Bay Area Municipal Transmission Group's Comments on the CEC 2014 Draft IEPR Update

December 11, 2014

The Bay Area Municipal Transmission Group[1] (BAMx) appreciates the opportunity to comment on the California Energy Commission's (CEC) 2014 Draft Integrated Energy Policy Report Update ("2014 IEPR Update" hereafter).

Introduction

The CEC's *2014 IEPR Update* is focused on the transportation sector for good reasons. That sector clearly is extremely important when considering tracking the State's GHG goals. BAMx supports the CEC's focus in this area. However, BAMx believes major changes are needed to the methodology used in the infrastructure planning process that is used when building additional renewable projects to move beyond the goal of achieving a 33% energy based goal for year 2020 and beyond.

BAMx appreciates the CEC's efforts toward promoting renewable energy planning by streamlining transmission planning and land use permitting to increase efficiency. We support the CEC position that California needs to build on best practices to help ensure that efforts to advance renewable energy development are made thoughtfully and with careful stewardship of the state's natural resources. But we believe following the same strategies as before to advance renewable energy development will generate the same results, which have generated some unwanted side effects that should be remedied. At this juncture the CEC should consider changing elements of its previous strategies to allow renewable energy development to move forward with unwanted side effects minimized or eliminated.

One of the unwanted side effects of past practices mentioned above is an unprecedented increase in transmission costs. While the projected increase in transmission costs is only one of many issues driving up electric rates in California, it is probably growing at a rate faster than any other sector. We need to accomplish the State's GHG goals while minimizing the adverse impact on the natural environment and at minimum cost to customers. Cost increases in California should not be significantly greater than other states, to avoid unnecessary costs that can hurt the California economy with an attendant loss of jobs. For example, billions of dollars of customer money has been spent, and are planned to be spent, in building transmission infrastructure to access not the energy, but the full capacity of renewable generation, while the state is long in this system capacity. In other words, billions of dollars are being spent to deliver a product that is already over supplied.

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

Although we expect this subject will probably get significant attention in the 2015 IEPR, we believe major changes may occur in the planning of infrastructure for renewable projects between now and the development of the 2015 report. Chapter 8 of the *2014 IEPR Update* is dedicated to "Integrating Environmental Information in Renewable Energy planning Processes." We understand that the CEC staff has worked with the CPUC to develop an environmental scoring metric that was used in the 2013 LTPP proceeding. BAMx strongly endorses this activity, but is saddened by relatively light use of this past work in the CPUC and CAISO planning processes. For example, the CEC has played a key role in providing environmental scoring input into the CPUC's RPS Calculator model that produces RPS portfolios used in the CAISO's annual Transmission Planning Process (TPP). However, the environmental scoring has played a very minor role in the selection of RPS portfolios used in the TPP thus far.[2]

Below we explain how the current infrastructural planning practices can be improved. We hope that the CEC through its *2014 IEPR Update* and its cooperation with the CPUC and the CAISO in infrastructural planning activities will facilitate these positive changes.

Building Transmission to Provide RA for Intermittent Resources is Not a Cost-effective Mechanism to Procure Renewables.

Since 1998, billions of dollars of customer money have been spent, and is planned to be spent, in building transmission infrastructure to access the full capacity of renewable generation. These expenditures are driven by stringent CAISO "deliverability" requirements and, with few exceptions, without any cost/benefit analysis. Without such analysis, we do not know if the economic benefits provided by these transmission infrastructure projects to customers exceed the costs to customers.[3]

A generator that has obtained "deliverability" can count its dependable capacity towards a CAISO Load Serving Entity's (LSE's) CPUC-specified Resource Adequacy (RA) requirements. But RA capacity is plentiful. Therefore, the important question is whether it makes sense for

[2] The CPUC RPS Calculator included a methodology that was used to generate an environmentally-preferred RPS portfolio (with 100% weight on environmental scoring). However, the environmental portfolio was not part of the CAISO 2014-15 TPP portfolios. We understand from the CPUC ED proposal that it is unlikely to be part of the CAISO 2015-16 TPP. The base 2014-15 TPP portfolios have only 20% weight for environmental scoring. The RPS calculator utilizes environmental scoring approach that was created in 2010 and utilized the same map that was used in the 2010 LTPP RETI process. (**Source:** Attachment 2: Standardized Planning Assumptions (Part 2 – Renewables) for System Resource Plans, CPUC 2010 LTPP Proceeding, R12-03-014, February 10, 2011) The CPUC Energy Division staff plans on updating the environmental scoring methodology in a separate Ruling in the near future and vet the updated methodology with stakeholders before being incorporated into the RPS Calculator. This update (version 6.1) will likely be used for the 2016-17 transmission plan. (**Source:** California Public Utilities Commission Energy Division's Staff Proposal on the RPS Calculator, CPUC RPS Proceeding, R.11-05-005, October 10, 2014.)

