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*Comment Received From: Nicole Looney  
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**SMUD Response Re 2023 Integrated Energy Policy Report “  
Electric Transmission-Related Data Collection**

SMUD Response Re 2023 Integrated Energy Policy Report “ Electric Transmission-  
Related Data Collection

*Additional submitted attachment is included below.*



October 21, 2022

Mark Hesters  
Energy Assessments Division/Supply Analysis Office  
California Energy Commission  
715 P Street  
Sacramento CA 95814

RE: 2023 Integrated Energy Policy Report – Electric Transmission-Related Data Collection

Dear Mr. Hesters,

In accordance with the California Energy Commission's *Instructions for Electric Transmission-Related Data Collection*,<sup>1</sup> the Sacramento Municipal Utility District (SMUD) submits the following responses regarding our bulk transmission network and on specific long-term transmission projects:

1. *Detailed descriptions of the transmission facilities greater than 100 kV that the transmission owner or LSE needs over the long term to:*
  - a. *Meet applicable reliability and planning standards.*

**Response:** SMUD's 2021 Annual Assessment<sup>2</sup> demonstrates that its system is reliable over the 10-year study horizon without significant new transmission system additions. As described in the 2021 Annual Assessment, SMUD meets reliability criteria over the 10-year study horizon with transmission system upgrades listed in Table 1 below.

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<sup>1</sup> Hesters, Mark. July 2022. Instructions for Electric Transmission-Related Data Collection. California Energy Commission. Publication Number: CEC-200-2022-004.

<sup>2</sup> This is SMUD's most recent assessment.

**Table 1: Planned facilities and changes to existing facilities from SMUD’s 2021 Annual Assessment**

<b>Project Name</b>	<b>Project Description</b>	<b>Project Need</b>	<b>Project Status</b>	<b>Expected In-Service Date</b>
<b>Hurley 230 kV bus-tie breaker</b>	Split the Hurley 230 kV bus with a bus-tie breaker so that bus faults do not take the entire bus offline.	Purpose is to increase future reliability. Not need to address any immediate reliability concerns.	Approved	Summer 2024
<b>Hurley-Natomas 230 kV Rating Increase</b>	Mitigate clearance issues on the Hurley-Natomas 230 kV line to increase the summer emergency rating.	Purpose is to increase future reliability. Not need to address any immediate reliability concerns.	Approved	Summer 2022
<b>Hurley-Procter 230 kV Line Reconductor</b>	Reconductor the Hurley-Procter 230 kV Line to increase its ampacity.	The purpose for this project is to increase SMUD’s load serving capacity. No immediate	Approved	Fall 2021 (Previously delayed from 2020)

SMUD’s Resource Planning Report<sup>3</sup> included with its updated 2022 Integrated Resource Plan at page 18 (see below) describes additional transmission system upgrades through 2030.

“SMUD’s transmission system plans include upgrades to integrate renewable resources and to strengthen and improve reliability of the bulk transmission system. In 2024, a new solar generation and battery storage facility will be constructed within the SMUD system that will provide up to 250 MW of solar power to the SMUD transmission system. In addition to projects required for SMUD to meet all performance requirements, we continuously evaluate reliability enhancing options and have several approved projects that will increase the reliability of the bulk transmission system.”

<sup>3</sup> Refer to <https://efiling.energy.ca.gov/GetDocument.aspx?tn=246076&DocumentContentId=80241>.

**Table 2: Additional transmission system upgrades identified in SMUD’s Resource Planning Report**

Project Name	Description	Expected In-Service Date
<b>Hurley 230 kV Bus-tie Breaker</b>	Install a bus-tie breaker to reduce risk of station clearing outage.	2024
<b>Coyote Creek (SVEC) Solar &amp; Battery Plant</b>	A new 250 MW solar and battery storage plant will be constructed and connected to the SMUD transmission system.	2024
<b>Elverta 230/115 kV TX#2 Replacement</b>	Replace the currently existing 140 MVA 130/115 kV transformer at the Elverta Substation with a 250 MVA transformer.	2028
<b>Station J 115 kV Substation</b>	Construct a new 115 kV substation in the SMUD transmission system.	2030

SMUD has not conducted studies of its transmission system needs beyond 10-year study horizon. It is likely that transmission system upgrades will be needed by SMUD during the period through 2045 to meet local load growth related to increased electrification of buildings and transportation. Possibilities include partnership with other Balancing Authority of Northern California (BANC) members, the Western Area Power Administration (WAPA), the California Independent System Operator Corporation (CAISO), and others in state level or western regional transmission projects, in addition to system projects and reinforcements in the SMUD service area. SMUD will monitor resource decarbonization options and electrification actions of its customers in response to the state’s decarbonization goals.

