BAMx Comments on the 2014-15 Transmission Planning Process November 19-20 Stakeholder Meeting

The Bay Area Municipal Transmission group (BAMx)[1] appreciates the opportunity to comment during the development of the 2014-15 Transmission Plan. The comments and questions below address the material presented at the CAISO Stakeholder meeting on November 19-20, 2014.

Reliability Projects < $50 Million

General

At the Stakeholder meeting, the CAISO did not approve several proposed reliability projects, noting that given the timing of the projects and the currently reliability measures that are in place does not indicate a need for approving a transmission project at this time. BAMx supports the CAISO's efforts to monitor the system and timing of future potential deficiencies so that the timing of project approvals align with reliability need. This not only better manages capital expenditures, but also allows time for consideration of more cost effective solutions, including the ability of Preferred Resources[2] to meet an identified reliability need.

Mission – Penasquitos 230 kV

At the stakeholder meeting, the CAISO described and supported the Mission-Penasquitos 230 kV project to mitigate the need to potentially drop load for a Category C event in the SDG&E area. This upgrade is forecast to cost $23 million to $26 million. An alternative mitigation to upgrade a 2-mile section of an existing 138 kV line at one fifth the cost was also identified, but was rejected.[3] While the new CAISO Planning Standards dictate that non-consequential loss of load should not be a long-term solution in this area, BAMx believes that the CAISO should be highly sensitive to cost in selecting the appropriate mitigation for infrequent Category C type events. As such, a higher cost alternative should only be considered where there is either a reasonable concern about feasibility of the lower cost alternative or an economic analysis justifies the higher initial cost. As neither were presented for the 230 kV alternative, BAMx believes that there has not been a sufficient demonstration for selecting the higher cost alternative.

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

[2] Preferred resources include energy efficiency, demand response, distributed generation (solar and combined heat and power) and energy storage.

[3] The CAISO mentioned a SDG&E desire to phase out its 138 kV facilities, though the reasons and cost effectiveness of such a program has not been shared with stakeholders.

Long Term Local Capacity Need Analysis

BAMx believes the development of a ten-year view of Local Capacity Resource (LCR) needs is highly beneficial in facilitating integrated planning. This time horizon allows for full consideration of supply, demand and transmission options for meeting local reliability needs similar to recent efforts in the Southern California area.

Greater Bay Area

First, BAMx appreciates the Greater Bay Area (GBA) summary of the available generation and 2024 long-term LCR need presented at the stakeholder meeting. This allows stakeholders to more easily understand the reliability margins for the area and anticipate when action should be taken to preserve reliability.

Second, considering these tables, BAMx is concerned that the manner in which the material is presented may lead stakeholders to mistakenly believe that there is a surplus of market resources to meet the GBA LCR needs. The CAISO identifies a need in 2024 of 4,133 MW of market generation and a supply of 5,589 MW. However the supply includes the 624 MW Oakley Generating Station[4], for which PG&E recently announced the termination of the Power Purchase Agreement for the yet-to-be built plant. Also, as noted in the Unified Planning Assumptions and Study Plan, the owner of the 1,311 MW Pittsburg Power Plant has indicated that they will not go forward with the improvements necessary to comply with the Once Through Cooling requirements unless it can obtain long-term Power Purchase & Tolling Agreement(s) (PPTA) with the utilities and requisite CPUC approvals.

Subtracting these two plants from the identified supply leaves 3,654 MW (=5,589 – 624 – 1,311) to meet the 4,133 MW of need.[5] BAMx encourages the CAISO to more clearly identify that although Pittsburg may not be needed for reliability of the Pittsburg Sub-Area, it is needed for the GBA reliability. Even if Pittsburg were to utilize the cooling tower of Unit 7 for Units 5 and 6, the increase in capacity would be 629 MW or less.[6] This would bring the supply to 4,283, reflecting a margin of 150 MW. With the Oakland CTs exceeding the 40-year life threshold[7], loss of their associated NQC of 165 MW could eliminate the thin margin.

Therefore, BAMx encourages the CAISO to model the reliability impacts on the GBA in the absence of the Pittsburg Power Plant, to develop alternatives to the Oakland CTs, and to begin in the next planning cycle to look at options for increasing the reliability margin for the GBA.

[4] Capacity from the CEC Energy Facility Status webpage
[5] Here BAMx is assuming that the full NQC of the existing Pittsburg PP is being counted.
[6] The 629 MW is the current NQC for Pittsburg 5 and 6. The NQC for the reconfigured plant may be less due to higher station load associated with the evaporative cooling.
[7] The Oakland CTs also have an 877-hour annual operating limit. The ability of such limited operations to meet both the Oakland Sub-Area and the GBA reliability requirements needs to be better understood.

