Financial Statements

Report of Independent Auditors

December 31, 2021 and 2020

SMUD®

0162-22

SACRAMENTO MUNICIPAL UTILITY DISTRICT
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Independent Auditors' Report

To the Board of Directors of
Sacramento Municipal Utility District

Report on the Audit of the Financial Statements

Opinion

We have audited the accompanying financial statements of Sacramento Municipal Utility District, as of and for the years ended December 31, 2021 and 2020, and the related notes to the financial statements, which collectively comprise the Sacramento Municipal Utility District's basic financial statements as listed in the table of contents.

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, 2021 and 2020, and the changes in financial position and cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States (GAS). Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of Sacramento Municipal Utility District and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

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

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Sacramento Municipal Utility District's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and GAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and GAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Sacramento Municipal Utility District's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Sacramento Municipal Utility District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the required supplementary information, as listed in the table of contents be presented to supplement the basic financial statements. Such information is the responsibility of management and, 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 also issued our report dated March 1, 2022 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 and grant agreements and other matters. The purpose of that report is solely 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 effectiveness of Sacramento Municipal Utility District's 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 US, LLP

Madison, Wisconsin
March 1, 2022

Sacramento Municipal Utility District
Management's Discussion and Analysis - Unaudited
For the Years Ended December 31, 2021 and 2020

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, 2021 and 2020. This discussion and analysis should be read in conjunction with the financial statements, required supplementary information 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 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.

Required Supplementary Information provides additional detailed disclosures as required by the GASB.

Organization and Nature of Operations

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, with a population of approximately 1.5 million – most of Sacramento County and small adjoining portions of Placer and Yolo Counties. The Board of Directors (Board) determines SMUD's rates.

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.

2030 Zero Carbon Plan

In July 2020, the Board adopted a Climate Emergency Declaration to work toward an ambitious goal of delivering carbon neutral electricity by 2030 and indicating a strong commitment to finding additional opportunities to accelerate decarbonization in our energy supply. Building on the Board's Climate Emergency Declaration, SMUD's 2030 Clean Energy Vision calls for absolute zero carbon emission in its power supply by 2030.

In 2021, SMUD's 2030 Clean Energy Vision was translated into the 2030 Zero Carbon Plan, the flexible road map to achieve a zero-carbon power supply by 2030. The plan guides elimination of GHG emissions from SMUD's power plants, development of new distributed energy resource business models, research of emerging grid-scale carbon-free technologies, and expansion of investments in proven clean technologies while ensuring all communities benefit from the plan.

COVID-19 Global Pandemic

In 2021, SMUD continued to support its customers during the COVID-19 pandemic. At the start of the pandemic in March 2020, SMUD provided its electric customers with suspension of disconnections and stopped collections, late fee, and security deposit processes for all customers to support them during this difficult time. Starting in February 2022, normal payment, late fees, and disconnection policies have resumed with possible disconnections occurring no sooner than mid-April 2022. SMUD is working proactively with electric customers to create payment arrangements for those who need them. The effects of the pandemic have resulted in an increase in the number of past due customer accounts.

In 2021, SMUD received $41.4 million in California Arrearage Payment Program (CAPP) funding that was applied to customers' bills in November, to support customers amid the ongoing challenges of the COVID-19 pandemic. The CAPP offers financial assistance for California energy utility customers to help reduce past due energy bill balances that increased during the COVID-19 pandemic. The CAPP program dedicated $1 billion in federal American Rescue Plan Act funding to address Californian's energy debts. The $41.4 million funding is reported in Other income (expense) – net in the Statements of Revenues, Expenses and Changes in Net Position. As of December 31, 2021, the uncollectible reserve for account write-offs was $69 million. Other financial and operational impacts to SMUD associated with COVID-19 are noted throughout this report.

Requests for Information

For more information about SMUD, visit our website at www.smud.org or contact us at customerservices@smud.org.

FINANCIAL POSITION

The following table summarizes the financial position as of December 31 (in millions).

CONDENSED STATEMENTS OF NET POSITION

	2021	2020	2019
Assets			
Electric Utility Plant - net	$ 3,835	$ 3,747	$ 3,626
Restricted and Designated Assets	289	188	173
Current Assets	1,244	1,239	933
Noncurrent Assets	1,475	1,515	1,606
Total Assets	6,843	6,689	6,338
Deferred Outflows of Resources	143	271	238
Total Assets and Deferred Outflows of Resources	$ 6,986	$ 6,960	$ 6,576
Liabilities			
Long-Term Debt - net	$ 3,081	$ 3,259	$ 2,944
Current Liabilities	468	437	491
Noncurrent Liabilities	185	694	731
Total Liabilities	3,734	4,390	4,166
Deferred Inflows of Resources	955	613	606
Net Position	2,297	1,957	1,804
Total Liabilities, Deferred Inflows of Resources, and Net Position	$ 6,986	$ 6,960	$ 6,576

TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES

Total assets in 2021 increased $154 million or 2.3% over 2020, primarily due to the following:

- An increase of $88 million in electric utility plant – net. See Capital Program below for further information.
- A $101 million increase in restricted and designated assets primarily due to a $28 million increase in a net pension asset and a $57 million increase in net Other Postemployment Benefits (OPEB) asset based on the most recent actuarial results, and the $35 million deferral of 2021 operating revenues for recognition in future years to offset one-time expenditures not identified in the annual budget, offset by a $19 million Hydro Rate Stabilization Fund (HRSF) transfer to revenue for below average precipitation.
- A $40 million decrease in noncurrent assets primarily due to a $39 million decrease in regulatory costs for future recovery due to recognition of those costs, a $26 million decrease in prepaid gas supply due to gas delivered, offset by a $29 million increase in hedging derivative instruments due to the gas hedging program.

Deferred outflows of resources in 2021 decreased $128 million or 47.2% from 2020, primarily due to decreases in the unrealized pension and OPEB losses.

TOTAL LIABILITIES AND DEFERRED INFLOWS OF RESOURCES

Total liabilities in 2021 decreased $656 million or 14.9% over 2020, primarily due to a decrease in long-term debt-net of $178 million and a decrease in noncurrent liabilities of $509 million, primarily due a $470 million reduction in net pension liability based on the most recent actuarial results.

Deferred inflows of resources in 2021 increased $342 million or 55.8% from 2020, primarily due to increases in the unrealized pension and OPEB gains.

Net position in 2021 increased $340 million or 17.4% over 2020 based on results of operations.

RESULTS OF OPERATIONS

The following table summarizes the operating results for the years ended December 31 (in millions).

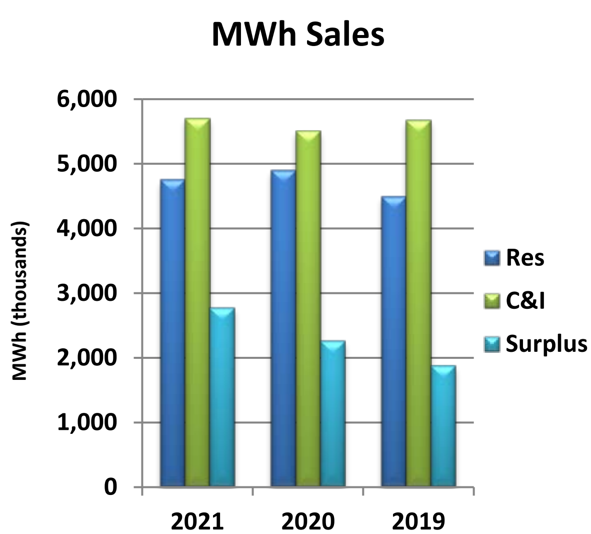
CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

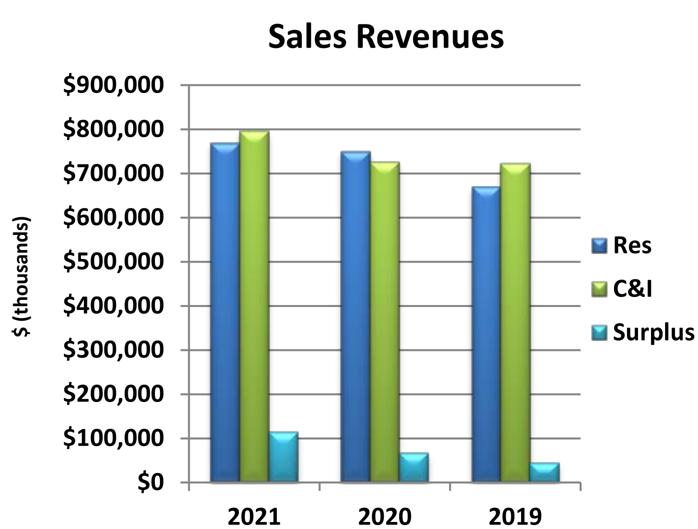
	2021	2020	2019
Operating revenues	$ 1,791	$ 1,588	$ 1,559
Operating expenses	(1,450)	(1,389)	(1,363)
Operating income	341	199	196
Other revenues/(expenses)	108	63	(19)
Interest charges	(109)	(109)	(98)
Change in net position	340	153	79
Net position - beginning of year	1,957	1,804	1,725
Net position - end of year	$ 2,297	$ 1,957	$ 1,804

OPERATING REVENUES

Total operating revenues were $1,791 million for 2021, an increase of $203 million or 12.8 percent over 2020 operating revenues. The residential MWh sales decreased 3.2 percent and sales revenues increased 2.7 percent compared to 2020, primarily due to employees returning to work and children returning to school which reduced usage and shifted the customer load shape. The commercial & industrial MWh sales increased 3.5 percent and sales revenues increased 9.6 percent compared to 2020, primarily due to commercial businesses and schools re-opening in 2021 compared to the California mandated shut down and limited re-openings of commercial businesses in 2020.

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





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 2021, energy sales were higher by $47 million as compared to 2020 due to higher energy prices and energy sales. Surplus gas sales were higher than 2020 by $65 million primarily due to higher gas prices in 2021.

OPERATING EXPENSES

Total operating expenses were $1,450 million for 2021, an increase of $61 million or 4.4 percent over 2020.

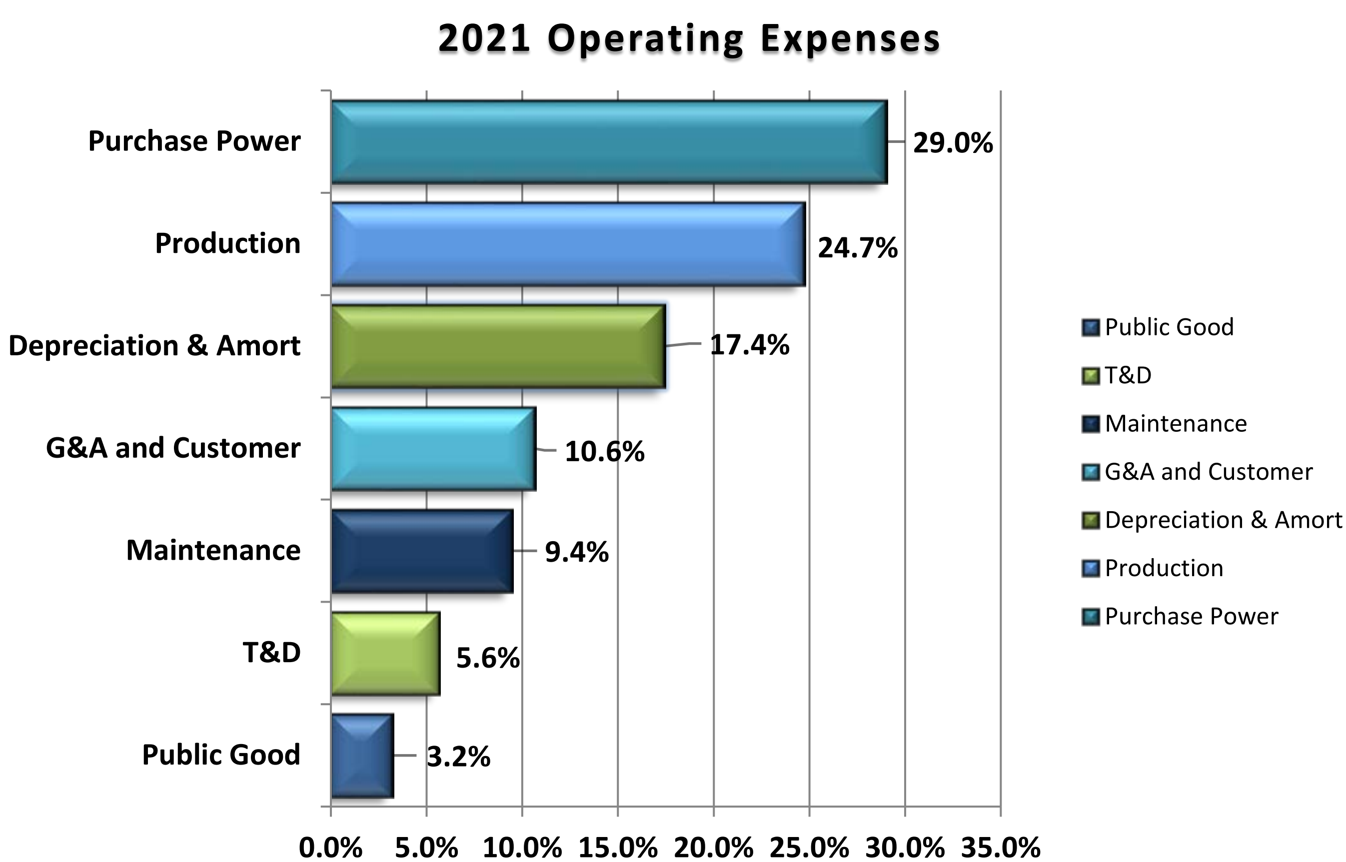
- Purchased power increased by $72 million or 20.8 percent due to higher load due to warmer than anticipated weather and lower hydro generation due to lower precipitation levels.

