

**2016-2017 Transmission Planning Process (TPP) – November 16, 2016
Stakeholder Meeting**

Submitted by	Company	Date Submitted
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PG&E provides the following comments on the Stakeholder Meeting held November 16, 2016, which included both an overview presentation of the Transmission Economic Assessment Methodology (TEAM), as well as preliminary policy, economic, and select special study results as part of the 2016-17 Transmission Planning Process (TPP).

First, as a general comment, PG&E is concerned by the delayed pace of providing preliminary results from the six special studies in the 2016-17 TPP. Only two of the six, the 50% RPS and gas-electric reliability studies, presented preliminary results in time for the November meeting (and only partial results in the case of the 50% RPS, at that). The remaining four studies will not therefore provide stakeholders any opportunity to review results prior to the issuance of the draft plan in January or the February stakeholder meeting (or possibly even the draft final plan in March).

It is unhelpful to the stakeholder community when so little information is provided. PG&E hopes that the CAISO will consider both paring back to a more manageable study plan and dedicating the necessary staff resources to conduct the TPP studies in a timely fashion for the 2017-18 cycle.

PG&E provides additional comments on the presentations and specific study topics discussed at the November stakeholder meeting below.

Comments on Economic Planning-TEAM Overview and Review of Updated Documentation

PG&E appreciates the CAISO’s efforts to inform the stakeholders on the documentation update of TEAM. In the updated documentation, PG&E recommends that the CAISO:

- 1) Describe the scope, methodology, inputs, outputs, and any limitations;
- 2) Include examples of how TEAM is applied; and



- 3) Include a section (e.g. Frequently Asked Questions) with answers to the following questions, with examples wherever applicable.

Questions on TEAM Methodology (page numbers refer to the slides presented at the November stakeholder meeting)

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- At the stakeholder meeting, the CAISO stated that the benefits are calculated for two years (5-year and 10-year). Please explain how benefits and costs are extrapolated for other years. What is the length of the analysis to support the NPV calculation? Does the CAISO make any adjustments to the benefits calculations if the benefits streams are expected to change over the life of the project?
- Please confirm, as stated in the workshop, that the social discount rate used is 7% real.

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- Please confirm that the Grid View model is the production cost simulation tool used in TEAM.
- Does the CAISO analysis begin with the TEPPC 2026 Common Case? If so, what modifications, if any, are made to:
 - Assumption inputs (e.g., gas prices, GHG prices, CA RPS portfolio, loads, BTM resources, unit retirements, level of exports out of California, etc.)?
 - Network topology (additions or removal of transmission lines, etc.)?

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- Does the CAISO currently perform a stochastic analysis? If so, how? If not, does the CAISO expect to perform one in future and how?

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- Based on the workshop discussions, please confirm the components of generator costs used in derivation of generator profit are variable production costs only. Do these include: fuel, CO₂, variable O&M, and startup costs?
- How is ancillary service value determined?

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- What are “Owned facilities’ operated to ISO ratepayer advantage”? Please explain how resources are identified (e.g. ownership, tolling agreements, RA commitments). For the 2016-17 TPP Case, what percentage of CAISO units are included vs. excluded?
- Which imports are identified as CAISO Owned Facilities and therefore used in benefits calculation? For example, are Paloverde, out of state renewables, Hoover, etc. included as Owned Facilities?
- The CAISO stated that Wind and Solar under contract are included in the analysis. Should other renewable technologies under contract be assumed as Owned Facilities?

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- What proxy capacity value is used when LCR need is deferred? If the LCR is deferred by, for example, 5 years, are the benefits limited by 5 years?



- What LCR studies are currently relied upon in TEAM for reduction in local capacity requirement? How is the time period of deferral or reduction in local capacity requirement determined for TEAM? Please provide an example.
- Please provide details of how the CAISO calculates import capability for system capacity purpose.
 - Given that the total CAISO transfer capability is greater than the import capability assigned for system capacity purpose, how does an increase in the total CAISO transfer capability impact the import capability for system capacity purpose?
- What proxy capacity cost (\$/kw-year) does the CAISO use for increases in RA deliverability related benefits?

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- Please explain how benefits from avoiding over-supply RPS would be calculated.
- How would the amount of over supply be determined?
- How does the CAISO quantify the benefits of reducing RPS curtailment?

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- Please explain whether and how any element of EIM is considered in TEAM given the last bullet on page 29, “It is not recommended to consider the **full** effect of EIM in project justification” (emphasis added)?

General Comments on CAISO’s TPP Economic Assessment Process

PG&E recommends that the CAISO revisit its Economic Assessment Process to make it more robust and aligned with the recent changes in the energy industry.

The energy industry has undergone, and is expected to continue to undergo, significant policy, economic, and technology changes, and uncertainty. These market fundamentals can affect the need for and use and value of transmission. Therefore, a more comprehensive integrated planning approach is needed to evaluate and incorporate cutting-edge innovations, including evolving Energy Imbalance Markets, Balancing Authority consolidation, the interface between the bulk power system and distribution systems, electrification, high penetration of roof-top solar, the many alternatives between system solutions and planning objectives (e.g. moving from RPS targets to GHG reduction goals), inter-regional coordination, and the effects of climate change.

PG&E recommends that the CAISO enhance TEAM and the TPP process to assess economic benefits. In determining economic benefits, PG&E requests the CAISO update the TEAM to:

- Better consider the value to producers, consumers, and society by region.
 - **Example:** For out-of-state wind resources, the economic value to the state producing the energy and associated impact on the local economy should be considered.
- Better capture the value of transmission in light of transporting system variability and/or operational flexibility.

- Better assess how changes in greenhouse gas (GHG) emissions and GHG reduction credits are economically considered and allocated to/between regions.

