

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Order Instituting Rulemaking to Develop
An Electricity Integrated Resource
Planning Framework and to Coordinate
and Refine Long-Term Procurement
Planning Requirements.

Rulemaking 16-02-007
(Filed February 11, 2016)

**INFORMAL PRE-WORKSHOP COMMENTS OF THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR
ON ENERGY DIVISION’S PRELIMINARY CONCEPT PAPER**

Pursuant to an August 11, 2016 request by the California Public Utilities Commission (Commission or CPUC) Energy Division Staff, the California Independent System Operator Corporation (CAISO) provides informal comments and responses to questions contained in the Concept Paper (Concept Paper) provided by the Staff on the implementation of the Senate Bill (SB) 350 requirements related to integrated resource plan (IRP).

I. SUMMARY

CAISO appreciates the opportunity to comment on the Concept Paper. The responses below focus on two distinct but interrelated issues: (1) external process alignment; (2) development of assumptions and scenarios and modeling. The CAISO looks forward to participating further in this proceeding and working with the Commission to meet the state’s energy and environmental goals.

II. RESPONSES TO QUESTIONS IN THE CONCEPT PAPER

- 1. Are any of the guiding principles inconsistent with any statutory, Commission, or other requirements? If so, please identify the principle, explain the inconsistency, and suggest how the inconsistency should be resolved.**

The CAISO recommends that Guiding Principle #1 explicitly recognize the requirement to address operational requirements of the system in optimizing the IRP. Senate Bill 350 requires the Commission to “[i]dentify a diverse and balanced portfolio of resources needed to ensure a reliable electricity supply that provides optimal integration of renewable energy in a cost-effective manner.” Guiding Principle #1 recognizes the requirement to minimize costs and meet policy goals, but it should be expanded to acknowledge the need to meet reliability requirements.

Guiding Principle #6 appropriately seeks to maintain process alignment amongst planning processes. The CAISO agrees that this should be a guiding principle for the IRP. The CAISO, the Commission and the CEC expended considerable efforts to ensure that the state’s planning processes are properly aligned, especially with respect to the use of common inputs and

assumptions in the planning processes. The CAISO recommends that Guiding Principle #6 should be modified to specifically acknowledge the fundamental role that the CEC's Integrated Energy Policy Report (IEPR) demand forecast plays in providing a common foundation for planning processes, including the IRP.

2. Are there any additional guiding principles that should be included? If so, describe the guiding principle and explain why it should be included.

No comment.

3. Are there any additional elements missing from the activities, outputs, and inputs described? If so, please explain which additional elements are necessary.

The inputs, outputs, and activities in the IRP should incorporate, at a minimum, the existing process alignment¹ elements already established between the long-term procurement plan (LTPP), Transmission Planning Process (TPP), and the IEPR. For example, under the “collect input data” activity (or similarly the “develop guidance” activity), responsible entities are listed as “CPUC/LSEs” but does not include the CAISO in developing local and flexibility requirements as is the case in the current process alignment. For outputs, there is no mention of the RPS portfolios that are provided to the CAISO for assessment in the TPP. Under inputs, the load forecast should explicitly incorporate the single forecast set adopted by the agencies from the CEC's IEPR. For “transmission capability and upgrade costs,” no entity is assigned this input and the CAISO seeks clarification on whether this input is to be obtained from the CPUC, LSEs, the CAISO or another party (and how this expectation may be different under the different division of labor options.)