- Production expense increased by $80 million or 28.7 percent due to lower hydro generation due to lower precipitation levels led to increased thermal plant generation.

- General, administrative and customer decreased by $88 million or 36.3 percent due to lower costs related to reduced customer call volumes due to COVID and the continued moratorium on electric shut offs, reduction in customer programs due to COVID and reduction in administrative and labor costs related to employees working remotely. In addition, large adjustments related to GASB 75 OPEB and GASB 68 Pension based on the most recent actuarial results.

- Public Good decreased by $11 million or 18.7 percent due to lower expenditure for research and development programs and energy efficiency program incentives.

The following chart illustrates 2021 operating expenses by expense classification and percentage of the total:



OTHER REVENUES

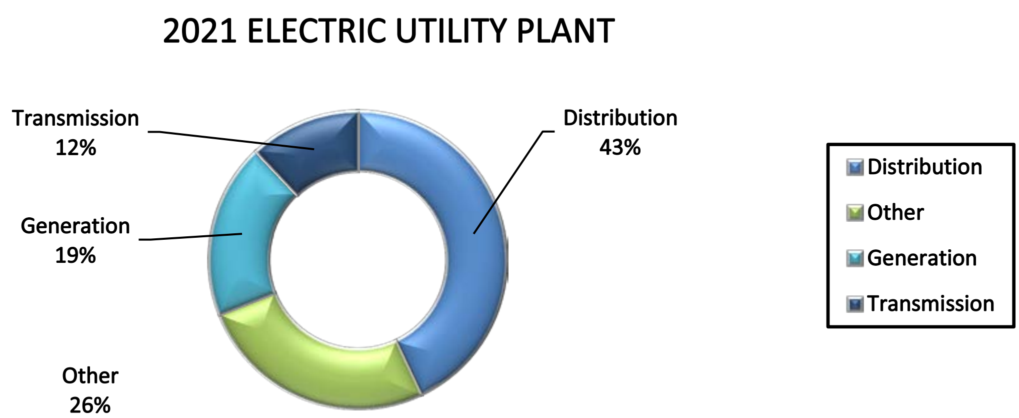
Total other revenues (net) were $108 million for 2021, an increase of $45 million or 71.3 percent over 2020. In 2021, SMUD recorded $41 million as grant revenues from CAPP funding received for delinquent customer balances and a $15 million settlement related to Rancho Seco.

CAPITAL PROGRAM

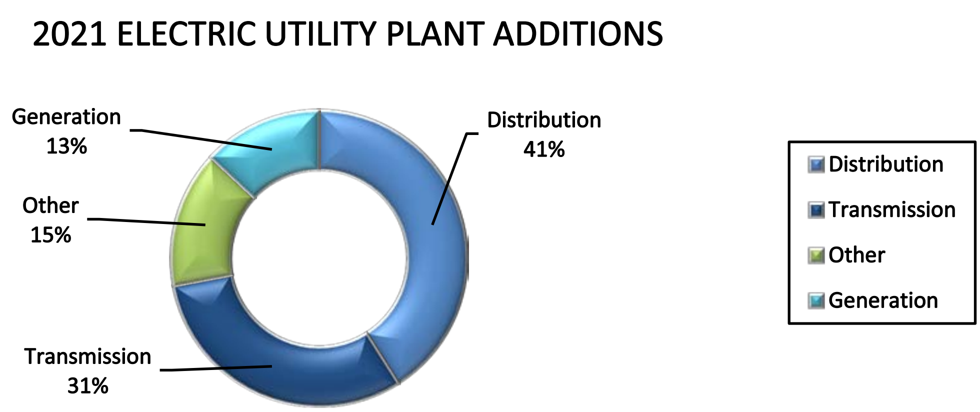
SMUD's electric utility plant includes production, transmission and distribution, and general plant facilities. The following table summarizes the balance of the electric utility plant as of December 31 (in millions).

	2021	2020	2019
Electric Utility Plant	$ 7,150	$ 6,886	$ 6,581
Accumulated Depreciation and Amortization	(3,315)	(3,139)	(2,955)
Electric Utility Plant - Net	$ 3,835	$ 3,747	$ 3,626

The following chart shows the breakdown of 2021 Electric Utility Plant - net by major plant category:



The following chart shows the breakdown of 2021 Electric Utility Plant capitalized additions by major plant category:



Details of SMUD's electric utility plant asset balances and activity are included in Note 4 in the Notes to Financial Statements. SMUD's capital program includes investment in generation, transmission, distribution, buildings, vehicles, technology, and other assets critical to meeting the energy needs of our customers. Capital investments are financed with revenues from operations, bond proceeds, investment income and cash on hand.

The following table shows actual capital program expenditures for the last two years and budgeted capital expenditures for 2022 (in millions).

	Budget 2022	Actual 2021	Actual 2020
Capital Program:			
Transmission & Distribution	$ 184	$ 183	$ 189
Generation	104	52	52
Other	71	49	56
Total	$ 359	$ 284	$ 297

In 2021 and 2020, SMUD actual expenditures included work for Substation E and G, Slab Creek, White Rock Tunnel Bolt Replacement, the purchase and operationalization of Chili Bar Hydroelectric facility, Substation J land purchase, distribution line work and continued work on UARP relicensing projects.

Major capital expenditures planned in 2022 include continuing work for Station G, starting development work for additions to our wind farm with Solano Phase IV, and ongoing improvements in our UARP area as part of our hydro relicense. Programmatic capital planned in 2022 includes cable and pole replacement programs, installing new meters, and new fleet purchases. Technology investments included in the 2022 Proposed Budget are to complete the Advanced Distribution Management System, ongoing work for Workforce Optimization, and improvements to Human Resource systems and network communications systems with our Talent Technology Transformation project.

LIQUIDITY AND CAPITAL RESOURCES

SMUD maintains a strong liquidity position by setting a minimum number of days cash on hand and managing a $400 million commercial paper program. Our current days cash threshold is 150 days, the minimum amount of cash on hand before triggering a new debt or commercial paper issuance to replenish cash balances. On December 31, 2021, the days cash on hand was 243 days. The commercial paper program allows for short-term borrowing when needed in lieu of issuing long-term debt, similar to a credit card or line of credit. On December 31, 2021, there were no commercial paper notes outstanding which further enhances our liquidity position. A strong liquidity position is important in demonstrating to investors and rating agencies that SMUD can withstand various financial stresses.

In addition, SMUD targets strong financial metrics in cash flow coverage with its fixed charge ratio. The Board sets a minimum fixed charge of 1.50 times operating cash flow; however, we aim for a minimum of 1.70 as a standard. On December 31, 2021, the fixed charge ratio was 2.42. This higher performance standard has proven valuable during the last two years' economic uncertainty stemming from the pandemic.

FINANCING ACTIVITIES

In July 2021, SMUD issued $106.9 million of 2021 Series I Revenue Refunding Bonds. The purpose of this transaction was to refund the fixed rate debt associated with 2011 Series X bonds and funded the termination of the associated interest rate swap entered in 2019 that locked in the refunding's interest rates, generating $22.5 million in Net Present Value (NPV) savings.

DEBT SERVICE COVERAGE

Debt service coverage for long-term debt was 2.50 times and 2.07 times in 2021 and 2020, respectively. SMUD's bond resolutions contain various covenants that include requirements to maintain minimum debt service coverage ratios of at least 1.40 times, 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 is in compliance with all debt covenants.

CREDIT RATINGS

We proactively manage our strong financial position to maintain high credit ratings. These strong credit ratings improve access to credit markets and result in a lower cost of borrowing. Both quantitative (financial strength) and qualitative (business and operating characteristics) factors are considered by the credit rating agencies in establishing a company's credit rating. As of December 31, 2021, 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.

COMPETITIVE RATES

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. SMUD has committed to our customers in keeping rates low while continuing to deliver safe, reliable, and environmentally responsible power and the products and services they value.

In June 2019, the Board approved the 2020 and 2021 rate proposals including a 2.50 percent rate increase effective January 1, 2021, and a 2.0 percent rate increase effective October 1, 2021, for all customer classes. In October 2021, SMUD started transitioning commercial customers to the new restructured rates. While the restructure is revenue neutral, it will improve SMUD's revenue stability and better align electric charges with costs.

In 2021, the Board approved the Solar and Storage Rate (SSR), which will reduce the cost shift from Net Energy Metering (NEM) and will incentivize customers to invest in solar paired with storage, providing greater benefits to SMUD and our customers. In 2021, the Board approved the 2022 and 2023 rate proposals including rate increases of 1.5% in 2022 and 2% in 2023, which is well below the estimated rate of inflation. This ensures the necessary revenue to meet SMUD's financial obligations, key financial metrics, and delivery of our 2030 Zero Carbon Plan.

Progress on several key rates and programs, including the Virtual Solar (VS) program and our optional residential Critical Peak Pricing (CPP) rate, both of which will be available in June 2022. The VS program will provide the benefits of solar to our under-resourced customers living in multi-family housing, and our residential CPP rate will provide customers the opportunity to reduce their bills and help the environment while contributing to the 2030 Zero Carbon Plan.

Even with these increases, SMUD's rates continue to remain amongst the lowest in the state. In 2021, the average system rate was 36.7 percent below the average rate of the nearest investor-owned utility.

ENERGY RISK MANAGEMENT

SMUD's commodity costs have prices locked in for most of our expected energy requirements to ensure cost and rate stability for customers. Only a small portion of budgeted energy purchases are exposed to short-term market price fluctuations – a beneficial practice, especially during the price volatility currently reflected in California power and energy prices.

SMUD has mitigation measures in place for higher commodity costs due to reduced hydroelectric production that will lead to higher purchased power. In April 2021, $18.6 million was transferred from the HRSF to revenue as a result of low precipitation. At December 31, 2021, the HRSF was $56.1million and $62.9 million in the Rate Stabilization Fund (RSF), net of Low Carbon

Fuel Standard and Cap and Trade funds. These reserve funds help absorb higher energy costs when hydroelectric production is down and serve as a buffer against unexpected financial developments.

RESOURCE PLANNING AND GENERATION UPDATE

In March 2021, the Board adopted the 2030 Zero Carbon Plan, a flexible road map to achieving its zero carbon goal while ensuring all customers and communities that are served share in the benefits of decarbonization. While SMUD has always had an Integrated Resource Plan target to meet or exceed goals established by the State for renewable energy and the reduction of carbon emissions, the 2030 Zero Carbon Plan greatly accelerates these efforts, working toward eliminating carbon emissions from SMUD's power supply by 2030.

SMUD is focused on reimagining its generation portfolio through retiring or retooling its natural gas assets, expanding local investments in proven clean technologies, and launching pilot projects and programs for new and emerging technologies, all while continuing to work to improve equity for under-resourced communities and minimizing the cost of implementing the 2030 Zero Carbon Plan.

The projects planned in 2022 are foundational to the decarbonization of the grid and achieving the zero carbon goal. These include planning, developing, and implementing renewable projects and customer offerings, including building and vehicle electrification and energy efficiency programs, renewable energy, and reliability projects. SMUD is also preparing the distribution system for the future by beginning implementation of our Integrated Distributed Resource Plan and continuing its grid modernization work.

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 cost 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.

The total Accrued Decommissioning balance in the Statements of Net Position, including Rancho Seco and other ARO's, amounted to $95.1 million as of December 31, 2021.

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, 2021, total regulatory assets were $703.8 million. 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, 2021, total regulatory credits were $543.0 million.

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SACRAMENTO MUNICIPAL UTILITY DISTRICT
STATEMENTS OF NET POSITION

	December 31, 2021	December 31, 2020
	(thousands of dollars)	
ASSETS		
ELECTRIC UTILITY PLANT		
Plant in service	$ 6,782,493	$ 6,425,366
Less accumulated depreciation and depletion	(3,314,820)	(3,139,526)
Plant in service - net	3,467,673	3,285,840
Construction work in progress	367,297	461,319
Total electric utility plant - net	3,834,970	3,747,159
RESTRICTED AND DESIGNATED ASSETS		
Revenue bond and debt service reserves	120,024	121,845
Nuclear decommissioning trust fund	8,874	8,873
Rate stabilization fund	188,992	168,726
Net pension asset	27,738	-0-
Net other postemployment benefits asset	57,532	770
Other funds	22,411	23,246
Less current portion	(136,663)	(135,550)
Total restricted and designated assets	288,908	187,910
CURRENT ASSETS		
Unrestricted cash and cash equivalents	584,998	680,618
Unrestricted investments	45,378	33,798
Restricted and designated cash and cash equivalents	46,828	44,014
Restricted and designated investments	89,835	91,536
Receivables - net:		
Retail customers	190,987	175,777
Wholesale and other	58,202	38,863
Regulatory costs to be recovered within one year	38,303	38,162
Investment derivative instruments maturing within one year	1,354	-0-
Hedging derivative instruments maturing within one year	36,620	4,913
Inventories	99,941	84,037
Prepaid gas to be delivered within one year	26,059	23,261
Prepayments and other	25,331	23,915
Total current assets	1,243,836	1,238,894
NONCURRENT ASSETS		
Regulatory costs for future recovery	703,748	742,588
Prepaid gas	666,452	692,511
Prepaid power and capacity	380	588
Investment derivative instruments	803	33
Hedging derivative instruments	37,753	8,606
Energy efficiency loans - net	1,298	18,503
Credit support collateral deposits	11,650	5,650
Due from affiliated entity	29,687	28,370
Prepayments and other	23,576	18,268
Total noncurrent assets	1,475,347	1,515,117
TOTAL ASSETS	6,843,061	6,689,080
DEFERRED OUTFLOWS OF RESOURCES		
Accumulated decrease in fair value of hedging derivative instruments	22,600	51,580
Deferred pension outflows	81,334	176,340
Deferred other postemployment benefits outflows	25,113	26,136
Deferred asset retirement obligations outflows	1,775	1,734
Unamortized bond losses	12,261	15,216
TOTAL DEFERRED OUTFLOWS OF RESOURCES	143,083	271,006
TOTAL ASSETS AND DEFERRED OUTFLOWS OF RESOURCES	$ 6,986,144	$ 6,960,086

