of America variable-to-fixed interest rate swaps and $5.0 million from funds on hand defeased all the outstanding Series 2008 U bonds. A total of $199.3 million of bonds were defeased through a legal defeasance, and accordingly, the liability for the defeased bonds has been removed from Long-Term Debt - net in the Statements of Net Position. The refunding resulted in the recognition of a deferred accounting gain of $0.2 million, which is being amortized over the life of the refunding issue. The termination payments of the interest rate swaps are being amortized over the life of the refunding issue. The 2018 refunding reduced future aggregate debt service payments by $42.6 million and resulted in a total economic gain of $39.1 million, which is the difference between the present value of the old and new debt service payments.

Terms of Debt Indentures. Debt indentures contain a provision that in an event of default, the holders of the majority of the debt outstanding are entitled to declare the outstanding amounts due immediately.

Interest Rate Swap Agreements. A summary of SMUD's four interest rate swap agreements as of December 31, 2019 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
$ 88,470	Variable	5.166%	SIFMA	07/01/24	BBB+
85,625	Fixed	2.894%	63% of LIBOR	08/15/28	A+
127,030	Fixed	1.099%	67% of LIBOR	08/15/28	BBB+
157,785	Fixed	1.607%	SIFMA	08/15/33	A+

A summary of SMUD's two interest rate swap agreements as of December 31, 2018 are as follows:

Notional Amount (thousands)	SMUD Pays	Fixed Rate	Floating Rate	Termination Date	Counterparty Credit Rating
$ 103,455	Variable	5.168%	SIFMA	07/01/24	AA-
90,950	Fixed	2.894%	63% of LIBOR	08/15/28	A+

At December 31, 2019 and 2018, SMUD had a fixed-to-variable interest rate swap agreement with a notional amount of $88.5 million and $103.5 million, respectively, 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 (1.61 percent and 1.71 percent at December 31, 2019 and 2018, respectively) and receives fixed rate payments of 5.166 percent and 5.168 percent as of December 31, 2019 and 2018, respectively. In connection with the swap agreement, SMUD has a put option agreement, also with a notional amount of $88.5 million and $103.5 million as of December 31, 2019 and 2018, respectively, 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 0.162 percent and 0.22 percent as of December 31, 2019 and 2018, respectively, 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.

At December 31, 2019 and 2018, SMUD had one variable-to-fixed interest rate swap agreement with a notional amount of $85.6 million and $91.0 million, respectively. This swap was 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 value of the swap is amortized over the life of the swap agreement. SMUD can terminate the swap agreement at any time, with payment or receipt of the fair market value of the swap as of the date of termination. The obligations of SMUD under the swap agreement are not secured by a pledge of revenues of SMUD's electric system or any other property of SMUD.

Additionally, in December 2019, SMUD executed a variable-to-fixed interest rate swap agreement with J. Aron with a notional amount of $127.0 million for the purpose of fixing the effective interest rate associated with 2011 Series X Bonds. The J. Aron swap becomes effective in July 2021. Also, in December 2019, SMUD executed a variable-to-fixed interest rate swap agreement with Morgan Stanley Capital Services with a notional amount of $157.8 million for the purpose of fixing the effective interest rate associated with 2012 Series Y Bonds. The Morgan Stanley Capital Services swap becomes effective in July 2022. 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, 2026 and for the remaining life of the Morgan Stanley Capital Services swap associated with 2012 Series Y Bonds, the swap 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 had one interest rate swap agreements as of December 31, 2019, which is 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
$ 198,610	Fixed	4.304%	67% of LIBOR + .72%	07/01/27	A+

NCGA had two interest rate swap agreements as of December 31, 2018, which are summarized as follows:

Notional Amount (thousands)	NCGA Pays	Fixed Rate	Floating Rate	Termination Date	Credit Support Provider Credit Rating
$ 34,560	Fixed	4.144%	67% of LIBOR + .63%	07/01/19	A+
198,610	Fixed	4.304%	67% of LIBOR + .72%	07/01/27	A+

At December 31, 2019 and 2018, NCGA had 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 (1.91 percent and 2.8 percent at December 31, 2019 and 2018, respectively) plus an interest rate spread, as specified in each swap agreement. The total notional amount of the swaps at December 31, 2019 and 2018 were $198.6 million and $233.2 million, respectively, and were 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.

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 and NCEA bonds' debt service is provided by "take-and-pay" purchase agreements. 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 and NCEA are collected from SMUD in connection with the sale of gas or electricity to SMUD. The ability for NCGA and NCEA to service debt is dependent on various parties (particularly MSCG, as gas supplier for NCGA and J. Aron, as commodity supplier for NCEA) meeting their contractual obligations.

Callable Bonds. SMUD has $450.0 million of Electric Revenue Bonds that are currently callable, all of which are fixed rate Build America Bonds debt. SMUD also has $531.3 million of bonds that become callable from 2021 through 2026, and these bonds can be called until maturity. SMUD also has a four month call period on the 2019 Series A and 2019 Series B Bonds in advance of their mandatory remarketing purchase date in 2023 and 2025, respectively.

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 2019. Proceeds from the bonds provided financing for various capital improvement projects, component unit capital projects, and the prepayments of a twenty-year supply of natural gas and a thirty-year supply of commodity. 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, 2019.

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,	
	2019	2018
	(thousands of dollars)	
Pledged future revenues	$ 2,837,060	$ 2,608,430
Principal and interest payments for the year ended	$ 265,930	$ 243,188
Total net revenues for the year ended	$ 586,514	$ 692,339
Total remaining principal and interest to be paid	$ 4,469,891	$ 3,715,080
Annual principal and interest payments as a percent of net revenues		
For the year ended	45%	35%

NOTE 11. COMMERCIAL PAPER NOTES

SMUD issues Commercial Paper Notes (Notes) to finance or reimburse capital expenditures. In February 2019, SMUD expanded its commercial paper program from $288.8 million to $400.0 million. At December 31, 2019 and 2018, Notes outstanding totaled $50.0 million and $288.8 million, respectively. The average interest rate for the Notes outstanding at December 31, 2019 and 2018 was 1.02 percent and 1.74 percent and the average term was 90 days and 53 days, respectively. SMUD's commercial paper program is backed by $409.9 million in letter of credit agreements (LOCs) with three separate banks. The LOCs are calculated as the sum of the maximum principal amount of the Notes plus interest thereon at a maximum rate of ten percent per annum for a period of 90 days calculated on the basis of a year of 365 days and the actual number of days elapsed. There have not been any term advances under the LOCs. The LOCs contain a provision that in an event of default, the outstanding amounts may become immediately due.

