

**CALIFORNIA ISO**  
**2013-2014 TRANSMISSION PLAN**

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**COMMENTS OF THE STAFF OF THE**  
**CALIFORNIA PUBLIC UTILITIES COMMISSION**  
**ON THE 2013-2014 TPP DRAFT PLANNING ASSUMPTIONS AND STUDY PLAN**  
**POSTED FEBRUARY 22, 2013 AND PRESENTED FEBRUARY 28, 2013**

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**March 14, 2013**

**Introduction**

The Staff of the California Public Utilities Commission (“CPUC Staff”) appreciate this opportunity to provide comments on the California Independent System Operator’s (“CAISO”) draft unified planning assumptions and study plan for 2013-2014 Transmission Planning Process (“TPP”), as posted on February 22 and presented on February 28, 2013. Our comments below cover these points:

1. CPUC Staff supports the inclusion of future energy efficiency (EE) programs with a reasonable expectation of attainment.
2. The CAISO should include demand response (DR) as a base case assumption as well as a reliability mitigation measure, and there should be a stakeholder process to identify relevant operational attributes for inclusion of DR in studies no later than the 2014-15 TPP.
3. The CAISO should clarify intent to refresh SONGS outage studies, and should run “no SONGS” sensitivities in alignment with cases adopted for the CPUC’s 2012 LTPP.
4. The CAISO should clarify plans to refresh the OTC studies and should provide more detailed documentation regarding assumed OTC units’ status in each study period.

5. For economic planning studies, the CAISO should document major changes from the underlying TEPPC database and from previous CASIO studies, and should provide a more detailed explanation of benefits for projects found to have benefits potentially justifying approval.
6. For each RPS portfolio (by location) he CAISO should report the amount of MWs that would not be RA (capacity) deliverable without identified “policy” upgrades, as well as 8760-hour energy deliverability.
7. Reliability studies should report the amount of load drop avoided by large reliability upgrades of \$50 million and above.
8. CPUC Staff requests special study of reliability needs for San Francisco during the 2013-2014 TPP cycle.
9. TPP assumptions should not prejudge regulatory and market outcomes by including Carlsbad and Pio Pico as online units from 2016 onward.
10. Assumptions for reactive resources should be clarified.

***1. CPUC Staff Supports the Inclusion of Future Energy Efficiency (EE) Programs with a Reasonable Expectation of Attainment.***

CPUC Staff is encouraged that the CAISO is including incremental savings from EE programs yet to be funded or designed but with reasonable expectation of attainment. In particular, CPUC Staff is encouraged that the CAISO is already moving forward with the steps detailed in the CPUC-CEC-CAISO response to Senators Padilla and Fuller regarding the future use of energy efficiency in planning.<sup>1</sup>

Specifically, CPUC staff recommends that the California Energy Commission’s (CEC) approach for locational disaggregation of forecast savings is the best approach given the currently available data. This method was adopted in the 2012 LTPP.<sup>2</sup> The incremental energy efficiency forecast was based on the CPUC’s 2011 Potential Study, which does not include a

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<sup>1</sup> See, [http://www.aiso.com/Documents/CEC\\_CPUC\\_ISO-Response-SenatorsPadilla\\_Fuller\\_Feb25\\_2013.pdf](http://www.aiso.com/Documents/CEC_CPUC_ISO-Response-SenatorsPadilla_Fuller_Feb25_2013.pdf)

<sup>2</sup> See Decision 12-12-010 Appendix A, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M040/K642/40642804.PDF>

locational breakout of EE potential, although it does break out energy savings by sector. In response to the CEC's and the CAISO's requests for greater disaggregation of EE potential, the CPUC's 2013 Goals and Potential Study is expected to break out EE potential by climate zone and building type, enabling a more locationally refined EE forecast for the next planning cycle. This change aligns with the 2013 IEPR where the CEC has indicated that forecasts will be disaggregated by climate zone.<sup>3</sup>

CAISO plans to develop its base case using the CEC's low savings case scenario for the incremental EE forecast. CPUC staff recognizes that this decision reflects reluctance to use a more optimistic EE forecast due to lack of more granular EE locations that would help assign EE to specific transmission constrained areas. CPUC Staff expects that with improved data in the next planning cycle, the CAISO will use the mid-case EE scenario, consistent with the CPUC's LTPP forecast.

