

**PUGET SOUND ENERGY COMMENTS**  
**VARIABLE O&M COST REVIEW**  
**JANUARY 15, 2019**

Puget Sound Energy (PSE) appreciates the opportunity to provide the following comments on the California Independent System Operator's (CAISO) variable operations and maintenance cost review initiative.

**COMMENTS**

1. A key element of CAISO's market power mitigation framework is that default energy bids should accurately reflect resources' reasonable expectations of their marginal costs. CAISO's current Local Market Power Mitigation stakeholder initiative illustrates that a resource's default energy bid can have a significant impact on whether that resource is offered into the market. As part of this stakeholder process, the CAISO should review the Variable Operations and Maintenance (VOM) costs along with the Major Maintenance Adder (MMA) holistically to ensure that the resources that participate into the CAISO market can fairly and fully recover all of their variable costs whether those costs belong to the VOM category or MMA category. The CAISO should initiate a process to formally define the terms associated with the VOM and the MMA with a transparent and detailed supporting analysis.
2. In Nexant's "Variable Operations and Maintenance Costs Report," Section 1.1 mentions that the VOM costs developed in the report should adhere to CAISO's definition of VOM. CAISO's prior studies and stakeholder engagement focused on operations and maintenance costs broadly and did not appear to make a clear distinction between the different types of operations and maintenance costs. CAISO's proposed VOM costs are substantially lower than the previous estimates, and clarity regarding CAISO's current VOM definition is needed.
3. Section 2.1.1 of the Nexant report lists only consumables as being included in the CAISO definition of VOM costs. This list excludes other operations costs that are incurred as a function of energy production by a generator and should be included in the VOM calculation. Variable operating costs other than consumables can include:
  - a. power purchased for station service, which varies with energy production;
  - b. the variable component of contract fees paid to third party operators;
  - c. non-routine labor expenditures that are required to staff a plant for safe and efficient operation only when it is operating.

4. The definition of VOM in Section 2.1.1 of the Nexant report also does not include any variable maintenance. There are generator maintenance costs that are not fixed and are not included as major maintenance in start-up costs, but are incurred as a function energy production. Thus, they should be recovered in the VOM cost. For example, variable maintenance costs could include:
  - a. the variable component of third party maintenance fees;
  - b. unplanned corrective maintenance (not major maintenance) performed to restore performance or function after a failure;
  - c. maintenance performed due to measured deterioration or pending functional failure of power generation equipment;
  - d. non-routine labor expenditures related to extended hours and overtime pay for variable plant maintenance.
  
5. Variable maintenance costs are also notably absent for hydro generators, with Section 3.5 of the Nexant report suggesting zero VOM for these generators. While hydro generators do not have consumptive needs like thermal generators, they do incur variable maintenance costs that are a function of energy production. These costs therefore should be included in the default VOM adder for these generators. Items 4 b, c and d listed above also pertain to hydro.