California Transmission Planning Group (CTPG)
Technical Study Team Response to the
June 2, 2011, Comments of the Bay Area Municipal Transmission Group's (BAMx)
on the CTPG's Proposed 2011 Work Plan

Comment:

BAMx supports the CTPG's proposal of modeling the four (4) California Public Utilities Commission ("CPUC") Long-Term Procurement Plan ("LTPP") scenarios under the 2011 work plan.

CTPG Technical Study Team Response:

The *CTPG* has not proposed modeling the four renewable resource development scenarios defined by the CPUC in connection with the CPUC's LTPP proceeding. A decision on which, if any, of the four CPUC-defined renewable resource development scenarios will be evaluated by the CTPG in Phase 2 of its 2011 study work has yet to be made and may be influenced by stakeholder comments. In reaching a decision on what scenarios will be evaluated in Phase 2, the CTPG Technical Study Team will, however, consider BAMx's support for evaluating the four CPUC-defined renewable resource development scenarios.

Comment:

A critical task under the Base Case review, as identified by the CTPG, is to determine the degree to which the base cases model "approved" transmission projects. Many of the other Base Case assumptions are technical in nature, but including any new non-existing projects in the Base Case should involve explicit Stakeholder involvement. BAMx believes that only those projects which have all the following approvals or are under construction should be modeled in the Base Cases.

1. Balancing Area Authority Approval;
2. CPUC CPCN/PTC Approval, if applicable; and/or
3. Other resource agency approvals such as, Army Corps of Engineers and BLM permits, and environmental reviews under NEPA or CEQA, if applicable.

For those transmission projects that do have all of the above approvals, but which are considered more likely to be needed than others and/or have been approved by a balancing area authority, such projects can be modeled as part of "sensitivity" cases but should not be included in the Base Case. For example, a California ISO balancing authority transmission project approved under the California ISO Generator Interconnection Process that does not have a CPCN/PTC and/or other required resource agency permits should not be part of the Base Case. Two major reasons for this are:

1. To show a need for the project in the Base Case and showing the satisfaction of that need through the sensitivity case.

2. To allow non-CTPG members to propose alternative projects that satisfy the need identified in the Base Cases.

For instance, the CTPG may detect a violation of reliability criteria in the Base Case. The CTPG would then determine whether such violation(s) can be mitigated by transmission projects proposed by the CTPG and non-CTPG members, and discuss the relative benefits of the alternative transmission projects that mitigate the reliability criteria violations.

Using this basic process should help obtain siting approval of the best projects and provide a more level playing field for non-CTPG (independent transmission developer) participation in meeting the State's renewable goals.

CTPG Technical Study Team Response:

BAMx's suggestion that new transmission projects included in the CTPG's pre-renewable base cases should be limited to those projects that have been approved by a Balancing Authority and that have received other applicable regulatory approvals and environmental permits was previously considered by the CTPG. The CTPG has decided that criteria requiring a new transmission project to have both Balancing Authority approval and other applicable regulatory approvals and environmental permits are too restrictive since there can be extensive timing lags between (i) Balancing Authority approval and (ii) receipt of required regulatory approvals and major environmental permits. Because the technical studies to be conducted by the CTPG in year 2011 are targeting the year 2020 (or even a later year), it would be problematic to exclude Balancing Authority-approved transmission projects on the basis that the regulatory approval and environmental permitting processes have yet to run their course.

For long-term planning purposes, the CTPG has decided that Balancing Authority approval is a reasonable indicator of ultimate project success. To be sure, such approvals are not a guarantee of project success, but the additional criteria suggested by BAMx may impose undue limitations that would either require analysis that likely duplicates the work done by the approving Balancing Authority or result in the identification of transmission infrastructure additions that are ultimately redundant to those approved by the Balancing Authority. [1]

Comment:

Based on the May 19, 2011, presentation to stakeholders, BAMx understands that the CTPG is contemplating whether to use the latest California Energy Commission ("CEC") Renewable Net Short ("RNS") range or to use the older RNS used in the 2010 studies. BAMx strongly urges the CTPG to use the latest CEC renewable net short range. CEC Staff now has representative RNS numbers as displayed in the CTPG's May 19th presentation. This range of numbers shows how much uncertainty exists with this critical calculation. The impact of this uncertainty on needed transmission must be studied in some way. BAMx understands there are limitations to the number of scenarios the CTPG can effectively study but the impact of this uncertainty clearly

[1] The CTPG Technical Study Team believes this would be the likely outcome of the "'sensitivity' cases" proposed by BAMx.

should be considered when deciding on the scope of studies for this year. Although it is not clear at this point how many load levels will be considered in these cases, BAMx suggests that studying the impact of this critical assumption is more important than studying combinations of 1-in-10 year vs. 1-in-5 year load scenarios as were studied last year. If the CTPG cannot study the impact of low and high RNS levels in the 2011 process due to resource limitations, BAMX suggests the CTPG utilize the CEC's latest medium or most likely net short. The earlier California Renewable Energy Transmission Initiative net short used by the CTPG in the 2010 studies (equivalent to the CEC's updated highest net short book-end) is completely outdated.