***2. The CAISO Should Include Demand Response (DR) as a Base Case Assumption as well as a Reliability Mitigation Measure, and there Should be a Stakeholder Process to Identify Relevant Operational Attributes for Inclusion of DR in Studies No Later Than the 2014-15 TPP.***

CPUC Staff has several recommendations for the CAISO's plan for including DR in the transmission planning process. First, CPUC Staff encourages the CAISO to consider all DR programs as potential to reduce the base case load forecast and serve as mitigations to reliability concerns, as explained in further detail below. Second, we request the CAISO to identify in formal written documentation the metrics for determining the amount of DR that would count towards reliability. Third, we would like to work with the CAISO to develop a mutually agreeable method of getting the full value of available DR performance data at the bus-bar level while protecting confidentiality.

First, CPUC Staff encourages the CAISO to consider all DR programs as potential to reduce the base case load forecast and serve as mitigations for identified reliability concerns. In the context of local reliability studies, 1 in 10 peak load conditions do not appear suddenly but rather after a multi-day heat buildup. Under such conditions, slower responding DR programs

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<sup>3</sup> See, [http://www.energy.ca.gov/2013\\_energy\\_policy/documents/2013-03-07\\_scoping\\_order\\_2013\\_IEPR.pdf](http://www.energy.ca.gov/2013_energy_policy/documents/2013-03-07_scoping_order_2013_IEPR.pdf)

such as Day-Ahead and slower Day-Of programs can be dispatched for the purpose of reducing peak load, thus potentially avoiding reliability concerns in the base case. Reduced peak loads have significant impact on power flow and stability assessments and hence identification of local capacity requirements. Alternatively, if not considered as a reduction in the base case load forecast, slower responding DR programs can still be considered as a potential mitigation to a reliability need, similar to how the CAISO would dispatch long-start generation to meet the forecast need.

DR programs with quick response times can be considered as potential mitigations for any remaining reliability concerns. For example, DR programs that respond in about 30 minutes can mitigate thermal overloads while DR programs that respond within 5 minutes can mitigate voltage stability issues. The aggregate capacity of these types of DR programs are forecasted to total 1,771 MW in 2022, as CPUC Staff indicated in the previous round of comments on the CAISO 2013-14 TPP.<sup>4</sup>

CPUC Staff will continue to work with the CAISO to address any concerns with the use of DR programs to meet reliability needs. As such, CPUC Staff intends to provide the CAISO with bus-level forecasts of all DR program capacity including quick and slow response programs. In the 2012 LTPP, the CPUC identified a low DR value of 2,249 MW and a high value of 2,857 MW in 2014 across the CAISO system for resource planning purposes.<sup>5</sup> These values are based on the CPUC's load impact protocols which include ex ante and ex post estimates and assessments of program performance.<sup>6</sup>

In addition, CPUC Staff requests the CAISO to formally identify in written documentation the requisite metrics or characteristics for DR to be counted in reliability studies. In order to fully account for the potential of DR to meet reliability needs, CPUC Staff asks that the CAISO work with our staff, the CEC, and the Investor-Owned Utilities to clearly identify the

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<sup>4</sup> 2013-2014 Transmission Planning Process Unified Planning Assumptions and Study Plan, California ISO, February 22, 2013, page 24.

<sup>5</sup> D.12-12-010, see, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M040/K642/40642804.PDF>

<sup>6</sup> See, <http://www.cpuc.ca.gov/PUC/energy/Demand+Response/>

necessary DR program characteristics required to meet reliability needs. CPUC Staff recommends that the CAISO initiate a stakeholder process to clearly identify the relevant operational attributes for DR to reduce peak load and serve as reliability mitigations in powerflow and stability modeling. This process should commence as soon as possible so that the full potential of DR to meet reliability needs can be counted in the 2014-15 TPP cycle.