The summarized activity of SMUD's Notes during 2019 and 2018 is presented below:

	Balance at Beginning of Year	Additions	Reductions	Balance at End of Year
		(thousands of dollars)		
December 31, 2019	$ 288,750	$ 161,250	$ (400,000)	$ 50,000
December 31, 2018	$ 200,000	$ 88,750	$ -0-	$ 288,750

NOTE 12. FAIR VALUE MEASUREMENT

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 as follows:

- 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 and/or observable market prices.
- 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. The cash flows and discount rates are estimated based on a 1-month LIBOR forward curve from Bloomberg, and assuming SIFMA is equal to 70.0 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 tables identify 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, 2019 and 2018, 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, 2019		
	Level 1	Level 2	Total
	(thousands of dollars)		
Investments, including cash and cash equivalents:			
LAIF	$ -0-	$ 104,742	$ 104,742
U.S. Government Agency Obligations	-0-	178,167	178,167
U.S. Treasury Obligations	125,283	-0-	125,283
Corporate Notes	-0-	121,199	121,199
Municipal Bonds	-0-	48,076	48,076
Total Investments, including cash and cash equivalents	$ 125,283	$ 452,184	$ 577,467
Investment Derivative Instrument Assets:			
Gas related agreements	$ 488	$ -0-	$ 488
Total Investment Derivative Instrument Assets	$ 488	$ -0-	$ 488
Hedging Derivative Instrument Assets:			
Gas related agreements	$ 7,247	$ -0-	$ 7,247
Interest rate swap agreements	-0-	9,471	9,471
Total Hedging Derivative Instrument Assets	$ 7,247	$ 9,471	$ 16,718
Investment Derivative Instrument Liabilities:			
Gas related agreements	$ 3,122	$ -0-	$ 3,122
Interest rate swap agreements	-0-	7,882	7,882
Total Investment Derivative Instrument Liabilities	$ 3,122	$ 7,882	$ 11,004
Hedging Derivative Instrument Liabilities:			
Gas related agreements	$ 83,074	$ -0-	$ 83,074
Interest rate swap agreements	-0-	2,120	2,120
Total Hedging Derivative Instrument Liabilities	$ 83,074	$ 2,120	$ 85,194

	At fair value as of December 31, 2018		
	Level 1	Level 2	Total
	(thousands of dollars)		
Investments, including cash and cash equivalents:			
LAIF	$ -0-	$ 88,401	$ 88,401
U.S. Government Agency Obligations	-0-	157,469	157,469
U.S. Treasury Obligations	167,419	-0-	167,419
Corporate Notes	-0-	84,395	84,395
Municipal Bonds	-0-	14,877	14,877
Total Investments, including cash and cash equivalents	$ 167,419	$ 345,142	$ 512,561
Investment Derivative Instrument Assets:			
Gas related agreements	$ 20	$ -0-	$ 20
Total Investment Derivative Instrument Assets	$ 20	$ -0-	$ 20
Hedging Derivative Instrument Assets:			
Gas related agreements	$ 3,296	$ -0-	$ 3,296
Interest rate swap agreements	-0-	11,708	11,708
Total Hedging Derivative Instrument Assets	$ 3,296	$ 11,708	$ 15,004
Investment Derivative Instrument Liabilities:			
Gas related agreements	$ 9,971	$ -0-	$ 9,971
Interest rate swap agreements	-0-	7,100	7,100
Total Investment Derivative Instrument Liabilities	$ 9,971	$ 7,100	$ 17,071
Hedging Derivative Instrument Liabilities:			
Gas related agreements	$ 85,769	$ -0-	$ 85,769
Total Hedging Derivative Instrument Liabilities	$ 85,769	$ -0-	$ 85,769

NOTE 13. ACCRUED DECOMMISSIONING LIABILITY

Asset Retirement Obligations (ARO). SMUD implemented GASB No. 83 in 2019 (see Note 3). SMUD recognizes AROs for its Rancho Seco nuclear power plant facility and the CVFA power plant facility. This statement requires measurement of the ARO be based on the best estimate of the current value of outlays expected to be incurred. The best estimate should be determined using all available evidence and requires probability weighting of potential outcomes when sufficient evidence is available. This statement also requires the current value be adjusted for the effects of the general inflation or deflation and an evaluation of relevant factors that may significantly change the estimated asset retirement outlays at least annually.

Rancho Seco Nuclear Power Plant. With the completion of nuclear decommissioning of the former 913 MW nuclear power plant, and the subsequent termination of the 10 Code of Federal Regulations (CFR) 50 license by the Nuclear Regulatory Commission (NRC) effective August 31, 2018, all remaining Rancho Seco decommissioning liability relates to the Independent Spent Fuel Storage Installation (ISFSI) licensed under 10 CFR Part 72. Nuclear decommissioning is the process of safely removing nuclear facilities from service and reducing residual radioactivity to a level that permits termination of the NRC licenses and release of the property for unrestricted use. Final decommissioning of the ISFSI will occur after the spent nuclear fuel (SNF) and Greater Than Class C (GTCC) radioactive waste are removed from the site and SMUD demonstrates that the site is suitable for release in accordance with release criteria specified in 10 CFR 20, Subpart E and an approved License Termination Plan.

The Department of Energy (DOE), under the Nuclear Waste Policy Act (NWPA) of 1982 as amended, is responsible for permanent disposal of spent nuclear fuel and GTCC radioactive waste, which are currently stored in the Part 72 licensed ISFSI. SMUD has a contract with the DOE for the removal and disposal of SNF and GTCC waste. All SMUD's SNF and GTCC waste are currently stored in sealed canisters in the ISFSI. However, the date when DOE will remove the fuel and GTCC waste is uncertain. In 2010, the DOE formally withdrew the application for licensing of Yucca Mountain as a high-level waste repository. While the court- ordered reinstatement of NRC license review activities of Yucca Mountain have yielded generally positive results, Yucca Mountain remains speculative as a disposal option for 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, two license applications have been submitted to the NRC for the construction and operation of Consolidated Interim Storage Facility(s) that would store SNF and GTCC waste on an interim basis. These applications are currently under review by the NRC. Should the NRC license one or both facilities, Congress will have to modify the NWPA to allow for its use. In May 2018, the U.S. House of Representatives passed H.R. 3053 – the Nuclear Waste Policy Amendments Act, which was co-sponsored by Representative Doris Matsui and 109 other members of Congress. This bill includes a provision to allow a Consolidated Interim Storage Facility to store fuel from permanently shut down sites like Rancho Seco. As of the end of 2018, the U.S. Senate has not acted on the bill. Passage of this legislation would be a significant step towards removal of the used nuclear fuel from the Rancho Seco facility. Until then, SMUD is committed to the safe and secure storage of its SNF and GTCC waste under its Part 72 license until DOE fulfills its obligation to dispose of this material in accordance with NWPA. In support of this commitment, SMUD submitted its ISFSI license renewal application to the NRC in March of 2018. Once approved, the ISFSI would be allowed to continue the safe and secure storage of SMUD's SNF and GTCC.