CTPG Technical Study Team Response:

The CTPG Technical Study Team agrees that the renewable net short needs to be updated and that the CEC is best-positioned to provide this update. The CTPG has decided it will use the high end of the net short range developed by the CEC.

Comment:

BAMx applauds the CTPG's new approach for determining the appropriate redispatch of fossil fuel generation - essentially removing the arbitrary 70/30 allocation of in-State and out-of-State redispatch. However, the CTPG has proposed to use a "manual" process to decrement fossil generation in a merit-order fashion (least economic reduced first) informed by a solicitation of information from others within the WECC footprint. BAMx believes that a more sophisticated analysis using a security-constrained market simulation model (like that used by the California ISO in their 33-percent Comprehensive analysis to determine the total economic impact of various transmission additions under various dispatch criteria) would be the best way to determine a dispatch for the Base Cases. If resource limitations prevent such analysis, BAMx suggests that the CTPG use the results of the production cost studies from the past California ISO 33-percent Comprehensive analysis simulations to better inform the manual process now envisioned by the CTPG.

CTPG Technical Study Team Response:

During its 2011 study work, the CTPG will not be performing any hourly economic grid simulation analysis such as that proposed by BAMx. However, the CTPG Technical Study Team is currently reviewing the output of the year 2020 hourly economic grid simulation conducted by the California ISO in its 2010-2011 transmission planning process for its "Hybrid" renewable resource development scenario. The CTPG Technical Study Team is reviewing the output of dispatchable fossil-fired generators to determine whether the California ISO's production cost results should be used to modify the strict economic merit-order decrementing approach the CTPG is currently proposing to apply in its power flow analysis as renewable resources are added.

Comment:

BAMx appreciates the CTPG's efforts in compiling and reporting the once-through cooling (OTC) compliance options and implementation plans as submitted to the State Water Resources Control Board (SWRCB). BAMx suggests the CTPG analysis, at minimum, be informed by the technical analysis performed under the CEC 2011 IEPR/ARB AB 1318 joint efforts.[2] BAMx suggests the CTPG also report on these efforts in its next Stakeholder meeting. BAMx also suggests that any proposed scope of work to be performed by the CTPG should occur only after consideration of the CEC 2011 IEPR/ARB AB 1318 joint efforts. Due to timing issues, if this assessment cannot be incorporated in the CTPG's 2011 plan, then it should be deferred until the next planning cycle.

CTPG Technical Study Team Response:

The CTPG Technical Study Team will review the referenced CEC report and make a determination as to whether and, if so how, the information provided in the report should be used in the CTPG's 2011 study work.

Comment:

BAMx supports the four CPUC scenarios proposed by the CTPG to be evaluated in the 2011 planning process, conditional on the level of assumed transmission infrastructure. As mentioned earlier, BAMx does not believe the CTPG should include unpermitted transmission in these scenarios unless they are identified as needed. For instance, in the development of the CPUC LTPP scenarios, the CPUC added transmission incremental to the existing transmission and minor upgrades only if it is identified to be needed to meet 33-percent RPS in those specific scenarios. In other words, the CTPG should implement the CPUC scenarios exactly the way modeled by the CPUC.

CTPG Technical Study Team Response:

As noted above, the *CTPG* has not proposed modeling the four renewable resource development scenarios defined by the CPUC in connection with the CPUC's LTPP proceeding. A decision on what renewable resource development scenarios will be evaluated by the CTPG in its 2011 study work has yet to be made.

Also, as noted above, the CTPG has decided it will include in its pre-renewable power flow base cases, new transmission that has been approved by a Balancing Authority. Accordingly, the CTPG will not be using the CPUC's approach for identifying new transmission infrastructure additions that the CPUC presumably assumes will get built in connection with a given renewable resource development scenario.

It should be recognized that the determination of what new transmission is "needed" is dependent on what alternatives are identified that also satisfy the state's 33-percent Renewable

[2] See *AB 1318: Assessment of Electrical System Reliability Needs in the South Coast Air Basin and Recommendations for Meeting Those Needs*, CEC 2011 IEPR / ARB AB 1318 Joint Workshop on Offset Challenges for Fossil Power Plants in Southern CA, February 15, 2011.

Portfolio Standard (RPS) requirement and other policy objectives. The determination that a particular transmission project is "needed" necessarily requires a finding that the proposed project is superior to other alternatives.

Comment:

BAMx recommends that the CTPG incorporate an additional scenario that assumes maximum utilization of existing transmission. This scenario will entail no significant transmission additions. It will include only those renewable resources that can be connected to existing transmission and currently approved new transmission. Only minor transmission upgrades would be allowed in this scenario. In Table A below, BAMx provides a list of transmission projects that should be modeled in this scenario. The in-state minor transmission upgrades can be added only to the extent that the total combined cost (associated renewable generation plus transmission) is lower than other renewable options including imports and renewables that can be connected to existing transmission. BAMx suggests the CTPG use the same method to develop this scenario that it uses for the others such as the E3/CPUC 33-percent RPS calculator or any other spreadsheet-based tool to model the amount, location and cost of renewables in this portfolio.

