

BAMX Comments on the CAISO 2010 Transmission Plan

The Bay Area Municipal Transmission group (BAMx)¹ appreciates the opportunity to comment on the CAISO 2010 Transmission Plan. The comments and questions below address the studies posted on the ISO's website September 15, 2009 and discussed during the October 26th-27th Stakeholder meetings. BAMx appreciates the ISO staff's efforts in addressing our previous queries during the 2010 transmission planning process.

Reliability Assessment Results

BAMx appreciates the ISO staff efforts in issuing the study information in a timely fashion. While the study results were complete in most respects, they do not address two areas containing roughly 2,000 MW of important urban loads in San Francisco and the Peninsula. BAMx would like to know when the ISO expects to provide those results and the associated mitigations for San Francisco and the Peninsula.

In past years, the completeness of the analysis and the designation of proposed remedies for criteria violations have been inconsistent across the CAISO grid. Some areas are much better documented and the analysis has been more complete than in other areas. Although that is still the case, we are encouraged by the improvement of the analysis of the Greater Bay Area needs in the 2010 assessment compared to the 2009 assessment.

Greater Bay Area (GBA) Long-Term Study Results

Rationale for GBA Generation Retirement Scenarios

The ISO has performed a detailed analysis of three scenarios of generation availability in the GBA for years 2014 and 2019. However, the ISO has not explained the reasons for this study and has not provided a study plan. BAMx is surmising that these generation retirement scenarios were developed to determine the minimum requirements for the Once-through Cooling (OTC) generators. If so, what is the rationale for doing such scenarios only for the GBA for this year's CAISO expansion plan? It would be helpful if more information were provided to assist reviewers of the substantial analytical effort that has been available for almost two months.

Availability of the Base Cases

In addition to the lack of a plan and an explanation of goals and assumptions for the GBA generation availability scenarios, another more important deficiency exists with respect to the ability of the stakeholders to fully understand the study results; the CAISO has not made the base cases used to perform this analysis available. The CAISO has not provided the locations on the grid for the new (replacement) generators assumed in Scenarios 1 and 3. With neither the study plan available nor access to the cases utilized, it makes it difficult to provide comments on the

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

studies. BAMx encourages the ISO to post the Base Power Flow Cases for years 2014 and 2019 on the CAISO secured website at the earliest possible date.

Voltage Violations Criteria

BAMx understands that meeting the voltage deviations criteria is mandatory under a WECC criterion. Does the ISO plan to provide results for the GBA LT study similar to the violations listed in the Reliability Assessment study? We gather from the ISO's answers in the October 26th stakeholder meeting that its criteria for low voltages on an absolute basis are based on standards developed by the PTOs. Please provide those standards to the stakeholders. Please also indicate whether the ISO believes a violation of these standards justifies capital expenditures to address the violations.

Additional information needed to clarify apparent Discrepancies in the Results

BAMx has communicated to ISO staff that some of the 2014 overloads are higher than the 2019 overloads for the same facility and the same contingency (see Table 1 in Appendix A). The ISO has indicated that one of the factors causing these anomalies could be the increased generation in 2019 in the PG&E (ISO) areas external to GBA. We are not able to confirm this observation without the base cases for the study. The ISO also has indicated that it has proposed mitigations for the Category B and DCTL overloads found in the GBA LT study if there were no overloads in the Reliability Assessment study. However, we have noticed that there were several such overloads in the GBA LT study for which no mitigations were proposed (see Table 2 in the Appendix A). Please identify the mitigation measures for these overloads, if any.

Economic Planning Study Results

It is apparent that a tremendous amount of effort was put into developing the market simulations database to assess future congestion on the CAISO grid. These studies predict a level of congestion that we do not see today. Since the onset of MRTU, we have not experienced significant congestion on the facilities identified as being congested in the Economic Planning Studies for years 2014 and 2009, such as the Contra Costa Moraga 230kV line or the Tesla 500/230kV transformer bank. BAMx recognizes that the projected congestion in the future years may be driven by the assumed level of new renewable generation. The modeling of the location and output profile of the renewable generation are critical in assessing the future projected congestion. Please provide additional information about the assumptions made in the congestion study and the ISO's assessment of the key factors affecting the congestion.

