

BAMx Comments on the Draft 2018-2019 Transmission Plan and Materials from the February 14, 2019 Stakeholder Meeting

The Bay Area Municipal Transmission group (BAMx)¹ appreciates the opportunity to comment on the draft 2018-2019 Transmission Plan (Draft Plan, hereafter) and materials presented at the February 14th, 2019 stakeholder meeting. We request that the California Independent System Operator (CAISO) address the following issues in its final comprehensive Transmission Plan.

Review of Previously Approved Transmission Projects

BAMx applauds the CAISO's work in the past four years to review previously approved transmission projects to make sure they are still needed in light of the changing energy landscape. So far, CAISO's effort resulted in over \$3.25 billion of project cancellations and scope reductions. While reviewing all the transmission projects represented a significant commitment of engineering resources, the resultant savings for transmission system users was simply enormous. For instance, BAMx estimates that a reduction in \$3.25 billion of capital expenditure, the majority of which is associated with the low voltage transmission facilities would reduce the PG&E-specific low voltage transmission access charge (LV TAC) by approximately \$3.75-\$4.25/MWh in 2025.

The effort within this 2018-2019 transmission planning cycle represents a significant milestone, and BAMx encourages the CAISO to continue with this task.

- a) First, BAMx encourages the CAISO to establish a process whereby once transmission projects are approved, they are continuously reviewed as to their necessity and scope at least until the project starts construction. Targeted review of projects should especially be initiated for those that (i) have been delayed beyond their initially proposed on-line dates and (ii) with on-line dates during the second five-year period of the ten-year planning horizon.
- b) Second, there generally tends to be significant and chronic cost escalation after a transmission project is approved by the CAISO. Some examples from the Draft Plan include:
 - (i) Cottonwood-Red Bluff 60 kV line and substation - 426% increase
 - (ii) South of San Mateo Capacity - 900% increase
 - (iii) Morgan Hill Reinforcement - 677% increase,
 - (iv) West of Devers 230 kV Upgrade - 163% increase from \$384 million to \$1.01 billion²

Projects presented during this planning cycle were re-evaluated with information on their burgeoning costs. Obviously, it is critical that the CAISO and stakeholders have the up-to-date cost information since such cost increases can materially impact the selection of the preferred alternative and overall scope of work. BAMx also recommends the CAISO monitor cost

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

² Estimates from CAISO Transition Cluster Phase II Interconnection Study Report (SCE's Eastern Bulk System) July 08, 2010, CPUC D.16-08-017 in A13-10-020 respectively.

escalation and include cost information in the final transmission plan (e.g. Chapter 8 - Transmission Project List). The CAISO and stakeholders can then use this cost information to determine if any project cost increase or scope creep should trigger a detailed project review consistent with the work performed by the CAISO in the past several planning cycles. The significant increases in costs that are occurring after the CAISO approves a project makes some type of process - such as the one we suggest - extremely important.

Deliverability Assessment Methodology (DAM)

BAMx has consistently encouraged the CAISO to regularly review the production levels of wind and solar that are assumed in deliverability studies. The resulting capacity assumptions are critical because they directly influence procurement and associated new transmission and interconnection investment decisions to meet the state's Renewable Portfolio Standards (RPS) targets.

With the delay in the implementation of the revised Deliverability Assessment Methodology (DAM), it appears that the 2019-2020 TPP portfolios will continue to use the existing DAM. This appears to be a response to stakeholder comments. BAMx does not support such a delay. Many years have passed since a State law was passed to implement the Effective Load Carrying Capability (ELCC) methodology. We understand most of the delay has been due to complications of implementation at the California Public Utilities Commission (CPUC). But implementation delay in recognizing the impacts on deliverability studies at the CAISO further exacerbates the delay. We urge the CAISO not to approve any delivery network upgrades identified in the 2019-2020 Transmission Planning Process (TPP) resulting from high production levels of wind and solar for deliverability because of the delay in the revised DAM implementation.

