

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

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.

Rulemaking 12-03-014
(Filed March 22, 2012)

**RESPONSE OF THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
TO THE TERRA-GEN PETITION FOR MODIFICATION OF D.13-02-015**

On June 3, 2014, Terra-Gen Power, LLC (Terra-Gen) submitted a petition for modification (petition) of the Commission’s Track 1 decision (D.13-02-015). Terra-Gen argues that SCE has misinterpreted some of the decision language and implemented a new and inappropriate eligibility requirement for participation in the bid solicitation process for resources authorized in Track 1. On June 12, 2014, ALJ Gamson ruled that the response date would be June 20, 2014. Consistent with that ruling, the California Independent System Operator Corporation (CAISO) submits its response to the Terra-Gen petition.

I. Introduction

Terra-Gen’s petition involves the locational effectiveness of generation within the LA Basin. This effectiveness is “highly sensitive” to the assumptions that underlie the effectiveness calculation.¹ Terra-Gen is essentially requesting that the Commission roll back the hands of time and ignore the clear language of D.13-02-015 that directed SCE to consult with the CAISO and use, as part of the RFO process, “the most up-to-date effectiveness ratings.”² Terra-Gen prefers that the Track 1 RFO process not take into account the significant change in network topology considered by the Commission in Track 4 and by the CAISO in the 2013-2014 transmission

¹ Petition, p. 3.

² D.13-02-015, Ordering Language Par. 4.1.

planning process. In particular, Terra-Gen’s position ignores the SONGS retirement and the significant impact that has had on resource effectiveness in southern California. Instead, Terra-Gen erroneously believes that this event is one of the “relatively minor” changes to the assumed transmission system that can impact generation effectiveness.³

The Commission should not modify the Track 1 decision as Terra-Gen recommends. The CAISO supports SCE’s use of the most recent generation effectiveness factors in its RFO for local resources in the LA Basin, and has been working with SCE to provide all data necessary to make cost-effective decisions that will meet reliability needs in the LA Basin. The CAISO has also worked with Terra-Gen to clarify the CAISO’s assumptions and methodology used to evaluate effective resources locations and has made its study results as transparent as possible. Terra-Gen presents no compelling reason to delay the procurement process to debate the CAISO’s effectiveness factor calculations. The resource needs in the combined LA Basin and San Diego local areas are significant, and delays in procurement of needed, effective resources could cause reliability problems.

II. It is Not Reasonable to Rely on Outdated Track 1 Effectiveness Factors for Combined Track 1 and Track 4 Procurement.

Terra-Gen’s suggestion that the Commission rely on the outdated locational effectiveness factors described by the CAISIO in the Track 1 proceeding is unreasonable due to the materially changed circumstances that necessitated the Track 4 proceeding and fundamentally shifted the nature of the transmission constraints the LA Basin area.

In Track 1, the nodal generation effectiveness factors for the LA Basin and Western LA Basin sub-area addressed in CAISO testimony, were based on the CAISO’s analysis of local capacity requirements conducted in the 2011-2012 transmission planning process. SONGS was

³ Petition, p. 3

still in service at the time, and the CAISO's analysis reflected that fact.⁴ In that planning cycle, the CAISO evaluated local resource needs resulting from the retirement of coastal once-through-cooling units in LA and San Diego. As discussed in CAISO Track 1 testimony, the constraints that required local capacity for the LA Basin as a whole, and for the Western LA sub-area, were thermal constraints for the South of Lugo limit (based on an overlapping outage of one SONGS unit and the Palo Verde – Devers 500kV line out of service), and the thermal limits on the Serrano – Villa Park No. 1 230kV line (due to an overlapping N-1-1 contingency of Serrano – Villa Park No. 2 230kV line, followed by an outage of the Serrano – Lewis 230kV line).

In contrast, as described in the CAISO's Track 4 testimony, with SONGS retired, the local capacity requirements for the LA Basin and San Diego sub-area are now constrained by post-transient voltage instability due to an overlapping outage of the ECO – Miguel 500kV line (i.e., a segment of the Southwest Powerlink), followed by an outage of the Ocotillo- Suncrest 500kV line (a segment of the Sunrise Powerlink). In evaluating the resource effectiveness factors in the 2013-2014 transmission planning cycle, the CAISO also took into account the transmission upgrades approved in prior transmission plans and the Track 1 resource authorizations.⁵

Because of major changes to system topology resulting from the retirement of SONGS and the transmission additions that have been approved by the CAISO Board, the nodal generation effectiveness factors the Commission utilized for Track 1 are no longer relevant or useful to address local area needs. Locational effectiveness is not a policy decision but rather a function of the laws of physics. In procuring resources to meet local needs, it simply makes no

⁴ See Track 1, Ex. ISO-7.