The Rancho Seco decommissioning liability is based on an internal study of the remaining decommissioning costs, which consist of: 1) annual spent fuel management costs, 2) transportation of the canisters in the ISFSI and 3) termination of the Part 72 license. The largest part of the decommissioning estimate is the annual spent fuel management costs; next year's annual budget is used for the estimate. The other costs were estimated based on prior experience and studies and prepared by management representatives of the nuclear power plant. The costs in the estimate were in 2018 dollars. An employment cost index was used to adjust the other costs portion of the obligation for inflation in 2019. Probability weighting was assigned for two scenarios: 1) spent nuclear fuel will be removed from the site by 2028 and 2) spent nuclear fuel will be removed from the site by 2035. SMUD uses its Trust Fund (see Note 2) to demonstrate financial assurance to the NRC that there are enough funds to complete the termination of the Part 72 license; the balance of the Trust Fund at December 31, 2019 is $8.8 million.

CVFA Power Plant. CVFA's ground lease agreement with the Sacramento Regional County Sanitation District requires CVFA to restore the premises to its original condition upon termination of the contract. A new study to determine the current value of the asset retirement obligation was conducted by an external contractor who specializes in decommissioning studies. The expected costs and scope of work were based on the most recent cost estimate and assumes a contractor will be responsible for the work and that decommissioning would take place between 2025 and 2027. The estimated costs were in 2018 dollars. The result of this study was used to determine the new balance of the ARO and the deferred outflows at January 1, 2018, in order to account for the 2018 activity. CVFA used the annual All Urban Consumer Price Index to adjust this obligation for inflation in 2019. The remaining useful life of the Agency's assets is six years at December 31, 2019.

The current portion of the Accrued Decommissioning liability represents SMUD's estimate of actual expenditures for Rancho Seco in the next year, as set forth in the annual budget.

At December 31, 2019 and 2018, SMUD's Accrued Decommissioning balance in the Statements of Net Position was $91.7 million and $96.1 million, respectively.

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 plans and additions to/deductions from the 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.

Plan Description and Benefits Provided. SMUD participates in PERS, an agent multiple-employer public employee defined benefit pension plan (PERS 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, 2018 and June 30, 2017.

SMUD also provides a supplemental benefit in lieu of PERS' Single Highest Year (SHY) for certain represented employees hired before January 1, 2013. For these employees, if the present value of pension allowance under the PERS Plan with the employer paid member contributions (EPMC) benefit enhancement program is less than the present value of what the employee would have received under the PERS Plan benefit with SHY earnings but no EPMC, SMUD pays a lump sum equivalent to the difference. There are no assets accumulated in a trust for SHY.

GASB No. 68 and GASB No. 73 require that the reported results must pertain to liability and asset information within certain defined timeframes. The following timeframes are used for the year ended:

PERS Plan	December 31,	
	2019	2018
Valuation date	June 30, 2018	June 30, 2017
Measurement date	June 30, 2019	June 30, 2018

SHY	December 31,	
	2019	2018
Valuation date and Measurement date	June 30, 2019	June 30, 2018

Employees Covered by Benefit Terms. The following employees were covered by the benefit terms for the year ended:

PERS Plan	December 31,	
	2019	2018
Inactive employees or beneficiaries currently receiving benefit payments	2,936	2,865
Inactive employees entitled to but not yet receiving benefit payments	946	919
Active employees	2,260	2,169
Total employees covered by benefit terms	6,142	5,953

SHY	December 31,	
	2019	2018
Inactive employees or beneficiaries currently receiving benefit payments	-0-	-0-
Inactive employees entitled to but not yet receiving benefit payments	-0-	1
Active employees	215	231
Total employees covered by benefit terms	215	232

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 years ended June 30, 2019 and 2018, the average active employee contribution rate is 6.7 percent and 6.8 percent of annual pay, respectively. For the PERS fiscal year ended June 30, 2019, the employer's contribution rate is 8.2 percent of annual payroll plus $29.4 million for the unfunded accrued liability contribution. For the PERS fiscal year ended June 30, 2018, the employer's contribution rate is 7.7 percent of annual payroll plus $22.3 million for the unfunded accrued liability contribution. Employer contribution rates may change if plan contracts are amended. For the fiscal years ended June 30, 2019 and 2018, SMUD made contributions recognized by the PERS Plan in the amount of $69.1 million and $90.1 million, respectively.

Net Pension Liability (NPL). SMUD's NPL at December 31, 2019 and 2018 was measured at June 30, 2019 and 2018, respectively. The total pension liability used to calculate the NPL was determined by actuarial valuations as of June 30, 2018 and 2017 rolled forward using generally accepted actuarial procedures to the June 30, 2019 and 2018 measurement dates for the PERS Plan and actuarial valuations as of June 30, 2019 and 2018 for SHY.

Actuarial Methods and Assumptions. The actuarial methods and assumptions used for the December 31, 2019 and December 31, 2018 total pension liabilities are as follows for the PERS Plan:

Actuarial Cost Method	Entry age normal
Discount Rate	7.15%
Inflation	2.5%
Salary Increases	Varies by entry age and service
Mortality Rate Table	The mortality table used was developed based on PERS' specific data. The probabilities of mortality are based on the 2017 PERS' Experience Study for the period from 1997 to 2015. Pre-retirement and Post-retirement mortality rates include 15 years of projected mortality improvement using the Society of Actuaries Scale 90% of scale MP-2016.
Post Retirement Benefit Increase	For 2019, the lesser of contract COLA or 2.5% until Purchase Power Protection Allowance Floor on Purchasing Power applies, 2.5% thereafter. For 2018, contract COLA up to 2.0% until Purchase Power Protection Allowance Floor on Purchasing Power applies, 2.5% thereafter.

