



2020 Series H Serial Bonds (Green Bonds)

EXECUTIVE SUMMARY

Kestrel Verifiers is of the opinion that the 2020 Series H Serial Bonds (Green Bonds) with maturities dated August 15, 2029 and August 15, 2030 conform with the four pillars of the Green Bond Principles 2018 as follows:



Use of Proceeds

One hundred percent of bond proceeds from maturities labeled green will be earmarked and used for Green Buildings and Renewable Energy, which are recognized by the ICMA Green Bond Principles as eligible project categories with positive environmental benefits.



Process for Project Evaluation and Selection

SMUD's project evaluation and selection process is executed through a dedicated environmental team supported by the Finance and Audit Committee and the Board of Directors.



Management of Proceeds

The net proceeds will be tracked by SMUD's Finance Team and will be 100% allocated and reimbursed in full at bond closing. SMUD maintains a high level of transparency in proceed management by publishing annual audits.



Reporting

Sacramento Municipal Utility District commits to posting continuing disclosures to the Municipal Securities Rulemaking Board (MSRB) Electronic Municipal Market Access (EMMA) system. SMUD produces an annual sustainability report highlighting climate readiness, environmental leadership and impact through greenhouse gas reductions.

ISSUER:

Sacramento Municipal Utility
District (SMUD)

OPINION ON:

2020 Series H Serial Bonds
(Green Bonds)

SECTORS:

Green Buildings and
Renewable Energy



The
Green Bond
Principles

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SECOND PARTY OPINION

ELECTRIC REVENUE BONDS, 2020 SERIES H - (GREEN BONDS)

Issuer: Sacramento Municipal Utility District (SMUD)
Green Category: Green Buildings, Renewable Energy
Par: \$24,580,000 (preliminary, subject to change)
Evaluation date: 4/16/2020

ABOUT THIS ENGAGEMENT

Kestrel Verifiers, an Approved Verifier accredited by the Climate Bonds Initiative, conducted an independent review of this bond to evaluate conformance with the Green Bond Principles (June 2018) established by the International Capital Market Association.

As part of this engagement, Kestrel Verifiers examined public and non-public information and interviewed members of SMUD's management and finance teams. Our goal was to understand sustainability impacts of the business, planned use of proceeds, procedures for management of proceeds, and plans and practices for reporting. This document contains Kestrel's opinion of the 2020 Series H Green Bonds.

This Second Party Opinion reflects our view of SMUD's project and financing, allocation and oversight, and conformance of the bonds with the Green Bond Principles.

TRANSACTION OVERVIEW

Sacramento Municipal Utility District ("SMUD" or "the District") plans to issue \$350,000,000 (preliminary, subject to change) in Electric Revenue Bonds, 2020 Series H with approximately \$24,580,000 identified as Green Bonds ("2020 Series H Green Bonds"). These Green Bonds are a select part of the 2020 Series H offering on maturities dated August 15, 2029 and August 15, 2030.

Proceeds from the 2020 Series H Green Bonds will be used to reimburse the District for several projects and expenditures that have already occurred. These projects include: renovations and upgrades to SMUD's LEED Gold headquarters building ("SMUD Headquarters") made in 2019, construction on two hydroelectric powerhouses associated with SMUD's Upper American River Project (UARP), and transmission infrastructure for solar energy produced by the Rancho Seco II Solar Project.

In our opinion, the 2020 Series H Green Bonds to be issued by SMUD conform with the Green Bond Principles 2018 and the financed projects will continue to produce beneficial environmental impacts.

ABOUT THE ISSUER

The Sacramento Municipal Utility District, also known as SMUD, is a community-owned, not-for-profit electric service in Sacramento, California. SMUD has served Sacramento for over 70 years and is now the nation's sixth-largest community-owned electric utility. SMUD is a recognized leader in environmental and sustainability initiatives. As the first California utility to receive more than 20% of its energy from renewable sources, SMUD continues to be a leader in greenhouse gas emissions reductions.

SMUD has established clear goals that support emissions reductions and a low-carbon trajectory, including goals to increase use of renewable energy and reduce fossil fuel use in its fleet. SMUD has also established sustainability targets for buildings and office space which include doubling energy savings at existing buildings by 2030.

Sacramento Municipal Utility District's Sustainability Strategy

Kestrel believes that the Sacramento Municipal Utility District has a strong and transparent sustainability strategy supported by a robust governance structure and public disclosure. The organization's goals and commitment to environmental quality are supported through a governance system for managing and integrating sustainability into the utility, and setting clear, attainable and effective goals.