Imperial Area Deliverability

BAMx applauds the CAISO staff for identifying innovative ways of increasing the Imperial Area Deliverability above 1,000 MW base RPS portfolio amounts without costly transmission system upgrades. BAMx supports that the amount of generation that can be accommodated (currently 1,900 MW to 2,100 MW for the combined Baja and Imperial renewable zones) to set the upper limit for the planned Deliverability for this area. In the event there is a policy directive for greater amounts of deliverability[8], BAMx supports reallocating Maximum Import Capability (MIC) from other CAISO interties to the CAISO's interties with the Imperial Irrigation District (IID) to make system Resource Adequacy (RA) counting rights available for resources in the IID BA as previously identified by the CAISO.

Economic Studies

Harry Allen-Eldorado 500 kV line Economic Benefit Analysis

CAISO Needs to Perform Sensitivity Analysis for Capacity Benefits

The CAISO's preliminary findings indicate substantial capacity benefits associated with the Harry Allen-Eldorado 500 kV line project (HAE). The CAISO's most recent capacity benefits calculations as presented during the November 19-20, 2014 stakeholder meetings are projected to be around **$10.2M** per year or **$141M** ($171M) over fifty years using a 7% (5%) discount factor. We understand the CAISO has derived capacity benefits based on the assumptions that California will continue to have a resource adequacy requirement and that Nevada can be the source of contracted capacity to serve California load. Additionally, a key assumption for these savings is that the future cost of capacity in Nevada will be significantly less than the cost in California. For these assumptions to hold true in the long run, the following conditions need to persist:

- A need in California for system capacity above current in-state capacity plus expected future capacity needed for local and flexibility requirements.
- The capital and fixed operating costs for a peaking unit must remain less in Nevada as compared with a California peaking unit or preferred resource, and translate into a system capacity price difference that will be passed on to the buyers.
- There will be a greater resource surplus in Nevada than in California during the early years of the project resulting in a lower demand for capacity in Nevada as compared to California.

[8] Note that BAMx believes that a policy directive for greater imports from IID does not equate to a need for increased deliverability. Energy Only resources are viable alternatives in the LSE RPS procurement processes.

BAMx considers such a set of conditions to be unlikely. Alternative scenarios are much more likely, given that California has a surplus of system resource adequacy (RA) capacity with projected planning reserve margins of **118%** in **2030** and **115%** in **2034** as modeled in the CPUC's latest RPS Calculator (Version 6.0, "System_Capacity" tab).[9] The CAISO analysis assumes California will be resource deficient by 2020-22. In the past, CAISO included a source to indicate the California resource deficiency in 2022, but in this case CAISO identified only flexibility deficiencies, rather than system resource deficiencies.[10] So far, the CAISO has not provided any justification why new resources should be assumed to be built in Nevada instead of within California to satisfy the flexible upward ancillary services and load following need. We understand that the need for flexible resources is determined by the CPUC and our expectation is that the CPUC would authorize the jurisdictional utilities to procure the needed capacity. The CAISO needs to explain why it is reasonable to assume that the Load Serving Entities (LSE) will procure this capacity from Nevada rather than resources which also have local capacity attributes. Most importantly, to the extent the out-of-state resources studied in the case of *HAE* evaluation are not within the CAISO Balancing Authority Area (BAA), unless they are Pseudo-Tie or Dynamic Scheduled resources, under current flexible resource adequacy rules, they would not be eligible to provide flexible RA capacity[11]. While the CAISO is investigating the potential for creating mechanisms for allowing intertie resources to address the CAISO's 15-minute flexible resource needs, these mechanisms are not yet in place. Even if such mechanisms are developed in the future, unless the intertie resources can be dispatched on a 5-minute basis, their flexibility value will be lower than for resources within the CAISO BAA that are dispatchable on a 5-minute basis.

The CAISO should explore alternative scenarios and evaluate their impact on the capacity benefit associated with the candidate transmission projects. Furthermore, the CAISO's capacity benefits calculations assume that the entire capacity benefit would be conferred on California consumers. The CAISO-developed Transmission Economic Assessment Methodology (TEAM), in contrast, assumes that the capacity benefit is split equally between the buyers and sellers of capacity.[12] In particular, the CAISO report states the following.