BAMx Supports Including EODS Resources in Renewable Portfolios

The renewable portfolios modeled in the TPP include a mix of resources with Full Capacity Deliverability Status (FCDS) and Energy Only Deliverability Status (EODS). The Draft Plan states that some stakeholders have been critical of the consideration of energy-only renewable generation to meet a portion of future RPS requirements.³

EODS projects are equally as effective as FCDS resources in meeting California's RPS target and are more cost effective for ratepayers. Furthermore, the resource adequacy credits associated with the renewables, primarily solar generation, is expected to drop significantly with future increased penetration. Therefore, it would be economically inefficient to build transmission upgrades to accommodate the deliverability of FCDS resources built for RPS purposes. BAMx strongly supports the CPUC, CEC and CAISO efforts in developing renewable portfolios that recognize that FCDS resources should only be selected when the capacity credit for those resources justify any increase in costs to accommodate the transmission needs for the desired deliverability.

Need for Additional Coordination Between CPUC IRP and CAISO TPP

³ Draft Plan, p.8.

The CAISO 2018-2019 policy-driven assessment found the need for some major transmission upgrades and generation dropping Remedial Action Schemes (RAS), in the Eldorado-Mountain Pass-Southern NV area to mitigate large amount of congestion and transmission overloads.⁴ It was explained during the February 14th stakeholder meeting that this was a consequence of (a) modeling a large amount of solar and wind resources in these areas, (b) being mapped to transmission constrained locations, and (c) modeled at high production levels based upon the existing DAM. We appreciate the CAISO's due diligence in providing updated transmission capability amounts as well as renewable resource location selection (resource mapping), which would avoid such artificial issues in the 2019-20 TPP and also in future years.⁵

BAMx believes that the CPUC's Integrated Resource Planning (IRP) process is an appropriate forum to determine economic tradeoffs between retaining existing generation and reducing that need via new transmission or new local resources. The capacity expansion models such as RESOLVE utilized in the CPUC IRP proceeding are more suitable for performing any economic comparison of alternatives for meeting Local Capacity Requirements (LCR) than the CAISO TPP by itself. In particular, RESOLVE includes a constraint that requires that sufficient new generation capacity must be added to meet the local needs in specific LCR areas.

To characterize these local capacity needs, RESOLVE relies predominantly on the CAISO's TPP.⁶ In other words, a flow of information from the CAISO's TPP to the CPUC IRP for the study of local capacity needs exists today. Similarly, the determination of the least-cost best-fit alternatives to meet LCR needs in the CAISO TPP needs to rely on the CPUC IRP process as such is better equipped in evaluating competing resource alternatives such as retaining natural gas generation, adding local renewables, energy storage, and demand response.⁷

LCR Reduction Study

BAMx appreciates the CAISO's significant efforts on the LCR Reduction study included in the draft 2018-2019 Transmission Plan. BAMx finds these informational studies to be very helpful in reviewing the options to maintain local reliability. We endorse the CAISO's comprehensive approach that not only considers (i) the reliability benefits of competing mitigation solutions including transmission and storage resources,⁸ but also assesses (ii) the production benefits and (iii) the local capacity benefits. BAMx encourages the CAISO to engage stakeholders with further discussions in the 2019-2020 TPP and through the CAISO's participation in the CPUC IRP process.

Recommended Reliability-Driven Projects

Round Mountain and Gates 500 kV Dynamic Voltage Support Projects

⁴ 2018-2019 Transmission Plan Policy-driven Assessment, slides #22-30, 2018-2019 Transmission Planning Process Stakeholder Meeting, February 14, 2019.

⁵ 2018-2019 Transmission Plan Policy-driven Assessment, slide #39, 2018-2019 Transmission Planning Process Stakeholder Meeting, February 14, 2019.

⁶ RESOLVE Documentation: CPUC 2017 IRP Inputs & Assumptions, September 2017, p.77.