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

To achieve this sustainability vision, SMUD has established clear objectives which include:

- Supply 33% of energy from qualified renewable sources (wind, water, sun and landfill gas) by 2020 and 60% by 2030;
- 50% reduction in petroleum use in vehicles through expansion of a fleet of plug-in hybrids and battery electric vehicles; and
- Double energy savings at existing buildings.

Furthermore, SMUD implements several innovative and transformative programs within the community. One of SMUD's most successful energy efficiency programs is Sacramento Shade, a free shade tree program. Shade trees can reduce a home's cooling costs by up to 40% after five years of growth. Since 1990, Sacramento Shade has delivered more than 500,000 free shade trees to local homes and businesses. SMUD also implements a voluntary Greenergy program that allows ratepayers to increase rates to offset their electric use with renewable resources. The program has more than 70,000 residential and 2,000 commercial customers, ranking second nationally among utility green power programs in terms of participation.

THE BOND-FINANCED PROJECT

The 2020 Series H Green Bonds will be used to reimburse the District for four distinct projects.

Table 1. Summary of 2020 Series H Green Bonds Projects

2020 Project Component	Year Built	Green Standard or Impact	Cost	Environmental Benefit
Headquarters Renovations	2019	Green Buildings	\$20,744,181	Energy Efficiency Upgrades Water Efficiency Upgrades
South Fork American River Powerhouse Rebuild Jones Fork Powerhouse	2018	Renewable Energy	\$5,300,225	Renewable Energy Production
Rancho Seco 2 Solar Interconnection	2019	Renewable Energy	\$7,789,288	Renewable Energy Transmission
Total			\$33,833,693	

Headquarters Renovation

The headquarters renovation project was constructed in 2019 and has met the Leadership in Energy and Environmental Design (LEED) Gold standard. The Green Bonds are being used to reimburse SMUD's expenditures for upgrades and renovations focused on reducing energy use and water consumption in accordance with updated building energy efficiency standards.

Table 2 summarizes the project components to be reimbursed by the 2020 Series H Green Bonds.

Table 2. Summary of energy and water efficiency improvements at the Headquarters Building. Projects completed in 2019

2019 Project Component	Impact
High-efficiency, low-volume mechanical systems	Energy Efficiency
New insulated glazing	Energy Efficiency
LED lighting	Energy Efficiency
Low water use fixtures	Water Efficiency
Incorporation of biophilic features	Water Efficiency
Rainwater management site improvements	Water Efficiency
Landscape water-use reduction	Water Efficiency
Electric Vehicle Charging Stations	Promotes low-carbon transport

The high-efficiency mechanical systems represent a significant savings in energy use through the modernization of the HVAC system. This major improvement, coupled with LED lighting and insulated glazing, leads to dramatic reductions in energy use for climate control and lighting. Additionally, the project incorporated 26 electric vehicle charging stations that encourage zero emissions vehicles for commuting. Increased natural light resulting from these renovations also saves energy.

In addition to these energy efficiency measures, SMUD incorporated water-saving technology in the renovations. Use of low-flow water fixtures, rainwater capture, and landscaping with minimal water demands all contribute to reducing water use at the Headquarters building and increased water use efficiency in arid California.

Table 3 summarizes the dramatic reduction in water use before and after the SMUD Headquarters renovations.

Table 3. Water use at SMUD Headquarters

2019 Project Component	
Annual baseline water use (actual)	541,975.20 (gallons/year)
Annual future water use (estimated)	318,711.12 (gallons/year)
Percent water use reduction (%)	41.19%

By incorporating insulating, energy savings, and water saving technologies, SMUD has invested in a renovated Headquarters building that reduces environmental impacts, saves money, and promotes a healthy work environment.

UARP Renewable Energy

The Upper American River Project (UARP), a 688-megawatt hydroelectric system in the Sierra Nevada mountains west of Lake Tahoe and is SMUD's most reliable and economical energy source. As an emission-free system of dams, reservoirs, and powerhouses, it consists of eight small reservoirs and three relatively large storage reservoirs (Union Valley, Loon Lake and Ice House) with an aggregate water storage capacity of approximately 400,000 acre-feet. Project facilities also include eight tunnels with a combined length of over 26 miles and eight powerhouses containing 11 turbines. Proceeds of the Green Bonds will reimburse SMUD for upgrades and renovations to two powerhouses that were completed in 2018 and 2019.