*b. Reduce congestion.*

**Response:** SMUD does not conduct studies of congestion and therefore as of this writing does not anticipate developing projects to resolve congestion. As a participant in the CAISO Energy Imbalance Market (EIM), local congestion and congestion between SMUD and its neighboring electric systems is resolved to the extent of available transmission by the EIM market operator. Thus, SMUD has no transmission facilities greater than 100 kV that it has planned over the long term to reduce congestion through 2030 or 2045.

- c. *Meet state policy goals such as the Renewables Portfolio Standard, SB 100 and state climate goals, or aging power plant/once-through cooling retirements.*

**Response:** In addition to those transmission facilities shown above, SMUD has strategically signed Power Purchase Agreements (PPA) with developers to develop renewable resources in appropriate locations where there is minimal impact on the SMUD transmission system. As a result, SMUD has not identified transmission facilities greater than 100 kV that it needs over the long term to meet state policy goals such as the Renewables Portfolio Standard, SB 100 and state climate goals, or aging power plant/once-through cooling retirements.

2. *A description of the transfer capabilities for transmission lines or transmission paths delivering electric power into the electric transmission system owner's grid.*
  - a. *The description shall include the size (for example, megavolt ampere [MVA] or megawatt [MW]) and length of the lines or lines included in the path and the substations to which the line connects.*

**Response:** SMUD connects to the CAISO Balancing Authority (BA) at its Rancho Seco and Lake 230-kV substations. Rancho Seco connects to PG&E's Bellota substation via 2-230-kV PG&E owned circuits (about 34 miles) and its Lake substation is adjacent to PG&E's Gold Hill substation (Less than 1000 feet). SMUD connects to the WAPA transmission system at its Elverta substation (to Tracy via WAPA owned 230-kV Lines), Hurley substation (to Elverta via WAPA 230-kV lines), Natomas substation (connects to WAPA's O'Banion substation) and SMUD's Orangevale and Lake substations which connect to WAPA's Folsom substation via SMUD owned 230-kV lines about 7 miles from Orangevale and 4 miles from Lake.

SMUD's maximum import capability depends on the operating status of local area resources but is generally 1900-2000 MW.

- b. *A description of any planned upgrades to the facilities that are used to import power into the electric transmission system owner's grid including:*
  - i. *Descriptions of the upgrades including costs, benefits, maps, and the MW impact of the upgrades on transfer capabilities.*
  - ii. *Descriptions of the alternatives considered in developing the upgrades.*

**Response:** There are no planned upgrades of facilities that import power to SMUD from other BAs or from its ties to WAPA.

- c. *Any maintenance or construction that could impact transfer capabilities or the ability to move power over a path between January 2023 and December 2026.*

**Response:** SMUD plans maintenance and construction work to take place outside of peak load serving periods. Thus, there is no maintenance or construction that impacts transfer capabilities or the ability to move power over a path between January 2023 and December 2026. During off-peak periods planned maintenance is "planned" to avoid impacts that would adversely affect economics or reliability of serving load. Unplanned work necessitated by unexpected facility failure could always impact this - but it's unplanned.

- d. *A description of any planned transmission facilities that would create a new transmission path or transmission line to import electric power into the electric transmission system owner's bulk electric network including:*
- i. *Descriptions of the facilities, including costs, benefits, maps, and the MW impact of the upgrade on transfer capabilities.*
  - ii. *Descriptions of the alternatives, including non-wire alternatives, considered in developing the upgrades.*

**Response:** See response to "b" above.

- e. *A more general description of any planned upgrades to the transmission network that imports electric power into the electric transmission system owner's bulk transmission grid that are anticipated to be required to meet California's long-range 2045 decarbonization goals.*

**Response:** SMUD has made no plans for upgrades to the transmission network that imports electric power into its bulk transmission grid that are anticipated to be required to meet California's long-range 2045 decarbonization goals. As load growth and decarbonization options develop, plans for resource additions and replacements or transmission needs, and options will be developed.

3. *A description of the transfer capabilities for the bulk transmission lines or bulk transmission paths limiting the delivery of electric power within the electric transmission system owner's grid.*

- a. *The description shall include the size (MVA, MW) and length of the line or lines included in the path and the substations to which the line connects.*

**Response:** See above response to #1 for planned upgrades to address limitations within the SMUD transmission system.

- b. *A description of any upgrades to the facilities that are used to deliver power within the electric transmission system owner's grid including:*

**Response:** See above response to #1 for planned upgrades

- i. *Descriptions of the facility or upgrade costs, benefits, maps, and the MW impact of the upgrade on transfer capabilities*

**Response:** Cost estimates have not been completed for these upgrades which were developed for future reliability purposes.