> "Lower fixed costs for a combustion turbine in Arizona would be directly reflected in lower capacity costs. We estimate that differential to be $14/kw-year in 2004 $, or $15/kw-year in 2008

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[9] It is our understanding that these assumptions are consistent with the current load-resource balance assumed under the 2014 LTPP. ***Source:*** A PowerPoint presentation, titled, "Capacity Valuation," accompanying the ALJ Ruling.
[10] California Independent System Operator, "Review of Scenario Assumptions and Deterministic Results", CPUC LTPP Track 2 Workshop, August 26 2013, Dr. Shucheng Liu, Principal in Market Development, page 29, "Upward Ancillary Services and load following shortages".
[11] CAISO Tariff Section 40.10.3.6 Non-Eligible Resources - Intertie resources and imports, other than Pseudo-Ties and Dynamic Scheduled resources, are not eligible to provide Flexible RA Capacity.
[12] See Section VII.C in "Economic Evaluation of the Palo Verde-Devers Line No. 2 (PVD2)," prepared by the California ISO Department of Market Analysis & Grid Planning, February 24, 2005.

> dollars. If we further assume that firm summer capacity is available for the entire 1,200 MW upgrade, the capacity benefit would be $18 million per year in 2008 $. The $18 million per year represents the maximum savings benefit when the capacity price is capped at the cost of new peaking units. In order to provide a more conservative estimate, we have decreased this amount by one-third to $12 million. **In addition, we assume that this benefit will be split equally between the buyers and sellers of capacity.** Thus, we estimate the societal benefit will be $12 million and assume the CAISO benefit will be half that amount or $6 million."

Thus, if the estimated annual societal benefit for DCR is $10.2 million, then the assumed CAISO benefit should be half that amount, or $5.1 million.

Changes in Incremental Increase in Path 46 Transfer Capability Need to be Adequately Explained

CAISO's Final 2013-14 Transmission Plan assumed that adding the Harry Allen – Eldorado 500 kV line to the system created only **150MW** of incremental import capability. However, the analysis presented in the CAISO Stakeholder meeting on November 19-20, 2014 assumed that *HAE* increases the same import capability by **200MW**. BAMx would like to see an explanation for how the incremental capacity is calculated and why the CAISO has assumed a higher increase in transfer capability. All energy imports plus the ancillary services provided by out-of-state resources are subject to the California import limits. For instance, the CAISO's flexibility studies assume CAISO import limit of approximately 12,992MW.[13] Does *HAE* incrementally increase that limit by 200MW? If not, it cannot be counted to provide flexible capacity.

Discount Rate Used for NPV Calculations Should be Consistent with TEAM

The benefit-cost ratio (BCR) under TEAM implemented for the Palo Verde Devers #2 500kV line (PVD2) project used a real discount rate of 7.16 percent.[14] This figure represented a utility's weighted cost of capital (i.e. debt, preferred stock, and common equity). The CAISO's BCR calculations for *HAE* are presented under two different discount rates, i.e., 5% and 7%. BAMx would like the CAISO to provide a rationale for using these two discount rates rather than maintaining the discount rate of 7.16% that was originally used under the TEAM methodology.

The Cost of HAE Should Not Be Bourne Solely by CAISO Ratepayers

The Harry Allen-Eldorado line's 75 mile length lies primarily, if not exclusively, within the service area of Nevada Power and connects to the CAISO system at its boundary at Eldorado. As such, the line connects the CAISO and WestConnect BAAs. While the CAISO's analysis shows potential benefits to the CAISO BAA, it also shows substantially increased power sales opportunities from Nevada Power owned combined cycled plants in southern Nevada. This

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[13] Direct Testimony Of Dr. Shucheng Liu On Behalf of the CAISO, Rulemaking 13-12-010, August 13, 2014.
[14] See Section VII.F in "Economic Evaluation of the Palo Verde-Devers Line No. 2 (PVD2)," prepared by the California ISO Department of Market Analysis & Grid Planning, February 24, 2005.

strongly implies Nevada Power as a potential beneficiary as well. It appears that California electric customers are being asked to fund a transmission line in an external utility's footprint to overcome that utility's internal transmission constraints to facilitate greater electric sales to California without that utility sharing in the project cost.

Because the proposed project is an interregional project that is outside the CAISO balancing area, BAMx requests that this project be considered as a Interregional Transmission Project under the CAISO's Board-approved compliance plan for FERC Order 1000 interregional requirements. While BAMx acknowledges that the various regions' compliance plans are still working their way through FERC approvals, the Harry Allen-Eldorado line is not reliability driven and therefore not time critical. With benefits potentially being incurred in both regions, this project is a strong candidate for cost sharing under FERC Order 1000. Therefore, this project should be considered in the Annual Interregional Coordination Meeting. Furthermore, through this interregional process the benefits and cost allocation associated with terminating the line at Harry Allen rather than the much closer Mead Substation can also be addressed.