Generally, it is not clear how the LTPP assumptions and scenarios document will evolve under the IRP, under what timeline, and what elements remain or change. Though not explained or referenced in this section, what is listed as “Modeling Guidance [CPUC]” and “Policies and Scenarios Guidance [CPUC]” on page 14 is referred to later in the Concept Paper as “Modeling Standards” and “Policy and Scenario Standards” on pages 22 and 23, respectively, with a note that each document “would subsume a portion of the Assumptions and Scenarios document.”²

The CAISO recommends that the development of the assumptions and scenarios should be a fundamental effort in the IRP. For IRP 2017, the assumptions and scenarios should be developed as soon as possible, though there will not be an opportunity to fully coordinate the assumptions and scenarios document with the IEPR demand forecast. For subsequent IRP cycles, the CAISO recommends that the Commission develop the assumptions and scenarios over a six-month cycle that begins at the middle of each odd-numbered year and culminates with an assumptions and scenarios document at the end of each odd numbered year. This timing will coincide with the production of a new IEPR demand forecast, which is also produced at the end of each odd numbered year. Following this approach, IRP analysis and portfolio development can begin in earnest during Q1 of the subsequent even numbered year with a fully updated set of

¹ References to “process alignment” in these comments refer to the agency process alignment between the CPUC, CEC, CAISO, and CARB and described in detail here: <http://www.cpuc.ca.gov/General.aspx?id=6617>.

² Concept Paper, pp. 22-23.

common inputs and assumptions. The common assumptions and scenarios can then also be used in the CAISO's even-year TPP. Assuming the IRP analysis, portfolio development and review occurs during the calendar year, the output of the IRP can then be incorporated into the subsequent odd-year CAISO TPP.

4. Should any of the proposed required elements be eliminated or consolidated? If so, please explain why doing so will facilitate the development of an IRP process that is consistent with the guiding principles.

No comment.

5. Which Option do parties prefer: A, B, or C? If not Option C, please provide your rationale and include consideration of any potential drawbacks or adverse impacts.

At this time, it is difficult to determine whether Option C, the hybrid approach, would result in any significant benefits over Option A. In both approaches, it appears the end result (the LSE portfolios) will need to be independently reviewed at the conclusion of the IRP. Option C seems to add a significant amount of process and workload to develop an interim portfolio that will be subject to validation and compilation only after the LSEs have the opportunity to develop their own preferred and candidate portfolios. It is also unclear whether the multi-LSE portfolio would have enough granularity to adequately reflect resource operational characteristics and reliability criteria such as unit commitment constraints and related flexible capacity concerns. Based on CAISO's modeling experience, reflecting this level of granularity and reliability criteria takes significant time and resources which will be difficult to accomplish under the compressed timeline contemplated in Option C. As a result, the end stage LSE-developed portfolios will require rigorous vetting to ensure that those portfolios meet operational and reliability needs. In the end, it is unclear if the time and effort required to reconcile the individual IRPs to the CPUC's multi-LSE optimal portfolio will exceed the benefits of the potential gains outlined under Option B.

Instead, the CAISO believes that the Commission's focus should be on the development of a very detailed assumptions and scenarios document/process that provides the basis for LSE IRPs. As a further step, the assumptions and scenarios document may have certain "not too exceed" or "minimum" requirements so that the resulting portfolios in individual LSE IRPs are within an acceptable range. These metrics or guidelines need to be clearly articulated ahead of time.

Option A (unless the concerns outlined for Option C can be resolved), in combination with the timeline for the new assumptions and scenarios document described in our response to Question 3, would provide more time for stakeholder vetting and analysis. Otherwise, the proposed process timeline in Figure 1 of the Concept Paper seems very tight and assumes, at most, four months for Commission and stakeholder review of LSE IRPs (if LSEs file IRPs in the September to November timeframe and a Commission decision is expected in December or January).

6. What electricity market, regulatory, and/or operational implementation issues may emerge under Option C? Please identify potential solutions to the implementation issues identified.

See response to Question 5.

There are two additional regulatory issues CAISO wishes to highlight: the need to model grid integration impacts and process alignment with CARB’s transportation electrification policies. First, CAISO reiterates a point from its IRP opening comments. While flexibility is important for operating the electric system today, a procurement plan that actively “flattens the duck curve” and smooths load profiles can enhance greenhouse-gas compliance more cost-effectively by avoiding the need for fossil-based fast-ramping resources.³ The CPUC staff Grid Integration White Paper identifies these challenges and the opportunities to leverage distribution-level solutions such as time-of-use (TOU) rates and electric vehicle charging.