Finally, the draft study plan states that confidential information such as bus-level DR forecasts cannot be relied upon in the CAISO's planning process.<sup>7</sup> Since some bus-level information is confidential, CPUC Staff requests that the CAISO clarify if bus-level granularity is required in every study or if limited aggregation of some data points (which can make the DR data non-confidential) would be acceptable. If limited aggregation is not possible, CPUC Staff will work with the CAISO to explore ways to protect confidentiality while retaining enough granularity for reliability studies, such as the use of Non-Disclosure Agreements.

***3. The CAISO Should Clarify Intent to Refresh SONGS Outage Studies, and Should Run "No SONGS" Sensitivities in Alignment with Cases Adopted for the CPUC's 2012 LTPP.***

At this time, CPUC Staff believes that SONGS should be modeled online in the long-term, but that sensitivities should be run where the only changed circumstance is one or both SONGS units offline. While this recommendation may change in the future based on the ongoing analysis by the Nuclear Regulatory Commission or policy changes at the State level, CPUC Staff believes that the CAISO's current approach of modeling SONGS online as a base case is reasonable based on currently available information.

CPUC Staff also requests the CAISO clarify in the Study Plan the exact scope and timing of its proposed refresh of the 2012-13 TPP nuclear outage studies (as well as OTC studies as noted below). The scope should cover the SONGS online case with the SONGS offline case treated as a sensitivity, and the study definition should clearly describe the amount of DR and

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<sup>7</sup> 2013-2014 Transmission Planning Process Unified Planning Assumptions and Study Plan, California ISO, February 22, 2013, page 25.

incremental uncommitted EE included in each case. In order to align with planning assumptions adopted by the CPUC in December 2012, and to align with ongoing operating flexibility/renewable integration studies expected this year, we recommend that the CAISO model cases consistent with the CPUC's LTPP base case and No SONGS cases, but adjusted to meet demand levels appropriate for local area analysis.<sup>8</sup>

CPUC Staff looks forward to continued development and process alignment over the coming months and years among the CPUC, CEC and CAISO to further refine the resource planning process. However, CPUC Staff is concerned that other planning efforts that rely on TPP study results will be hampered if the SONGS refresh is deferred beyond the summer in the current TPP cycle. For example, by the end of 2013, there will be a procurement decision in the LTPP proceeding that will identify operational flexibility and any residual LCR need stemming from an extended SONGS outage.<sup>9</sup> Hence, there is a more immediate need for a refresh of the nuclear outage studies using TPP planning assumptions that are aligned with CPUC-adopted scenarios that will be used in the CAISO's operational flexibility studies.

***4. The CAISO Should Clarify Plans to Refresh the OTC Studies and Should Provide More Detailed Documentation Regarding Assumed OTC Units' Status in Each Study Period.***

CPUC Staff requests that the CAISO clarify the exact scope and timing of their refresh of the OTC studies since the last analysis was in the 2011-2012 TPP. Staff further recommends that the OTC studies coincide with the refresh of the SONGS outage studies as noted above. CAISO's clarification should include better documentation regarding which OTC units are assumed retired in each of the study periods, the specific resources assumed as replacement, and the efficacy of other potential resources (such as demand-side load reductions) in meeting identified needs.

While the draft study plan states that OTC generation retirements will be modeled according to the State Water Resources Control Board (SWRCB) schedule, the draft study plan

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<sup>8</sup> See Decision 12-12-010, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M040/K642/40642804.PDF>

<sup>9</sup> See May 17 2012 Scoping Ruling, <http://docs.cpuc.ca.gov/PublishedDocs/EFILE/RULC/166780.PDF>

Appendix A3, Retired Generation, does not provide an exhaustive list of the retirements expected per the SWRCB schedule. The CAISO should clarify why this discrepancy exists between the SWRCB retirement schedule and Retired Generation list. The 2013-2014 TPP studies also need to identify the effectiveness of alternative locations in meeting any needs associated with the retirement of OTC generation and what types of resources are assumed as replacements. Finally, as discussed under Topic 9 below, the CAISO should reconsider certain planning assumptions regarding base case generating unit additions in the Southern California coastal area.

