

BAMx Comments on the CAISO 2020-21 Transmission Plan Stakeholder Presentation Materials from November 17, 2020

The Bay Area Municipal Transmission group (BAMx)¹ appreciates the opportunity to comment on the development of the CAISO 2020-21 Transmission Plan as supplemented by the presentations and discussions during the November 17th stakeholder meeting. We request that the CAISO address the following issues in its draft comprehensive Transmission Plan expected in January 2021.

2020 Request Window Submissions

The CAISO has identified multiple Request Window submissions that would be evaluated as reliability solutions in this planning cycle.² BAMx requests the CAISO to consider the following input while evaluating the Request Window applications.

SDG&E's Metro Region Reliability and Economic Project (\$170 million)

Per the SDG&E assessment, the primary driver for the project is a 103% overload on the Silvergate-Bay Boulevard 230kV line for the loss of the Sycamore Canyon-Penasquitos 230kV circuit.³ However, the identified P1 overload is observed only in the Spring Off-Peak High Renewables and Minimum Gas Generation case, and not in the baseline case.⁴ We are unclear about the basis for the *Spring Off-Peak High Renewables and Minimum Gas Generation* case and therefore the relevance of the identified P1 overload in this case. It appears that the CAISO's identified solution of relying on the 2-hour short term emergency rating and operation procedure that allows the market and operators to eliminate the overloads by reducing generation output in the Otay Mesa area⁵ should be sufficient mitigation to the identified reliability issue. Also, if there are any economic benefits for this project, the CAISO should identify them as part of its economic assessment. In summary, BAMx suggests that the CAISO should refrain from approving this project until further justification is provided.

Review of Projects Currently on Hold

During the November 17th Stakeholder conference call, the CAISO presented the analysis conducted on the three PG&E projects that was previously placed on hold.⁶ Overall, BAMx is encouraged to see the CAISO re-evaluating projects where the driver for the project or estimated project cost has changed. BAMx encourages the CAISO to continue this practice going forward.

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

² Introduction and Overview, Preliminary Reliability Assessment Results, 2020-2021 Transmission Planning Process Stakeholder Meeting, November 17, 2020, slides 7-8.

³ SDG&E Presentation, 2020-2021 TPP Stakeholder Meeting, September 23, 2020, Slide 2 of 2.

⁴ 2020-2021 TPP Preliminary Reliability Assessment Results SDGE Main Page 4 of 10.

⁵ See "Bay Blvd -Silvergate230 kV line," SDG&E Main System Preliminary Reliability Assessment Results, CAISO 2020-2021 Transmission Planning Process Stakeholder Meeting, September 23-24, 2020, PDF p. 228 of 247.

⁶ "2020-2021 TPP: PG&E On Hold Projects Status Update," 2020-2021 Transmission Planning Process Stakeholder Meeting, November 17, 2020.

However, BAMx believes that in order for the CAISO to obtain more meaningful feedback from stakeholders, the CAISO should provide more information on the alternatives to the status quo project that are currently being evaluated. Providing a cost estimate for each alternative as well as a power flow change file would allow the stakeholders to independently conduct an assessment and provide suggestions for any other potential mitigation options. Additionally, BAMx would like to provide the following comments for each of the individual projects currently on hold.

Wheeler Ridge Junction Project (\$250-\$300 million)

The Wheeler Ridge Junction Project was originally submitted by PG&E in the 2013-2014 TPP in order to mitigate overloads on the following transmission elements⁷:

- Kern-Magunden-Witco 115kV Line
- Kern PP 230/115kV Transformer #3, #4, and #5
- Midway-Wheeler Ridge #1 and #2 Circuits

The latest Preliminary Assessment results posted for the Kern planning area indicate that different overloads on different circuits are driving the need for the upgrade. The Wheeler Ridge Junction Project is identified as long-term mitigation for thermal overloads on the following circuits⁸:

- Kern-Magunden-Witco 115kV Line
- Kern-Stockdate 115kV Line
- Kern-Lamont 115kV Line

Since the overloaded circuits and the contingencies driving the need for the project have changed, BAMx believes the CAISO should conduct further analysis to demonstrate that the Wheeler Ridge Project is still the most cost-effective approach to mitigating the identified overloads on the system. BAMx requests the CAISO to develop additional alternatives and provide the power flow change files, cost estimates, and power flow results for each alternative before proceeding with one of the options. Moreover, BAMx would encourage the CAISO to incorporate Battery Energy Storage System (BESS) and energy efficiency programs in the Wheeler Ridge Project alternatives.

