

BAMX Comments on the CAISO 2019-20 Transmission Plan Stakeholder Presentation Materials from November 18, 2019

The Bay Area Municipal Transmission group (BAMx)¹ appreciates the opportunity to comment on the development of the CAISO 2019-20 Transmission Plan (TP) during the November 18th stakeholder meeting. We request that the CAISO address the following issues in its draft comprehensive Transmission Plan expected in January 2020.

Policy-Driven Assessment

BAMx supports the CAISO's decision of not recommending the approval of any policy-driven projects, where the need for the project is subject to change based upon the assumptions that are expected to change. One such example is the revised deliverability assessment methodology that the CAISO Board unanimously approved on November 13, 2019.² Under the revised methodology, the on-peak deliverability assessment is expected to result in a much lower level of need for delivery network upgrades to accommodate Full Capacity Deliverability Status (FCDS) resources.³ This methodology is expected to be effective as early as January 2020 subject to FERC approval. Similarly, BAMx also supports the CAISO not recommending any policy-driven transmission projects which could be avoided simply by changing the intra-zonal generation resource mapping distribution.⁴

CPUC IRP and CAISO TPP Feedback Loop

Historically, BAMx has expressed some serious concerns about the sufficiency of the feedback loop concerning transmission capability information between the CAISO reliability and deliverability assessment, and the CPUC's renewable portfolios. BAMx has observed that the renewable portfolio resource to busbar mapping process plays a critical role in the level of renewable generation and curtailments. For example, the 42MMT sensitivity portfolio in the 2018-2019 TPP indicated renewable curtailment of more than 40,000GWh,⁵ whereas the comparable 42MMT base portfolio in the latest 2019-2020 TPP shows a much lower renewable curtailment, that is, 12,812GWh.⁶ We understand that in addition to the change in resource mix, a better-coordinated resource to the busbar mapping process between the CPUC Integrated Resource Planning (IRP) and the CAISO 2019-2020 TPP has led to a reduced and more realistic renewable curtailment levels.

¹ BAMx consists of City of Palo Alto Utilities and City of Santa Clara, Silicon Valley Power.

²<http://www.caiso.com/Documents/DecisiononDeliverabilityAssessmentMethodologyRevisionsProposal-Motion-Nov2019.pdf>

³ Deliverability Assessment Methodology Draft Final Proposal Paper Deliverability Assessment Methodology Straw Proposal Paper Stakeholder Meeting October 4, 2019, page 29 (<http://www.caiso.com/Documents/Presentation-GenerationDeliverabilityAssessmentDraftFinalProposal.pdf>)

⁴ 2019-2020 TPP Policy-driven Assessment, 2019-2020 Transmission Planning Process Stakeholder Meeting November 18, 2019, page #34.

⁵ Economic Planning-Preliminary Production Cost Simulation Results, 2018-2019 Transmission Planning Process Stakeholder Meeting, November 16-17, 2018, page 20.

⁶ Preliminary Economic Assessments Results, 2019-2020 Transmission Planning Process Stakeholder Meeting November 18, 2019, page 16.

There is a continued need for a timely and robust feedback loop between the 2019 IRP and 2020-2021 TPP along with periodic opportunities for the stakeholders to provide meaningful feedback. For example, the 2019 IRP renewable resource portfolios currently under development for the 2020-2021 TPP need to identify the locations of the storage capacity with some degree of granularity. The 2017 IRP portfolio entailed approximately 2,000MW of Li-Ion battery storage resources by 2030. However, the 2019-2020 TPP did not model them at all as CPUC did not identify their general locations. The 2019 IRP portfolios are expected to have more than 11,000MW of Li-Ion battery storage capacity by 2030.⁷ Therefore, it is critical that in addition to providing the updated zonal transmission capability estimates, the CAISO plays a key role in helping the CPUC and the California Energy Commission (CEC) in identifying appropriate locations and types of storage resources. At a minimum, BAMx suggests that the CAISO delineate in their draft of this year’s TPP a plan to achieve a yet higher level of coordination on this critical issue.

BAMx believes that the Flexible Capacity Deliverability studies and LCR Economic Assessments performed by the CAISO in the current TPP and 2018-2019 TPP are very useful in identifying the location and attributes of storage resources. In particular, the Flexible Capacity Deliverability Assessment performed by the CAISO in the current TPP⁸ - as summarized in Table 1 - could provide a good guideline for the CPUC in locating the selected 2019 IRP storage resources in different *generation pockets*.

Table 1: Potential Storage Capacity in Generation Pockets As Determined by the CAISO 2019-2020 TPP Flexible Capacity Deliverability Assessment

Generation Pocket	Energy storage could be added without hitting the transmission limit (MW)
North of Fresno Constraint	~700MW
North of Fresno Constraint # 2	New upgrade could provide high amounts
SCE North of Lugo Constraint	280MW
SCE North of Magunden Constraint	500MW
SCE Blythe Constraint	70MW
SDG&E Doublet Tap-Friars Constraint	More than 500MW
SDG&E Silvergate-Bay Boulevard Constraint	More than 500MW

⁷ CPUC Energy Division, 2019-20 IRP: Proposed Reference System Portfolio Validation with SERVM Reliability and Production Cost Modeling, November 6, 2019, page 17.