⁵ Revised Draft 2013-2014 Transmission Plan, p 91; <http://www.caiso.com/Documents/RevisedDraft2013-2014TransmissionPlan.pdf>

sense to consider resources in locations that are less than optimal, ultimately resulting in the need to procure even more resources.

III. The CAISO Clearly Explained The Basis for the Change in Effectiveness Factors in Track 4 Testimony and Bidders in the Track 1 Procurement Process were On Notice that Locational Effectiveness Could Vary Significantly.

Terra-Gen states that it - and other entities - were not made aware of SCE's intention to use the most up-to-date effectiveness factors until the CAISO posted its final 2013-2014 Transmission Plan in March 2014. While Terra-Gen may not have made the connection between the Track 1 and Track 4 study results and the impact that the CAISO's analysis "without SONGS" could have on effectiveness until March 2014, the CAISO's Track 4 testimony submitted on August 5, 2013 clearly explained the change from thermal to voltage stability constraints.⁶ This testimony was available prior to the submission of bids into the Track 1 procurement process, which, according to Terra-Gen, was December 16, 2013. CAISO witness Robert Sparks explained that one objective of the study was to "minimize OTC repowering or replacement needs" and to "minimize new residual resource needs." To do so, Mr. Sparks stated that the CAISO used an iterative process to determine the general vicinity of optimal resource locations to mitigate reliability concerns, thus demonstrating the interplay between generation in the LA Basin and in San Diego in light of SONGS retirement.⁷

Thus, while the CAISO Track 4 testimony did not present specific information about the locational effectiveness factors resulting from the change in network topology, the CAISO's testimony provided Terra-Gen with sufficient notice that (1) these factors had changed due to the change in the area constraint, and (2) resources in the San Diego and southwest Orange County area were clearly more effective than those in northern locations. Terra-Gen had the opportunity

⁶ See Sparks' opening testimony, p. 18, describing the post-transient voltage stability concerns driving reliability needs in the study area.

⁷ *Id.*, p. 17.

to participate in Track 4 and explore the issue of how the CAISO's updated analysis could impact resource locations in the procurement process. Thus, Terra-Gen's statement that it had no notice until March 2014 that optimal locations for new resources had changed is not compelling.⁸

Furthermore, given the importance of resource location in the procurement process, Terra-Gen should have taken advantage of opportunities to participate in the CAISO's transmission planning process at several points during 2013 (when the CAISO holds stakeholder meetings during Phase 2) and, at a minimum, at the February 12, 2014 stakeholder meeting that considered the draft 2013-2014 Transmission Plan. The draft plan was released on February 3, 2014 and it contained the same description of locational effectiveness factors set forth in the plan that was ultimately approved by the CAISO Board.

Terra-Gen also claims that the updated locational effectiveness information described in the CAISO's Transmission Plan appeared to be for preferred resources. This was not a reasonable interpretation. Terra-Gen's argument seems to be based on a table caption that described the CAISO's assessment of various non-conventional resource scenarios.⁹ This table depicts various resource assumptions contained in three scenarios, and it is obvious from the table that 1400 MW of gas-fired generation was also included in each scenario. The table caption was based on the fact that only non-conventional resource mixes were changed in each scenario.

For the purposes of this discussion, however, the relevant effectiveness factor information can be found at the fourth bullet point under Table 2.6-4. There the CAISO

⁸ Terra-Gen notes that it previously participated in this proceeding through its trade association but not individually. Petition, p. 3.

⁹ See page 103, Table 2.6-4 entitled "Summary of Non-Conventional Alternative Assessment," Revised Draft 2013-2014 Transmission Plan, at <http://www.aiso.com/Documents/RevisedDraft2013-2014TransmissionPlan.pdf>.

explained that resources in the southwest LA Basin are 50% as effective as resources located in San Diego, and resources located in the northwest LA Basin were not effective for mitigating the N-1-1 contingency. Because the CAISO clearly included thermal generation in its scenarios, as described in the table, it was not reasonable for Terra-Gen to assume that this effectiveness discussion applied only to non-conventional resources. At a minimum, Terra-Gen could have explored this issue at the February 12, 2014 stakeholder meeting, but did not. The CAISO explained this to Terra-Gen staff at the March 20, 2014 Board meeting and in other discussions both before and after that meeting. The Commission should find Terra-Gen's arguments that it could not have known about possible locational impacts on its proposed generation facility until March 2014 - and could not have presented this concern until June 2014 - unpersuasive.

IV. The CAISO Reasonably Calculated Zonal Effectiveness Factors for the SONGS Study Area in the 2013-2014 Transmission Plan.