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

SACRAMENTO MUNICIPAL UTILITY DISTRICT
STATEMENTS OF NET POSITION

	December 31, 2021	December 31, 2020
	(thousands of dollars)	
LIABILITIES		
LONG-TERM DEBT - net	$ 3,081,707	$ 3,259,312
CURRENT LIABILITIES		
Accounts payable	121,925	101,396
Purchased power payable	30,103	33,335
Credit support collateral obligation	3,575	4,413
Long-term debt due within one year	132,150	127,390
Accrued decommissioning	6,889	6,751
Interest payable	50,709	52,940
Accrued salaries and compensated absences	60,433	44,703
Investment derivative instruments maturing within one year	2,757	1,401
Hedging derivative instruments maturing within one year	18,232	22,284
Customer deposits and other	41,003	41,887
Total current liabilities	467,776	436,500
NONCURRENT LIABILITIES		
Net pension liability	-0-	469,820
Accrued decommissioning	88,168	92,723
Investment derivative instruments	4,786	7,903
Hedging derivative instruments	4,368	29,296
Self insurance and other	87,617	94,238
Total noncurrent liabilities	184,939	693,980
TOTAL LIABILITIES	3,734,422	4,389,792
DEFERRED INFLOWS OF RESOURCES		
Accumulated increase in fair value of hedging derivative instruments	74,374	13,519
Regulatory credits	543,027	516,209
Deferred pension inflows	229,707	14,212
Deferred other postemployment benefits inflows	94,902	58,854
Unamortized bond gains	9,246	6,504
Unearned revenue	3,369	3,484
TOTAL DEFERRED INFLOWS OF RESOURCES	954,625	612,782
NET POSITION		
Net investment in capital assets	1,350,709	1,112,982
Restricted:		
Revenue bond and debt service	64,823	63,351
Net pension asset	27,738	-0-
Net other postemployment benefits asset	57,532	770
Other funds	18,836	18,833
Unrestricted	777,459	761,576
TOTAL NET POSITION	2,297,097	1,957,512
COMMITMENTS, CLAIMS AND CONTINGENCIES (Notes 17 and 18)		
TOTAL LIABILITIES, DEFERRED INFLOWS OF RESOURCES, AND NET POSITION	$ 6,986,144	$ 6,960,086

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, 2021	Year Ended December 31, 2020
	(thousands of dollars)	
OPERATING REVENUES		
Residential	$ 721,228	$ 710,912
Commercial and industrial	773,311	712,495
Street lighting and other	42,031	38,493
Wholesale	248,001	135,522
Senate Bill - 1 revenue deferral	784	2,276
AB-32 revenue	17,880	-0-
LCFS revenue	7,599	9,762
Public good deferral	-0-	3,501
Rate stabilization fund transfers	(20,266)	(25,056)
Total operating revenues	1,790,568	1,587,905
OPERATING EXPENSES		
Operations:		
Purchased power	420,350	348,040
Production	358,162	278,236
Transmission and distribution	81,484	83,236
Administrative, general and customer	153,978	241,581
Public good	46,519	57,198
Maintenance	136,849	138,734
Depreciation	216,940	206,452
Regulatory amounts collected in rates	35,369	34,915
Total operating expenses	1,449,651	1,388,392
OPERATING INCOME	340,917	199,513
NON-OPERATING REVENUES AND EXPENSES		
Other revenues and (expenses):		
Interest income	6,501	14,291
Investment income (expense)	8,035	(3,455)
Other income - net	93,432	52,186
Total other revenues and (expenses)	107,968	63,022
Interest charges:		
Interest on debt	109,300	109,300
Total interest charges	109,300	109,300
Total non-operating revenues and (expenses)	(1,332)	(46,278)
CHANGE IN NET POSITION	339,585	153,235
NET POSITION - BEGINNING OF YEAR	1,957,512	1,804,277
NET POSITION - END OF YEAR	$ 2,297,097	$ 1,957,512

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

SACRAMENTO MUNICIPAL UTILITY DISTRICT
STATEMENTS OF CASH FLOWS

	Year Ended December 31, 2021	Year Ended December 31, 2020
	(thousands of dollars)	
CASH FLOWS FROM OPERATING ACTIVITIES		
Receipts from customers	$ 1,498,982	$ 1,426,267
Receipts from surplus power and gas sales	242,767	134,080
Other receipts	35,173	23,660
Payments to employees - payroll and other	(417,475)	(406,810)
Payments for wholesale power and gas purchases	(621,944)	(491,480)
Payments to vendors/others	(320,710)	(315,982)
Net cash provided by operating activities	416,793	369,735
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES		
Repayment of debt	(18,450)	(16,675)
Receipts from federal and state grants	41,601	10,214
Proceeds from insurance settlements	3,135	5,500
Interest on debt	(29,385)	(30,122)
Net cash used in noncapital financing activities	(3,099)	(31,083)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Construction expenditures	(297,179)	(357,650)
Contributions in aid of construction	24,414	19,551
Net proceeds from bond issues	130,248	483,456
Repayments and refundings of debt	(235,970)	(101,630)
Repayments of commercial paper	-0-	(50,000)
Other receipts	9,253	-0-
Interest on debt	(120,874)	(113,864)
Net cash used in capital and related financing activities	(490,108)	(120,137)
CASH FLOWS FROM INVESTING ACTIVITIES		
Sales and maturities of securities	215,153	386,898
Purchases of securities	(106,889)	(197,811)
Proceeds from termination of prepaid gas contracts	2,000	10,915
Interest and dividends received	8,151	15,406
Investment revenue/expenses - net	8,036	(3,420)
Net cash provided by investing activities	126,451	211,988
Net increase in cash and cash equivalents	50,037	430,503
Cash and cash equivalents at the beginning of the year	738,611	308,108
Cash and cash equivalents at the end of the year	$ 788,648	$ 738,611
Cash and cash equivalents included in:		
Unrestricted cash and cash equivalents	$ 584,998	$ 680,618
Restricted and designated cash and cash equivalents	46,828	44,014
Restricted and designated assets (a component of the total of $288,908 and $187,910 at December 31, 2021 and 2020, respectively)	156,822	13,979
Cash and cash equivalents at the end of the year	$ 788,648	$ 738,611

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, 2021	2020
	(thousands of dollars)	
Operating income	$ 340,917	$ 199,513
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation	216,940	206,452
Regulatory amortization	35,369	34,915
Other Amortizations	20,278	24,307
Revenue deferred to (recognized from) regulatory credits - net	19,483	19,279
Other (receipts) payments - net	15,951	(3,549)
Changes in operating assets, deferred outflows, liabilities and deferred inflows:		
Receivables - retail customers, wholesale and other	(15,543)	(16,631)
Inventories, prepayments and other	(27,140)	(15,440)
Net pension and other postemployment benefits assets	(84,499)	-
Deferred outflows of recources	96,029	(69,950)
Payables and accruals	22,693	41,500
Decommissioning	(5,358)	(4,814)
Net pension liability	(469,820)	2,173
Net other postemployment benefits liability	-0-	(32,211)
Deferred inflows of resources	251,493	(15,809)
Net cash provided by operating activities	$ 416,793	$ 369,735

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

	Year Ended December 31, 2021	2020
	(thousands of dollars)	
Amortization of debt related (expenses) and premiums - net	$ 34,969	$ 37,939
Write-off unamortized premium and loss	4,465	-0-
(Loss) Gain on debt extinguishment and refundings	3,925	-0-
Unrealized holding gain (loss)	(2,201)	1,768
Change in valuation of derivative financial instruments	93,719	31,661
Amortization of revenue for assets contributed in aid of construction	18,208	14,250
Construction expenditures included in accounts payable	43,470	39,196
(Loss) Gain on sale and retirement of assets - net	(439)	(287)
Write-off capital projects and preliminary surveys	(2,057)	(1,329)

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, 2021 and 2020

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, deferred outflows of resources, liabilities, and deferred inflows of resources 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. On October 26, 2021, SFA entered into Assignment and Assumption Agreements (the Agreements) with CVFA, SCA, and SPA. The Agreements transfer the assets and obligations, including ownership of the Carson Power Plant, Procter and Gamble Power Plant, Campbell Power Plant, and McClellan Power Plant (assigned Power Plants) to SFA as of

November 1, 2021 (see Note 3). The primary purpose of NCGA is to prepay for natural gas to sell to SMUD. The primary purpose of NCEA is to prepay for commodities in the form of natural gas and electricity to sell 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 2021 and 2020 was 3.3 percent. Depreciation is calculated using the following estimated lives:

Generation	8 to 80 years
Transmission and Distribution	7 to 50 years
Gas Pipeline	10 to 90 years
General	3 to 60 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).

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 $21.8 million and $22.6 million of Other funds as of December 31, 2021 and 2020, 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, 2021 and 2020. 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 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 (expense) - 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, 2021 and 2020, unbilled revenues were $93.6 and $68.8 million, respectively.

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 in Operations - Production expense on the Statements of Revenues, Expenses and Changes in Net Position.

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, Allowance for Doubtful Accounts and Energy Efficiency Loans. 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. In the Statements of Net Position, SMUD reports its receivables net of the allowance for uncollectible as current assets, and its energy efficiency loans net of the allowance for uncollectible as noncurrent assets. Due to COVID-19, SMUD suspended disconnections for non-payment beginning in March 2020 through April 2022. At December 31, 2021, SMUD estimated its uncollectible retail customer accounts at $69.0 million based on non-payment behaviors by aging category. 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. During 2021, SMUD sold the majority of its energy efficiency loan portfolio to a local bank.

SMUD's receivables, allowances for uncollectible and energy efficiency loans are presented below:

	December 31, 2021	December 31, 2020
	(thousands of dollars)	
Retail customers:		
Receivables	$ 259,987	$ 220,777
Less: Allowance for uncollectible	(69,000)	(45,000)
Receivables - net	$ 190,987	$ 175,777
Wholesale and other:		
Receivables	$ 60,457	$ 42,493
Less: Allowance for uncollectible	(2,255)	(3,630)
Receivables - net	$ 58,202	$ 38,863
Energy efficiency loans:		
Receivables	$ 1,517	$ 19,172
Less: Allowance for uncollectible	(219)	(669)
Energy efficiency loans - net	$ 1,298	$ 18,503

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, 2021 and 2020, the total estimated liability for vacation and other compensated absences was $41.9 million and $37.7 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.

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).

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 for obligations for several land sites, including a few sites where it will be building a substation. At December 31, 2021 and 2020, the total pollution remediation liability was $20.4 million and $19.3 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, 2021 and 2020, the liability for these contract payments was $65.1million and $64.8 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 has participated in California Air Resources Board (CARB) administered quarterly auctions in the past. In a normal water year, SMUD expects its free allocation of allowances from the 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, the Low Carbon Fuel Standards (LCFS) was enacted through AB-32. CARB is responsible for the 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 for the electricity used to power electric vehicles. The LCFS credits are sold to parties (oil companies) that have a compliance obligation. CARB requires that electricity 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 Asset (NPA) or Liability (NPL). The NPA or 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) Asset (NOA) or Liability (NOL). The NOA or 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 investment in capital assets, 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 (expense) - 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. During 2021, SMUD received $41.4 million from the California Arrearage Payment Program (CAPP), which offers financial assistance to help reduce past due energy balances accrued during the COVID-19 pandemic. The State Budget Act of 2021 appropriated $1.0 billion from the federal American Rescue Plan Act of 2021 to support the establishment of CAPP. When applicable, these programs may be subject to financial and compliance audits pursuant to regulatory requirements. SMUD records grant proceeds related to capital projects as a Regulatory Credit (see Note 8).

SMUD has taxable Build America Bonds in which it 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 2021 and 2020 due to budget sequestration by the federal government. SMUD recognized $9.3 million in revenues in 2021 and 2020 for its Build America Bonds, as a component of Other income (expense) - 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 March 1, 2022 (see Note 19).

Reclassifications. Certain amounts in the 2020 Financial Statements have been reclassified in order to conform to the 2021 presentation.

Recent Accounting Pronouncements, adopted. In May 2020, GASB issued SGAS No. 95, ***“Postponement of the Effective Dates of Certain Authoritative Guidance”*** (GASB No. 95). The primary objective of this statement is to provide temporary relief to governments and other stakeholders as a result of the COVID-19 pandemic. GASB No. 95 postpones the effective dates of certain provisions in statements and implementation guides that first became effective or are scheduled to become effective for periods beginning after June 15, 2018, and later. This statement was effective for SMUD in 2020. SMUD has postponed the implementation of GASB No. 87, ***“Leases”*** and GASB No. 93, ***“Replacement of Interbank Offered Rates.”***

Recent Accounting Pronouncements, not yet adopted. 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. The statement 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. GASB No. 87 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. This statement is effective for SMUD in 2022. SMUD is currently assessing the financial statement impact of adopting this statement.

In March 2020, GASB issued SGAS No. 93, ***"Replacement of Interbank Offered Rates"*** (GASB No. 93). The objective of this statement is to address accounting and financial reporting implications that result from the replacement of an interbank offered rate (IBOR), most notably, the London Interbank Offered Rate (LIBOR), which is expected to cease to exist in its current form at the end of 2021. This statement provides exceptions for certain hedging derivative instruments to the hedge accounting termination provisions when an IBOR is replaced as the reference rate of the hedging derivative instrument's variable payment. By removing LIBOR as an appropriate benchmark interest rate for the qualitative evaluation of the effectiveness of an interest rate swap, GASB No. 93 identifies the Secured Overnight Financing Rate and the Effective Federal Funds Rate as appropriate benchmark interest rates to replace LIBOR. This statement is effective for SMUD in 2022. SMUD is currently assessing the financial statement impact of adopting this statement but does not expect it to be material.