***5. For Economic Planning Studies, the CAISO Should Document Major Changes from the Underlying TEPPC Database and from Previous CAISO Studies, and Should Provide a More Detailed Explanation of Benefits for Projects Found to Have Benefits Potentially Justifying Approval.***

By analyzing a range of interacting system conditions and scenarios, the Economic Planning Studies illuminate not only particular transmission solutions, but also system conditions and issues more generally. So that we can best understand the drivers and implications of these studies, the CAISO should document in the Transmission Plan and public documents leading up to it not only the major economic study assumptions generally, but also the most important changes in assumptions relative to the underlying TEPPC west-wide database and relative to the CAISO's previous studies, particularly from the previous year. More comprehensive documentation of the full set of data changes should be provided in an Appendix or other separate document. We expect that besides being relevant to the CAISO's own studies, these changes may clarify the relationship of CAISO studies to a variety of west-wide planning studies such as those used by TEPPC and the other planning regions.

CPUC Staff very much appreciate the robust sensitivity analysis for key factors that was included in the CAISO's 2012-2013 Economic Planning Studies. For studied transmission solutions calculated to produce high benefits potentially justifying approval, it is important to go one step further and provide a deeper explanation of the sources of benefits so that consequential positive benefits represent more than a "black box" outcome. This not only gives increased

confidence in the results, it also greatly increases the valuable insights we obtain from these studies.

We can use the recent 2012-2013 TPP economic study of the Delaney-Colorado River transmission project to illustrate the kind of more detailed explanation that would be valuable. The draft 2012-2013 Transmission Plan appears to indicate that substantial Desert Southwest-California congestion was not observed before simulating addition of this project, so that addition of the project did not greatly reduce modeled congestion, although it did redirect power flows by altering impedances along the relevant paths. This leaves it unclear what exactly was the basis of California consumers' energy cost savings that was the dominant source of calculated benefits. If the CAISO would report which locational prices were substantially reduced (with versus without the project) by location and time, and which categories of generators were dispatched significantly more (or less) at these times, our understanding and support would be greatly enhanced, not only regarding these particular benefit results, but also regarding system planning issues more generally. For example, perhaps there was surplus Arizona gas-fired generation that was more heavily dispatched to replace California gas-fired generation, during particular off-peak (and even peak?) hours after the Delaney-Colorado River project was added, but this is only conjecture until we have additional information.

***6. For Each RPS Portfolio (by Location), the CAISO Should Report the Amount of MWs that Would Not be RA (Capacity) Deliverable without Identified "Policy" Upgrades, as Well as 8760-hour Energy Deliverability.***

Provision of RA deliverability to generators, especially renewables distant from loads, has been a major driver of transmission upgrades and the associated costs and permitting challenges. However, not every MW of generation, especially intermittent renewable generation, needs to be fully RA-deliverable to meet system reliability requirements, and RA deliverability at any cost is both unnecessary and untenable. Furthermore, California's 33% renewable energy goal, is just that, an energy (not capacity) goal.

Therefore, to more fully inform transmission and resource planning, especially planning for the state's renewable energy goals, the CPUC Staff requests that the CAISO's studies for the 2013-2014 Transmission Plan provide two important kinds of information not provided in the draft 2012-2013 Transmission Plan:



- a) For each resource area and each RPS portfolio the CAISO should report not only what transmission upgrades are needed to provide full RA deliverability, but also how many MW of generation (in that area and portfolio) are calculated to be RA deliverable (and not deliverable) without adding the identified deliverability upgrades (but including identified reliability upgrades).
- b) For each resource area and RPS portfolio the CAISO should report the 8760-hour energy deliverability without the identified RA deliverability upgrades. This kind of information was provided in conjunction with production simulation studies in previous TPP cycles.

Furthermore, there has been concern and incomplete understanding among a number of stakeholders (CPUC Staff included) regarding the rationale and appropriateness of the methodology and particularly the level of conservatism, in the CAISO's deliverability assessment methodology. This situation persists following a stakeholder meeting and round of comment on this topic, a few months ago. Therefore, we look forward to the CAISO's upcoming technical paper and stakeholder meeting on this topic, which we hope will among other things result in enhanced BPM documentation.