The actuarial methods and assumptions used for the December 31, 2019 and December 31, 2018 total pension liabilities are as follows for SHY:

Actuarial Cost Method	Entry age normal
Discount Rate	Bond Buyer 20 Index - 3.50% (2019), 3.87% (2018)
Inflation	2.5% (2019), 2.75% (2018)
Salary Increases	Aggregate – 2.75% (2019), 3.0% (2018); merit - PERS 1997-2015 Experience Study
Mortality, Retirement, Disability, Termination	PERS 1997-2015 Experience Study
Mortality Improvement	Mortality projected 15 years with 90% of Scale MP-2016

Discount Rates. For the PERS Plan, the discount rate used to measure the total pension liability for the years ended December 31, 2019 and 2018 was 7.15 percent for both years. For the year ended December 31, 2019, the projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current member contribution rates and that contributions from employers will be made at statutorily required rates, actuarially determined. Based on those assumptions, the PERS Plan was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which 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 expected real rates of return by asset class used for December 31, 2019 are as follows:

Asset Class	Current Target Allocation	Real Return Years 1-10	Real Return Years 11+
Global Equity	50.0%	4.80%	5.98%
Global Fixed Income	28.0%	1.00%	2.62%
Inflation Assets	0%	0.77%	1.81%
Private Equity	8.0%	6.30%	7.23%
Real Estate	13.0%	3.75%	4.93%
Liquidity	1.0%	0%	(0.92%)

The expected real rates of return by asset class used for December 31, 2018 are as follows:

Asset Class	Current Target Allocation	Real Return Years 1-10	Real Return Years 11+
Global Equity	50.0%	4.80%	5.98%
Global Fixed Income	28.0%	1.00%	2.62%
Inflation Assets	0%	.77%	1.81%
Private Equity	8.0%	6.30%	7.23%
Real Estate	13.0%	3.75%	4.93%
Liquidity	1.0%	0%	(.92%)

Changes in the NPL. The following table shows the changes in NPL recognized over the year ended December 31, 2019:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
		(thousands of dollars)	
Balances at January 1, 2019	$ 2,234,911	$ 1,780,867	$ 454,044
Changes recognized for the measurement period:			
Service cost	38,264	-0-	38,264
Interest	158,160	-0-	158,160
Changes in assumptions	(194)	-0-	(194)
Differences between expected and actual experience	18,561	-0-	18,561
Contributions - employer	-0-	69,119	(69,119)
Contributions - employee	-0-	17,411	(17,411)
Net investment income	-0-	115,867	(115,867)
Benefit payments	(117,605)	(117,548)	(57)
Administrative expense	-0-	(1,270)	1,270
Other	-0-	4	(4)
Net changes	97,186	83,583	13,603
Balances at December 31, 2019	$ 2,332,097	$ 1,864,450	$ 467,647

The following table shows the changes in NPL recognized over the year ended December 31, 2018:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
		(thousands of dollars)	
Balances at January 1, 2018	$ 2,220,196	$ 1,654,396	$ 565,800
Changes recognized for the measurement period:			
Service cost	36,245	-0-	36,245
Interest	151,548	-0-	151,548
Changes in assumptions	(61,661)	-0-	(61,661)
Differences between expected and actual experience	346	-0-	346
Contributions - employer	-0-	90,141	(90,141)
Contributions - employee	-0-	16,832	(16,832)
Net investment income	-0-	138,739	(138,739)
Benefit payments	(111,763)	(111,763)	-0-
Administrative expense	-0-	(7,474)	7,474
Other	-0-	(4)	4
Net changes	14,715	126,471	(111,756)
Balances at December 31, 2018	$ 2,234,911	$ 1,780,867	$ 454,044

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:

PERS Plan	1% Decrease (6.15%)	Current Discount Rate (7.15%)	1% Increase (8.15%)
		(thousands of dollars)	
Plan's NPL, December 31, 2019	$ 761,785	$ 463,239	$ 215,186
Plan's NPL, December 31, 2018	737,102	449,456	210,375

SHY	1% Decrease (2.50%)	Current Discount Rate (3.50%)	1% Increase (4.50%)
		(thousands of dollars)	
Plan's NPL, December 31, 2019	$ 5,375	$ 4,408	$ 3,642

	1% Decrease (2.87%)	Current Discount Rate (3.87%)	1% Increase (4.87%)
		(thousands of dollars)	
Plan's NPL, December 31, 2018	$ 5,572	$ 4,588	$ 3,808

Pension Plan Fiduciary Net Position. Detailed information about the PERS Plan's fiduciary net position is available in the separately issued PERS Plan financial statements. This report, the audited financial statements, and other reports 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 years ended December 31, 2019 and 2018, SMUD recognized pension expense of $91.8 million and $56.2 million, respectively.

At December 31, 2019 and 2018, SMUD reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	December 31, 2019	December 31, 2018
	(thousands of dollars)	
Deferred outflows of resources:		
Changes of assumptions	$ 23,961	$ 57,325
Differences between expected and actual experience	14,788	961
Differences between projected and actual earnings on pension plan investments	-0-	6,184
Employer's contributions to the Plan subsequent to the measurement of total pension liability	67,119	38,561
Total deferred outflows of resources	$ 105,868	$ 103,031
Deferred inflows of resources:		
Changes of assumptions	$ 30,825	$ 46,528
Differences between expected and actual experience	7,239	16,238
Differences between projected and actual earnings on pension plan investments	7,932	-0-
Total deferred inflows of resources	$ 45,996	$ 62,766

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:		
2020	$	14,002
2021		(24,354)
2022		2,306
2023		1,813
2024		(205)
Thereafter		(809)

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 $5.4 million in 2019 and $4.9 million in 2018. 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 $24.8 million in 2019 and $23.8 million in 2018.

NOTE 15. OTHER POSTEMPLOYMENT BENEFITS

Summary of Significant Accounting Policies. For purposes of measuring the net OPEB liability, deferred outflows of resources and deferred inflows of resources related to OPEB, and OPEB expense, information about the fiduciary net position of the OPEB plan and additions to/deductions from the OPEB plan's fiduciary net position have been determined on the same basis as they are reported by the California Employers Retiree Benefit Trust (CERBT). For this purpose, SMUD recognizes benefit payments when due and payable in accordance with the benefit terms. Investments are reported at fair value.

Plan Description and Benefits Provided. SMUD is a member of CERBT. The CERBT Fund is an IRC Section 115 Trust set up for the purpose of receiving employer contributions to prefund OPEB for retirees and their beneficiaries. CERBT is an agent multiple-employer defined benefit OPEB plan (OPEB Plan) administered by PERS. The OPEB Plan provides medical, dental and long-term disability benefits for retirees and their beneficiaries, in accordance with SMUD policy and negotiated agreements with employee representation groups. The benefit, benefit levels, retiree contributions and employer contributions are governed by SMUD and can be amended by SMUD through its personnel manual and union contracts. Any changes to these benefits would be approved by SMUD's Board and unions.