In March 2020, GASB issued SGAS No. 94, ***"Public-Private and Public-Public Partnerships and Availability Payment Arrangements"*** (GASB No. 94). The primary objective of this Statement is to provide guidance for accounting and financial reporting related to public-private and public-public partnership arrangements (PPPs) and availability payment arrangements (APAs). A PPP is an arrangement in which a government (the transferor) contracts with an operator (a governmental or nongovernmental entity) to provide public services by conveying control of the right to operate or use a nonfinancial asset, such as infrastructure or other capital asset (the underlying PPP asset), for a period of time in an exchange or exchange-like transaction. An APA is an arrangement in which a government compensates an operator for services that may include designing, constructing, financing, maintaining, or operating an underlying nonfinancial asset for a period of time in an exchange or exchange-like transaction. This statement is effective for SMUD in 2023. SMUD is currently assessing the financial impact of adopting this statement but does not expect it to be material.

In May 2020, GASB issued SGAS No. 96, ***"Subscription-Based Information Technology Arrangements"*** (GASB No. 96). This statement provides guidance on the accounting and financial reporting for subscription-based information technology arrangements (SBITAs) for governments. The statement (1) defines a SBITA as a contract that conveys control of the right to use another party's information technology software, alone or in combination with tangible capital assets, as specified in the contract for a period of time in an exchange or exchange-like transaction; (2) establishes that a SBITA results in a right-to-use subscription asset and a corresponding subscription liability; (3) provides the capitalization criteria for outlays other than subscription payments, including implementation costs of a SBITA; and (4) requires note disclosures regarding a SBITA. To the extent relevant, the standards for SBITAs are based on the standards established in GASB No. 87, *Leases*, as amended. This statement is effective for SMUD in 2023. SMUD is currently assessing the financial statement impact of adopting this statement.

In June 2020, GASB issued SGAS No. 97, ***"Certain Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans"*** (GASB No. 97). The primary objectives of this statement are to (1) increase consistency and comparability related to the reporting of fiduciary component units in circumstances in which a potential component unit does not have a governing board and the primary government performs the duties that a governing board typically would perform; (2) mitigate costs associated with the reporting of certain defined contribution pension plans, defined contribution other postemployment benefit (OPEB) plans, and employee benefit plans other than pension plans or OPEB plans as fiduciary component units in fiduciary fund financial statements; and (3) enhance the relevance, consistency, and comparability of the accounting and financial reporting for Internal Revenue Code Section 457 deferred compensation plans that meet the definition of a pension plan and for benefits provided through those plans. This statement is effective for SMUD in 2022. SMUD is currently assessing the financial statement impact of adopting this statement but does not expect it to be material.

NOTE 3. COMPONENT UNITS ASSIGNMENT AND ASSUMPTION AGREEMENTS

The Agreements between SFA and CVFA, SCA and SPA transferred the operation and ownership of the assigned Power Plants to SFA for operational and administrative efficiencies. On November 1, 2021, CVFA, SCA and SPA transferred assets and obligations to SFA and ceased operations. The transfer meets the definition of a transfer of operations under GASB Statement No. 69 ***"Government Combinations and Disposals of Government Operations"*** (GASB No. 69). In accordance with GASB No. 69, SFA reported 2021 operations of the assigned Power Plants as of November 1, 2021. Since these are blended component units, there was no impact to the assets, liabilities, and net position of SMUD (see Notes 2 and 6).

NOTE 4. ELECTRIC UTILITY PLANT

The summarized activity of SMUD's Electric Utility Plant during 2021 is presented below:

	Balance January 1, 2021	Additions	Transfers and Disposals	Balance December 31, 2021
		(thousands of dollars)		
Nondepreciable Electric Utility Plant:				
Land and land rights	$ 159,515	$ 10,835	$ (806)	$ 169,544
CWIP	461,319	298,426	(392,448)	367,297
Total nondepreciable electric utility plant	620,834	309,261	(393,254)	536,841
Depreciable Electric Utility Plant:				
Generation	1,710,420	49,594	(8,094)	1,751,920
Transmission	410,567	113,776	(1,578)	522,765
Distribution	2,498,526	162,177	(9,664)	2,651,039
Investment in JPAs	30,012	4,749	-0-	34,761
Intangibles	517,415	18,016	(8,508)	526,923
General	1,098,911	39,861	(13,231)	1,125,541
	6,265,851	388,173	(41,075)	6,612,949
Less: accumulated depreciation and depletion	(3,132,247)	(216,336)	41,355	(3,307,228)
Less: accumulated amortization on JPAs	(7,279)	(313)	-0-	(7,592)
	(3,139,526)	(216,649)	41,355	(3,314,820)
Total depreciable plant	3,126,325	171,524	280	3,298,129
Total Electric Utility Plant - net	$ 3,747,159	$ 480,785	$ (392,974)	$ 3,834,970

The summarized activity of SMUD's Electric Utility Plant during 2020 is presented below:

	Balance January 1, 2020	Additions	Transfers and Disposals	Balance December 31, 2020
		(thousands of dollars)		
Nondepreciable Electric Utility Plant:				
Land and land rights	$ 142,291	$ 17,471	$ (247)	$ 159,515
CWIP	353,802	318,354	(210,837)	461,319
Total nondepreciable electric utility plant	496,093	335,825	(211,084)	620,834
Depreciable Electric Utility Plant:				
Generation	1,670,224	43,017	(2,821)	1,710,420
Transmission	390,296	21,255	(984)	410,567
Distribution	2,427,408	76,335	(5,217)	2,498,526
Investment in JPAs	22,844	7,168	-0-	30,012
Intangibles	495,651	21,764	-0-	517,415
General	1,078,660	31,463	(11,212)	1,098,911
	6,085,083	201,002	(20,234)	6,265,851
Less: accumulated depreciation and depletion	(2,948,350)	(204,088)	20,191	(3,132,247)
Less: accumulated amortization on JPAs	(6,966)	(313)	-0-	(7,279)
	(2,955,316)	(204,401)	20,191	(3,139,526)
Total depreciable plant	3,129,767	(3,399)	(43)	3,126,325
Total Electric Utility Plant - net	$ 3,625,860	$ 332,426	$ (211,127)	$ 3,747,159

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 $169.9 million (unaudited) at December 31, 2021, 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 $16.5 million and $17.5 million in 2021 and 2020, respectively.

Summary financial information for TANC is presented below:

	December 31,			
	2021 (Unaudited)		2020 (Unaudited)	
	(thousands of dollars)			
Total Assets	$	368,180	$	356,807
Total Deferred Outflows of Resources		349		731
Total Assets and Deferred Outflows of Resources	$	368,529	$	357,538
Total Liabilities	$	304,379	$	305,096
Total Net Position		64,150		52,442
Total Liabilities and Net Position	$	368,529	$	357,538
Changes in Net Position for the Six Months Ended December 31	$	(292)	$	(564)

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 $3.7 million in 2021 and $1.7 million in 2020.

Summary financial information for BANC is presented below:

	December 31,			
	2021 (Audited)		2020 (Audited)	
	(thousands of dollars)			
Total Assets	$	7,097	$	8,125
Total Liabilities	$	7,097	$	8,125
Total Net Position		-0-		-0-
Total Liabilities and Net Position	$	7,097	$	8,125
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 Power Plant Cogeneration Project. CVFA is a JPA formed by SMUD and the Sacramento Regional County Sanitation District. CVFA operates the Carson Power Plant Project, a 65 MW (net) natural gas-fired cogeneration facility and a 42 MW (net) natural gas-fired simple cycle peaking plant. On November 1, 2021, CVFA transferred the assets and obligations, including the ownership of the Carson Power Plant to SFA (see Notes 2 and 3).

SCA Procter & Gamble Power Plant Cogeneration Project. SCA is a JPA formed by SMUD and the SFA. SCA operates the Procter & Gamble Power Plant Project, a 136 MW (net) natural gas-fired cogeneration facility and a 50 MW (net) natural gas-fired simple cycle peaking plant. On November 1, 2021, SCA transferred the assets and obligations, including the ownership of the Procter & Gamble Power Plant to SFA (see Notes 2 and 3).

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. On November 1, 2021, CVFA, SCA and SPA assets and obligations, including ownership of the assigned Power Plants, were transferred to SFA (see Notes 2 and 3).

SPA Campbell Soup Power Plant Cogeneration Project. SPA is a JPA formed by SMUD and the SFA. SPA operates the Campbell Soup Power Plant Project, a 160 MW (net) natural gas-fired cogeneration facility, and the McClellan Power Plant Project, a 72 MW (net) natural gas-fired simple cycle peaking plant. On November 1, 2021, SPA transferred the assets and obligations, including the ownership of the Campbell and McClellan Power Plants to SFA (see Notes 2 and 3).

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 2021 is presented below:

CONDENSED STATEMENTS OF NET POSITION
December 31, 2021
(thousands of dollars)

	SFA	NCGA	NCEA
Assets			
Electric Utility Plant - net	$ 303,591	$ -0-	$ -0-
Current Assets	133,673	39,938	28,879
Noncurrent Assets	790	138,186	528,808
Total Assets	438,054	178,124	557,687
Deferred Outflows of Resources	3,267	-0-	-0-
Total Assets and Deferred Outflows of Resources	$ 441,321	$ 178,124	$ 557,687
Liabilities			
Long-Term Debt - net	$ 99,421	$ 142,935	$ 551,815
Current Liabilities	49,158	25,351	12,277
Noncurrent Liabilities	9,020	-0-	160
Total Liabilities	157,599	168,286	564,252
Net Position	283,722	9,838	(6,565)
Total Liabilities and Net Position	$ 441,321	$ 178,124	$ 557,687

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
December 31, 2021
(thousands of dollars)

	SFA	NCGA	NCEA
Operating Revenues	$ 143,050	$ 27,092	$ 21,406
Operating Expenses	137,206	19,980	3,573
Operating Income (Loss)	5,844	7,112	17,833
Non-Operating Revenues and Expenses			
Other Revenues	51	492	459
Interest Charges and Other	(3,386)	(7,449)	(16,774)
Change in Net Position Before Distributions, Contributions and Special Item	2,509	155	1,518
Distribution to Member	-0-	(544)	(843)
Member Contributions	-0-	81	79
Special Item	161,298	-0-	-0-
Change in Net Position	163,807	(308)	754
Net Position – Beginning of Year	119,915	10,146	(7,319)
Net Position – End of Year	$ 283,722	$ 9,838	$ (6,565)

CONDENSED STATEMENTS OF CASH FLOWS
December 31, 2021
(thousands of dollars)

	SFA	NCGA	NCEA
Net Cash Provided by Operating Activities	$ 25,206	$ 26,145	$ 21,405
Net Cash Provided by (Used in) Noncapital Financing Activities	37,999	(26,626)	(22,595)
Net Cash Used in Capital Financing Activities	(17,497)	-0-	-0-
Net Cash Provided by Investing Activities	56	492	1,190
Net Increase in Cash and Cash Equivalents	45,764	11	-0-
Cash and Cash Equivalents at the Beginning of the Year	23,866	14,812	10,877
Cash and Cash Equivalents at the End of the Year	$ 69,630	$ 14,823	$ 10,877

The summarized activity of SMUD's component units for 2020 is presented below:

CONDENSED STATEMENTS OF NET POSITION
December 31, 2020
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA	NCEA
Assets						
Electric Utility Plant - net	$ 31,264	$ 48,502	$ 207,058	$ 48,351	$ -0-	$ -0-
Restricted Assets	-0-	-0-	-0-	-0-	-0-	90
Current Assets	12,373	31,823	60,107	21,285	37,271	27,857
Noncurrent Assets	2	1	892	1	160,648	532,525
Total Assets	43,639	80,326	268,057	69,637	197,919	560,472
Deferred Outflows of Resources	1,733	-0-	1,829	-0-	-0-	-0-
Total Assets and Deferred Outflows of Resources	$ 45,372	$ 80,326	$ 269,886	$ 69,637	$ 197,919	$ 560,472
Liabilities						
Long-Term Debt - net	$ -0-	$ -0-	$ 113,152	$ -0-	$ 163,485	$ 556,794
Current Liabilities	3,441	5,515	36,819	5,190	24,288	10,876
Noncurrent Liabilities	8,633	-0-	-0-	-0-	-0-	121
Total Liabilities	12,074	5,515	149,971	5,190	187,773	567,791
Net Position	33,298	74,811	119,915	64,447	10,146	(7,319)
Total Liabilities and Net Position	$ 45,372	$ 80,326	$ 269,886	$ 69,637	$ 197,919	$ 560,472

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
December 31, 2020
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA	NCEA
Operating Revenues	$ 16,599	$ 35,932	$ 141,874	$ 26,818	$ 25,935	$ 20,053
Operating Expenses	22,073	39,624	137,415	32,545	17,810	3,366
Operating Income (Loss)	(5,474)	(3,692)	4,459	(5,727)	8,125	16,687
Non-Operating Revenues and Expenses						
Other Revenues	48	205	179	113	533	530
Interest Charges and Other	-0-	-0-	(3,670)	-0-	(8,205)	(16,727)
Change in Net Position Before Distributions and Contributions	(5,426)	(3,487)	968	(5,614)	453	490
Distribution to Member	-0-	-0-	-0-	-0-	(507)	(1,090)
Member Contributions and Adjustments	-0-	-0-	-0-	-0-	86	127
Change in Net Position	(5,426)	(3,487)	968	(5,614)	32	(473)
Net Position – Beginning of Year	38,724	78,298	118,947	70,061	10,114	(6,846)
Net Position – End of Year	$ 33,298	$ 74,811	$ 119,915	$ 64,447	$ 10,146	$ (7,319)