Moraga-Sobrante Reconductoring (\$10-\$20 million)

The scope of the project is to reconductor the Moraga-Sobrante 115kV circuit with a larger conductor. The driver for the project as identified in the CAISO November 17th presentation are multiple P2 overloads at Sobrante 115kV substation starting in 2030.⁹ The overloads only appear in 2030, which is a ten-year out case, and exclusively for a low probability P2 type of

⁷ 2013-2014 CAISO Transmission Plan, March 25, 2014, PP. 82-82.

⁸ 2020-2021 TPP Preliminary Reliability Assessment Results: Kern, Pages 4 and 5 of 20.

⁹ Presentation 2020-2021 Transmission Planning Process November 17, 2020 Stakeholder Meeting Slide 212 of 216.

contingency. Therefore, time is available to look for alternatives to the reconductoring project. BAMx recommends that the CAISO does not approve the Moraga-Sobrante 115kV reconductoring project at this time. If mitigation for this overload is required, BAMx recommends that the CAISO consider a generation dropping SPS to mitigate the identified overload. An SPS is likely to provide a more cost-effective solution to the identified reliability issue.

North of Mesa Project (\$114-\$144 million)

The scope of the North of Mesa Project is to build Andrews 230/115kV substation, energize Diablo-Midway 500kV line at 230kV and connect to the Andrew substation. The project also entails looping-in the San Luis Obispo-Santa Maria 115kV line to Andrew and Mesa substations. The latest cost estimate for the project is in the range of \$114-\$144 Million. The reliability assessment need for the project is driven exclusively by higher-level P2, P6, and P7 types of contingencies. Both NERC and CAISO planning standards allow for non-consequential load dropping in non-urban areas for these types of contingencies. BAMx agrees that the CAISO should investigate if Alternative Option 1, which is to install approximately 100MW of BESS, identified in the CAISO's November 17th presentation could mitigate the identified reliability issues and allow for sufficient maintenance outages before approving the proposed North of Mesa Project. If BESS storage in itself is not sufficient for compliance with the CAISO planning standards, the CAISO should evaluate a combination of BESS storage and a load dropping RAS before approving the proposed North of Mesa Project.

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. We understand that in addition to the change in resource mix, a better-coordinated resource to the busbar mapping process between the California Public Utilities Commission (CPUC) Integrated Resource Planning (IRP) and the CAISO 2020-2021 TPP has led to a reduced and more realistic renewable curtailment levels. We acknowledge the tremendous progress made jointly by the CPUC, the California Energy Commission (CEC), and the CAISO in the area of resource to the busbar mapping as part of the 2020-2021 TPP.

There is a continued need for a timely and robust feedback loop between the 2019 IRP and 2021-2022 TPP along with periodic opportunities for the stakeholders to provide meaningful feedback. The Sensitivity Portfolio 1 studied in the current TTP cycle, i.e., 2019 Reference System Portfolio (2019 RSP) with 46 MMT by 2030 GHG target is proposed to be the Base portfolio for the 2020-2021 TPP.¹⁰ Therefore, it is critical that the CPUC renewable resource portfolios are informed by the lessons learned from the current TPP in terms of resource selection and busbar mapping. BAMx also believes that the Base portfolio should be updated with the CAISO's estimates of transmission capability limits based upon the revised deliverability assessment

¹⁰ See the CPUC IRP Proceeding (Rulemaking 20-05-003) Administrative Law Judge's Ruling, dated October 20, 2020 seeking comments from parties on electric resource portfolios to be used in the CAISO's 2021-22 TPP.