South Fork American River Powerhouse Rebuild

The newest piece of UARP is the South Fork Powerhouse, a small 2.7-megawatt hydroelectric powerhouse located on the South Fork of the American River just below Slab Creek Dam. Electricity from the powerhouse is delivered into the regional electrical grid via an existing distribution line that serves the communities of Mosquito and Swansboro. The powerhouse meets the requirements of the 2014 Federal Energy Regulation Commission license that authorizes SMUD to operate the Upper American River Project. The license requires a release of additional water from Slab Creek Reservoir to enhance fish habitat and support recreational whitewater boating. Released water passes through the South Fork powerhouse to generate renewable energy, helping SMUD contribute to the State of California's goal of 50% renewable energy by 2030. The Green Bonds will be used to reimburse costs associated with penstock, turbine, switchgear and generator procurement, as well as site work and installation costs. These necessary expenditures all contribute to the production and transmission of renewable energy.

Jones Fork Powerhouse

The Jones Fork Powerhouse is a small hydroelectric powerhouse located on the Jones Fork of Silver Creek. The Jones Fork Powerhouse receives water from Ice House Reservoir and discharges into Union Valley Reservoir, all part of UARP. In 2019, SMUD re-sealed this powerhouse to maintain operational ability to produce renewable energy. Re-sealing is a complex undertaking which involved lowering the reservoir water level, excavating soil below the foundation, and applying a physical exterior membrane system to the three water-side exteriors of the powerhouse walls. The downstream concrete tailrace walls were sealed concurrently and backfill material that was removed prior to sealing was replaced to its original pre-construction location.

Rancho Seco 2 Solar Interconnection

Dedicated transmission infrastructure to support renewable energy is a necessary and beneficial project under the Green Bond Principles 2018, Renewable Energy project category. SMUD will use the Green Bond proceeds to reimburse costs associated with adding two additional 230kV bays to accommodate the new incoming solar PV II 230kV transmission line. The scope of work included site development, steel structures, power and control cables, circuit breakers, fiber cable, perimeter fence & gates, metering, and AC/DC station service transformer and panels, among other necessary equipment and contracting.

In October 2015, SMUD entered into a 20-year power purchase agreement with Rancho Seco Solar LLC for the purchase of energy from a 10.88 MW solar PV project sited on SMUD's property at the closed Rancho Seco Nuclear Generating Station. Commercial operation was achieved in August of 2016. In May 2019, SMUD entered into a subsequent 30-year power purchase agreement for an additional 160 MW solar PV project with Rancho Seco Solar II, LLC. The project is located adjacent to the existing 10.88 MW

solar PV project. Construction began in 2019, and the project has a commercial operation date planned for December 31, 2020.

Environmental Benefits



The SMUD Headquarters renovation project includes many green and modernizing features including: energy efficiency upgrades through insulation and lighting, installation of low water use fixtures and landscaping, and high-efficiency mechanical systems such as modern HVAC systems. In general, energy use in commercial buildings is one of the biggest potential reductions in greenhouse gas emissions from current levels. Due to changing climate, California can be affected by droughts that drive a need for water conservation technologies.

The two hydroelectric powerhouse projects and solar facility transmission infrastructure all represent SMUD's commitment to renewable energy production. By generating energy that produces little or no greenhouse gas emissions, renewable energy production is at the forefront of necessary change to mitigate climate change and reduce air pollution. SMUD can provide greater flexibility and service to ratepayers with a more diversified energy supply.




ALIGNMENT TO GREEN STANDARDS

Use of Proceeds

One hundred percent of bond proceeds from maturities labeled green will be earmarked and used for Green Buildings and Renewable Energy, which are eligible green bond project categories with positive environmental benefits.

GREEN CATEGORY	ELIGIBILITY CRITERIA
Green Buildings	Buildings which meet regional, national or internationally recognized standards or certifications.
Renewable Energy	Renewable Energy production, transmission, appliances and products
Energy Efficiency	Reduction in energy use in new and refurbished buildings
 	

The 2030 Agenda for Sustainable Development adopted by all United Nations Member States in 2015 provides a shared “blueprint to achieve a better and more sustainable future for all.” The United Nations’ Agenda describes 17 Sustainable Development Goals (SDGs) to achieve by the year 2030. SMUD’s operations financed with the 2020 Series H Green Bonds align with two of the SDGs:

RELATED SDGs	ELIGIBILITY CRITERIA
United Nations Sustainable Development Goals   	<p>SDG 7: Affordable and Clean Energy, which includes targets to ensure access to affordable, reliable, sustainable and modern energy for all.</p> <p>SDG 12: Responsible Consumption and Production, which includes targets to encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.</p>

Project Evaluation and Selection

SMUD's project evaluation and selection process is executed through a dedicated environmental team supported by the Finance and Audit Committee, the Sustainability Committee and the Board of Directors. Through SMUD's Green Bond Framework, three eligible project categories were established in Renewable Energy, Energy Efficiency, and Green Buildings. In accordance with SMUD's Environmental Sustainability Roadmap, the projects selected for Green Bonds in the 2020 Series H Bond issuance all met requirements for reducing greenhouse gas emissions through energy efficiency and diversifying SMUD's energy mix with clean energy. Kestrel assesses this process as a best practice due to the active participation of the Board and management and clear goals for green use of bond financing as laid out in the Green Bond Framework.