CONDENSED STATEMENTS OF CASH FLOWS
December 31, 2020
(thousands of dollars)

	CVFA	SCA	SFA	SPA	NCGA	NCEA
Net Cash Provided by Operating Activities	$ 1,232	$ 4,462	$ 19,673	$ 1,929	$ 26,597	$ 20,053
Net Cash Used in Noncapital Financing Activities	-0-	-0-	-0-	-0-	(25,550)	(22,843)
Net Cash Used in Capital Financing Activities	(500)	(54)	(16,683)	(748)	-0-	-0-
Net Cash Provided by Investing Activities	46	242	226	138	450	2,714
Net Increase in Cash and Cash Equivalents	778	4,650	3,216	1,319	1,497	(76)
Cash and Cash Equivalents at the Beginning of the Year	4,311	16,003	20,650	9,586	13,315	10,953
Cash and Cash Equivalents at the End of the Year	$ 5,089	$ 20,653	$ 23,866	$ 10,905	$ 14,812	$ 10,877

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, 2021 and 2020, $21.9 million and $12.2 million in deposits were uninsured, respectively. The bank balance is also, per a depository pledge agreement between SMUD and SMUD's bank, collateralized at 129 percent and 134 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, 2021 and 2020, respectively. SMUD had money market funds of $141.6 million and $128.4 million which were uninsured at December 31, 2021 and 2020, 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,	
	2021	2020
Investment Type:		
Federal Home Loan Banks	30%	17%
Freddie Mac	13%	7%
Municipal Bond – CA Department of Water Resources	18%	10%
Municipal Bond – State of Florida	16%	9%
Municipal Bond – State of California	7%	4%
Federal Farm Credit Bank	N/A	5%
Corporate Note – Tennessee Valley Authority	N/A	7%
Corporate Note – Wells Fargo Bank	N/A	7%
Corporate Note – Microsoft Corporation	N/A	9%
Corporate Note – Apple Inc	3%	11%
Ebury	7%	N/A
Guaranteed Investment Contracts	7%	4%

Interest Rate Risk. This is the risk of loss due to the fair value of an investment declining due to interest rates rising. Though SMUD has restrictions as to the maturities of some of the investments, it does not have a formal policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates. 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, 2021 and 2020. 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, 2021, 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	$ 4,931	$ -0-	$ -0-	$ 4,931
LAIF	Not Rated	526,297	-0-	-0-	526,297
Money Market Funds	AAAm	141,605	-0-	-0-	141,605
Deposit at Notice	N/A	105,922	-0-	-0-	105,922
Commercial Paper	A-1	9,893	-0-	-0-	9,893
Total cash and cash equivalents		788,648	-0-	-0-	788,648
Investments:					
Federal Home Loan Bank	AA+	44,992	-0-	-0-	44,992
Freddie Mac	AA+	20,013	-0-	-0-	20,013
U.S. Treasury Obligations	AA+	39,993	-0-	-0-	39,993
Corporate Notes	AA+	3,975	-0-	-0-	3,975
Municipal Bonds	AAA/AA+/AA-	37,947	24,851	-0-	62,798
Guaranteed Investment Contracts	BBB+	-0-	10,258	-0-	10,258
Total investments		146,920	35,109	-0-	182,029
Total cash, cash equivalents, and investments		$ 935,568	$ 35,109	$ -0-	$ 970,677

At December 31, 2020, 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	$ 8,607	$ -0-	$ -0-	$ 8,607
LAIF	Not Rated	512,682	-0-	-0-	512,682
Money Market Funds	AAAm	128,406	-0-	-0-	128,406
Deposit at Notice	N/A	80,062	-0-	-0-	80,062
Commercial Paper	A-1+/A-1	8,854	-0-	-0-	8,854
Total cash and cash equivalents		738,611	-0-	-0-	738,611
Investments:					
Federal Farm Credit Bank	AA+	15,188	-0-	-0-	15,188
Federal Home Loan Bank	AA+	49,986	-0-	-0-	49,986
Freddie Mac	AA+	-0-	20,462	-0-	20,462
U.S. Treasury Obligations	AAA	20,248	-0-	-0-	20,248
Corporate Notes	AAA/AA+/A+/A-/A	113,980	4,035	-0-	118,015
Municipal Bonds	AAA/AA+/AA-	-0-	63,647	-0-	63,647
Guaranteed Investment Contracts	BBB+	-0-	10,949	-0-	10,949
Total investments		199,402	99,093	-0-	298,495
Total cash, cash equivalents, and investments		$ 938,013	$ 99,093	$ -0-	$ 1,037,106

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

	December 31, 2021	December 31, 2020
	(thousands of dollars)	
Cash, Cash Equivalents, and Investments:		
Revenue bond reserve and debt service funds:		
Revenue bond reserve fund	$ 2,931	$ 3,813
Debt service fund	78,922	80,022
Component unit bond reserve and debt service funds	38,171	38,010
Total revenue bond reserve and debt service funds	120,024	121,845
Nuclear decommissioning trust fund	8,874	8,873
Rate stabilization fund	188,992	168,726
Component unit other restricted funds	6,575	7,413
Escrow fund	15,182	15,179
Other restricted funds	654	654
Unrestricted funds	630,376	714,416
Total cash, cash equivalents, and investments	$ 970,677	$ 1,037,106

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 2021 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 asset or 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 asset or 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,	
	2021	2020
	(thousands of dollars)	
Regulatory Costs:		
Decommissioning	$ 83,846	$ 88,652
Derivative financial instruments	5,387	9,270
Debt issuance costs	1,464	1,673
Pension	357,571	374,599
OPEB	293,783	306,556
Total regulatory costs	742,051	780,750
Less: regulatory costs to be recovered within one year	(38,303)	(38,162)
Total regulatory costs for future recovery - net	$ 703,748	$ 742,588

Regulatory Credits

CIAC. In 2021 and 2020, SMUD added CIAC totaling $24.2 million and $25.1 million, respectively, to Regulatory Credits in the Statements of Net Position and recorded $14.2 million and $13.3 million of amortization, respectively, to Other income (expense) - 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 deferred into this fund (which reduces revenues), or amounts are recognized out of this fund (which increases revenues). The Board authorizes Rate Stabilization Fund (RSF) deferrals on an event driven basis.

In 2021, $11.4 million was recognized as revenue from the RSF as a result of lower than budgeted energy deliveries from the Western Area Power Administration (Western). In 2020, $1.6 million was deferred from revenue to the RSF as a result of higher 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 2021, the Board authorized deferring the difference into the RSF and $16.2 million was deferred from revenue to the RSF. In 2020, the Board authorized transferring the difference out of the RSF and $4.1 million was recognized from the RSF to revenue.

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. In 2021, the Board authorized recognizing the difference and $0.9 million was recognized from the RSF to revenue. In 2020, the Board authorized deferring the difference into the RSF and $0.3 million was deferred from revenue to the RSF.

In 2021 and 2020, the Board authorized SMUD to defer $35.0 million from revenue to the RSF to offset future one-time specific expenses which may have a significant financial impact on SMUD. This will provide reserves to cover large contingencies while limiting or leveling out the impact of cost increases to ratepayers.

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 2021 and 2020, $18.6 million and $7.7 million, respectively, was recognized from the HRSF to revenue as a result of low 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 2020, $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. In 2021 and 2020, $0.8 million and $2.3 million was spent for SB-1 programs, respectively.

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 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,	
	2021	2020
	(thousands of dollars)	
Regulatory Credits:		
CIAC	$ 288,856	$ 278,791
Rate stabilization	132,876	94,006
Hydro rate stabilization	56,117	74,720
Senate Bill 1	3,470	4,254
Grant revenues	32,021	36,068
TANC operations costs	29,687	28,370
Total regulatory credits	$ 543,027	$ 516,209

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 derivative instruments 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 derivative instruments that do not meet the effectiveness tests are deferred for ratemaking purposes as regulatory assets on the Statements of Net Position (see Note 8).

SMUD executed numerous new gas and power related purchase agreements, some of which are recorded as hedging or investment derivative instruments and are therefore included in the following table. All hedging or investment derivative instruments are recorded at fair value in the Statements of Net Position.

For electricity and gas derivative instruments, 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 instrument contracts, SMUD uses an internally developed valuation model utilizing short term observable inputs. For interest rate derivative instruments, 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, 2021 (amounts in thousands; gains shown as positive amounts, losses as negative):

	2021 Changes in Fair Value		Fair Value at December 31, 2021		
	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	$ 1,174	$ 770	$ 1,174	$ 803	2,445 Dth
Gas – Storage	-0-	-0-	-0-	-0-	
Gas – Transportation	180	-0-	180	-0-	78 Dth
Total Investment Derivative Instruments	$ 1,354	$ 770	$ 1,354	$ 803	
Asset: Hedging Derivative Instruments					
Gas – Commodity	$ 29,964	$ 30,356	$ 31,293	$ 32,681	76,850 Dth
Gas – Storage	190	-0-	491	-0-	380 Dth
Gas – Transportation	2,062	-0-	3,552	-0-	9,395 Dth
Interest Rate	(509)	(1,209)	1,284	5,072	$263,535
Total Hedging Derivative Instruments	$ 31,707	$ 29,147	$ 36,620	$ 37,753	
Liability: Investment Derivative Instruments					
Gas – Commodity	$ 4	$ 24	$ 5	$ 239	1,223 Dth
Gas – Storage	-0-	-0-	-0-	-0-	
Gas – Transportation	-0-	-0-	-0-	-0-	
Interest Rate	(1,360)	3,093	2,752	4,547	$74,375
Total Investment Derivative Instruments	$ (1,356)	$ 3,117	$ 2,757	$ 4,786	
Liability: Hedging Derivative Instruments					
Gas – Commodity	$ 5,314	$ 17,210	$ 15,352	$ 1,488	12,983 Dth
Gas – Storage	479	-0-	618	-0-	380 Dth
Gas – Transportation	(1,562)	-0-	1,562	-0-	3,805 Dth
Interest Rate	(179)	7,718	700	2,880	$157,785
Total Hedging Derivative Instruments	$ 4,052	$ 24,928	$ 18,232	$ 4,368	

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, 2020 (amounts in thousands; gains shown as positive amounts, losses as negative):

	2020 Changes in Fair Value		Fair Value at December 31, 2020		
	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	$ (69)	$ 33	$ -0-	$ 33	305 Dth
Gas – Storage	(141)	-0-	-0-	-0-	
Gas – Transportation	(278)	-0-	-0-	-0-	
Total Investment Derivative Instruments	$ (488)	$ 33	$ -0-	$ 33	
Asset: Hedging Derivative Instruments					
Gas – Commodity	$ (189)	$ 2,311	$ 1,329	$ 2,325	39,730 Dth
Gas – Storage	(90)	-0-	301	-0-	900 Dth
Gas – Transportation	(3,836)	-0-	1,490	-0-	11,958 Dth
Interest Rate	295	(1,692)	1,793	6,281	$280,320
Total Hedging Derivative Instruments	$ (3,820)	$ 619	$ 4,913	$ 8,606	
Liability: Investment Derivative Instruments					
Gas – Commodity	$ 1,164	$ 1,402	$ 9	$ 263	1,675 Dth
Gas – Storage	191	-0-	-0-	-0-	
Gas – Transportation	93	-0-	-0-	-0-	
Interest Rate	(614)	(536)	1,392	7,640	$80,100
Total Investment Derivative Instruments	$ 834	$ 866	$ 1,401	$ 7,903	
Liability: Hedging Derivative Instruments					
Gas – Commodity	$ 20,193	$ 23,002	$ 20,666	$ 18,698	47,778 Dth
Gas – Storage	(583)	-0-	1,097	-0-	1,210 Dth
Gas – Transportation	-0-	-0-	-0-	-0-	
Interest Rate	(521)	(8,478)	521	10,598	$284,815
Total Hedging Derivative Instruments	$ 19,089	$ 14,524	$ 22,284	$ 29,296	

Objectives and Terms of Hedging Derivative Instruments. The objectives and terms of SMUD's hedging derivative instruments that were outstanding at December 31, 2021 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	95,478	01/01/08	12/31/25	$ 1.00	$ 7.80
Gas – Storage	760	01/01/22	02/28/22	.85	6.20
Gas – Transportation	13,278	01/01/22	12/31/22	(1.30)	1.35

The objectives and terms of SMUD's hedging derivative instruments that were outstanding at December 31, 2020 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 – Commodity	89,565	01/01/08	12/31/24	$ .89	$ 7.17
Gas – Storage	2,110	01/01/21	03/31/21	.26	3.13
Gas – Transportation	11,958	01/01/21	12/31/21	(0.82)	.43

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 three 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 2012 Series Y in 2022, and the 2013 Series A and 2013 Series B bonds in 2023 (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.

Derivative Instruments Not Designated as Hedging Derivative 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, 2021.

Basis Risk. This is the risk that arises when a hedged item and a derivative instrument 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 instrument 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 instrument 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 instrument 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 derivative instruments 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 instrument 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, 2021 and 2020 are shown in the table below. The credit ratings listed are from S&P or Moody's.