Employees Covered by Benefit Terms. The following employees were covered by the benefit terms:

	December 31,	
	2019	2018
Inactive employees or beneficiaries currently receiving benefit payments	2,244	2,197
Inactive employees entitled to but not yet receiving benefit payments	44	41
Active employees	2,186	2,178
Total employees covered by benefit terms	4,474	4,416

Contributions. OPEB contributions are elective and not required. In December 2018, SMUD split its CERBT assets across two asset strategies to better align trust assets with liabilities (Strategy 1 for active employees and retirements after June 30, 2018 and Strategy 3 for retirements before July 1, 2018). SMUD contributes the normal cost to the CERBT, but annually receives reimbursement for cash benefit payments from the CERBT. SMUD may also elect to put additional contributions into the OPEB Plan. For the OPEB Plan's fiscal years ended June 30, 2019 and 2018, SMUD made contributions recognized by the OPEB Plan in the amounts of $14.0 million and $34.2 million, respectively.

Net OPEB Liability (NOL). SMUD's NOL at December 31, 2019 and 2018 was measured as of June 30, 2019 and 2018, respectively, and the total OPEB liability used to calculate the NOL was determined by actuarial valuations as of those dates.

Actuarial Methods and Assumptions. The actuarial methods and assumptions used for the December 31, 2019 and December 31, 2018 total OPEB liabilities are as follows:

Discount Rate	6.4% (2019). Blended discount rate based on projected benefit streams expected to be paid from each Strategy. 6.75% (2018)
Inflation	2.75%
Salary Increases	Aggregate - 3.0%; merit - PERS 1997-2015 Experience Study
Mortality, Retirement, Disability, Termination	PERS 1997-2015 Experience Study
Mortality Improvement	Mortality projected fully generational with Scale MP-18 (2019), MP-17 (2018)
Healthcare Cost Trend Rates	Non-medicare: 7.25% for 2021, decreasing to an ultimate rate of 4.0% in 2076 (2019); 7.5% for 2020, decreasing to an ultimate rate of 4.0% in 2076 (2018) Medicare: 6.3% for 2021, decreasing to an ultimate rate of 4.0% in 2076 (2019); 6.5% for 2020, decreasing to an ultimate rate of 4.0% in 2076 (2018)

Discount Rates. For the OPEB Plan, the discount rate used to measure the total OPEB liability was 6.4 percent for the year ended December 31, 2019. This rate is a blended discount rate based on projected benefit streams expected to be paid from Strategies 1 and 3. The discount rate of 6.75 percent was used for the year ended December 31, 2018. The projection of cash flows used to determine the discount rate assumed that SMUD contributes the full normal cost to the trust and only takes reimbursement from the trust of the cash benefit payments. Because the implied subsidy benefit payments have a larger present value than the payments toward the unfunded accrued liability, there should be sufficient plan assets to pay all benefits from the trust. Based on those assumptions, the OPEB Plan's fiduciary net position was projected to be available to make all projected OPEB payments for current active and inactive employees. The long-term expected rate of return of 6.75 percent for Strategy 1 and 5.5 percent for Strategy 3 was applied to all periods of projected benefit payments to determine the total OPEB liability for the year ended December 31, 2019. The expected rate of return of 6.75 percent was applied for the year ended December 31, 2018.

The expected real rates of return by asset class used and presented as geometric means for December 31, 2019 are as follows:

Asset Class	Target Allocation CERBT Strategy 1	Expected Real Rate of Return
Global Equity	59%	4.82%
Fixed Income	25%	1.47%
TIPS	5%	1.29%
Commodities	3%	0.84%
REITS	8%	3.76%

Asset Class	Target Allocation CERBT Strategy 3	Expected Real Rate of Return
Global Equity	22%	4.82%
Fixed Income	49%	1.47%
TIPS	16%	1.29%
Commodities	5%	0.84%
REITS	8%	3.76%

The expected real rates of return by asset class used and presented as geometric means for December 31, 2018 are as follows:

Asset Class	Target Allocation CERBT Strategy 1	Expected Real Rate of Return
Global Equity	57%	4.82%
Fixed Income	27%	1.47%
TIPS	5%	1.29%
Commodities	3%	0.84%
REITS	8%	3.76%

Changes in the NOL. The following table shows the changes in NOL recognized over the year ended December 31, 2019:

	Total OPEB Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net OPEB Liability (a) – (b)
		(thousands of dollars)	
Balances at January 1, 2019	$ 399,845	$ 377,779	$ 22,066
Changes recognized for the measurement period:			
Service cost	8,946	-0-	8,946
Interest	26,766	-0-	26,766
Changes in assumptions	15,332	-0-	15,332
Differences between expected and actual experience	(6,885)	-0-	(6,885)
Contributions - employer	-0-	13,963	(13,963)
Net investment income	-0-	20,132	(20,132)
Benefit payments	(24,521)	(24,521)	-0-
Administrative expense	-0-	(81)	81
Net changes	19,638	9,493	10,145
Balances at December 31, 2019	$ 419,483	$ 387,272	$ 32,211

The following table shows the changes in NPL recognized over the year ended December 31, 2018:

	Total OPEB Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net OPEB Liability (a) – (b)
		(thousands of dollars)	
Balances at January 1, 2019	$ 442,414	$ 341,548	$ 100,866
Changes recognized for the measurement period:			
Service cost	9,263	-0-	9,263
Interest	29,656	-0-	29,656
Changes in assumptions	3,105	-0-	3,105
Differences between expected and actual experience	(59,921)	-0-	(59,921)
Contributions - employer	-0-	34,243	(34,243)
Net investment income	-0-	27,295	(27,295)
Benefit payments	(24,672)	(24,672)	-0-
Administrative expense	-0-	(635)	635
Net changes	(42,569)	36,231	(78,800)
Balances at December 31, 2019	$ 399,845	$ 377,779	$ 22,066

Sensitivity of the NOL to Changes in the Discount Rate. The following presents the NOL of SMUD as of the measurement date, calculated using the current discount rate, as well as what the NOL 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 (5.4%)	Current Discount Rate (6.4%)	1% Increase (7.4%)
		(thousands of dollars)	
NOL, December 31, 2019	$ 85,866	$ 32,211	$ (12,249)

	1% Decrease (5.75%)	Current Discount Rate (6.75%)	1% Increase (7.75%)
		(thousands of dollars)	
NOL, December 31, 2018	$ 71,629	$ 22,066	$ (19,135)

Sensitivity of the NOL to Changes in the Healthcare Cost Trend Rates. The following presents the NOL of SMUD as of the measurement date, calculated using the current healthcare cost trend rate, as well as what the NOL would be if it were calculated using a heathcare cost trend rate that is 1 percentage-point lower or 1 percentage-point higher than the current healthcare trend rate (see assumptions above for heathcare trend rate):

	1% Decrease	Current Healthcare Trend Rate	1% Increase
		(thousands of dollars)	
NOL, December 31, 2019	$ (16,289)	$ 32,211	$ 91,772
NOL, December 31, 2018	(22,822)	22,066	76,918

OPEB Plan Fiduciary Net Position. Detailed information about the OPEB Plan's fiduciary net position is available in the separately issued OPEB Plan's report. This report can be obtained at the PERS' website at www.calpers.ca.gov.