Terra-Gen notes that the CAISO's locational effectiveness evaluation in the 2013-2014 Transmission Plan was based on a consideration of generation zones within the LA Basin/San Diego study area, rather than the nodal (substation) effectiveness approach taken in the 2011-2012 Transmission Planning process.¹⁰ Terra-Gen argues that the CAISO did not explain how the zones were determined, or provided any transparency into the reasons for the switch from a nodal to a zonal approach, causing Terra-Gen to conduct its own analysis of nodal effectiveness factors.¹¹

The CAISO responds to Terra-Gen's alleged study methodology "error" in the next section. However, despite Terra-Gen's concerns about transparency in the CAISO's planning process, the zonal methodology used in the Track 4 proceeding is a reasonable and appropriate basis to assess the relative effectiveness of generation in the LA Basin area. The CAISO

¹⁰ Petition, p. 6.

¹¹ *Id.*, p. 9.

calculated zonal, rather than nodal, effectiveness factors due to the changing nature of the electrical requirements in the area, the range of potential mitigation necessary, and the relative capabilities of the transmission system within the LA Basin. The retirement of SONGS and the resulting transition of the limiting conditions from thermal constraints to voltage stability constraints fundamentally shifted the effectiveness of various resource locations inside the western LA Basin area, dramatically impacting the study methodology.

Specifically, in the prior evaluation (explained in the CAISO's Track 1 testimony), the CAISO found that with thermal constraints limiting import capability into the area, the variability of effectiveness factors within the LA Basin was relatively small. Further, for thermal limitations, the relative effectiveness is not expected to vary greatly with different operating conditions. These conditions are primarily due to the ability to move power within the LA Basin relatively effectively in addressing the overall needs within the LA Basin. Also, because the effectiveness factors within the LA Basin were relatively consistent (compared to the post-SONGS analysis), the amount of power required to be injected at each node to test the effectiveness at that node was relatively consistent and manageable without creating overloads within the LA Basin.

In contrast, the voltage stability constraint that became the limiting condition after the retirement of SONGS produced a significantly larger range of effectiveness factors because the voltage collapse situation is more heavily localized in the southern Orange County area and the voltage stability phenomena is extremely non-linear.

This change in the effectiveness factor range required the CAISO to add, as part of its study process, significantly more generation at less effective nodes within the area, to achieve the same performance as smaller amounts of generation at more effective nodes. Indeed, testing less

effective areas within the LA Basin required adding up to 14,000 MW within those less effective areas. It simply is not feasible to add this quantity of generation to single nodes to perform a nodal analysis. Because it was no longer practical for the CAISO to perform a nodal analysis, the CAISO adopted the zonal approach to assess the relative effectiveness of generation dispersed in the three different electrical zones identified in its analysis. Thus, the CAISO's shift from a nodal analysis to zonal was soundly based in the physics and topology of the LA Basin/San Diego area in the absence of SONGS and with recently approved transmission infrastructure.

V. The CAISO's Analysis is Not Flawed

Terra-Gen states that its engineering consultant identified a "methodological error" in the CAISO's study.¹² According to Terra-Gen, the CAISO erred in comparing the amount of generation needed at several nodes in the southwest zone to achieve the targeted performance level to the amount of generation needed in the central zones to achieve the same targeted performance. As discussed above, this is not error and, in fact, is the most reasonable approach. Applying dispersed generation in the southwest zone based on reasonable amounts of generation for each of the nodes provides a basis for comparing generation modeled in the central or northeastern zone. Modeling some new generation in the southwest (most effective) zone while then attempting to compare the effectiveness of some new generation between a node in the southwest and a node in the less effective central zone provides a distorted view that is not reflective of the relative effectiveness of resources in each area.

The CAISO acknowledges that the voltage stability issues now limiting the LA Basin and San Diego areas are more broadly affected by a range of conditions than the previous more simplistic thermal limitations. The CAISO described this fact in the April 23, 2014 update to the

¹² Petition, p. 15.

Transmission Plan that provided clarification regarding the effectiveness factors. Nonetheless, the ISO appropriately developed a range of results based on the most critical study assumption; the ultimate completion and the precise operational effectiveness of the Imperial Valley Flow Control device. Terra-Gen's criticism of the CAISO's analysis does not amount to error and should not be considered as a basis to modify D.13-02-015 and delay the resource procurement process.

VI. Conclusion

The Commission should reject Terra-Gen's request to delay the procurement process for further study or a stakeholder process. Terra-Gen had opportunities to raise concerns about current locational effectiveness factors and the interplay with the Track 1 procurement process once the CAISO had completed its Track 4 studies and throughout the transmission planning process. It is unreasonable for Terra-Gen to argue that Commission intended SCE to use outdated resource location information in making billion dollar procurement decisions. The petition should be denied.

Respectfully submitted,

By: /s/ Judith B. Sanders

Roger E. Collanton

General Counsel

Anthony J. Ivancovich

Deputy General Counsel

Anna A. McKenna

Assistant General Counsel

Judith B. Sanders

Senior Counsel

250 Outcropping Way

Folsom, CA 95630

T – 916-608-7143

F – 916-608-7222

jsanders@caiso.com

Attorneys for the California Independent
System Operator

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