methodology. In its recent review of deliverability assessment methodologies, CAISO has proposed new study scenarios that would align load levels with intermittent generation output.¹¹

The CAISO has implemented a new study approach recognizing that, with a diverse grid, the peak reliability need is offset by the generation profiles under certain renewable conditions, which result in significantly more of the resources being deliverable across the transmission system. Thus, implementation of CAISO's revised transmission deliverability methodology is expected to result in accommodating more full capacity deliverability status (FCDS) resources in a given transmission area without triggering the need for costly additional transmission upgrades - than if the earlier methodology was to be used. The CAISO has found that under the new methodology, several transmission upgrades identified using the current methodology would not be needed.¹²

The CAISO Board of Governors approved the new deliverability methodology revisions on November 6, 2019.¹³ The Federal Energy Regulatory Commission (FERC) approved the CAISO's compliance filing revising its deliverability assessment methodology on September 11, 2020, making it effective March 3, 2020.¹⁴ Therefore, there is no reason to delay implementing the treatment of transmission constraints within the Integrated Resource Planning (IRP) process to reflect CAISO's most recently adopted electric deliverability methodology. Implementing this proposed methodology should be a relatively simple task, because the CAISO could provide updated transmission capability values to the CPUC, allowing easy implementation inside of RESOLVE. Moreover, applying this new methodology for the 2021-2022 TPP is appropriate as it is already in place in the CAISO's generation interconnection process and transmission planning process. Therefore, BAMx recommends that the CAISO provides CPUC with the transmission capability input estimates based upon the revised deliverability assessment methodology - as some renewable and storage buildout areas are likely to see significant changes in the deliverable numbers and the revised renewable portfolios would avoid identifying unneeded, and expensive transmission upgrades in the CAISO 2021-2022 Transmission Plan.

Need to provide comprehensive data on identifying battery storage as mitigation solutions in the base case and sensitivity scenarios

During the November 17th stakeholder meeting, the CAISO did a commendable job at describing the overview of the CAISO's policy-driven assessment.¹⁵ For the Base portfolio, the CPUC did not map generic battery storage (up to 2,157 MW/5,504 MWh) and recommended the CAISO apply the resource at locations where it can mitigate transmission issues identified. Although

¹¹ See <http://www.caiso.com/InitiativeDocuments/RevisedDraftFinalProposal-GenerationDeliverabilityAssessment.pdf>.

¹² CAISO Generation Deliverability Assessment Methodology Issue Paper Stakeholder Call, May 2, 2019, p.21.

¹³ See <http://www.caiso.com/Documents/DecisiononDeliverabilityAssessmentMethodologyRevisionsProposal-Memo-Nov2019.pdf>.

¹⁴ See <http://www.caiso.com/Documents/Sep11-2020-Letter-Order-Approving-Deliverability-Assessment-Compliance-Filing-ER20-732.pdf>.

¹⁵ 2020-2021 TPP Policy-driven Assessment, 2020-2021 Transmission Planning Process Stakeholder Meeting November 17, 2020.

CAISO provided the generic resource and battery storage mapping in the Base portfolio and the two Sensitivity portfolios, the CAISO did not provide any details of the storage resource mapping in the base portfolio. BAMx requests that the CAISO provide the details on the battery storage capacity that the CAISO has mapped in the Base portfolio to mitigate transmission issues. This data should be provided by renewable transmission zone (as provided on Page 27 of the November 17th presentation for the two Sensitivity portfolios) and by LCR areas (as provided on Page 26 of the November 17th presentation for the two Sensitivity portfolios). We also request that the CAISO provide the energy storage resources by all LCR sub-areas for the Base and Sensitivity portfolios.

Preliminary Economic Assessment Results

It was not clear during the CAISO's November 17th presentation on the Preliminary Economic Assessment Results¹⁶ whether the Base portfolio used for the production cost simulations included the battery storage identified by the CAISO to mitigate transmission issues. Please confirm. It is critical that the production cost simulations studies performed as part of the economic assessment fully capture the key role energy storage is expected to provide in reducing renewable curtailments and thereby estimated transmission congestion.