In addition, PG&E requests that the CAISO expand the economic assessment process to include expanded alternatives assessments. The potential alternatives could include different transmission upgrades or resource alternatives.

Comments on CAISO's Economic Planning – Preliminary results of congestion and economic assessment

CAISO's November 16th presentation on Economic Planning studies does not include sufficient information to allow stakeholders to provide meaningful feedback to the CAISO on preliminary study results. PG&E therefore requests the CAISO provide additional information underlying the congestion and economic assessment results before presenting the final results and recommendations.

In addition to responses to the questions for TEAM methodology listed above, PG&E requests the CAISO provide the following additional information:

1. A table including historical (2015 and 2016) day-ahead congestion costs (for areas or branch groups) and a discussion on CAISO expectations on changes in future congestion due to addition/retirement of resources and changes in network topology.
2. Access to the Grid View model and
 - a. A list of and the duration of transmission outages modelled in the analysis.
 - b. Nomograms used in the analysis and any adjustments made to the nomograms to reflect the impact of transmission outages or unavailability of generators (either because the generators are offline or due to forced/planned outages) participating in RAS schemes.
3. CAISO has included a limited number of congested area/branch groups for further discussion on results or potential mitigations (refer to slides 49-54). Also on slide 55, CAISO states that the "Next Steps" will be to "perform detailed production cost simulations and economic assessments" and "finalize [the] list of economic studies being undertaken and perform economic assessments if needed". Based on the limited information presented on November 16th, it is not clear what additional studies will be performed and what criteria will be used to "finalize [the] list of economic studies". Can the CAISO provide a list of the criteria used to finalize the list of economic studies to be undertaken?

50% RPS Special Study

Since only partial results from the 2016-17 TPP 50% RPS Special Study were available for stakeholder input, PG&E reserves the right to make further comments upon release of the full Special Study results.

Regarding the comparison of curtailment between energy-only and fully-deliverable RPS portfolios, PG&E urges the CAISO to provide more granular analysis in the final study results to pinpoint which locations in the system showed congestion driven curtailment and ensure this information properly flows back to the CPUC for transmission planning via updates to the energy-only transmission availability in the RPS Calculator and/or RESOLVE models. PG&E suggests continued alignment between the CPUC and the CAISO regarding how both the Special Study results and the ELCC-based deliverability approach will impact the RPS transmission planning activities in the RPS or IRP proceedings. As the CPUC moves to an integrated planning approach in the new IRP proceeding, properly capturing the availability of both fully deliverable and energy-only transmission for RPS resources and the costs associated with new transmission to unlock further RPS resources will ensure a fair comparison between supply-side and demand-side GHG-reducing resources.

PG&E is generally supportive of the CAISO's efforts to consider updates to its deliverability assessment methodology. However, more information is needed to assess the impact of the proposed "ELCC-based deliverability" approach, including examples showing the impact of the change on a sample project's deliverability and calculated ELCC values from the ELCC methodology outlined by the CAISO (*slide 61*). The latter will allow stakeholders to compare the results of this approach to the ELCC methodologies being developed in the RA and RPS proceedings. Additionally, further clarity is needed regarding whether the ELCC-based deliverability approach impacts the available FCDS capacity assumed in capacity expansion planning models.

Review of Previously Approved Projects

PG&E thanks the CAISO for continuing the process of re-evaluating projects that were approved in previous transmission planning cycles, and for which the need may be altered due to more recent changes in the load forecast and other factors. In particular, PG&E appreciates the efforts of the CAISO staff to reassess the reliability need and economic benefits associated with the Gates-Gregg 230 kV Transmission Line Project. PG&E is supportive of the CAISO's option to defer the Project, rather than canceling, until further uncertainties in the Greater Fresno Area (GFA) have been resolved.

PG&E's most recent analysis is consistent with the CAISO's conclusions based on current assumptions of the demand forecast. However, the demand forecast greatly depends on the adoption of rooftop solar and energy efficiency programs by individual customers within the GFA. While PG&E is a strong advocate of these initiatives, which are aligned with California's environmental goals, the long term impact of state and federal policies on the adoption of Distributed Energy Resources (DER) is uncertain. It will likely be two to three years before we understand the direction of these policy impacts. In the meantime, PG&E will continue to work with the CAISO to ensure electric service reliability of the GFA.

We believe the Project deferral option is the practical and economic choice for PG&E's customers. Project deferral would help salvage the majority of the development costs invested thus far, thereby providing significant savings to customers, if the Project is eventually reinstated, at little additional cost. Therefore, PG&E supports the deferral of the Project until there is more clarity and further uncertainties in the demand forecast are resolved.

In regards to the other 15 lower voltage projects being recommended for cancelation, PG&E appreciates the CAISO's study and careful consideration of reliability, generation deliverability, LCR and operational flexibility benefits of each project which led to identification of these projects. PG&E supports cancelation of 11 of these projects given that their need is no longer evident under current and projected load forecasts. However, PG&E does not support cancelation of four of the recommended projects as they are still needed to improve service reliability for PG&E customers. Furthermore, in the case of two of these projects, they are well into the construction phase and it would not be prudent to cancel them. Specifically, the projects that PG&E believes should not be canceled are:

- Christie 115/60 kV Transformer No. 2 – this project is needed for meeting the single transformer standard, improving customer service reliability and is already in its implementation phase.
- San Bernard – Tejon 70 kV Line Reconductor – this project is needed for service reliability, summer set-up removal and is already in its implementation phase.
- Mosher Transmission Project – Portions of this project are needed to address back-tie capability limitations in the local area which will improve service reliability to customers in Stockton division.
- Evergreen-Mabury Conversion to 115 kV – Portions of this project are needed to address back-tie capability limitations in the local area which will improve service reliability for customers in the San Jose division.