

Comments on the CAISO Straw Proposal on Variable Operating and Maintenance Costs

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SCE appreciates the opportunity to offer comments on the CAISO’s Straw Proposal on *Variable Operations and Maintenance Cost Review*¹ presented on January 6, 2020.² SCE offers comments in relation to the following matters:

- Definitions offered for the cost classifications
- Maintenance costs and operational efficiency
- Scalar determination and application to the default maintenance adder
- Definition of the representative unit
- Methodological issues with the calculation and allocation of costs
- Biases in the calculation of the default maintenance adder

Definitions for Cost Classifications and Conflicts of interpretation

In an attempt to define specific cost groupings for variable operations and maintenance costs, the CAISO has employed definitions intended to clearly demarcate the major maintenance costs, variable minor maintenance costs and variable operations costs associated with generating plants. While labor costs are regarded by the CAISO as fixed costs that apply to the general and administrative cost category, there are instances in which generating plants are not staffed overnight. On occasion, infrequent problems at the facility may necessitate human intervention, and as such, personnel are required to visit the location and work an entire shift occasionally for which such costs are regarded by the asset owner or operator as variable operations costs. As a result, the asset owner’s interpretation of such costs conflicts with the CAISO’s expectation that those costs incurred are fixed costs. The CAISO may wish to consider whether personnel who occasionally visit the plant for operational and maintenance purposes such that their hours of presence is not equivalent to the hours associated with the role of a full-time employee, then such costs can be regarded as variable operations and maintenance costs. An exception

¹ See CAISO Straw Proposal on Variable Operations and Maintenance Cost Review at <http://www.aiso.com/InitiativeDocuments/StrawProposal-VariableOperations-MaintenanceCostReview.pdf>

² See presentation on Variable Operations and Maintenance Cost Review at <http://www.aiso.com/InitiativeDocuments/Presentation-VariableOperations-MaintenanceCostReview-StrawProposal.pdf>

to this interpretation is if a deliberate decision is made to staff the facility with only part-time personnel to evade classification of such costs as fixed costs.

Additionally, the CAISO needs to provide more details to stakeholders. For example, the CAISO proposes adding “significant” to the definitional language of VOM³. The CAISO should quantify when the level of investment can be deemed significant/material.

Maintenance Costs and Operational Efficiency

Within the Straw Proposal, the CAISO refers on numbered p.10 to *“if the replacement equipment is identical to the equipment being replaced, and the costs vary with respect to incremental energy production”* in relation to maintenance done during the lifespan of the equipment. This statement raises an issue in relation to like replacements that have an operational efficiency benefit to the resource owner/operator. For example, the replacement of a fixture that results in the improved heat rate of the generating unit. The specific issue is: how does the CAISO’s methodology for cost classification account for such cost changes, should such investments be made as regular or routine maintenance?

Though the expectation is for the resource owner to benefit from such improvements through increased revenues on account of additional running hours due to improved resource competitiveness, one should expect that the operation costs in the calculation of variable operation costs is adjusted or the going forward maintenance costs are adjusted since the offers submitted by the resource will be adjusted to reflect the improved efficiency of the resource.

Another aspect to the efficiency issue is the use of replacement of parts during preventative maintenance that results in the extension of the resource’s life. What effect do such actions have on the CAISO’s methodology for the derivation of variable operations and maintenance costs for the resource.

Scalar Determination for Default Maintenance Adder

Finally, within the straw proposal, the CAISO seeks to use 60% as the scalar to be applied in the calculation of the default maintenance adder. The scalar is based on proprietary data obtained from the S&P Market Intelligence report. The data is processed within five different econometric models which exhibit poor explanatory power between variable maintenance costs and the size of the resource. Using a weak statistical model as the basis for the determination of a scalar is inappropriate and should be reconsidered.

A deficiency of the econometric model presented is the dataset used shows a single generating unit larger than 400 MW for which there are other existing generating units larger than 400 MW among the technology types within the CAISO’s portfolio. This issue needs to be addressed.

The CAISO may be better served by exploring stronger correlated variables that provide a better proxy for the scalar. In addition, a more suitable econometric model is required either due to pre-treatment of

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the data or corrective measures that result in a more reliable linear model if such a model is truly representative of the problem being studied.

Alternative explanatory variables the CAISO may wish to consider are the running hours combined with the size of the generating unit and if data is available on the number of starts disaggregated into hot, cold and warm since each category of start has a different impact on the timing of maintenance and the magnitude of repairs needed when maintenance is scheduled eventually following the elapse of a number of operating hours of the generating unit. The model may be run as a pooled-cross-section time series model rather than a panel data model such that the effects of aging across a series of years can capture maintenance practices indirectly as tracked through the magnitude of maintenance costs incurred by the resource owner.

Definition of A Representative Unit

There are many concerns with implied definitions that arise throughout the proposal. For example, the reference to a representative unit should be clearly defined with the characteristics detailed. The CAISO should be aware that within each technology-type there are different generating unit sizes and the configuration of individual generating units differs by manufacturer. The CAISO should therefore specify the core components that characterize the representative unit thereby facilitating the possibility for resource owners and operators to gauge how their generating unit compares relative to the representative unit.

Methodology for Cost Calculations and Allocation

The Straw Proposal and presentation provide insufficient detail to determine how the costs represented in the tables for the variable operations and maintenance adder are derived. Further, the proposal does not present the process for deriving the cost-split represented for the percentage allocations to the start-up, run-hour and output classifications among the technology types. These approaches demonstrate a lack of transparency within the derivation process used in the determination of the various costs and allocation factors.

Bias in the Default Maintenance Adder Calculation

There is an inherent bias in the calculation of the default maintenance adder when the distribution of resource sizes is skewed. If the distribution of generating unit sizes in the CAISO's portfolio is skewed either left or right, generating units with sizes less than the representative unit will be penalized much more than generating units with sizes greater than the representative unit. Therefore, the CAISO may wish to consider a truncated distribution when normality does not exist such that generating units whose sizes lie beyond the limits of the truncated distribution are accommodated within the negotiation process whereby other parameters suited to those resources may be specified for the calculation.