	December 31, 2021	December 31, 2020
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	A2	A2
Mitsui Bussan	A	A
Morgan Stanley Capital Group, Inc.	BBB+	A+
Nextera	A-	A-
Royal Bank of Canada	AA-	AA-
Shell Trading Market Risk	A	A+
Interest Rate Contracts:		
Barclays Bank PLC	A	A
Goldman Sachs Capital Markets, L.P. (J. Aron)	BBB+	BBB+
Morgan Stanley Capital Services, Inc.	A+	A+

NOTE 10. LONG-TERM DEBT

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

	December 31, 2021	December 31, 2020
	(thousands of dollars)	
Electric revenue bonds, 2.0%-6.32%, 2022-2050	$ 1,966,925	$ 2,085,120
Subordinated electric revenue bonds, 5.0%, 2022-2049	200,000	200,000
Total electric revenue bonds	2,166,925	2,285,120
Component unit project revenue bonds, 5.0%, 2022-2030	101,185	112,085
Gas and Commodity supply revenue bonds, index rates and 4.0%-5.0%, 2022-2049	703,100	721,550
Total long-term debt outstanding	2,971,210	3,118,755
Bond premiums - net	242,647	267,947
Total long-term debt	3,213,857	3,386,702
Less: amounts due within one year	(132,150)	(127,390)
Total long-term debt - net	$ 3,081,707	$ 3,259,312

The summarized activity of SMUD's long-term debt during 2021 is presented below:

	January 1, 2021	Additions	Defeasance Payments or Amortization	December 31, 2021	Amounts Due Within One Year
			(thousands of dollars)		
Electric revenue bonds	$ 2,085,120	$ 106,875	$ (225,070)	$ 1,966,925	$ 100,150
Subordinate electric revenue bonds	200,000	0	0	200,000	0
Component unit project revenue bonds	112,085	0	(10,900)	101,185	11,450
Gas and Commodity supply revenue bonds	721,550	0	(18,450)	703,100	20,550
Total	3,118,755	106,875	(254,420)	2,971,210	$ 132,150
Unamortized premiums - net	267,947	23,373	(48,673)	242,647	
Total long-term debt	$ 3,386,702	$ 130,248	$ (303,093)	$ 3,213,857	

The summarized activity of SMUD's long-term debt during 2020 is presented below:

	January 1, 2020	Additions	Defeasance Payments or Amortization	December 31, 2020	Amounts Due Within One Year
			(thousands of dollars)		
Electric revenue bonds	$ 1,778,040	$ 400,000	$ (92,920)	$ 2,085,120	$ 98,040
Subordinate electric revenue bonds	200,000	-0-	-0-	200,000	-0-
Component unit project revenue bonds	120,795	-0-	(8,710)	112,085	10,900
Gas and Commodity supply revenue bonds	738,225	-0-	(16,675)	721,550	18,450
Total	2,837,060	400,000	(118,305)	3,118,755	$ 127,390
Unamortized premiums - net	225,040	83,457	(40,550)	267,947	
Total long-term debt	$ 3,062,100	$ 483,457	$ (158,855)	$ 3,386,702	

At December 31, 2021 scheduled annual principal maturities and interest are as follows:

	Principal	Interest	Total
		(thousands of dollars)	
2022	$ 132,150	$ 146,198	$ 278,348
2023	140,870	139,221	280,091
2024	141,150	130,656	271,806
2025	153,025	123,363	276,388
2026	159,580	114,478	274,058
2027 – 2031 (combined)	611,665	463,969	1,075,634
2032 – 2036 (combined)	598,925	309,985	908,910
2037 – 2041 (combined)	416,905	177,661	594,566
2042 – 2046 (combined)	358,260	92,786	451,046
2047 – 2051 (combined)	258,680	23,573	282,253
Total requirements	$ 2,971,210	$ 1,721,890	$ 4,693,100

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, 2021 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, 2021:

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%	$ 131,030	$ 55,835
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
05/31/2012	2012 Series Y Bonds	08/15/2033	3.0% - 5.0%	196,945	163,765
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	81,880
07/14/2016	2016 Series D Bonds	08/15/2028	2.125% - 5.0%	149,890	124,160
12/14/2017	2017 Series E Bonds	08/15/2028	5.0%	202,500	132,870
07/12/2018	2018 Series F Bonds	08/15/2028	5.0%	165,515	127,645
07/25/2019	2019 Series G Bonds	08/15/2041	2.375% - 5.0%	191,875	191,875
05/07/2020	2020 Series H Bonds	08/15/2050	4.0% - 5.0%	400,000	400,000
07/14/2021	2021 Series I Bonds	08/15/2028	5.0%	106,875	106,875
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	5.0%	193,335	101,185
05/31/2007	2007B NCGA#1 Bonds	07/01/2027	Index Rate	668,470	163,485
12/19/2018	2018 NCEA Bonds	07/01/2049	4.0% - 5.0%	539,615	539,615

2021 Bond Issuances. In July 2021, SMUD issued $106.9 million of 2021 Series I Revenue Refunding Bonds. The purpose of this transaction was to refund the fixed rate debt associated with 2011 Series X bonds. Proceeds from the 2021 Series I bonds defeased all the outstanding Series 2011 Series X bonds and funded the associated swap termination payment. A total of $127.0 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 Consolidated Statements of Net Position. The refunding resulted in the recognition of a deferred accounting gain of $3.9 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 2021 refunding reduced future aggregate debt service payments by $23.8 million and resulted in a total economic gain of $22.5 million, which is the difference between the present value of the old and new debt service payments.

2020 Bond Issuances. In May 2020, SMUD issued $400.0 million of 2020 Series H Revenue Bonds. The 2020 Series H Bonds have a fixed coupon rate of 4.0 percent to 5.0 percent and amortize from 2029 to 2050. Proceeds from the 2020 Series H Bonds were used to refund all outstanding commercial paper and reimburse SMUD for capital projects in 2018, 2019 and through February 2020.

Component Unit Bond Defeasances. In September 2019, 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 had a remaining balance of $6.9 million as of December 31, 2020. In July 2021, the remaining balance was paid down to zero.

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 five interest rate swap agreements as of December 31, 2021 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
$ 55,835	Variable	5.166%	SIFMA	07/01/24	BBB+
74,375	Fixed	2.894%	63% of 1 M LIBOR	08/15/28	A+
157,785	Fixed	1.607%	SIFMA	08/15/33	A+
132,020	Fixed	0.7179%	70% of 1M LIBOR	08/15/41	A
75,680	Fixed	0.5543%	70% of 1M LIBOR	08/15/33	A

A summary of SMUD's six interest rate swap agreements as of December 31, 2020 are as follows:

Notional Amount (thousands)	SMUD Pays	Fixed Rate	Floating Rate	Termination Date	Counterparty Credit Rating
$ 72,620	Variable	5.166%	SIFMA	07/01/24	BBB+
80,100	Fixed	2.894%	63% of 1 M LIBOR	08/15/28	A+
127,030	Fixed	1.099%	67% of 1M LIBOR	08/15/28	BBB+
157,785	Fixed	1.607%	SIFMA	08/15/33	A+
132,020	Fixed	0.7179%	70% of 1M LIBOR	08/15/41	A
75,680	Fixed	0.5543%	70% of 1M LIBOR	08/15/33	A

At December 31, 2021 and 2020, SMUD had a fixed-to-variable interest rate swap agreement with a notional amount of $55.8 million and $72.6 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 (.10 percent and .09 percent at December 31, 2021 and 2020, respectively) and receives fixed rate payments of 5.166 percent as of December 31, 2021 and 2020. In connection with the swap agreement, SMUD has a put option agreement, also with a notional amount of $55.8 million and $72.6 million as of December 31, 2021 and 2020, 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 0.01 percent as of December 31, 2021 and 2020, 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, 2021 and 2020, SMUD had one variable-to-fixed interest rate swap agreement with a notional amount of $74.4 million and $80.1 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 June 2020, SMUD executed a variable-to-fixed interest rate swap agreement with Barclays Bank PLC with a notional amount of $132.0 million for the purpose of fixing the effective interest rate associated with the potential refunding of the 2013 Series A Bonds. The Barclays 2013 Series A swap becomes effective in July 2023. Also, in June 2020, SMUD executed a variable-to-fixed interest rate swap agreement with Barclays Bank PLC with a notional amount of $75.7 million for the purpose of fixing the effective interest rate associated with the potential refunding of the 2013 Series B Bonds. The Barclays 2013 Series B swap becomes effective in July 2023. 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. 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.

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 the potential refunding of the 2011 Series X Bonds. The J. Aron swap becomes effective in July 2021. The J. Aron swap was terminated in July 2021. As part of the termination, SMUD made a termination payment to J. Aron in the amount of $3.0 million. 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 the potential refunding of the 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 agreement as of December 31, 2021, 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
$ 163,485	Fixed	4.304%	67% of LIBOR + .72%	07/01/27	A+

NCGA had one interest rate swap agreement as of December 31, 2020, which are summarized as follows:

Notional Amount (thousands)	NCGA Pays	Fixed Rate	Floating Rate	Termination Date	Credit Support Provider Credit Rating
$ 181,935	Fixed	4.304%	67% of LIBOR + .72%	07/01/27	A+

At December 31, 2021 and 2020, NCGA had a variable-to-fixed interest rate swap agreement 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 (0.10 percent and 0.23 percent at December 31, 2021 and 2020, respectively) plus an interest rate spread, as specified in the swap agreement. The total notional amount of the swap at December 31, 2021 and 2020 was $163.5 million and $181.9 million, respectively, and was equivalent to the outstanding principal balance on the NCGA Bonds. The swap is amortized over the life of the swap agreement in a manner corresponding to the principal repayment schedule of the NCGA Bonds. Early termination of the swap would occur upon termination of the prepaid agreement for any reason. Upon early termination, the swap 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 SFA bonds' debt service is provided by a "take-or-pay" power purchase agreement and is therefore not dependent on the successful operation of the project. SMUD guarantees to make payments sufficient to pay principal and interest and all other payments required to be made under SFA's indenture of trust. SFA is 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 $488.8 million of Electric Revenue Bonds that are currently callable, $450.0 million of which are fixed rate Build America Bonds debt and $38.8 million of 2016 Series D Bonds. SMUD also has $365.5 million of bonds that become callable from 2022 through 2027, 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 2021. 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 2050 at December 31, 2021.

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,	
	2021	2020
	(thousands of dollars)	
Pledged future revenues	$ 2,971,210	$ 3,118,755
Principal and interest payments for the year ended	$ 404,679	$ 262,291
Total net revenues for the year ended	$ 720,414	$ 632,572
Total remaining principal and interest to be paid	$ 4,693,100	$ 4,997,204
Annual principal and interest payments as a percent of net revenues for the year ended	56%	41%

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, 2021 and 2020, there were no Notes outstanding. 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 2021 and 2020 is presented below:

	Balance at Beginning of Year	Additions	Reductions	Balance at End of Year
	(thousands of dollars)			
December 31, 2021	$ -0-	$ -0-	$ -0-	$ -0-
December 31, 2020	$ 50,000	$ -0-	$ (50,000)	$ -0-

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, 2021 and 2020, 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, 2021		
	Level 1	Level 2	Total
	(thousands of dollars)		
Investments, including cash and cash equivalents:			
LAIF	$ -0-	$ 526,297	$ 526,297
U.S. Government Agency Obligations	-0-	65,005	65,005
U.S. Treasury Obligations	39,993	-0-	39,993
Corporate Notes	-0-	3,975	3,975
Municipal Bonds	-0-	62,798	62,798
Total Investments, including cash and cash equivalents	$ 39,993	$ 658,075	$ 698,068
Investment Derivative Instrument Assets:			
Gas related agreements	$ 2,157	$ -0-	$ 2,157
Total Investment Derivative Instrument Assets	$ 2,157	$ -0-	$ 2,157
Hedging Derivative Instrument Assets:			
Gas related agreements	$ 68,017	$ -0-	$ 68,017
Interest rate swap agreements	-0-	6,356	6,356
Total Hedging Derivative Instrument Assets	$ 68,017	$ 6,356	$ 74,373
Investment Derivative Instrument Liabilities:			
Gas related agreements	$ 245	$ -0-	$ 245
Interest rate swap agreements	-0-	7,298	7,298
Total Investment Derivative Instrument Liabilities	$ 245	$ 7,298	$ 7,543
Hedging Derivative Instrument Liabilities:			
Gas related agreements	$ 19,020	$ -0-	$ 19,020
Interest rate swap agreements	-0-	3,580	3,580
Total Hedging Derivative Instrument Liabilities	$ 19,020	$ 3,580	$ 22,600

Recurring Fair Value Measures	At fair value as of December 31, 2020		
	Level 1	Level 2	Total
	(thousands of dollars)		
Investments, including cash and cash equivalents:			
LAIF	$ -0-	$ 512,682	$ 512,682
U.S. Government Agency Obligations	-0-	85,636	85,636
U.S. Treasury Obligations	20,248	-0-	20,248
Corporate Notes	-0-	118,015	118,015
Municipal Bonds	-0-	63,647	63,647
Total Investments, including cash and cash equivalents	$ 20,248	$ 779,980	$ 800,228
Investment Derivative Instrument Assets:			
Gas related agreements	$ 33	$ -0-	$ 33
Total Investment Derivative Instrument Assets	$ 33	$ -0-	$ 33
Hedging Derivative Instrument Assets:			
Gas related agreements	$ 5,445	$ -0-	$ 5,445
Interest rate swap agreements	-0-	8,074	8,074
Total Hedging Derivative Instrument Assets	$ 5,445	$ 8,074	$ 13,519
Investment Derivative Instrument Liabilities:			
Gas related agreements	$ 272	$ -0-	$ 272
Interest rate swap agreements	-0-	9,032	9,032
Total Investment Derivative Instrument Liabilities	$ 272	$ 9,032	$ 9,304
Hedging Derivative Instrument Liabilities:			
Gas related agreements	$ 40,461	$ -0-	$ 40,461
Interest rate swap agreements	-0-	11,119	11,119
Total Hedging Derivative Instrument Liabilities	$ 40,461	$ 11,119	$ 51,580

NOTE 13. ACCRUED DECOMMISSIONING LIABILITY

Asset Retirement Obligations (ARO). 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. One of these applications has been approved (and a license issued) and one application is 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. The U.S. Senate did not act on the bill. Until legislation is passed which includes a significant step towards removal of the used nuclear fuel at the Rancho Seco facility, 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. The NRC issued Renewed Licensee No. SNM-2510 on March 9, 2020. This renewed license authorizes the continued storage of SMUD's SNF and GTCC until June 30, 2060.