Table 1 shows varying levels of capacity benefits resulting from sensitivities around four key assumptions: discount factors, California capacity shortfall year, increase in transfer capability, and the capacity benefit split. The corresponding Benefit-Cost Ratios (BCR) for *HAE* under thirty-six sensitivity scenarios are shown in Table 1A.

Table 1: NPV of Capacity Benefit (M$) Under Multiple Sensitivity Scenarios

Discount Factor	**Capacity Shortfall Year**	**Incremental Increase in Transfer Capability (MW)**					
		0MW		***150MW***		***200MW***	
CAISO Ratepayer Capacity Benefit		***50%***	***100%***	***50%***	***100%***	***50%***	***100%***
5%	**2020**	$0	$0	$70	$140	$93	$186
	2028	$0	$0	$45	$90	$60	$120
	2035	$0	$0	$30	$60	$40	$80
7%	**2020**	$0	$0	$53	$106	$71	$141
	2028	$0	$0	$30	$60	$40	$80
	2035	$0	$0	$18	$36	$24	$48

Table 1A: BCR Under Multiple Sensitivity Scenarios

Discount Factor	Capacity Shortfall Year	Incremental Increase in Transfer Capability (MW)					
		0MW		*150MW*		*200MW*	
CAISO Ratepayer Capacity Benefit		*50%*	*100%*	*50%*	*100%*	*50%*	*100%*
5%	**2020**	0.54	0.54	0.77	1.01	0.85	1.16
	2028	0.54	0.54	0.69	0.84	0.74	0.94
	2035	0.54	0.54	0.64	0.74	0.67	0.81
7%	**2020**	0.49	0.49	0.71	0.92	0.78	1.06
	2028	0.49	0.49	0.61	0.73	0.65	0.81
	2035	0.49	0.49	0.56	0.64	0.59	0.69

Table 1A indicates that only three out of thirty-six scenarios have BCR greater than one; two of those scenarios show marginal *HAE* net benefits. These sensitivity scenarios demonstrate that several key assumptions with low likelihood must occur simultaneously for *HAE* to be economical. In contrast, in all other scenarios, the BCR is significantly lower than 1, suggesting that *HAE* is not economically justified for CAISO consumers.

Need to Seek Further Stakeholder Input Prior to Board Recommendation

This proposed project has not been sufficiently analyzed and reviewed with stakeholders. At the one stakeholder meeting on November 20th that contained a review of this project, some stakeholders were referred to analysis performed on another line to obtain data assumptions made about this project. Also at the meeting, the CAISO indicated that the analysis shared was preliminary and subject to change. Stakeholders were told that CAISO Management had not decided whether to recommend the project to the Board, yet indicated Staff expected to bring a recommendation to the Board at the upcoming December Board meeting. This will leave stakeholders a few days at best to review the latest analysis and decide what their response should be. This is not a normal process and does not provide adequate time for Stakeholder input. As described in our analysis above, several issues need to be addressed before the CAISO Management makes a recommendation about *HAE* to the CAISO Board. First, the base capacity benefits attributed to *HAE* in the latest CAISO analysis need to be clearly explained and justified. Second, similar to the sensitivities analyzed for the production benefits, the capacity benefits also should be computed under several sensitivity scenarios, as they form a substantial portion of the overall project benefits. Third, the capital costs of *HAE*, the incremental increase in Path 46 transfer capability attributed to *HAE* and the discount rate used for the NPV calculations need to be justified and explained in more detail. Fourth, *HAE* seems to be a strong candidate for cost sharing under FERC Order 1000, and therefore, if HAE is found to be an economical project, the

CAISO ratepayers should not bear the entire cost of the project when Nevada Power generators are going to be significant beneficiaries of the *HAE* project.

Therefore, we believe that based on the currently available *HAE* economic analysis, it is premature for CAISO Management to make a recommendation about *HAE* to the BoG at its December meeting We urge the CAISO management to provide adequate opportunity for further Stakeholder involvement prior to the CAISO management's recommendation on *HAE*.

Conclusion

BAMx appreciates the opportunity to comment on the 2014-15 Transmission Plan Stakeholder Meeting materials and acknowledges the significant effort of the CAISO staff to develop this material.

If you have any questions concerning these comments, please contact
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