The two page summary of the congestion work is helpful, but we are anxious to have the CAISO comment on the results as soon as possible. Assuming the results are accurate, it appears it may be possible to justify significant transmission construction based on economics, rather than reliability. BAMx appreciates the ISO's efforts in making the modeling databases available to the non-market participants on the ISO's secured website. It is important for the ISO to indicate in their report what they expect to study based upon this assessment. It is our understanding that the primary purpose of this assessment was to identify the highly congested areas for CAISO

detailed studies. Please identify the CAISO's next steps and the expected timing of those steps in this regard.

2020 Renewable Transmission Conceptual Plan Based on Inputs from the RETI Process

The CAISO has made a great start on a huge issue for the State with the 2020 Renewable Transmission Conceptual Plan. This is a complex study and we wish to compliment the ISO and the PTO staff for their timely and extensive efforts.

Assumptions and Transmission Upgrade Criteria

As mentioned in the report, this study is "intended to initiate, prioritize, refine and ultimately implement cost-effective transmission projects." This study identified the transmission needs and potential upgrades (initiation of the Conceptual Plan). When would the ISO begin the studies to "prioritize, refine and ultimately implement" the transmission upgrades?

There are over \$11 Billion of investments that would be needed within the next 10 years based on the costs of the various upgrades listed in this report. This is a huge investment to be borne by the ISO customers and therefore the ISO and others must be very careful and judicious in making these investments. Despite the excellent start represented by these ISO/PTO studies, there is a need for substantial follow-on efforts before any decisions can be made to spend this magnitude of new investment to connect remote renewables.

The ISO recognizes that there was great uncertainty in assumptions made in this conceptual renewable plan. So far, the ISO has made several reasonable assumptions; however, the ISO needs to consider many sets of reasonable assumptions (scenarios). BAMx urges the ISO to emphasize in the final report that it has not considered many uncertain variables and that additional scenario analysis will be required before decisions can be made.

For example, one of the many assumptions that could affect the results dramatically would be the level of imports. Some discussion occurs on the import assumptions (for RA purposes, for instance) but those are all within the context of an assumed 5,500 MW of total renewable imports. RETI has recognized that the 5,500 MW assumption is somewhat arbitrary and over-simplified compared to RETI's in-state analyses and regional analyses performed by others. Thus RETI is currently pursuing a significant work effort which will yield much better import assumptions very soon.

It is imperative to study different reasonable and credible scenarios and the ISO should, as soon as possible, propose a set of follow-on studies and solicit comments on those assumptions both from RETI and from individual stakeholders.

Impact of RPS on Existing Generation Dispatch

The ISO should provide more information on certain assumptions and on how the results were developed to allow meaningful stakeholder participation. For instance, replacing over 26,000 MW of existing generation with new RPS is a significant change to the power system and much of the system upgrades would depend on the assumed new generation dispatch pattern. The report provides some information on the quantity and location of the new renewable resources but, except for stating some once through cooled units that would be retired (which ones?), there was no information on which existing generation was displaced by the RPS generation nor the reasons for the selected generation curtailment. Please provide the generation dispatch (or changes from the base case) for the power flow cases used in the study. Also, please include the intertie flows. Please describe whether the ISO has evaluated how different dispatch and import patterns would affect the investment costs.

Distinguish between RPS Stand-Alone Upgrades versus those Driven by the OTC Retirement

As stated in the report, "the primary objective of this study is to develop a foundation for reliable transmission system upgrades and additions sufficient to meet California's 33% RPS goal by the year 2020. A secondary goal is to displace as much as possible of the old once through cooled units in California with new renewable resources."

BAMx requests the ISO to differentiate the upgrades that were caused by the RPS from those caused by the once through cooled unit retirement. Furthermore, please identify whether any of the upgrades would be justified by the normal course of load growth.

The report stated that the upgrades were based on "engineering assessments". Some of the upgrades contain details on studies justifying their need and some have hardly any detail included in the report. The same discrepancy exists with regard to details on the upgrades needed. Please explain whether these differences are attributed to the different stages of development for these upgrades. Please also identify those upgrades that have already received ISO approval and provide details of all of the upgrades.