⁸ Flexible Capacity Deliverability Assessment, 2019-2020 Transmission Planning Process Stakeholder Meeting, November 18, 2019, pp.20-29.

Similarly, the CAISO's LCR Economic Assessments should inform the amount of battery storage that could be located in the various *load pockets*. These studies are also very informative in identifying the attributes of the required storage resources. It appears that in some LCR areas and/or sub-areas, 4-hour storage is adequate, but in some other areas like SCE's Santa Clara sub-area, 8-hour storage might be required.⁹ Presumably, if the need for 8-hour vs. 4-hour storage had been known, proposals could have been requested that complied with that need. It seems like instead of stacking two 4-hour battery storage units it should be more effective to add an 8-hour battery storage in the Santa Clara area. Additionally, the CAISO should provide guidance on defining an adequate amount of utility-side (front-of-the-meter) solar resources which could be co-located in local areas or sub-areas to ensure that there is adequate generation available to charge the battery storage. The massive amount of storage that is selected in the various options for a recommended reference plan raises the importance of the above requests.

Need to Utilize Dynamic Transmission Rating Methodology

The CAISO's transmission planning analysis assumes the summer emergency ratings that presumably correspond to the traditional summer peak hour, that is, HE16. However, as the Summer peak hour is expected to shift to HE 18 or HE19 in the future, it would be appropriate to update (increase) the transmission line ratings accordingly. It appears that by modeling the traditional summer peak temperature rating, the CAISO might be underestimating transmission line capacity and in turn, the local area import capabilities. BAMx recommends that the CAISO start a stakeholder process where the Participating Transmission Owners (PTOs) can explain proposals they may have for taking this shift (in the timing of maximum stress on the transmission system) into account in their line rating process. Although we would expect some circumstances might lead to different rating methodologies among PTOs, it would be very informative to have a single stakeholder process to allow comments on the proposed methodologies.

Furthermore, from an operational standpoint, the CAISO needs to consider utilizing dynamic ratings. The import capability envisioned in the LCR reduction studies is assumed to be the same throughout the day because the CAISO assumes the circuits are rated the same throughout the day. However, if the CAISO were to adopt dynamic ratings as done by PJM¹⁰, the night hours would have a higher rating for transmission lines and transformers than the daytime ones since the transmission elements would not be heated due to solar radiation. This more appropriate approach would provide greater imports and help solve the apparent inadequacy of generation to charge storage resources identified by the CAISO during the November 18th stakeholder meeting and discussed above.

⁹ LCR Reduction Assessment Big Creek–Ventura Area and Santa Clara Sub-area, 2019-2020 Transmission Planning Process Stakeholder Meeting, November 18, 2019, page 12.

¹⁰ Guide For Determination of Bare Overhead Transmission Conductors, PJM Interconnection, January 2010, page 32.

Less than \$50 Million Project Recommendations

Below are BAMx comments on selected projects that were recommended for approval by the CAISO during the November 18th meeting.

Tulucay-Napa #2 Circuit (\$5-\$10 million)

The capital cost of the project seems high for the scope of the project. Replacing jumpers and switches to upgrade a rating of one 60kV circuit should not carry with it this cost. BAMx members would request the CAISO to conduct an additional review of the cost estimates provided for the project. Also, the CAISO should investigate whether closing the normally open switch between Tulucay and Basalt Substation relieves the identified P0 overload beginning in 2024. If putting the second Tulucay-Napa 60kV circuit into service helps to relieve the identified overload, the CAISO should evaluate an operating configuration with both Tulucay-Napa 60kV circuits in service.

Moraga 230kV Bus Upgrade (\$17-\$34 million)

The driver for the Moraga 230kV Bus Upgrade project is a P2 bus breaker outage at the Moraga substation - which open ends every circuit and overloads the North Dublin-Cayetano 230kV and Lonetree-Cayetano 230kV lines. Based on CAISO's preliminary results for the Greater Bay Area region, the overload on these circuits is within a 101-106% range¹¹. These relatively minor overload levels could be mitigated by scaling down generation around the Contra Costa/Lonetree area. It might not be cost-effective to invest in network upgrades where minor generation dispatch assumptions could mitigate the potential overload. Additionally, some thermal generation around the Contra Costa area could retire in the near future, resulting in a different dispatch pattern that might not require mitigation. In case the CAISO congestion management process is not sufficient, compliance with the NERC standards could be achieved in the interim by setting up a Special Protection Scheme (SPS) to drop generation under contingency conditions. Although the approval of the Moraga 230kV Bus Upgrade may ultimately be a proper component of a long-term plan for the Northern Oakland Area, BAMx recommends using the above potential operating procedures to comply with the planning standards until a long-term plan is approved.

Conclusion

BAMx appreciates the opportunity to comment on the 2019-20 Transmission Plan Stakeholder Meeting materials and acknowledges the significant effort of the CAISO staff to both develop this material and to adjust its planning process to reflect the numerous changes affecting the industry.

If you have any questions concerning these comments, please contact Paulo Apolinario (papolinario@svpower.com or (408) 615-6630).

¹¹ 2019-2020 Transmission Planning Process Preliminary Reliability Assessment Results for the Greater Bay Area, p12