Table A: Transmission Upgrades included in the "Maximum Utilization of Existing Transmission" Scenario.

Upgrades with Key Regulatory Approvals and Environmental Permits	**Upgrades without Key Regulatory Approvals and Environmental Permits**
– Tehachapi Segments 1-3 – Tehachapi Segments 4-11 – Sunrise Powerlink project – Valley-Colorado River – Eldorado-Ivanpah	– Reliability Upgrades approved in the California ISO 2010-11 Transmission Plan – Mirage – Devers: Path 42 (Policy-Driven upgrade) – Minor upgrades only if combined cost of generation and transmission is found to be cost-effective. o West of Devers; o Carrizo-Midway; o South Contra Costa; and o Borden-Gregg.

This scenario will be unique in minimizing the risk of stranded transmission investment. It will be different from other scenarios such as the CPUC's cost-constrained scenario. For instance, unlike these two scenarios, the *Maximum Utilization of Existing Transmission* scenario will add renewable resources from Pacific Northwest only to the extent that they do not trigger additional transmission upgrades to the Pacific Northwest import ties. Once the Pacific Northwest resources are included (assuming that they are the most cost-effective), this scenario will add imports from the Southwest and/or based upon total costs under the constraint of no new major

transmission. BAMx believes this scenario would effectively provide a level playing field for non-PTO independent transmission.

CTPG Technical Study Team Response:

As indicated above, the CTPG will include in its pre-renewable power flow base cases new transmission that has received Balancing Authority approval. Accordingly, all of the transmission upgrades listed on Table A will be included.[3]

In BAMx's proposed scenario, only those renewable resources "that can be connected to existing transmission and currently approved new transmission" are eligible to be included. Once these resources are identified, they are ranked in economic order based on each resource's combined generation and transmission cost. Only the highest ranking renewable resources and associated transmission would be included in the scenario.

The CTPG Technical Study Team believes there are several ambiguities in BAMx's proposed scenario. First, the condition that only those renewable resources "that can be connected to existing transmission and currently approved new transmission" are eligible to be included would appear to exclude no renewable generator since any generator could be physically "connected" to the existing grid.

Second, BAMx's proposed scenario involves an economic ranking that requires an estimate of the transmission costs that would be associated with each renewable resource. It is unclear how BAMx proposes to estimate these transmission costs in the absence of any technical studies that may identify reliability criteria violations for which new transmission infrastructure would provide mitigation.

Third, BAMx does not propose how to define the cut-off point in the economic ranking beyond which renewable resources would not be included.

Assuming these ambiguities can be satisfactorily resolved, the CTPG Technical Study Team will consider the efficacy of studying BAMx's proposed "Maximum Utilization of Existing Transmission" scenario. It appears this scenario is similar to the analysis the CTPG used in its 2010 Phase 3 work to estimate the amount of renewable resources that could be added with only existing and "high potential" transmission upgrades in place. The main difference would seem to be in BAMx's definition of what transmission upgrades were included in the analysis.

Comment:

If adequate resources are available in this study cycle, in addition to the five scenarios cited above, BAMx recommends that two additional scenarios proposed by CTPG should be studied:

– Pacific Northwest High Potential Corridor; and

[3] California ISO approval of the Colorado River-Devers-Valley No. 2 line is conditional on the interconnection of at least 1030 MW of new full capacity generating facilities to the Devers-Palo Verde No. 1 line in the Blythe area near the Colorado River.

– Northwest Nevada High Potential Corridor.

However, BAMx believes that resources added to these scenarios should utilize the E3/CPUC calculator that was used to develop the four (4) CPUC scenarios and for the BAMx-proposed Maximum Utilization of Existing Transmission scenario.

CTPG Technical Study Team Response:

Subject to the CTPG Technical Study Team's comments above, BAMx's proposal to include a "High Potential" Pacific Northwest Corridor scenario and a "High Potential" Northwest Nevada Corridor scenario will be given consideration in deciding which scenarios will be evaluated in the CTPG's 2011 study work.

At this point, the CTPG Technical Study Team is not intending to make independent use of the E3/CPUC calculator to develop the renewable resource development portfolios that will be included in the CTPG's 2011 study work. However, the CTPG welcomes stakeholder suggestions as to the content of these renewable portfolios, and stakeholders may choose to use the E3/CPUC calculator to develop and support their recommendations.

Comment:

The CTPG should develop the generation and transmission resources needed in each of the study scenarios and review them with Stakeholders at the July 1st meeting before performing the load flow analysis.

CTPG Technical Study Team Response:

Due to the delays in getting the detailed information together for CTPG's 2011 study plan, CTPG will need to begin its studies prior to the next stakeholder meeting in order to remain on schedule.