

Memorandum

To: ISO Board of Governors

From: Keith Casey, VP of Market and Infrastructure Development

Date: December 8, 2011

Re: **Decision on Default Operations and Maintenance Costs**

This memorandum requires Board action.

EXECUTIVE SUMMARY

In July 2010, Management brought to the ISO Board of Governors several proposals to enhance how start-up and minimum load costs are recovered by market participants. All of the enhancements have been implemented except one, which involved a commitment to re-evaluate the default operations and maintenance cost values every three years. Management has conducted that re-evaluation and is proposing revised values to be implemented in April 2012, three years following implementation of the ISO's nodal market.

The operations and maintenance cost values are per-MWh dollar amounts that are intended to capture the variable, non-fuel costs associated with running a generating unit. Currently, the default operations and maintenance cost adder values are \$4/MWh for combustion turbine and reciprocating engine resources and \$2/MWh for all other resources. The operations and maintenance cost values are included in "cost-based" calculations of minimum load costs and default energy bids.

The ISO engaged a consultant to undertake a study of operations and maintenance values and to propose any necessary changes. The ISO published the draft study, and market participants were able to examine the methodology employed by the consultant and provide feedback on the results of the consultant's study.

The study recommends the ISO increase the number of operations and maintenance adder values from two to ten so that the differentiation in operations and maintenance costs by technology type is captured. Management recommends that these values,

detailed in the discussion below, replace the existing default operations and maintenance cost values.

Moved, that the ISO Board of Governors approves the proposed changes regarding the default operations and maintenance cost values as described in the memorandum dated December 8, 2011; and

Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposed tariff change.

DISCUSSION AND ANALYSIS

The default operations and maintenance cost values are per-MWh dollar values that are intended to capture the variable, non-fuel costs associated with running a generating unit. For example, variable non-fuel costs may include raw water, waste and wastewater disposal expenses, demand charges and related utilities, chemicals, gases, and other such consumable materials and supplies.

The operations and maintenance cost values are included in “cost-based” calculations of minimum load costs and in default energy bids.

- O&M values in minimum load costs: if a resource opts to have the ISO calculate its minimum load costs based on resource parameters and the natural gas price index, (that is, it elects the proxy minimum load cost option), the ISO includes the applicable operations and maintenance cost value in that calculation.
- O&M values in default energy bids: in the event that a resource is flagged as having locational market power, its bid is replaced with a default energy bid. A cost-based default energy bid is designed to approximate a competitive bid, i.e., one that reflects the marginal cost of production for the generator. Therefore, the applicable operations and maintenance cost value is included in the calculation of each resource’s cost-based default energy bid.

In keeping with the commitment made through the commitment costs initiative to re-evaluate the default operations and maintenance cost adders every three years, the ISO engaged a consultant to conduct a study of operations and maintenance costs and to propose any necessary changes. Additionally, the ISO undertook a stakeholder initiative through which market participants were able to examine the methodology employed by the consultant, and provide feedback on the results of the consultant’s study.

The consultant’s study included a thorough review of how variable operations and maintenance costs are accounted for by other ISOs. It also provided data from several

sources of relevant cost information, and evaluated that information considering the existing generating fleet in California and the vintage of the resources by generation technology type. The study also provided some reconciliation of differences among the various data sources. This enabled the study to ultimately reflect a consistent accounting of variable operations and maintenance cost values.

After considering these factors, the study recommends increasing the number of operations and maintenance adder values from two to ten so that the differentiation in operations and maintenance costs by technology type is captured. Management recommends that these values, provided in the table below, replace the existing default operations and maintenance cost values, which are \$4/MWh for combustion turbine and reciprocating engine resources, and \$2/MWh for all other resources.

Recommended Default Operations & Maintenance Cost Adder Values

Generation Technology	Recommended O&M Cost Adder (\$/MWh)
Solar	\$0.00
Nuclear	\$1.00
Coal	\$2.00
Wind	\$2.00
Hydro	\$2.50
Combined Cycle and Steam	\$2.80
Geothermal	\$3.00
Landfill Gas	\$4.00
Combustion Turbine & Reciprocating Engine	\$4.80
Biomass	\$5.00

Management recommends that the new operations and maintenance cost values commence with the spring 2012 software release, which is three years from the launch of the locational marginal price market. This timing is consistent with the commitment to review and update, as necessary, the default operations and maintenance cost values on a three-year basis.

POSITIONS OF THE PARTIES

In general, stakeholders were supportive of the values developed through the study and the stakeholder process. One point of contention that did arise, however, was whether to account for “major maintenance costs” as part of the variable operations and maintenance cost values. Major maintenance can include activities such as scheduled major overhaul expenses for maintaining the prime mover equipment at a power plant, balance of plant major maintenance (which is major maintenance on the equipment at a given plant that

cannot be accomplished as part of routine maintenance or while the unit is in commercial operation), and labor and spare parts associated with these activities.

Major maintenance activities are periodic undertakings rather than costs that are incurred on a continual basis as the resource is operating. It is for this reason that the ISO's definition of operations and maintenance costs has not included major maintenance. While Management recognizes that generating resources do face major maintenance costs, we determined that including those costs in the variable operations and maintenance cost values would be a wholesale change to the ISO's definition of that cost component. Such a change was well outside the scope of this effort which was simply to update the operations and maintenance cost values as currently defined.

In response to this concern, however, an evaluation of how major maintenance costs can be best captured in "cost-based" calculations will be included in the next iteration of the commitment costs stakeholder initiative. There was receptiveness to the idea that these costs might be best accounted for in the cost-based calculation of start-up costs. Additionally, interim methodologies by which generating resources can express their major maintenance costs to the ISO were discussed. Those methodologies include (1) submission of minimum load costs directly to the ISO through use of the registered cost option rather than relying on the ISO's cost-based calculations; and (2) use of the option to negotiate a higher operations and maintenance cost adder with the Independent Entity.

CONCLUSION

Management recommends that the Board approve the revised operations and maintenance cost values authorize Management to make all necessary and appropriate filings with FERC to implement the proposed tariff change.