⁷ *Ibid*, p.29.

⁸ We have noted in our previous comments, we request that demand side options such as slow demand response be also considered in all areas where such measures would address the identified reliability constraints.

There are two proposed voltage support projects in the PG&E service area: (1) Round Mountain 500 kV Dynamic Voltage Support (\$160M-\$190M) and (2) Gates 500 kV Dynamic Voltage Support (\$210M-\$250M). For the identified voltage issues at the Round Mountain and Gates 500 kV Bus facilities, the CAISO recommends a ± 500 Mvar and a ± 800 Mvar dynamic reactive support device at the Round Mountain and Gates 500 kV substations, respectively.⁹

BAMx believes that the choice of technology for these mitigations requires further examination and justification. The threshold questions are both the type and amount of reactive control needed. If simple switchable shunt reactors are insufficient by themselves, would a system of voltage devices, in a combined basis, be adequate? For example, a combination of Static VAR Compensators (SVC) and Static Synchronous Compensators (STATCOM) could be an effective and more cost-efficient solution rather than adding an 800MVar of STATCOMs at the Gates substation. Similarly, could the existing 4 x 47.7 MVar reactors be reconnected from the Round Mountain transformer to the new reactive project and reduces its size and cost?

We also encourage the CAISO to open these voltage support projects, if approved by the CAISO Board, to a competitive solicitation that specify the required performance rather than technology type. BAMx urges the CAISO to provide functional specifications as part of the competitive solicitation, and not be overly prescriptive. In other words, let the market respond without being too restrictive.

North and South of Mesa Upgrades, formerly Midway-Andrew Transmission Project

BAMx requests the CAISO to provide a cost breakdown for the *South of Mesa* project which is recommended for approval in the Draft Plan as well as for the *North of Mesa* project proposed to be on hold. Consistent with prior comments submitted in this proceeding, BAMx believes that just like the Midway-Andrew 230 kV Project, the North of Mesa project is designed to provide a level of service that may be above that required by the CAISO Planning Standards. The originally proposed Midway-Andrew 230 kV Project was estimated to cost in the range of \$120M-\$150M.¹⁰ The original scope of the Midway-Andrew 230 kV Project was greater than the combined scope of the South and North of Mesa projects that replace it. Therefore, we are questioning the higher cost of \$215M associated with the newly proposed projects.¹¹

While BAMx is encouraged that the CAISO is considering lower cost options that would re-purpose existing assets under the North of Mesa project, a fundamental point is not being addressed. As a reliability project, such project justifications should include a cost/benefit assessment as described in the CAISO Planning Standards (Section V.4). In response to our November 2018 comments, the CAISO has declined to calculate the benefit to cost ratios and therefore appears to not be adhering to its own planning standards.

⁹ *Draft 2018-2019 Transmission Plan*, February 4, 2019, CAISO, pp. 86-87.

¹⁰ Recommendations for New Reliability-Driven Project Approvals and Previously Approved Projects On-hold, slide #8, 2018-2019 Transmission Planning Process Stakeholder Meeting, February 14, 2019.

¹¹ *Ibid*, slides# 10-11.

The CAISO has identified the large quantity of load being dropped and its inability to schedule outages in this area as additional justifications for this project. If this is the case, detailed justifications must be shared with the stakeholders. Such details should include but not limited to (i) what load cannot be dropped as part of the Special Protection Scheme (SPS), and (ii) what are the load dropping scenarios and their expected frequency and impact. If the CAISO decides to proceed with the implementation of the North of Mesa Project due to the inability of obtaining clearances on equipment, further justification should be provided in regard to which clearances are not able to be scheduled under the current configuration with the knowledge that the SPS will drop load and protect the system even in an abnormal system configuration.

In summary, in addition to further assessment of the conversion of one of the 500kV lines from Midway to Diablo to 230kV as part of the *North of Mesa* project, we request the CAISO to address the above-mentioned issues associated with the reliability need for the North of Mesa Project in the subsequent planning cycles.