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB. For the years ended December 31, 2019 and 2018, SMUD recognized OPEB expense of ($0.2) million and $3.3 million, respectively.

At December 31, 2019 and 2018, SMUD reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources:

	December 31,	
	2019	2018
	(thousands of dollars)	
Deferred outflows of resources:		
Changes of assumptions	$ 14,644	$ 2,508
Employer's contributions to the OPEB Plan subsequent to the measurement of total OPEB liability	12,014	12,822
Total deferred outflows of resources	$ 26,658	$ 15,330
Deferred inflows of resources:		
Differences between expected and actual experience	$ 42,593	$ 48,398
Differences between projected and actual earnings on OPEB plan investments	266	6,626
Total deferred inflows of resources	$ 42,859	$ 55,024

Amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in OPEB expense as follows:

Year ended December 31:	
2020	$ (10,336)
2021	(10,337)
2022	(9,179)
2023	349
2024	1,288
Thereafter	-0-

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, cyber activities, natural disasters, employee injuries and illnesses, and others. SMUD carries commercial insurance coverage to cover most claims in excess of specific dollar thresholds, which range from $5.0 thousand to $2.5 million per claim. General liability limits are $100.0 million. As of December 31, 2019, wildfire liability limits are $250.0 million ($186.5 million commercial insurance plus $113.5 million self-insured retention). As of December 31, 2018, SMUD had the same $186.5 million commercial coverage but had a $163.5 self-insured retention within a $300.0 million total program value (i.e. this year's program has the same commercial coverage protection while requiring less SMUD retention). 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 2019, 2018 and 2017, 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 and Other in the Statements of Net Position.

SMUD's total claims liability, comprising claims received and claims incurred but not reported, at December 31, 2019, 2018 and 2017 is presented below:

	2019	2018	2017
		(thousands of dollars)	
Workers' compensation claims	$ 10,005	$ 10,993	$ 9,823
General and auto claims	3,867	3,523	1,941
Short and long-term disability claims	201	153	113
Claims liability	$ 14,073	$ 14,669	$ 11,877

Changes in SMUD's total claims liability during 2019, 2018 and 2017 are presented below:

	2019	2018	2017
		(thousands of dollars)	
Claims liability, beginning of year	$ 14,669	$ 11,877	$ 13,259
Add: provision for claims, current year	1,789	2,601	1,840
Increase in provision for claims in prior years	11,434	10,450	1,595
Less: payments on claims attributable to current and prior years	(13,819)	(10,259)	(4,817)
Claims liability, end of year	$ 14,073	$ 14,669	$ 11,877

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.

At December 31, 2019, the approximate minimum obligations for the "take-or-pay" contracts over the next five years are as follows:

	Electric	Gas
	(thousands of dollars)	
2020	$ 76,853	$ 10,376
2021	44,198	10,569
2022	44,546	9,857
2023	33,699	8,099
2024	33,699	6,253

At December 31, 2019, 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)	
2020	$ 219,921	$ 126,286
2021	177,826	102,964
2022	158,916	104,805
2023	157,292	111,082
2024	157,883	86,535

Contractual Commitments beyond 2024 - Electricity. Several of SMUD's purchase power and transmission contracts extend beyond the five-year summary presented above. These contracts expire between 2025 and 2050 and provide for power under various terms and conditions. SMUD estimates its annual minimum commitments under the take-or-pay contracts ranges between $11.5 million in 2025 and $7.5 million in 2033. SMUD estimates its annual minimum commitments under the remaining contracts, assuming the energy is delivered, ranges between $158.7 million in 2025 and $9.9 million in 2050. SMUD's largest purchase power source (in volume) is the Western Base Resource contract, whereby SMUD receives 25.5 percent of the amount of energy made available by Western, which equals an equal share of their revenue requirement. The Western contract expires on December 31, 2024.

Contractual Commitments beyond 2024 - 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 2025 and 2049 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 $6.3 million in 2025 and $4.7 million in 2049. SMUD estimates its annual minimum commitments under the remaining contracts, assuming the gas is delivered, ranges between $64.0 million in 2025 and $7.0 million in 2049.

Gas Price Swap Agreements. SMUD has entered into numerous variable to fixed rate swaps with notional amounts totaling 82,157,500 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 $2.24 to $7.17 per Dth. The swap agreements expire periodically from January 2020 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 58,300 Dth per day (Dth/d) of natural gas pipeline capacity from the North, including the Canadian Basins through 2021 and 41,200 Dth/d from the Southwest or Rocky Mountain Basins through at least 2020.

Gas Storage Agreements. SMUD also has an agreement for the storage of up to 3.0 million Dth of natural gas at regional facilities through March 2020, dropping to 1.0 million Dth through March 2023.

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 $63.4 million at December 31, 2019.

Construction Contracts. SMUD has entered into various construction contracts for the construction of a new substation, a new powerhouse and improvements to the White Rock Powerhouse in the UARP. As of December 31, 2019, the not-to-exceed price for these contracts totaled $57.2 million. The remaining contract obligations for these contracts as of December 31, 2019 was $21.4 million.

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 on 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 services 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. In addition, SMUD is an active participant in other FERC administrative proceedings, including those related to reliability and cybersecurity standards, variable resource integration, and transmission planning and cost allocation. 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 settlements or consent orders will be reopened, the possibility exists. If any of the settlements or consent orders were to be reopened, SMUD management does not believe that the outcome will have a material adverse effect on SMUD's financial position, liquidity or results of operations.