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 facility. The costs in the estimate were in 2019 dollars. An employment cost index was used to adjust the other costs portion of the obligation for inflation in 2021. 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, 2021 is $8.9 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 2021. The remaining useful life of the Agency's assets is four years at December 31, 2021.

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, 2021 and 2020, SMUD's Accrued Decommissioning balance in the Statements of Net Position was $95.1 million and $99.5 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, 2020 and June 30, 2019.

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

PERS Plan	December 31,	
	2021	2020
Valuation date	June 30, 2020	June 30, 2019
Measurement date	June 30, 2021	June 30, 2020

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

PERS Plan	December 31,	
	2021	2020
Inactive employees or beneficiaries currently receiving benefit payments	3,068	3,003
Inactive employees entitled to but not yet receiving benefit payments	974	979
Active employees	2,214	2,265
Total employees covered by benefit terms	6,256	6,247

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, 2021 and 2020, the average active employee contribution rate is 6.8 percent and 6.6 percent of annual pay, respectively. For the PERS fiscal year ended June 30, 2021, the employer's contribution rate is 9.1 percent of annual payroll plus $33.5 million for the unfunded accrued liability contribution. For the PERS fiscal year ended June 30, 2020, the employer's contribution rate is 8.7 percent of annual payroll plus $31.1 million for the unfunded accrued liability contribution. Employer contribution rates may change if plan contracts are amended. For the fiscal years ended June 30, 2021 and 2020, SMUD made contributions recognized by the PERS Plan in the amount of $229.4 million and $98.3 million, respectively.

Net Pension Asset (NPA) or Liability (NPL). SMUD's NPA or NPL at December 31, 2021 and 2020 was measured at June 30, 2021 and 2020, respectively. The total pension liability used to calculate the NPA or NPL was determined by actuarial valuations as of June 30, 2020 and 2019 rolled forward using generally accepted actuarial procedures to the June 30, 2021 and 2020 measurement dates for the PERS Plan.

Actuarial Methods and Assumptions. The actuarial methods and assumptions used for the December 31, 2021 and December 31, 2020 total pension liabilities are as follows for the PERS Plan:

Actuarial Cost Method	Entry age normal
Discount Rate	7.15%
Inflation	2.50%
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 2021 and 2020, the lesser of contract COLA or 2.50% until Purchasing Power Protection Allowance floor on purchasing power applies, 2.50% thereafter

Discount Rates. For the PERS Plan, the discount rate used to measure the total pension liability for the years ended December 31, 2021 and 2020 was 7.15 percent for both years. For the year ended December 31, 2021, 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+ years) using a building-block approach.

The expected real rates of return by asset class used for December 31, 2021 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, 2020 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%)

Changes in the NPA or NPL. The following table shows the changes in NPA or NPL recognized over the year ended December 31, 2021:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension (Asset) Liability (a) – (b)
		(thousands of dollars)	
Balances at January 1, 2020	$ 2,415,034	$ 1,945,214	$ 469,820
Changes recognized for the measurement period:			
Service cost	38,900	-0-	38,900
Interest	168,984	-0-	168,984
Changes in assumptions	-0-	-0-	-0-
Differences between expected and actual experience	(5,875)	-0-	(5,875)
Contributions - employer	-0-	229,440	(229,440)
Contributions - employee	-0-	17,552	(17,552)
Net investment income	-0-	454,518	(454,518)
Benefit payments	(130,376)	(130,376)	-0-
Administrative expense	-0-	(1,943)	1,943
Net changes	71,633	569,191	(497,558)
Balances at December 31, 2020	$ 2,486,667	$ 2,514,405	$ (27,738)

The following table shows the changes in NPA or NPL recognized over the year ended December 31, 2020:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
		(thousands of dollars)	
Balances at January 1, 2020	$ 2,332,097	$ 1,864,450	$ 467,647
Changes recognized for the measurement period:			
Service cost	38,901	-0-	38,901
Interest	164,044	-0-	164,044
Changes in assumptions	-0-	-0-	-0-
Differences between expected and actual experience	9,981	-0-	9,981
Contributions - employer	-0-	98,344	(98,344)
Contributions - employee	-0-	18,095	(18,095)
Net investment income	-0-	92,534	(92,534)
Benefit payments	(125,581)	(125,581)	-0-
Administrative expense	-0-	(2,628)	2,628
Other – GASB 73 pension liability write off	(4,408)	-0-	(4,408)
Net changes	82,937	80,764	2,173
Balances at December 31, 2020	$ 2,415,034	$ 1,945,214	$ 469,820

Sensitivity of the NPA or NPL to Changes in the Discount Rate. The following presents the NPA or 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 (NPA) NPL, December 31, 2021	$ 286,474	$ (27,738)	$ (289,153)
Plan's NPL, December 31, 2020	777,072	469,820	214,331

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 or Income and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions. For the year ended December 31, 2021 SMUD recognized a credit to pension expense of $27.9 million and for the year ended December 31, 2020, SMUD recognized pension expense of $79.7 million.

At December 31, 2021 and 2020, SMUD reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	December 31,	
	2021	2020
	(thousands of dollars)	
Deferred outflows of resources:		
Differences between expected and actual experience	9,710	17,222
Differences between projected and actual earnings on pension plan investments	-0-	16,985
Employer's contributions to the Plan subsequent to the measurement of total pension liability	71,624	142,133
Total deferred outflows of resources	$ 81,334	$ 176,340
Deferred inflows of resources:		
Changes of assumptions	$ -0-	$ 14,212
Differences between expected and actual experience	4,406	-0-
Differences between projected and actual earnings on pension plan investments	225,301	-0-
Total deferred inflows of resources	$ 229,707	$ 14,212

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:	
2022	$ (50,731)
2023	(51,226)
2024	(55,738)
2025	(62,302)
2026	-0-
Thereafter	-0-

Other Plans. SMUD provides its employees with two cash deferred compensation plans: one pursuant to Internal Revenue Code (IRC) Section 401(k) (401(k) Plan) and one pursuant to IRC Section 457 (457 Plan) (collectively, the Plans). The Plans are contributory plans in which SMUD's employees contribute the funds. Each of SMUD's eligible full-time or permanent part-time employees may participate in either or both Plans, and amounts contributed are vested immediately. Such funds are held by a Trustee in trust for the employees upon retirement from SMUD service and, accordingly, are not subject to the general claims of SMUD's creditors. SMUD is responsible for ensuring compliance with IRC requirements concerning the

Plans and has the fiduciary duty of reasonable care in the selection of investment alternatives, but neither SMUD, nor its Board or officers have any liability for market variations in the Plans' asset values. SMUD employees are responsible for determining how their funds are to be invested and pay all ongoing fees related to the Plans. The Plans are currently not subject to discrimination testing, nor the requirements of the Employee Retirement Income Security Act of 1974. SMUD employees participating in the Plans are allowed to contribute a portion of their gross income not to exceed the annual dollar limits prescribed by the IRC.

SMUD makes annual contributions to the 401(k) Plan on behalf of certain employees pursuant to a memorandum of understanding with both of its collective bargaining units. SMUD also matches non-represented employee contributions to the 401(k) Plan up to a set amount. SMUD made contributions into the 401(k) Plan of $6.1 million in 2021 and $5.8 million in 2020. 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 $30.6 million in 2021 and $28.8 million in 2020.

NOTE 15. OTHER POSTEMPLOYMENT BENEFITS

Summary of Significant Accounting Policies. For purposes of measuring the net OPEB asset or 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,	
	2021	2020
Inactive employees or beneficiaries currently receiving benefit payments	2,302	2,286
Inactive employees entitled to but not yet receiving benefit payments	42	46
Active employees	2,114	2,136
Total employees covered by benefit terms	4,458	4,468

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, 2021 and 2020, SMUD made contributions recognized by the OPEB Plan in the amounts of $0.8 million and $13.3 million, respectively.

Net OPEB Asset (NOA) or Liability (NOL). SMUD's NOA at December 31, 2021 and December 31, 2020 was measured as of June 30, 2021 and 2020 respectively, and the total OPEB liability used to calculate the NOA was determined by actuarial valuations as of those dates.

Actuarial Methods and Assumptions. The actuarial methods and assumptions used for the December 31, 2021 and December 31, 2020 total OPEB liabilities are as follows:

Discount Rate	5.84% (2021). Blended discount rate based on projected benefit streams expected to be paid from each Strategy. 6.37% (2020)
Inflation	2.50% (2021), 2.75% (2020)
Salary Increases	Aggregate – 2.75% (2021), 3.0% (2020); Merit - PERS 1997-2015 Experience Study
Mortality, Retirement, Disability, Termination	PERS 1997-2015 Experience Study
Mortality Improvement	Mortality projected fully generational with Scale MP-20 (2021), MP-19 (2020)
Healthcare Cost Trend Rates	Non-Medicare: 6.5% for 2022, decreasing to an ultimate rate of 3.75% in 2076 (2021); 7.0% for 2022, decreasing to an ultimate rate of 4.0% in 2076 (2020) Medicare: 5.65% for 2022, decreasing to an ultimate rate of 3.75% in 2076 (2021); 6.1% for 2022, decreasing to an ultimate rate of 4.0% in 2076 (2020) Kaiser Medicare: 4.6% for 2022, decreasing to an ultimate rate of 3.75% in 2076 (2021); 5.0% for 2022, decreasing to an ultimate rate of 4.0% in 2076 (2020)

Discount Rates. For the OPEB Plan, the discount rate used to measure the total OPEB liability was 5.84 percent and 6.37 percent for the years ended December 31, 2021 and 2020, respectively. This rate is a blended discount rate based on projected benefit streams expected to be paid from Strategies 1 and 3. 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 6.25 and 6.75 percent for Strategy 1 and 4.75 and 5.50 percent for Strategy 3 was applied to all periods of projected benefit payments to determine the total OPEB liability for the years ended December 31, 2021 and 2020, respectively.

The expected real rates of return by asset class used and presented as geometric means for December 31, 2021 are as follows:

Asset Class	Target Allocation CERBT Strategy 1	Expected Real Rate of Return
Global Equity	59%	4.56%
Fixed Income	25%	0.78%
TIPS	5%	(0.08%)
Commodities	3%	1.22%
REITS	8%	4.06%

Asset Class	Target Allocation CERBT Strategy 3	Expected Real Rate of Return
Global Equity	22%	4.56%
Fixed Income	49%	0.78%
TIPS	16%	(0.08%)
Commodities	5%	1.22%
REITS	8%	4.06%

The expected real rates of return by asset class used and presented as geometric means for December 31, 2020 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%

Changes in the NOA or NOL. The following table shows the changes in NOA or NOL recognized over the year ended December 31, 2021:

	Total OPEB Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net OPEB (Asset) Liability (a) – (b)
		(thousands of dollars)	
Balances at January 1, 2021	$ 396,209	$ 396,979	$ (770)
Changes recognized for the measurement period:			
Service cost	8,426	-0-	8,426
Interest	25,008	-0-	25,008
Changes in assumptions	5,895	-0-	5,895
Differences between expected and actual experience	(18,938)	-0-	(18,938)
Contributions - employer	-0-	818	(818)
Net investment income	-0-	76,479	(76,479)
Benefit payments	(24,081)	(24,081)	-0-
Administrative expense	-0-	(144)	144
Net changes	(3,690)	53,072	(56,762)
Balances at December 31, 2021	$ 392,519	$ 450,051	$ (57,532)

The following table shows the changes in in NOA or NOL recognized over the year ended December 31, 2020:

	Total OPEB Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net OPEB (Asset) Liability (a) – (b)
		(thousands of dollars)	
Balances at January 1, 2020	$ 419,483	$ 387,272	$ 32,211
Changes recognized for the measurement period:			
Service cost	8,903	-0-	8,903
Interest	26,653	-0-	26,653
Changes in assumptions	(11,453)	-0-	(11,453)
Differences between expected and actual experience	(23,529)	-0-	(23,529)
Contributions - employer	-0-	13,299	(13,299)
Net investment income	-0-	20,447	(20,447)
Benefit payments	(23,848)	(23,848)	-0-
Administrative expense	-0-	(191)	191
Net changes	(23,274)	9,707	(32,981)
Balances at December 31, 2020	$ 396,209	$ 396,979	$ (770)

Sensitivity of the NOA or NOL to Changes in the Discount Rate. The following presents the NOA or NOL of SMUD as of the measurement date, calculated using the current discount rate, as well as what the NOA or 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 (4.84%)	Current Discount Rate (5.84%)	1% Increase (6.84%)
		(thousands of dollars)	
(NOA), December 31, 2021	$ (9,249)	$ (57,532)	$ (97,772)

	1% Decrease (5.37%)	Current Discount Rate (6.37%)	1% Increase (7.37%)
		(thousands of dollars)	
(NOA) NOL, December 31, 2020	$ 48,397	$ (770)	$ (41,660)

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

	1% Decrease	Current Healthcare Trend Rate	1% Increase
		(thousands of dollars)	
(NOA), December 31, 2021	$ (102,004)	$ (57,532)	$ (3,060)
(NOA) NOL, December 31, 2020	$ (45,574)	$ (770)	$ 54,091

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, 2021 and 2020, SMUD recognized a credit to OPEB expense of $18.8 million and $3.2 million, respectively.