CAISO's November 17th presentation identified a new phenomenon that was not discovered in the earlier TPP cycles. That is, the "No Export Limit" case which showed a greater level of transmission congestion than in the "2000 MW Net Export Limit" case. Historically, the "No Export Limit" case was used as a reference to estimate curtailment related to system constraint. BAMx agrees with the CAISO's observation that the greater congestion in the "No Export Limit" case seems to be stemming from the increased renewable resources included in the portfolio to meet the state GHG goal. BAMx understands that both the "No Export Limit" case and the "2000 MW Net Export Limit" case have an identical resource mix including the battery storage capacity and their locations. BAMx believes that the "No Export Case" needs to have an energy storage capacity and location pattern that is optimal for that particular case and is therefore likely different from the one in the "2000 MW Net Export Limit" case. If there is adequate battery storage capacity in certain local areas and generation pockets, it would effectively absorb the excess renewable energy, primarily solar generation, thereby reducing the overall congestion. BAMx encourages the CAISO to use different storage capacity and locations going forward that are optimal for specific export limit cases.

BAMx Supports CAISO's Long-Term Local Capacity Technical Study Efforts

Based on the alignment of the CAISO TPP with the CEC Integrated Energy Policy Report (IEPR) demand forecast and the CPUC IRP, the CAISO performs the Long-Term LCR assessment every two years. The CAISO has made significant progress in the development of conceptual projects to reduce or eliminate the LCR in various areas or sub-areas. BAMx acknowledges that these studies play a key role in reviewing the options to maintain local reliability. For each local area and sub-area, the CAISO has estimated the battery storage

¹⁶ Preliminary Economic Assessment Results, Transmission Infrastructure Planning 2020-2021 Transmission Planning Process Stakeholder Meeting, November 17, 2020.

characteristics, given their unique load shape, constraints and requirements as well as the energy characteristics of other resources required to meet standards. BAMx understands that installing battery storage with insufficient characteristics (MW, MWh, and duration) will not result in a one for one reduction of the local area or sub-area need for other types of resources. However, BAMx recognizes that the graphs provided by the CAISO for each LCR area or sub-area comprising an estimated amount of energy storage that can be added from a charging restriction perspective are steps in the right direction. BAMx supports the more recent improvements to the battery storage calculation and graphs, such as the improved “energy calculation” to more closely follow the load shape.¹⁷ We understand that the storage charging estimates developed by the CAISO are informational only, considered preliminary, and will be refined in subsequent studies. However, for the sake of transparency and education purposes, BAMx believes that the CAISO should share the spreadsheet and techniques used to develop these estimates with stakeholders along with appropriate caveats.

Wildfire Impact Assessment

BAMx applauds CAISO’s modeling of the two additional scenarios, i.e., lines de-energized based upon October 26, 2019 PSPS event conditions with PG&E’s wildfire mitigations (10-26 PSPS-WFM) and based upon potential PSPS events corresponding to historical weather conditions, de-energize all lines included in 25 potential events (PSPS-HWC-All). We believe that these two scenarios being more plausible provide important new information.

In addition to the transmission-connected load, there may also be a load that will not be served due to distribution facilities also affected by PSPS or wildfire events. A loss of distribution-connected load may reduce the load that the transmission system needs to supply under that specific condition, which may vary depending upon the nature of the specific event. BAMx encourages the CAISO to work with PG&E to also take into account likely distribution circuit interruptions as it continues to look at likely scenarios for PSPS events.

BAMx encourages the CAISO to continue to work with PG&E to investigate 2020 PSPS events that have occurred. We understand that this work may not be accomplished prior to the finalization of the 2020-2021 Transmission Plan, however it may be analyzed as part of next year’s scope.

Conclusion

BAMx appreciates the opportunity to comment on the 2020-21 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).

¹⁷ 2030 Final LCR Study Results –Overall Summary, 2020-2021 Transmission Planning Process Stakeholder Meeting, November 17, 2020, pp.7-9.