- ii. *Descriptions of the alternatives, such as non-wire alternatives, considered in developing the upgrades.*

**Response:** Upgrade alternatives to the planned facilities such as redistributing distribution loads and other means to shift power flows were ruled out as there are no lightly loaded lines in the studied contingency cases to which power flows could be shifted without creating new limitations. Alternatives to reducing fault duty were ruled out as not viable and thus not studied.

- c. *Any maintenance or construction that could impact transfer capabilities within the electric transmission system owner's bulk transmission grid between January 2023 and December 2026.*

**Response:** SMUD plans maintenance and construction work to take place outside of peak load serving periods. Thus, there is no maintenance or construction that impacts transfer capabilities or the ability to move power over a path between January 2023 and December 2026. During off-peak periods planned maintenance is "planned" to avoid impacts that would adversely affect economics or reliability of serving load. Unplanned work necessitated by unexpected facility failure could always impact this - but it's unplanned.



- d. *A description of any planned transmission facilities that would create a new means to transfer electric power within the electric transmission system owner's bulk transmission network, including:*

**Response:** See above response to #1 for planned upgrades to address limitations within SMUD's transmission system. The addition of Station J in 2030 creates a new means to serve load and transfer power within the SMUD transmission system.

- i. *Descriptions of the facility or upgrade costs, benefits, maps, and the MW impact of the upgrade on transfer capabilities.*

**Response:** Regarding the Station J addition in 2030, cost estimates have not been completed for these upgrades which are planned for future reliability purposes. Cost estimates will be developed closer to the date at which the project is needed. The project will be reviewed annually, and alternatives may be considered if viable.

- ii. *Descriptions of the alternatives, such as non-wire alternatives, considered in developing the upgrades*

**Response:** Regarding the Station J addition in 2030, upgrade alternatives to the planned facilities such as redistributing distribution loads and other means to shift power flows were not studied as part of this reliability analysis as there are no lightly loaded lines in the studied contingency cases to which power flows could be shifted without creating new limitations.

- e. *A more general description of any planned upgrades to the transmission network that transports electric power within the electric transmission system owner's bulk transmission network that are anticipated to be required to meet California's long-range 2045 decarbonization goals*

**Response:** At this time, SMUD has not performed studies to produce plans for upgrades to the transmission network that distribute electric power within their electric transmission systems that are anticipated to be required to meet California's long-range 2045 decarbonization goals. As loads and decarbonization options develop plans for generation additions and replacements or transmission will be developed.

4. *A description of the bulk transmission facilities needed for meeting state-mandated electricity policy goals such as SB 100 and state climate goals, renewable energy requirements, replacement, or retirement of aging power plants, and complying with the State Water Resources Control Board policies for phasing out power plants that use once-through cooling or eliminating or reducing local capacity requirements*
  - a. *The description shall include the size (MVA, MW) and length of the line or lines included in the path and the substations to which the line connects.*
  - b. *A description of any planned upgrades to the facilities in the electric transmission system owner's grid through 2045, including*
    - i. *Descriptions of the upgrades including costs, benefits, maps, and the MW impact of the upgrade on transfer capabilities.*
    - ii. *Descriptions of the alternatives, such as non-wire alternatives, considered in developing the upgrades.*

**Response:** See above response to #1 for planned transmission upgrades. These upgrades may be related to generator replacement with decarbonization efforts of SMUD as part of its 2030 Zero Carbon Plan as described in its updated 2022 Integrated Resource Plan which includes associated thermal plant retirements and replacements. SMUD does not have once-through cooling resources.

5. *Identify the power purchase agreements, contracts, and resources that require new or upgraded transmission to serve California loads. For example, if an LSE has a contract with a wind generator in Wyoming but the contract can be fulfilled only if a specific transmission line is completed, such as the TransWest Express project.*
  - a. *For each generator/contract/PPA provide the name of the resource, the size of the resource in MW and expected KWH and the name and owner of the required transmission facilities. The name of the resource should be consistent with the supply forms*

**Response:** At this time SMUD does not have power purchase arrangements that require new or upgraded transmission. Existing transmission capability is sufficient for all executed power purchase contracts.

Please contact me at 916-732-5451 if you have any questions regarding the content of this filing.

Sincerely,

Mark Willis  
Director, Transmission Planning and Operations

cc: Bryan Swann  
Gary Mariscal  
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Jon Olson  
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Martha Helak  
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