At December 31, 2021 and 2020, SMUD reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources:

	December 31, 2021	December 31, 2020
	(thousands of dollars)	
Deferred outflows of resources:		
Changes of assumptions	$ 13,132	$ 11,448
Differences between projected and actual earnings on OPEB plan investments	-0-	2,741
Employer's contributions to the OPEB Plan subsequent to the measurement of total OPEB liability	11,981	11,947
Total deferred outflows of resources	$ 25,113	$ 26,136
Deferred inflows of resources:		
Changes of assumptions	$ 7,504	$ 9,479
Differences between expected and actual experience	48,300	49,375
Differences between projected and actual earnings on OPEB plan investments	39,098	-0-
Total deferred inflows of resources	$ 94,902	$ 58,854

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:	
2022	$ (27,453)
2023	(17,924)
2024	(16,986)
2025	(17,608)
2026	(1,799)
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 $5.0 million per claim. General liability limits are $140.0 million, excess of a $5.0 million self-insured retention. As of December 31, 2021, wildfire liability limits are $176.0 million ($102.0 million commercial insurance plus $72.0 million self-insured retention). As of December 31, 2020, SMUD had $173.0 million commercial coverage plus $77.0 million self-insured retention within a $250.0 million total program value. 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 2021, 2020, and 2019, 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, 2021, 2020 and 2019 is presented below:

	2021	2020	2019
		(thousands of dollars)	
Workers' compensation claims	$ 8,666	$ 9,166	$ 10,005
General and auto claims	3,596	3,766	3,867
Short and long-term disability claims	47	92	201
Claims liability	$ 12,309	$ 13,024	$ 14,073

Changes in SMUD's total claims liability during 2021, 2020 and 2019 are presented below:

	2021	2020	2019
		(thousands of dollars)	
Claims liability, beginning of year	$ 13,024	$ 14,073	$ 14,669
Add: provision for claims, current year	1,450	1,419	1,789
(Decrease) increase in provision for claims in prior years	(2,043)	(8)	11,434
Less: payments on claims attributable to current and prior years	(122)	(2,460)	(13,819)
Claims liability, end of year	$ 12,309	$ 13,024	$ 14,073

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, 2021, the approximate minimum obligations for the "take-or-pay" contracts over the next five years are as follows:

	Electric	Gas
	(thousands of dollars)	
2022	$ 101,283	$ 10,362
2023	76,618	9,369
2024	84,190	9,471
2025	65,830	9,569
2026	67,345	9,684

At December 31, 2021, 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)	
2022	$ 210,492	$ 142,333
2023	210,180	140,888
2024	228,006	104,964
2025	221,728	80,266
2026	209,959	31,133

Contractual Commitments beyond 2026 - Electricity. Several of SMUD's purchase power and transmission contracts extend beyond the five-year summary presented above. These contracts expire between 2027 and 2054 and provide for power under various terms and conditions. SMUD estimates its annual minimum commitments under the take-or-pay contracts ranges between $41.3 million in 2027 and $21.2 million in 2054. SMUD estimates its annual minimum commitments under the remaining contracts, assuming the energy is delivered, ranges between $162.5 million in 2027 and $28.2 million in 2050. SMUD's largest purchase power source (in volume) is the Calpine Sutter contract, where SMUD has contracted ownership of 258 MW's of thermal generation capacity. The Calpine Sutter contract expires on December 31, 2026.

Contractual Commitments beyond 2026 - 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 2027 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 $9.8 million in 2027 and $3.6 million in 2049. SMUD estimates its annual minimum commitments under the remaining contracts, assuming the gas is delivered, ranges between $28.6 million in 2027 and $7.6 million in 2049.

Gas Price Swap Agreements. SMUD has entered into numerous variable-to-fixed rate swaps with notional amounts totaling 102,375,000 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 $2.27 to $7.17 per Dth. The swap agreements expire periodically from January 2022 through December 2026.

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 53,260 Dth per day (Dth/d) of natural gas pipeline capacity from the North, including the Canadian Basins through 2022 and 39,710 Dth/d from the Southwest or Rocky Mountain Basins through at least 2022.

Gas Storage Agreements. SMUD also has an agreement for the storage of up to 2.0 million Dth of natural gas at regional facilities through March 2023, dropping to 1.0 million Dth through March 2024.

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 $65.1 million at December 31, 2021.

Construction Contracts. SMUD has entered into various construction contracts for the construction of a new substation, control building, and improvements to the Union Valley bike trail in the UARP. As of December 31, 2021, the not-to-exceed price for these contracts totaled $71.9 million. The remaining contract obligations for these contracts as of December 31, 2021 was $34.5 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.

Other Matters. Currently, SMUD is party to various claims, legal actions and complaints relating to its operations, including but not limited to: property damage and personal injury, contract disputes, torts, and employment matters. SMUD's management believes that the ultimate resolution of these matters will not have a material adverse effect on SMUD's financial position, liquidity or results of operations.

NOTE 19. SUBSEQUENT EVENTS

SMUD evaluated subsequent events through March 01, 2022, the date that the financial statements were available to be issued, for events requiring recording or disclosure in the financial statements.

Required Supplementary Information – Unaudited
For the Years Ended December 31, 2021 and 2020

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

	December 31,							
	2021	2020	2019	2018	2017	2016	2015	2014
				(thousands of dollars)				
Total pension liability:								
Service cost	$ 38,900	$ 38,901	$ 38,061	$ 36,029	$ 35,040	$ 29,044	$ 27,991	$ 28,170
Interest	168,984	164,044	157,976	151,354	150,119	147,497	142,468	137,546
Changes of assumptions	-0-	-0-	-0-	(61,585)	123,043	-0-	(34,228)	-0-
Differences between expected and actual experience	(5,875)	9,981	18,877	1,293	(29,276)	(8,357)	(10,613)	-0-
Benefit payments, including refunds of employee	(130,376)	(125,581)	(117,548)	(111,763)	(104,428)	(99,155)	(94,636)	(90,175)
Net change in total pension liability	71,633	87,345	97,366	15,328	174,498	69,029	30,982	75,541
Total pension liability, beginning of year	2,415,034	2,327,689	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)	$ 2,486,667	$ 2,415,034	$ 2,327,689	$ 2,230,323	$ 2,214,995	$ 2,040,497	$ 1,971,468	$ 1,940,486
Plan fiduciary net position:								
Contributions - employer	$ 229,440	$ 98,344	$ 69,119	$ 90,141	$ 32,389	$ 27,645	$ 22,499	$ 21,511
Contributions - employee	17,552	18,095	17,411	16,832	15,845	15,271	14,503	15,346
Net investment income	454,518	92,534	115,867	138,739	171,596	8,316	35,797	245,659
Benefit payments, including refunds of employee	(130,376)	(125,581)	(117,548)	(111,763)	(104,428)	(99,155)	(94,636)	(90,175)
Administrative expense	(1,943)	(2,628)	(1,270)	(7,474)	(2,275)	(969)	(1,795)	(2,028)
Other	-0-	-0-	4	(4)	-0-	34	(25)	-0-
Net change in plan fiduciary net position	569,191	80,764	83,583	126,471	113,127	(48,858)	(23,657)	190,313
Plan fiduciary net position, beginning of year	1,945,214	1,864,450	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)	$ 2,514,405	$ 1,945,214	$ 1,864,450	$ 1,780,867	$ 1,654,396	$ 1,541,269	$ 1,590,127	$ 1,613,784
Net pension liability/(asset), ending (a) - (b)	$ (27,738)	$ 469,820	$ 463,239	$ 449,456	$ 560,599	$ 499,228	$ 381,341	$ 326,702
Plan fiduciary net position as a percentage of the total pension liability	101.1%	80.5%	80.1%	79.8%	74.7%	75.5%	80.7%	83.2%
Covered payroll	$ 257,613	$ 254,756	$ 247,759	$ 235,902	$ 223,685	$ 207,119	$ 197,481	$ 191,439
Net pension liability/(asset) as a percentage of covered payroll	-10.8%	184.4%	187.0%	190.5%	250.6%	241.0%	193.1%	170.7%

PERS Plan. The schedule of changes in NPL/NPA and related ratios is presented above 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, 2020 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 2021, 2020 and 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 Plan Contributions for Pension – PERS Plan

	2021	2020	2019	2018	2017	2016	2015	2014
				December 31, (thousands of dollars)				
Actuarially determined contribution	$ 54,315	$ 52,276	$ 49,119	$ 40,142	$ 32,389	$ 27,645	$ 22,499	$ 21,511
Contributions in relation to the actuarially determined contribution	(229,440)	(98,344)	(69,119)	(90,142)	(32,389)	(27,645)	(22,499)	(21,511)
Contribution excess	$ (175,125)	$ (46,068)	$ (20,000)	$ (50,000)	$ -0-	$ -0-	$ -0-	$ -0-
Covered payroll	$ 257,613	$ 254,756	$ 247,759	$ 235,902	$ 223,685	$ 207,119	$ 197,481	$ 191,439
Contributions as a percentage of covered payroll	89.1%	38.6%	27.9%	38.2%	14.5%	13.4%	11.4%	11.2%

PERS Plan. The schedule of pension contributions is presented above 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

The actuarial methods and assumptions used to set the actuarially determined contributions for the year ended December 31, 2021 was derived from the June 30, 2018 funding valuation report.

Actuarial cost method	Entry age normal
Amortization method/period	For details, see June 30, 2018 Funding Valuation Report
Asset valuation method	Fair value of assets. For details, see June 30, 2018 Funding Valuation Report
Inflation	2. 5%
Salary increases	Varies by entry age and service
Payroll growth	2.75%
Investment rate of return	7.00% Net of pension plan investment and administrative expenses; includes inflation
Retirement age	The probabilities of retirement are based on the 2017 PERS Experience Study for the period from 1997 to 2015
Mortality	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 Scale MP-2016 published by the Society of Actuaries.

In 2020, the investment rate of return was 7.25%. Prior to 2020, 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. 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 Asset or Liability and Related Ratios During the Measurement Period

OPEB. The schedule of changes in NOA or NOL and related ratios is presented above 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,				
	2021	2020	2019	2018	2017
	(thousands of dollars)				
Total OPEB liability:					
Service cost	$ 8,426	$ 8,903	$ 8,946	$ 9,263	$ 8,993
Interest on total OPEB liability	25,008	26,653	26,766	29,656	28,676
Changes of assumptions	5,895	(11,453)	15,332	3,105	-0-
Differences between expected and actual experience	(18,938)	(23,529)	(6,885)	(59,921)	-0-
Benefit payments, including refunds of employee contributions	(24,081)	(23,848)	(24,521)	(24,672)	(22,192)
Net change in total OPEB liability	(3,690)	(23,274)	19,638	(42,569)	15,477
Total OPEB liability, beginning of year	396,209	419,483	399,845	442,414	426,937
Total OPEB liability, end of year (a)	$ 392,519	$ 396,209	$ 419,483	$ 399,845	$ 442,414
Plan fiduciary net position:					
Contributions - employer	$ 818	$ 13,299	$ 13,963	$ 34,243	$ 114,573
Net investment income	76,479	20,447	20,132	27,295	24,104
Benefit payments, including refunds of employee contributions	(24,081)	(23,848)	(24,521)	(24,672)	(22,192)
Administrative expense	(144)	(191)	(81)	(635)	(123)
Net change in plan fiduciary net position	53,072	9,707	9,493	36,231	116,362
Plan fiduciary net position, beginning of year	396,979	387,272	377,779	341,548	225,186
Plan fiduciary net position, end of year (b)	$ 450,051	$ 396,979	$ 387,272	$ 377,779	$ 341,548
Net OPEB (asset) or liability, ending (a) - (b)	$ (57,532)	$ (770)	$ 32,211	$ 22,066	$ 100,866
Plan fiduciary net position as a percentage of the total OPEB liability	114.7%	100.2%	92.3%	94.5%	77.2%
Covered payroll	$ 289,014	$ 287,001	$ 282,993	$ 269,753	$ 252,211
Net OPEB (asset) or liability as a percentage of covered payroll	-19.9%	-0.3%	11.4%	8.2%	40.0%

Notes to Schedule

Benefit Changes: There were no changes to benefits.

Changes in Assumptions: In 2021, the discount rate was updated due to weighting of Strategy 1 and Strategy 3 and updated capital market assumptions, the mortality improvement scale was updated to Scale MP-2020, the inflation rate was changed to 2.5% and the implied subsidy was removed for Medicare Advantage Plans. In 2020, the discount rate reflected the split of assets between Strategy 1 and Strategy 3, the mortality improvement scale was updated to Scale MP-2019, and the Kaiser Medicare trend rates were updated.

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,				
	2021	2020	2019	2018	2017
	(thousands of dollars)				
Actuarially determined contribution	$ 8,661	$ 12,201	$ 10,710	$ 15,366	$ 16,472
Contributions in relation to the actuarially determined contribution	(853)	(13,233)	(13,155)	(35,128)	(116,181)
Contribution excess	$ 7,808	$ (1,032)	$ (2,445)	$ (19,762)	$ (99,709)
Covered payroll	$ 285,425	$ 289,552	$ 286,835	$ 277,193	$ 260,210
Contributions as a percentage of covered payroll	0.3%	4.6%	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, 2021 were derived from the June 30, 2020 funding valuation report.

Actuarial cost method	Entry age normal
Amortization method	Level percent of pay
Amortization period	25-year fixed period for 2021
Asset valuation method	Market value of assets
Discount rate	6.75% for all actives and retirements after 6/30/2018, 5.50% for all retirements before 6/30/2018
Inflation	2.75%
Medical trend	Non-Medicare: 7.0% for 2022, decreasing to an ultimate rate of 4.0% in 2076
	Medicare (Non-Kaiser): 6.1% for 2022, decreasing to an ultimate rate of 4.0% in 2076
	Medicare (Kaiser): 5.0% for 2022, 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-19

In 2021, the amortization period was for a 25-year fixed period. Mortality assumption used PERS 1997-2015 experience study. The mortality improvement projected fully generational with Scale MP-19. In 2020, the amortization period was for a 26-year fixed period. Mortality assumption used PERS 1997-2015 experience study. The mortality improvement projected fully generational with Scale MP-18. In 2019, the amortization period was for a 27-year fixed period. Mortality assumption used PERS 1997-2015 experience study. The mortality improvement 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.