Second, the Concept Paper highlights CARB’s economy-wide assessment of the electric sector as an input but ignores CARB’s transportation electrification policies. This is a major process alignment activity that will require CPUC input on important jurisdictional elements like how TOU rates affect electric vehicle charging that may exacerbate or flatten the duck curve while meeting CARB’s transportation (and disadvantage communities) policies. There may be cross-overs from transportation electrification to the SB 350 energy efficiency target if vehicle fuel switching is considered a form of energy efficiency. More broadly, the Concept Paper notes that the CPUC “must guide resource decisions across CPUC-regulated LSEs and across the various CPUC resource programs (e.g., energy efficiency (EE), demand response (DR), renewables portfolio standard (RPS), storage)” but does not explain how assumptions from other agencies will be incorporated into the IRP.⁴

7. Are there any alternative approaches to the division of labor that offer advantages over the proposed approach (Option C)? Please be as specific as possible about any alternative approaches and what advantages they have over the proposed approach.

See response to Question 5.

8. Are there any potential drawbacks with the basic procedural steps and filing frequency outlined in Table 3? If so, please suggest an alternative approach and provide your rationale for why it is optimal.

As noted in CAISO’s response to Question 5, the timeline outlined in Table 3 leaves little time for stakeholder input and omits important processes from today’s process alignment between the agencies.

³ This point is noted in CAISO’s opening comments to IRP, available at: http://www.caiso.com/Documents/Mar21_2016_ISOOpeningComments_IntegratedResourcePlanning_R16-02-007.pdf

⁴ Concept Paper, p. 9.

For Questions 9 and 10, please also refer to Table C-1 in Appendix C.

- 9. Please provide recommendations for the IRP filing frequency, contract period, and process for submitting updates or modifications in the IRP-LTPP 2016-2017 proceeding. Where appropriate, distinguish between any near-term recommendations (i.e., for IRP 2017) and longer-term recommendations (i.e., for cycles beyond IRP 2017).**

Table C-1 in Appendix C indicates that the “filing frequency” for the IRP is to be determined. However, the filing frequency is an important process alignment question that needs to be resolved at this early stage. The filing frequency for the LTPP 2014-2015 is noted as “Every two years. In the first year, receive filings on the need for physical new reliability resources. If need is identified, in the second year, receive filings on the mix of resources best able to meet the identified need.” Page 19 of the Concept Paper notes that “Year 1 [will serve] as the planning year, and Year 2 [will serve] as the update year” with further clarification in Table 3 that Year 1 is 2017. If IRP is a biennial effort, then the 2017 IRP covers a planning year in 2017 and an update year in 2018. It is unclear what is meant by “planning” versus “update” year in the context of the IRP. In addition, this a departure from the LTPP construct in which needs are identified in Phase 1 (over the course of a year) and procurement is addressed in Phase 2 (over the course of the subsequent year).

The understands that there are milestone deadlines set by the Commission but recommends that it may be possible to develop the IRP on one path and meet the requirements of the existing process alignment on a parallel path in the near-term and have the paths converge later. On the IRP development path, the CAISO recommends that the 2017 IRP be used as a “proof of concept” rather than an exercise focused on procurement goals. Then, in 2018 the Commission should launch a full IRP based on a detailed set of assumptions and scenarios as discussed above. Ultimately, this construct will maintain critical alignment between the IRP, the CEC’s IEPR demand forecast the CAISO’s TPP. On a parallel path, the Commission can continue to develop the inputs and outputs needed to meet the current process alignment commitments. For example, the CAISO’s annual transmission planning process (TPP) needs actionable renewable portfolios for policy-driven transmission so that there is sufficient lead-time to consider projects that may be needed over the TPP’s 10 year planning horizon. If the Commission does not take this parallel path but does delay the development of an IRP to 2018, then the first actionable portfolio may not be developed until the 2019/2020 TPP cycle, which is not approved until 2020.