There were no transmission upgrades identified to deliver 900MW from the Solano area in the 2020 Renewable Transmission Conceptual Plan; however the 2010 reliability assessment has identified several transmission upgrades. Please provide detailed information you have on the upgrades listed in this report.

Transmission Upgrades as Mitigation Measures for Contingency Violations

Please summarize the criteria used to determine the need for upgrades in the report and also point out what mitigation measures might be available to minimize costs. There appears to be no discussion of generation curtailment as a mitigation measure and it appears some transmission facilities are proposed to eliminate category C overloads (see the table on the page 37 of the report.) The upgrades for category C contingencies were only in the SCE area and no such upgrades to mitigate category C violations were identified in either PG&E or SDG&E areas. Please explain why load curtailment or other operating procedures are not sufficient to address the deficiencies under category C events.

Impact of Transmission Upgrades on Future TAC

Please provide an estimate of how the transmission upgrades would affect the High Voltage (HV) Transmission Access Charge (TAC) by 2020 assuming all the projects in the study would be implemented. In this exercise, please exclude elements of the transmission upgrades that would not be included in TAC. For example, we assume that the LADWP's \$500 million *Green Path North* project will not affect the ISO TAC.

Need for Adequate Information to Participate in 2010 CAISO Transmission Planning Process (TPP)

BAMx acknowledges the considerable efforts made by the ISO staff in performing several studies meeting their deadlines during the 2010 transmission planning process. BAMx recognizes that this year's planning process involves more comprehensive studies than those run by the ISO during the 2009 process. However, there are several instances where the ISO has not provided adequate information to the stakeholders to enable meaningful stakeholder participation in the 2010 TPP. Lack of information or even delay in providing the necessary information limits the stakeholders' ability to evaluate the ISO's reliability assessment and mitigations, and in turn the PTO projects and potential alternatives. The unavailability of the reliability assessments for the San Francisco and Peninsula divisions as well as the unavailability of the Base Cases underlying the GBA LT study are examples that make it unlikely that stakeholders will have an opportunity to suggest their own projects and/or alternatives to the PTO projects in some of the areas within GBA within the 2010 request window.

As the CAISO is aware, one of the nine Order No. 890 planning principles is transparency. Transparency means that access must be provided to the methodology, criteria, and processes used to develop transmission plans. FERC clarified that, in addition to requiring transmission providers to disclose to all customers and other stakeholders the basic criteria, assumptions, and data that underlie their transmission system plans, transmission providers must disclose transmission base case and change case data used by the transmission provider². In the order on CAISO's compliance filing implementing Order No. 890, FERC further explained that sufficient information should be made available to enable customers, other stakeholders, and independent third parties to replicate the results of planning studies and thereby reduce the incidence of after-the-fact disputes regarding whether planning has been conducted in an unduly discriminatory fashion³. FERC further emphasized to the CAISO in its subsequent compliance filing that "we remind the CAISO that it is obligated under Order No. 890 to provide transmission planning participants with sufficient data to enable them to replicate the results of planning studies."⁴ We

² Paragraphs 181 and 199, FERC Order No. 890-A, Order on Rehearing and Clarification, December 28, 2007.

³ Paragraph 41, Order on Compliance Filing, FERC Docket No. OA08-62-000, June 19, 2008.

⁴ Paragraph 60, Order Denying Rehearing and on Compliance filing, FERC Docket No. OA08-62-002, -003, 004, May 21, 2009.

urge the ISO to post the base cases used for these studies to its secured web page as stated in its TPP BPM at Section 9.2.

BAMx encourages the ISO to provide written responses along with the required data to stakeholders prior to the publications of the Draft transmission plan. If the responses to BAMx' data requests in these comments are available only in the draft transmission plan, which is expected to be available in January/February 2010, there will not be sufficient time for stakeholders to critically evaluate the several study findings, their ramifications and proposed mitigations. Moreover, typically there is very little time available between the Draft transmission plan and the Final transmission plan to have meaningful stakeholder input on the draft transmission plan incorporated in the Final transmission plan. BAMx therefore requests the information be made available to stakeholders as soon as possible.

BAMx appreciates the opportunity to comment on the CAISO 2010 Transmission Plan and acknowledges the significant effort of the ISO staff to develop the plan.