[3] One general problem is the lack of price signals that would create a strong incentive for renewable developers to make economic decisions regarding the choice of capacity option ("full capacity" or "energy only") and development locations (minimize overall transmission costs). Many renewable resource contracts have been, or are in the process of, being approved based on the expectation that transmission upgrades that would allow renewable generators to be fully deliverable for RA counting purposes will get built.

customers to pay for added transmission infrastructure that would allow any new generator's capacity to fully count towards LSEs' RA requirements when there is no need. If some need appears in the future, whether there are other, lower cost, alternatives for LSEs to meet their RA requirements. Other lower cost alternatives could include relying on sources of RA capacity that do not require new transmission infrastructure, or perhaps relying on a different mix and/or location of new generation where the additional transmission infrastructure is of smaller scope.

Public policy goals require California LSEs to supply 33% of their retail load with renewable energy. As a State, we need to find ways to reach these GHG goals. In addition, the CPUC currently requires jurisdictional LSEs to have enough dependable RA capacity to meet each LSE's peak load plus a 15% planning reserve margin. However, there is no public policy goal or CPUC requirement that obligates customers to pay for the transmission infrastructure to allow every renewable generator to count its dependable capacity towards a LSE's RA requirement. From a customer perspective, the major challenge is finding the lowest cost means of meeting the 33%, any future increased renewable energy goal, and the 15% planning reserve requirement. New transmission can assist in meeting both of these requirements, but is the RA capacity needed[4] and is building new transmission the least cost and environmentally least impactful alternative?

Since 2007 an estimated $8 billion in large-scale deliverability-driven[5] transmission projects have been approved, permitted and/or are under construction as shown in the Table below.[6] In addition, for many reasons including adjustments necessary to mitigate environmental issues, it is common for cost estimates to increase by large amounts (many doubling in cost) during the permitting and construction process.

[4] CPUC-jurisdictional LSEs currently have a surplus of qualifying RA capacity that is owned or under contract to meet their system RA requirements (peak load + 15% planning reserve margin), even after accounting for the shutdown of the San Onofre Nuclear Generating Station (SONGS) and the retirement of some once-through cooling (OTC) plants. Projected planning reserve margins for CPUC-jurisdictional LSEs are 15% in 2029 and 14% in 2030 assuming renewable resources are developed as postulated by the Trajectory Scenario. These projected numbers do not account for the fact that the state will be adding resources for local capacity and flexible capacity needs, both of which will increase the excess system RA capacity.

[5] "Renewable capacity driven" is a far more descriptive and meaningful term than the "policy driven" term used by the CAISO for these proposed transmissions lines. There is no state policy requiring all renewable resources to be fully deliverable. Rather, state policy requires LSEs to meet 33% of their retail sales with renewable energy; regardless of whether those resources can be counted towards the LSEs' RA requirements.

[6] **Source:** "Elements of 2013-2014 ISO Transmission Plan Supporting Renewable Energy Goals," in the CAISO 2013-14 Transmission Plan dated March 25, 2014 and the CAISO HV TAC Estimating Model. These capital cost amounts do not include certain CAISO-approved transmission projects such as SDG&E's $435 million ECO substation project

Transmission Project Category	Estimated Capital Cost (B$)
Approved, Permitted and Under Construction	$5.893
Additional Transmission Identified as Needed by the CAISO but not Permitted	$1.795
Policy-Driven Transmission Approved by CAISO	$0.644
Total	**$8.332**

An economic analysis is needed to determine if the value of making the dependable capacity of renewable generators in the RPS portfolios fully deliverable (available for LSEs to count toward their RA requirements) is greater than the cost of such undertaking. A simplified economic analysis performed below for some of the proposed projects shows that the costs of the proposed transmission projects exceed, by a wide margin, the value that each of the lines' is estimated to provide in terms of incremental RA capacity values for consumers.[7] This exercise demonstrates that the CAISO's approved Area Delivery Network Upgrades (ADNU) that are presumably needed to meet 33% RPS goal are not a cost-effective mechanism to obtain RA from the underlying renewable resources.

Transmission Facility	Est. Capital Cost (M$)*	Delivering Renewables from Zone*	Total (MW)**	NQC (MW)***	Annual RA Value (M$)****	Annualized Transmission Cost (M$)*****
Colorado River - Valley 500kV, Red Bluff 500/220 kV Substation and West of Devers	$1,980	Riverside East	3,800	1,001	$30	$248
Coolwater - Lugo 230 kV	$840	Kramer	642	214	$6	$105
Eldorado - Ivanpah 230kV	$446	Mountain Pass	658	208	$6	$56
* Using the CAISO HV TAC Estimating Model (2013-14 Transmission Plan), Dated May 25, 2014.						
** Based upon Data in the CPUC 33% RPS Calculator for the 2014-15 TPP Base (33% 2024 Mid-AAEE) Resource Portfolio.						
*** Based on ELCC values used in the CPUC ED Proposed Revised Calculator Version 6.0. See ALJ Ruling dated October 10, 2014 comprising "California Public Utilities Commission Energy Division's Staff Proposal on the RPS Calculator," Rulemaking 11-05-005.						
**** Assuming $30/kW-Yr RA capacity price used in the CPUC ED Proposed Revised Calculator Version 6.0						
***** Assuming approx. 12.5% carrying rate						

[7] The implementation of the Effective Load Carrying Capability (ELCC) methodology, as compared with the current exceedance-based methodology, would result in a different dependable capacity (NQC) values for wind and solar resources. In particular, the ELCC studies have shown significant decrease in the solar resources' NQC in the areas with higher solar penetration. This would lower the RA value associated with such resources.