How should the administrative requirements for activities associated with Pub. Util. Code § 454.5 and the large IOU bundled procurement plans be treated in the IRP-LTPP 2016-2017 proceeding? In future cycles beyond IRP 2017?

No comment.

10. Are there any categories or types of guidance for filing entities that are not addressed above, but should be? If so, explain why and include a reference to the relevant guiding principles for IRP process development.

See responses to Questions 5 and 6.

11. Are any of the categories of guidance listed above inappropriate or problematic in light of the guiding principles for IRP process development?

See responses to Questions 5 and 6.

12. What filing process would be appropriate for IRPs (e.g., advice letter, application)? Please refer to the procedural steps in Table 3 in your response. Please include as much detail as possible, including whether the process should be confidential or public, posted to a website or served on a proceeding, etc.

The CAISO is indifferent regarding the process ultimately used, but there should be an opportunity to test that the IRP portfolios meet the identified operational and reliability needs.

13. What consequences/incentives would be appropriate for submitting non-compliant/compliant IRPs? What criteria should be used?

As noted in response to Question 5, an acceptable range of variability should be pre-determined in order for the CPUC to effectively evaluate IRPs. A transparent process with interim deliverable dates will allow LSEs to cure or modify portfolios should any fall outside of the acceptable range and explain why a particular range should be exceeded.

~~**14. Are there any other options for the type of action, outcomes of action, or criteria for portfolio adoption that the Commission could take consistent with Pub. Util. Code § 454.51 that should be considered?**~~

~~**15. Do you agree with the proposed type of action and possible outcomes of action? Why or why not?**~~

16. Should the Commission have standardized, public criteria for choosing which portfolio to adopt, or should it have the flexibility to apply whatever criteria are deemed appropriate at the time the decision is made? Why or why not?

Please see response to Question 5.

17. Are there any other options for how the IRP process should address procurement authorization?

See response to Question 19 below.

18. Do you agree with the proposed phased approach to procurement authorization in the IRP process? Why or why not?

The CAISO notes that its 10 year TPP brings together planning and procurement on an annual cycle. It is worthwhile to note however, that there are numerous processes that have not been

completely aligned with the IRP. For example, track 3 of the distribution resource planning proceeding may seek to integrate the Distribution Resource Plans (DRP) into Planning and Cost Recovery Plans (DRP) into Planning and Cost Recovery Processes, aligning planning with procurement.

19. Are there any other options for how the IRP process should address deviations between actual procurement and approved IRPs? What is the preferred approach to handling these deviations? Please explain your answer.

See responses to Question 5 and Question 21.

20. Should the quantity or assumed cost of a particular resource type included in the CPUC-preferred portfolio define the amount of that resource that is cost-effective to procure? If so, should it be used to limit procurement below pre-established targets (such as 50% RPS) pursuant to statutory language that requires the CPUC to maintain low rates and avoid disproportionate rate impacts? Alternatively, should the IRP process have authority to raise procurement targets but not to lower them? Why or why not?

The CPUC's IRP should not undo the current process alignment agreements between the agencies. For example, the CEC will have embedded in its demand forecast assumptions about energy efficiency to reach the SB 350 goals that takes in input from the CPUC, CARB, and CAISO. The demand forecasts are vetted through an open stakeholder process and then load forecasts are used across the agencies. If the IRP were to make different assumptions (*i.e.*, lower rate of adoption, penetration, deployment, etc.) about variables embedded in the load forecast, this change would not flow through to other agencies and cause a disconnect between the agencies.

21. What changes are needed to existing internal and external process alignment activities to be responsive to the new statutory responsibilities required for the IRP process? Please be specific with any proposed change. Parties are encouraged to work coordinate on this question in particular.

For external process alignment, see responses to Question 3, Question 6, and Question 21.

For internal process alignment, see response to Question 19.

22. How should LSE-specific GHG planning targets be used in CPUC's IRP process? What is an appropriate methodology for calculating LSE-specific GHG planning targets?

No comment.