North City Environmental 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 and some of the property continued to be so after the sale. SMUD currently operates a bulk substation on the North City Site and plans to decommission the facility in the next few years. 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 established a regulatory asset to defer recognition of the expense related to the investigation, design and remediation necessary for the North City Site, and recorded a liability for the full $12.0 million estimated for the project. In 2012, the regulatory asset was fully amortized. As the owner of the North City Site, SMUD will play the principal role in the remediation selection and activities. SMUD has estimated the total exposure for closing the site at as high as $12.0 million based on initial tests and studies of the site and approved and implemented cap designs for nearby former landfill areas. Costs could exceed that amount based on the need to design around transmission-related infrastructure improvements. SMUD's management does not, however, believe this will occur. Even if remediation costs associated with the North City Site were to increase, SMUD management believes that any increased costs will not have a material adverse effect on SMUD's financial position, liquidity or results of operations.

Station E Site Remediation. In October 2013, SMUD purchased property for development of a new substation to replace the North City substation ("Station E"). Initial development of the site in 2016 uncovered solid waste in quantities not indicated by pre-purchase due diligence. SMUD thereafter worked with the Sacramento County Environmental Management Division, the local enforcement agency for the California Department of Resources Recycling and Recovery, to obtain approval of soil handling and land use plans for development of the site, which approval was given in the third quarter of 2017. SMUD substantially implemented the plans in 2018, including installing a cover, grading, drainage, maintenance and landfill gas control measures at the site. SMUD filed a lawsuit to recover remediation costs from a prior owner of the site, Union Pacific Railroad. Ultimate financial responsibility for the closure activities has not been determined, though SMUD management believes that any increased costs ultimately borne by SMUD will not have a material adverse effect on SMUD's financial position, liquidity or results of operations.

Patua Acquisition Company, LLC. On April 16, 2010, SMUD entered into a 23-year PPA with Patua Project, LLC. The fifth amendment to the PPA was signed on November 30, 2016, with the new project owner, Patua Acquisition Company, LLC (Patua). The PPA requires Patua to provide a warranty for the annual amount of energy and green attributes produced and delivered to SMUD. If Patua fails to meet the warranty for two consecutive years, it triggers SMUD's right to reduce the Guaranteed Capacity and Transmission Capacity Requirement as defined in the PPA.

On February 16, 2017, SMUD sent Patua a Notice of Failure to Meet Annual Performance Guarantee, Reduction of Phase 1 Guaranteed Capacity Resizing, and Reduction of Transmission Capacity Requirement pursuant to the terms of the PPA. Patua disagreed with the reductions and on June 9, 2017, after meetings with SMUD staff, sent a letter requesting a meeting with a senior officer to work towards a resolution in accordance with the dispute resolution provisions of the PPA. A meeting of the senior officers occurred. Staff continues to work through the issue with Patua. However, SMUD management does not believe that the outcome will have a material adverse effect 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.

REQUIRED SUPPLEMENTARY INFORMATION - UNAUDITED
For the Years Ended December 31, 2019 and 2018

Schedule of Changes in Net Pension Liability and Related Ratios During the Measurement Period

	December 31,					
	2019	2018	2017	2016	2015	2014
	(thousands of dollars)					
Total pension liability:						
Service cost	$ 38,061	$ 36,029	$ 35,040	$ 29,044	$ 27,991	$ 28,170
Interest	157,976	151,354	150,119	147,497	142,468	137,546
Changes of assumptions	-0-	(61,585)	123,043	-0-	(34,228)	-0-
Differences between expected and actual experience	18,877	1,293	(29,276)	(8,357)	(10,613)	-0-
Benefit payments, including refunds of employee contributions	(117,548)	(111,763)	(104,428)	(99,155)	(94,636)	(90,175)
Net change in total pension liability	97,366	15,328	174,498	69,029	30,982	75,541
Total pension liability, beginning of year	2,230,323	2,214,995	2,040,497	1,971,468	1,940,486	1,864,945
Total pension liability, end of year (a)	$ 2,327,689	$ 2,230,323	$ 2,214,995	$ 2,040,497	$ 1,971,468	$ 1,940,486
Plan fiduciary net position:						
Contributions - employer	$ 69,119	$ 90,141	$ 32,389	$ 27,645	$ 22,499	$ 21,511
Contributions - employee	17,411	16,832	15,845	15,271	14,503	15,346
Net investment income	115,867	138,739	171,596	8,316	35,797	245,659
Benefit payments, including refunds of employee contributions	(117,548)	(111,763)	(104,428)	(99,155)	(94,636)	(90,175)
Administrative expense	(1,270)	(7,474)	(2,275)	(969)	(1,795)	(2,028)
Other	4	(4)	-0-	34	(25)	-0-
Net change in plan fiduciary net position	83,583	126,471	113,127	(48,858)	(23,657)	190,313
Plan fiduciary net position, beginning of year	1,780,867	1,654,396	1,541,269	1,590,127	1,613,784	1,423,471
Plan fiduciary net position, end of year (b)	$ 1,864,450	$ 1,780,867	$ 1,654,396	$ 1,541,269	$ 1,590,127	$ 1,613,784
Net pension liability, ending (a) - (b)	$ 463,239	$ 449,456	$ 560,599	$ 499,228	$ 381,341	$ 326,702
Plan fiduciary net position as a percentage of the total pension liability	80.1%	79.8%	74.7%	75.5%	80.7%	83.2%
Covered payroll	$ 247,759	$ 235,902	$ 223,685	$ 207,119	$ 197,481	$ 191,439
Net pension liability as a percentage of covered payroll	187.0%	190.5%	250.6%	241.0%	193.1%	170.7%

PERS Plan. 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.

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, 2018 valuation date. This applies for voluntary benefit changes as well as any offers of two years additional service credit.

Changes in Assumptions: No changes in 2019. In 2018, demographic assumptions and inflation rate were changed in accordance to the PERS Experience and Study and Review of Actuarial Assumptions December 2017. There were no changes in the discount rate. In 2017, the accounting discount rate reduced from 7.65 percent to 7.15 percent. In 2016, there were no changes. In 2015, amounts reported reflect an adjustment of the discount rate from 7.5 percent (net of administrative expense) to 7.65 percent (without a reduction for pension plan administrative expense). In 2014, amounts reported were based on the 7.5 percent discount rate.