It is important for the State to question whether more transmission should be built with its inherent environmental adverse impacts when it is not needed for reliability purposes.

CPUC's RPS Calculator Update is an Important Screening Mechanism in Deciding Need for New Transmission to Meet State RPS Goals

Currently, the CAISO's TPP uses the RPS portfolios produced by the CPUC's RPS Calculator model. The existing RPS Calculator model assumes all of the renewable generation in the RPS portfolio has to be fully deliverable without considering whether or not it makes economic sense. Per the Memorandum of Understanding (MoU) between the CPUC and the CAISO, the CAISO takes these RPS portfolios and carries them forward into its annual TPP. The CAISO performs deliverability analysis to identify the specific transmission upgrades that will make the entire RPS portfolio deliverable. With certain exceptions, the CAISO does not undertake any analysis to confirm that the identified transmission upgrades actually provide the lowest overall cost way of meeting energy based RPS goals and the 15% planning reserve requirement.

The RPS Calculator was first created in 2009 to inform the CPUC's *33% Renewables Portfolio Standard Implementation*. It has been updated several times in an effort to provide more plausible renewable portfolios for use in long-term generation and transmission planning. The RPS Calculator model plays an important role in current planning functions at both the CPUC and the CAISO. The RPS Calculator model has been used widely for scenario analysis of portfolios that can achieve the state's 33% RPS targets.

The RPS Calculator considers many factors such as resource cost and performance, transmission needs, environmental impacts and potential permitting hurdles, and the value that different types of renewable resources provide to ratepayers. The RPS Calculator selects RPS-eligible projects based on a number of criteria including commercial interest, net cost to ratepayers (including resource cost, transmission cost, integration cost, energy value and capacity value), timeline, and an environmental scoring methodology. Outputs from the RPS Calculator have been used directly in the CPUC's Long Term Procurement Planning (LTPP) proceeding and the CAISO's TPP. In practice, however, the criteria on the transmission need, costs, and environmental impacts have been given only a cursory look.

The CPUC has recently identified needed improvements in the RPS Calculator.[8] These improvements represent steps in the right direction and should be implemented in the planning process as soon as possible. The existing version of the RPS Calculator model does not have a rigorous process to determine whether a renewable generator's benefit to customers would be greatest as an Energy Only project (in which case the renewable generator's dependable capacity would not permitted to count towards LSE's RA requirements and there would be no need for "deliverability") or as a Full Capacity project (in which case transmission infrastructure additions

[8] ALJ Ruling dated October 10, 2014 comprising "California Public Utilities Commission Energy Division's Staff Proposal on the RPS Calculator," Rulemaking 11-05-005.

may be required in order that the renewable generator's dependable capacity can be counted towards an LSE's RA requirements). So the RPS Calculator represents the first place where changes to the methodology that determines additions to the State's infrastructure to meet the State's environmental goals needs to occur. The existing RPS Calculator model fails to identify the renewable resource portfolio with the highest ratio of benefits to costs (where "benefits" include making such renewable resources deliverable for Resource Adequacy counting purposes and where "costs" includes the cost of transmission necessary to provide such deliverability).

The new version of the RPS Calculator model is expected to account for:

- Updated transmission infrastructure additions and associated costs to make new renewable generators in specific areas deliverable for RA counting purposes.
- The option of energy-only contracts; i.e., contracts for which retail sellers will receive no Resource Adequacy credit, but for which transmission upgrades might be lower cost or not required at all.

To the extent the RPS Calculator cannot accurately incorporate the costs and benefits of the transmission lines selected to provide deliverability, a more rigorous economic analysis in the CAISO's TPP is required. This analysis would determine whether the benefit of a proposed transmission project (relative to other feasible alternatives) exceeds its cost. If the benefits do not exceed the cost, then the proposed transmission project should not be approved in the TPP and the more beneficial alternative pursued instead.

BAMx believes that the CEC should support these proposed changes.

Concluding Remarks

BAMx recognizes that the above-proposed beneficial changes will only occur with the support of multiple state agencies. We support the co-operation of those agencies that seems to be happening. This provides for a more efficient and effective planning process. However, the state agencies need to be careful that this coordination process does not inadvertently exclude stakeholders from providing input at key junctures in the planning process. The CEC has historically been careful to provide maximum opportunity for Stakeholder participation in policy decisions affecting the State's resources. We encourage it to make sure the good co-operation that is occurring among State agencies does not interfere with broader Stakeholder involvement.

Thank you for the opportunity to comment and we look forward to continued public stakeholder participation.

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