23. N/A

24. What types of future uncertainties should be included among the candidate portfolios generated in IRP 2017? Please provide a prioritized list of uncertainties

that should be represented, along with an explanation for the priority level assigned to each uncertainty. Please indicate which uncertainties may be appropriate to represent together and which should be represented separately, and why. For example, it may be reasonable to represent the impact of multiple GHG-reduction activities that all increase electric sector load together to create a single “high load” future in order to represent the maximum load stress on the electric system.

As noted in response to Question 3, a detailed assumptions and scenarios document will be the right mechanism to document uncertainties and resulting scenarios. As noted in response to Question 6, the scenarios that the IRP develops cannot be in isolation to analyses at other agencies or “upstream” assumptions that will feed into the IRP. As also noted in response to Question 6, flattening the duck curve/grid integration or conversely having sufficient flexible capacity should be added to the “reliability” policy goal.

25. What metrics should be used to track the results for each policy or program area? How should the metric be calculated?

No comment.

26. Is the overall assignment of modeling types to IRP activities in Table 6 reasonable? Are there types of models that may be useful for IRP that are not represented?

As noted in the conceptual paper, the capacity expansion-type of model potentially has fewer operational details. Production cost simulation modeling is probably still essential for validating that a portfolio includes sufficient capacity and flexibility.

With production cost simulation modeling, loss-of-load-probability analysis with models like GE-MARS may be unnecessary. The traditional LOLP approach does not work well with a system with high renewable resources, distributed generation, storage and demand response.

27. What options are available for completing the multi-LSE optimization modeling and generating an optimal portfolio by April 2017, in keeping with the proceeding schedule?

A multi-LSE optimal portfolio is necessary only if the Commission chooses Option C. As noted in the response to Question 5, unless some of the concerns highlighted for Option C can be successfully addressed, it may be more beneficial for the Commission to focus on developing a robust set of assumptions and scenarios rather than a multi-LSE optimal portfolio for IRP 2017. Because the LSEs’ IRP portfolios will likely deviate from the Commission’s optimal portfolio, the detailed production simulation modeling will be necessary to validate the LSEs’ IRPs at the conclusion of the process. The response to Question 9 explains how the Commission can use the 2017 IRP as a “proof of concept” while still meeting the requirements under the external process alignment.

28. What type and amount of modeling is realistic for LSEs to conduct in time to file by fall of 2017, assuming final guidance from CPUC is issued in April 2017?

If the Commission chooses Option C, there may be significant modeling work for the LSEs and the Commission in a relatively short period of time. The LSEs need to ensure that their IRPs satisfy all state policy goals and the CAISO reliability requirements. Option A or a lighter front-loaded Option C will give the LSEs more time to conduct their IRPs and more time for the Commission to validate once the LSE IRP portfolios are filed.

29. How does answer to the above question vary depending on the scope of the load included in each portfolio (e.g., individual LSE vs. aggregate CAISO load)?

The answer should not change with the load scope.

30. Do you agree with how the electricity market and regulatory issues are characterized? If not, explain why, and suggest new or modified language to describe the issue.

No comment.

31. Are there any significant electricity market and regulatory issues that could impact IRP implementation that should be added to this table? Similarly, should any of the identified issues be removed from consideration?

No comment.

32. For each of the identified issues:

a. Indicate the priority on a scale of 1 to 3, with 1 being the highest priority

See response to Question 34.

b. Identify critical path items and associated dependencies that need to be addressed.

See response to Question 34.

33. Identify the top six issues in the final list.

The top six issues are:

F – This issue is important because it will impact the assumptions embedded in the IRP load forecast. In the current timeline, this issue is the most critical to consider because it requires collaboration with CARB, which also has a spring 2017 target for its scoping plan.

I – Also part of the load forecast, this issue is related to F and requires more granular forecasting to capture autonomous adoption as well as policy-driven adoption.

E – As noted in the description, the CAISO is conducting a special study on the economic risk of retirement in the TPP.

Issues A, B, and D are about equal weight.

Though not in the top six list, issue J is a critical consideration that will need state-wide coordination.