In addition to hoped-for assessment and understanding of the appropriate statistical level of reliability required for "RA deliverability" summarized in the previous paragraph, it is important for planning purposes that we have a better understanding of how much RA and energy deliverability we would be getting for marginal transmission upgrades, as supported by requested TPP reporting enhancements (a) and (b) above.

***7. Reliability Studies Should Report the Amount of Avoided Load Drop Resulting From Large Reliability Upgrades of \$50 Million and Above.***

The 2012-2013 Plan is slated to approve over \$1.3 billion of reliability upgrades. With very few exceptions, the Plan gives no indication of the amount and probability of load drop, or associated economic loss, avoided by approved reliability upgrades. NERC and WECC reliability standards, and also CAISO planning standards do allow for controlled load drop under certain conditions, particularly where the probability is very low and the magnitude and duration of load drop are limited. The CAISO should strive in the upcoming 2013-2014 Transmission

Plan to report estimated magnitudes of load drop avoided by major reliability transmission upgrades being considered for approval, as well as approximate probabilities of the contingencies (N-1, N-2, etc.) precipitating the load drop absent the upgrade. For the purpose of this request, major reliability upgrades are those estimated to cost \$50 million or more. It would also be helpful if estimates of the economic cost of load drop were included in the report.

***8. CPUC Staff Requests Special Study of Reliability Needs for San Francisco During the 2013-2014 TPP Cycle.***

The Draft 2012-2013 Transmission Plan approves the Trans Bay Cable Dead Bus Energization Project, which is a relatively low-cost reliability improvement. The Draft Plan also states that CAISO is continuing to study reliability needs in downtown San Francisco under Extreme Event conditions,<sup>10</sup> for which high-cost mitigations have been proposed. If the CAISO is concerned about reliability in San Francisco, CPUC Staff would benefit by a comprehensive, transparent special study of reliability for San Francisco and the San Francisco Peninsula as part of the 2013-2014 Transmission Plan. In particular, the CPUC is actively considering a PG&E Application to build a line from Embarcadero to Portrero. It would be helpful if the CAISO is able to provide timely and comprehensive information about the San Francisco peninsula's reliability requirements such as via a special study to aid the CPUC's consideration of the PG&E application.

***9. TPP Assumptions Should Not Prejudge Regulatory and Market Outcomes by Including Carlsbad and Pio Pico as Online Units from 2016 Onward.***

In Table A2-1 of the draft study plan,<sup>11</sup> CAISO assumes that both the Carlsbad Energy Center and the Pio Pico project come on line in 2016. CPUC Staff recommends that CAISO revise these assumptions and not include them as part of the base case analysis. Carlsbad does not have a proposed Power Purchase Agreement (PPA). The CPUC is currently considering a Proposed Decision and Alternate Proposed Decision in Application 11-05-023, both of which reject the proposed Pio Pico PPA. The CAISO should not prejudge these outcomes by assuming

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<sup>10</sup> Draft 2012-2013 Transmission Plan, California ISO, February 1, 2013, page 73.

<sup>11</sup> 2013-2014TransmissionPlanning Process Unified Planning Assumptions and Study Plan, February 22, 2013.

these two plants are online, but rather should identify reliability problems and the subsequent effectiveness of resource locations that address the problems.

***10. Assumptions for Reactive Resources Should be Clarified.***

In Table A4-1 of the draft study plan,<sup>12</sup> CAISO lists key reactive resources to be considered in reliability studies. The Final Study Plan would be more informative if this table also listed the types of devices providing the megavars. Where more than one substation is listed, e.g., the last row, "Suncrest (expected in 2012)" and, on a separate line "Penasquitos 230 kV," the CAISO should clarify whether the listed megavars are to be provided at one or the other substation as alternatives, or by a combination of equipment at both substations collectively.

At page 21,<sup>13</sup> the reactive resources listed in Table A4 are described as "key reactive power resources." CPUC Staff request clarification of the criteria or considerations that make these particular reactive resources "key."

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<sup>12</sup> Ibid.

<sup>13</sup> Ibid.