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Filer:	Lisa Casner
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REU | City of Redding Electric Utility

December 2, 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*[1], the City of Redding Electric Utility (REU) submits the following responses:

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: REU is not currently planning any additional transmission needs over the long term. The City of Redding's 2019 Integrated Resource Plan[2] outlined the REU's transmission and distribution systems. This report found that these existing systems are adequate to meet the long term needs over the 20 year (2018-2037) planning period. In addition, REU contracted with SMUD in 2022 to perform a long-term planning analysis for the next 10 years based on peak summer forecasted loads per TPL-001.

    b. *Reduce congestion.*

        Response: The City of Redding Electric Utility (REU) does not conduct congestion studies and has not identified any projects needed to resolve congestion. As a participant in the CAISO Energy Imbalance Market (EIM), local congestion and congestion between REU and its neighboring electric systems is resolved to the extent of available transmission by the EIM market operator. Thus, REU has not planned any transmission facilities (greater than 100 kV), over the long term, to reduce congestion through 2030 or 2045 milestones.

    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: The latest long-term planning report (2019 IRP) did not address the SB 100 clean energy goals for 2045. To meet these requirements, REU is investigating the retirement of 187 MW of on-system thermal generation at the Redding Power Plant.

[1] https://efiling.energy.ca.gov/GetDocument.aspx?tn=243841&DocumentContentId=77776
[2] https://efiling.energy.ca.gov/GetDocument.aspx?tn=227616&DocumentContentId=58862

Additionally, REU has recently adopted a new load forecast that includes both transportation and building electrification. To accommodate the updated load forecast under scenarios that meet clean energy goals, REU has performed a Transmission Systems Assessment[3] assuming that current on-system thermal generation will be unavailable. In the scenario where the thermal generation is retired, multiple upgrades REU's 115 kV transmission system will be required. These potential mitigations are as follows:

1. Add new import line at Redding Power Plant (Loop-in Keswick-Olinda 230 kV line).
2. Re- rate or replace Airport 230/115 kV Banks with a larger transformer bank with emergency rating greater than 140 MVA. Alternatively, add a third bank of 100 MVA allowing 200MVA transfer capacity.
3. Re-rate or replace Keswick 230/115 kV Bank #1 with a larger transformer bank with higher emergency rating greater than 110 MVA.
4. Add a 2nd Moore-Redding Power 115 kV line.
5. Add a 2nd Texas Spring-Redding Power 115 kV line.
6. Loop-in the East Redding-Airport 115 kV line #1 into the Future Business Park substation.
7. Add 35 MVAr of shunt capacitors at Canby 115 kV bus; or distribute lesser KVAr to several substations along the path to Canby Substation

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: Redding imports energy from the BES via 2 separate WAPA substations; Airport (WAPA) Substation and Keswick Substation. The transmission lines connecting to these substations are not the limiting factor.

    - The Airport (WAPA) Substation is comprised of two 100 MVA transformers with a 30-minute emergency rating of 120 MVA each. Three transmission lines capable of 189MVA each connect Redding to the Airport Substation.
    - The Keswick Substation is comprised of three 90 MVA transformers. Two transmission lines capable of 159MVA each connect Redding to the Keswick Substation.

    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.*

        Response: REU does not have any planned upgrades to the facilities that are used to import power into the electric transmission system.

[3] This is an ad-hoc assessment performed by a third party consultant.

ii. *Descriptions of the alternatives considered in developing the upgrades.*

Response: See the response to 2.b.i. above.

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: REU is not currently planning any maintenance or construction that could impact transfer capabilities or the ability to move power over a path between January 2023 and December 2026.

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.*

Response: REU does not have 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.

ii. *Descriptions of the alternatives, including nonwire alternatives, considered in developing the upgrades.*

Response: See the response to 2.d.i. 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: See the response to 1.c. above.

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 the response to 2.a. above. Additionally the transfer capabilities are limited as follows:

- The Airport (WAPA) Substation transfer capability is limited by the N-1 contingency to the single transformer rating of 100 MVA.
- The Keswick Substation transfer capability is limited by the N-1 contingency to the rating of two transformers totaling 180 MVA.

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

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

Response: REU does not currently have any upgrades or construction planned to increase the transfer capabilities.

ii. *Descriptions of the alternatives, such as nonwire alternatives, considered in developing the upgrades.*

Response: REU does not currently have any alternatives planned for increasing the transfer capabilities.

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: REU does not currently have 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.

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:*

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

Response: REU does not currently have any planned transmission facilities that would create a new means to transfer electric power within the electric transmission system owner's bulk transmission network.

ii. *Descriptions of the alternatives, such as nonwire alternatives, considered in developing the upgrades.*

Response: See the response to 3.d.i. above.

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: See the response to 1.c. above.

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.*

Response: REU has not identified any bulk transmission facilities needed for meeting state-mandated policy goals.

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.*

      Response: See the response to 4.a.

   ii. *Descriptions of the alternatives, such as nonwire alternatives, considered in developing the upgrades.*

      Response: See the response to 4.a.

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: REU does not currently have any have power purchase agreements, contracts, or resources that require new transmission. REU is currently evaluating the need for increased transmission for its 2024 IRP Report.

Please contact me at 530-339-7263 if you have any questions related to this filing.

Regards,

Lisa Casner
Electric Manger, Resources
City of Redding

CC: Nick Zettel
Ted Miller
Nick Rossow