If you have any questions concerning these comments, please contact Barry Flynn (888-634-7516 and brflynn@flynnrci.com) or Pushkar Wagle (888-634-3339 and pushkarwagle@flynnrci.com).

Appendix A

Table 1: List of Violations with 2014 overloads higher than the 2019 overloads

Study	Scenario	Facility	Thermal/ Low Volt/ Volt Dev	Rating (MVA, SE)	Category	Contingency	2014 (%)	2019 (%)
Reliability	Base	Almaden 60	Volt Dev	60.0	B (L-1)	Evergreen-Los Gatos 60	8%	5%
GBA LT	2	Altamont Mdw-Delta Pump 230	Thermal	450.0	C (T-1-1)	Vaca-Dixon 500/230 #11 & Vaca-Dixon 500/230 #12	118%	104%
Reliability	Base	Dumbarton-Newark 115	Thermal	233.1	C (L-1-1)	Pittsbrg-E.Shore 230 & E.Shore-San Mateo 230	143%	139%
GBA LT	3	Larkin-Portero #2 115	Thermal	159.3	B (L-1)	Mission-Portero #1 115	104%	103%
GBA LT	1	Mission-Potrero 115	Thermal	139.4	B (L-1)	Larkin-Portero #1 115	101%	100%
GBA LT	3	Monta Vista 230/60 #5	Thermal	134.0	A	Normal	140%	137%
GBA LT	2	Moraga-Claremont #1 115	Thermal	94.0	B (L-1/G-1)	Moraga-Claremont #2 115 & DEC	113%	111%
GBA LT	2	Moraga-Claremont #2 115	Thermal	94.0	B (L-1/G-1)	Moraga-Claremont #1 115 & DEC	113%	111%
GBA LT	1	San Mateo-Belmont 115	Thermal	111.0	C (DCTL)	Ravenswood-Bair #1 & 2 115	105%	104%
GBA LT	2	Tesla-Altamont Mdw 230	Thermal	450.0	C (T-1-1)	Vaca-Dixon 500/230 #11 & Vaca-Dixon 500/230 #12	118%	104%
GBA LT	3	Westley-Los Banos 230	Thermal	677.2	C (L-1-1)	Tesla-Losbanos 500 & Tracy-Losbanos 500	116%	112%
GBA LT	2	Westley-Los Banos 230	Thermal	677.2	C (L-1-1)	Tesla-Losbanos 500 & Tracy-Losbanos 500	145%	141%

Table 2: List of Violations under B or DCTL outages in the GBA LT Study with no proposed mitigation (no overload in Reliability Assessment Study)

Scenario	Facility	Area/ Division	Thermal/ Low Volt/ Volt Dev	Rating (MVA, SE)	Category	Contingency	2014 (%)	2019 (%)
3.0	Christie-Sobrante 115	Diablo	Thermal	104.0	C (DCTL)	Sobrante-"G" #1 & 2 115	100%	111%
3.0	Christie-Sobrante 115	East Bay	Thermal	104.0	C (DCTL)	Sobrante-"G" #1 & 2 115	100%	111%
2.0	Christie-Sobrante 115	Diablo	Thermal	104.0	C (DCTL)	Sobrante-"G" #1 & 2 115	97%	108%
2.0	Evergreen-San Jose B 115	San Jose	Thermal	210.0	C (DCTL)	Metcalf-EI Patio #1 & 2 115	100%	104%
2.0	Jefferson-Hillsdale Jct 60	GBA	Thermal	62.6	B (L-1/G-1)	Jefferson-Martin 230 & DEC	107%	109%
1.0	Llaga-Gilroy 115	San Jose	Thermal	350.0	C (DCTL)	Metcalf-Morgan Hill & Metcalf-Llagas 115	110%	111%
2.0	Moraga-Claremont #1 115	East Bay	Thermal	94.0	B (L-1/G-1)	Moraga-Claremont #2 115 & DEC	113%	111%
2.0	Moraga-Claremont #2 115	East Bay	Thermal	94.0	B (L-1/G-1)	Moraga-Claremont #1 115 & DEC	113%	111%
2.0	SAN RAMON 230	GBA	Low Volt	230.0	B (L-1/G-1)	Pittsburg-San Mateo 230 & MEC	91%	89%