Schedule of Changes in Net Pension Liability and Related Ratios During the Measurement Period

SHY. 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,			
	2019	2018	2017	2016
	(thousands of dollars)			
Total pension liability:				
Service cost	$ 203	$ 216	$ 300	$ 218
Interest	184	194	193	195
Changes of assumptions	(194)	(76)	(827)	1,118
Differences between expected and actual experience	(316)	(947)	(914)	-0-
Benefit payments	(57)	-0-	-0-	-0-
Net change in total pension liability	(180)	(613)	(1,248)	1,531
Total pension liability, beginning of year	4,588	5,201	6,449	4,918
Total pension liability, end of year	$ 4,408	$ 4,588	$ 5,201	$ 6,449
Covered payroll	$ 18,695	$ 20,466	$ 21,743	$ 21,748
Net pension liability as a percentage of covered payroll	23.6%	22.4%	23.9%	29.7%

Notes to Schedule

Benefit Changes: There were no changes to benefits.

Changes in Assumptions: In 2019, the discount rate was updated based on the municipal bond rate as of the measurement date and was updated from 3.87 percent to 3.5 percent. Inflation was updated from 2.75 percent to 2.50 percent and the aggregate salary increase was updated from 3.00 percent to 2.75 percent. In 2018, the discount rate was updated from 3.58 percent to 3.87 percent. Demographic assumptions were updated to the PERS 1997-2015 experience study. In 2017, the discount rate was updated from 2.85 percent to 3.58 percent.

Schedule of Plan Contributions for Pension

PERS Plan. 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,					
	2019	2018	2017	2016	2015	2014
	(thousands of dollars)					
Actuarially determined contribution	$ 49,119	$ 40,142	$ 32,389	$ 27,645	$ 22,499	$ 21,511
Contributions in relation to the actuarially determined contribution	(69,119)	(90,142)	(32,389)	(27,645)	(22,499)	(21,511)
Contribution excess	$ (20,000)	$ (50,000)	$ -0-	$ -0-	$ -0-	$ -0-
Covered payroll	$ 261,107	$ 248,590	$ 236,219	$ 222,133	$ 213,627	$ 195,394
Contributions as a percentage of covered payroll	26.5%	36.3%	13.7%	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, 2019 was derived from the June 30, 2016 funding valuation report.

Actuarial cost method	Entry age normal
Amortization method/period	For details, see June 30, 2016 Funding Valuation Report
Asset valuation method	Fair value of assets. For details, see June 30, 2016 Funding Valuation Report
Inflation	2.75%
Salary increases	Varies by entry age and service
Payroll growth	3.0%
Investment rate of return	7.375% Net of pension plan investment and administrative expenses; includes inflation
Retirement age	The probabilities of retirement are based on the 2014 PERS Experience Study for the period from 1997 to 2011
Mortality	The probabilities of mortality are based on the 2014 PERS Experience Study for the period from 1997 to 2011. Pre-retirement and post-retirement mortality rates include 20 years of projected mortality improvement using Scale BB published by the Society of Actuaries.

In 2018, the investment rate of return was 7.5%. Prior to 2017, the retirement age and mortality assumptions were based on the 2010 PERS Experience Study for the period from 1997 to 2007. In addition, the mortality assumption for pre-retirement and post-retirement rates included 5 years of projected mortality improvement using Scale AA published by the Society of Actuaries.

Schedule of Changes in Net OPEB Liability and Related Ratios
During the Measurement Period

OPEB. The schedule of changes in NOL 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, 2019	December 31, 2018	December 31, 2017
	(thousands of dollars)		
Total OPEB liability:			
Service cost	$ 8,946	$ 9,263	$ 8,993
Interest on total OPEB liability	26,766	29,656	28,676
Changes of assumptions	15,332	3,105	-0-
Differences between expected and actual experience	(6,885)	(59,921)	-0-
Benefit payments, including refunds of employee contributions	(24,521)	(24,672)	(22,192)
Net change in total OPEB liability	19,638	(42,569)	15,477
Total OPEB liability, beginning of year	399,845	442,414	426,937
Total OPEB liability, end of year (a)	$ 419,483	$ 399,845	$ 442,414
Plan fiduciary net position:			
Contributions - employer	$ 13,963	$ 34,243	$ 114,573
Net investment income	20,132	27,295	24,104
Benefit payments, including refunds of employee contributions	(24,521)	(24,672)	(22,192)
Administrative expense	(81)	(635)	(123)
Net change in plan fiduciary net position	9,493	36,231	116,362
Plan fiduciary net position, beginning of year	377,779	341,548	225,186
Plan fiduciary net position, end of year (b)	$ 387,272	$ 377,779	$ 341,548
Net OPEB liability, ending (a) - (b)	$ 32,211	$ 22,066	$ 100,866
Plan fiduciary net position as a percentage of the total OPEB liability	92.3%	94.5%	77.2%
Covered payroll	$ 282,993	$ 269,753	$ 252,211
Net OPEB liability as a percentage of covered payroll	11.4%	8.2%	40.0%

Notes to Schedule

Benefit Changes: There were no changes to benefits.

Changes in Assumptions: In 2019, the discount rate was updated to reflect the split of assets between Strategy 1 and Strategy 3. The mortality improvement scale was updated to Scale MP-2018. In 2018, there were no changes in the discount rate.

Schedule of Plan Contributions for OPEB

OPEB Plan. The schedule of OPEB 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,		
	2019	2018	2017
	(thousands of dollars)		
Actuarially determined contribution	$ 10,710	$ 15,366	$ 16,472
Contributions in relation to the actuarially determined contribution	(13,155)	(35,128)	(116,181)
Contribution excess	$ (2,445)	$ (19,762)	$ (99,709)
Covered payroll	$ 286,835	$ 277,193	$ 260,210
Contributions as a percentage of covered payroll	4.6%	12.7%	44.6%

Notes to Schedule

The actuarial methods and assumptions used to set the actuarially determined contributions for the year ended December 31, 2019 was derived from the June 30, 2018 funding valuation report.

Actuarial cost method	Entry age normal
Amortization method	Level percent of pay
Amortization period	27-year fixed period for 2019
Asset valuation method	Market value of assets
Discount rate	6.75%
Inflation	2.75%
Medical trend	Non-medicare: 7.5% for 2020, decreasing to an ultimate rate of 4.0% in 2076 Medicare: 6.5% for 2020, decreasing to an ultimate rate of 4.0% in 2076
Mortality	PERS 1997-2015 experience study
Mortality improvement	Post-retirement mortality projected fully generational with Scale MP-17

In 2018, the amortization period was for a 28-year fixed period. Mortality assumption used PERS 1997-2011 experience study. The mortality improvement projected fully generational with Scale MP-16. In 2017, the amortization period was for a 29-year fixed period. The inflation rate was 3.0% and the discount rate was 7.25%. The mortality projected fully generational with Scale MP-14, modified to converge in 2022.