Lakeville 115 kV Bus Upgrade

The Lakeville subarea project involves installing a sectionalizing breaker in order to protect against an overload on the “STHELNJ1 - PUEBLO 115 kV Line” following a P2 outage at Lakeville substation. A slide on this project presented during the February 14th stakeholder meeting states that the overload appears starting in year 2020¹², however, Appendix C of the draft plan does not support this claim with the overload only appearing in 2028 Summer Peak Cases. See the table below for details.

Overloaded Facility	Contingency (All and Worst P6)	Category	Category Description	Loading % (Baseline Scenarios)									2023 SP High CEC Forecast
				2020 Summer Peak	2023 Summer Peak	2028 Summer Peak	2020 Spring Off-Peak	2023 Spring Peak	2020 Winter Peak	2023 Winter Peak	2028 Winter Peak		
31258 SONOMA 115 32564 PUEBLO 115 1 1	FULTON 230 KV BAAH BUS #1 (FAILURE OF NON-REDUNDENT RELAY)	P5	Non-Redundent Relay	<100	116	130	<100	<100	<100	<100	121	110	
31262 CACHE J2 115 31229 REDBUDJ2 115 1 1	CORTINA 115KV [1330] MOAS OPENED ON LUCERNJ1_LUCERNE & GEYSERS #3 115KV [1650] MOAS OPENED ON MPE TAP_MPE	P6	N-1-1	<100	<100	103	<100	<100	<100	<100	<100	<100	
31265 STHELNJ1 115 32562 PUEBLOJ2 115 1 1	LAKEVILLE 115KV - SECTION 1D & 2D LAKEVILLE-SONOMA #1 & LAKEVILLE-SONOMA #2 LINES	P2 P7	Bus/Breaker DCTL	<100	<100	119 114	<100	<100	<100	<100	<100	<100	

The identified overloads are for a higher level and low probability type of contingencies and do not appear in the 2023 and 2028 cases, therefore, BAMx recommends not approving the Lakeville Bus upgrade project at this time.

Cottonwood 115 kV Bus Sectionalizing Breaker

¹² “Recommendations for New Reliability-Driven Project Approvals and Previously Approved Projects On-hold,” slide #21, 2018-2019 Transmission Planning Process Stakeholder Meeting, February 14, 2019.

The Cottonwood 115kV Bus Sectioning Breaker project will install bus-sectionalizing breakers at the Cottonwood 115kV substation in order to protect the substation from voltage collapse resulting from a stuck bus tie breaker at the substation. The stuck bus breaker contingency serving as a driver for the project is an extremely low probability type of contingency, hence this capital upgrade provides only very marginal risk reduction and reliability benefit. BAMx would recommend the CAISO to look into a more cost-effective solution to the P2-4 violation, such as keeping the bus tie breaker normally open and operating the substation split. Also, the CAISO should evaluate installing an SPS in order to mitigate the voltage collapse violations associated with the stuck bus breaker at the Cottonwood substation.

Gates-Gregg Transmission Project

BAMx supports the CAISO's analytic method used to evaluate the Gates-Gregg 230 kV project, whereby initial assumptions used for the transmission project were tested to assess project viability. BAMx endorses the CAISO's decision to cancel this project.

Conclusion

BAMx appreciates the opportunity to comment on the CAISO Draft 2018-2019 Transmission Plan. BAMx would also like to acknowledge the significant effort of the CAISO staff to develop the Draft Plan that should lead to significant reductions in the CAISO TAC that would not have been achieved without the CAISO staff's diligence in reviewing previously approved transmission projects. BAMx also appreciates the staff's openness and willingness to work with the stakeholders in the process. We look forward to working with the CAISO staff to continue to improve the TPP.

If you have any questions concerning these comments, please contact Moisés Melgoza (mmelgoza@svpower.com or (408) 615-6656).