Management of Proceeds

The net proceeds will be tracked by SMUD's Finance Team and will be 100% allocated and reimbursed in full at bond closing. The 2020 Series H Green Bond proceeds will be placed in a sub-account and tracked properly. The District produces an annual audited financial statement that includes tracking of each account, and disbursement of proceeds. This provides full transparency on movement of funds and in the case of reimbursement, shows full flow of funds from bond issuance to the projects listed in the use of proceeds. The Green Bonds are reimbursing SMUD for eligible green projects already completed.

Reporting

As detailed in the Continuing Disclosure Agreement, SMUD will file appropriate reports and financial statements on the Electronic Municipal Market Access (EMMA) system operated by the MSRB.

In addition, SMUD prepares an annual report that includes important sustainability and impact metrics, including energy, water, natural gas usage, and greenhouse gas emissions moving towards SMUD's goal of 40% reduction. This report is made available to the public at <https://www.smud.org/sustainability/index.htm>. SMUD also makes the following information available on its Investor Relations webpage <https://www.smud.org/en/Corporate/About-us/Company-Information/Investor-Relations>:

- Official Statement
- Annual Report
 - Budget Summary
 - Audited Financials
 - Annual Disclosure

Impact of Use of Proceeds

The eligible project categories for the use of proceeds—Green Buildings and Renewable Energy—are recognized as impactful by the GBP.

Kestrel is of the opinion that projects associated with these green bonds and SMUD's operations will deliver a significant positive environmental contribution by producing clean energy and reducing energy use and water consumption.

Beyond the environmental benefits, green buildings such as SMUD's LEED Gold HQ Building, also yield clear social and economic benefits in the form of energy cost savings, increased property value, and worker health and well-being. Economically, SMUD has reduced energy and water costs while maintaining high property value. Socially, employees working in green buildings that include clean well-ventilated spaces with upgraded high-efficiency systems and natural light are more productive, sleep better, and live happier, healthier lives.¹

¹ U.S. Green Building Council, "Benefits of green building" available online at <https://new.usgbc.org/press/benefits-of-green-building>

SECOND PARTY OPINION

Kestrel is of the opinion that the green activities funded by the proceeds of the 2020 Series H Green Bonds will provide a meaningful contribution to the Sacramento Municipal Utility District's strong sustainability commitments and targets, and positively contribute to the transition toward a more circular and low-carbon economy.

SMUD has committed to:

- ☑ allocating the full amount of the net proceeds of bonds to eligible green projects, as defined by the Green Bond Framework;
 - ☑ using clear "green" criteria, as defined by the issuer, to select projects for funding;
 - ☑ managing and tracking proceeds; and
 - ☑ a one-year post-issuance report.
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Based on the above, Kestrel is of the opinion that the Sacramento Municipal Utility District is well positioned to issue the green bonds; that their corresponding sustainability plans are credible, robust and aligned with the four pillars of the Green Bond Principles 2018; and the use of proceeds is aligned with United Nations Sustainable Development Goals 7 and 12.

DISCLAIMER

This opinion aims to explain how and why the discussed financing meets the ICMA Green Bond Principles based on the information which was available to us during the time of this engagement (April 2020) only. By providing this opinion, Kestrel Verifiers is not certifying the materiality of the projects financed by the Green Bonds. It was beyond Kestrel Verifiers' scope of work to review issues relating to regulatory compliance and no surveys or site visits were conducted. Furthermore, we are not responsible for surveillance on the project or use of proceeds. The opinion delivered by Kestrel Verifiers does not address financial performance of the Green Bonds or the effectiveness of allocation of its proceeds. This opinion does not make any assessment of the creditworthiness of the Issuer, or its ability to pay principal and interest when due. This is not a recommendation to buy, sell or hold the Bonds. Kestrel Verifiers is not liable for consequences when third parties use this opinion either to make investment decisions or to undertake any other business transactions. This Opinion may not be altered without the written consent of Kestrel Verifiers.

ABOUT KESTREL VERIFIERS

For 20 years Kestrel has been a trusted consultant in environmental finance. Kestrel Verifiers, a division of Kestrel 360, Inc. is a Climate Bonds Initiative Approved Verifier qualified to verify transactions in all asset classes worldwide. Kestrel is a US-based Woman-Owned Small Business and a certified Women's Business Enterprise.

For more information, visit www.kestrelverifiers.com

