



PJM MRC
Variable O&M Cost Development

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Constellation Agrees with PJM on Key Principles

- Costs that vary directly with run time or starts, such as LTSAs, are properly classified as variable costs and properly includable in VOM and a unit's cost-based offer, as reflected in the PJM package.
- Time-based projects are improperly classified as variable costs; as the PJM proposal acknowledges.

Constellation package mimics the terms of the PJM Package except for the definition of Major Maintenance and the description of allowable expenses

Nuclear Project Costs

- Nuclear Major Maintenance project costs are planned years in advance
- Nuclear Major Maintenance occurs at defined times coincident with planned refueling outages, *irrespective of run hours between outages*
- Nuclear refueling outages are typically planned for every 18-24 months
- Nuclear Major Maintenance is typically completed during the refueling outages to prevent costly force outages in between planned refueling cycles

Time-based Nuclear Planning Is Inconsistent With PJM's VOM Classifications

- The PJM proposal incorrectly defines projects associated with a nuclear planned outage as Major Maintenance costs.
 - PJM defines Major Maintenance as costs that “vary directly with electric production.”
 - Costs that “vary with electric production” are typically measured by number of run hours or number of starts (e.g., LTSA).
- Nuclear Major Maintenance varies by time, not with run hours or starts
- “Major Maintenance” project costs for PJM nuclear facilities incurred during planned refueling outages do not vary with electric production; it varies by time consistent with our planned outages.

Constellation Proposal

-Strike references to “reactor” and “reactor refueling”

-Add to the following addendum to the OA and Manual provisions to be developed from the provisions described in Matrix Row 5a (Allowable Expenses on Systems Directly Related to Electric Production) and 8d (Definition of Major Maintenance):

Notwithstanding the foregoing, for the purposes of this provision, nuclear refueling and associated major maintenance are considered fixed costs not directly attributed to the production of energy and therefore not includable in VOM.

PJM	Constellation
1) Allowable expenses include only major maintenance costs for units that have default minor maintenance adder, Major maintenance are overhaul, repair, or refurbishment that requires disassembly to complete of boiler, reactor, heat recovery steam generator, steam turbine, gas turbine, hydro turbine, generator, or engine.	1) Allowable expenses include only major maintenance costs for units that have default minor maintenance adder, Major maintenance are overhaul, repair, or refurbishment that requires disassembly to complete of boiler, reactor, heat recovery steam generator, steam turbine, gas turbine, hydro turbine, generator, or engine.
2) Examples of major maintenance include: <ul style="list-style-type: none">• turbine blade repair/replacement;• turbine diaphragm repair;• turbine casing repair/replacement;• turbine bearing repair/refurbishment;• turbine seal repair/replacement;• steam stop, throttle, or intercept valve repairs;• nozzle block repairs• generator stator or rotor rewind, refurbishment, or replacement;• compressor blade repair/replacement;• hot gas path inspections, repairs, or replacements• Selective Catalytic Reduction and CO Reduction Catalyst replacement;• scrubber refurbishment;• water wall panel replacement;• pendant or super heater replacement;• economizer replacement;• diesel/reciprocating engine overhaul.• Reactor refueling• Steam generator overhaul/replacement	2) Examples of major maintenance include: <ul style="list-style-type: none">• turbine blade repair/replacement;• turbine diaphragm repair;• turbine casing repair/replacement;• turbine bearing repair/refurbishment;• turbine seal repair/replacement;• steam stop, throttle, or intercept valve repairs;• nozzle block repairs• generator stator or rotor rewind, refurbishment, or replacement;• compressor blade repair/replacement;• hot gas path inspections, repairs, or replacements• Selective Catalytic Reduction and CO Reduction Catalyst replacement;• scrubber refurbishment;• water wall panel replacement;• pendant or super heater replacement;• economizer replacement;• diesel/reciprocating engine overhaul.• Reactor refueling• Steam generator overhaul/replacement
3) Major maintenance included in the VOM template is submitted for PJM/IMM review	3) Major maintenance included in the VOM template is submitted for PJM/IMM review
4) Both capital and expense costs are allowable.	4) Both capital and expense costs are allowable.
	5) Notwithstanding the foregoing, for the purposes of this provision, nuclear refueling and associated major maintenance are considered fixed costs not directly attributed to the production of energy and therefore not includable in VOM.

Pitfalls of the PJM Proposal

- Nuclear units, due to the must-run nature of the technology, are self-scheduled and thus would not likely have the opportunity for cost recovery via the cost-based offer.
- The PJM proposal mandates that all costs classified as Major Maintenance must be included in VOM and reflected in a unit's cost-based energy offer, irrespective of how the unit owner reasonably classifies such costs.
 - Conversely, costs includable in VOM are not allowed as a component of gross costs in developing an ACR.
- Defining planned outage costs as a component of VOM may not permit financially challenged nuclear units from developing an accurate ACR to assess retirement.
- Defining planned outage costs as a component of VOM will require a significant annual VOM accounting for all nuclear units; akin to developing an ACR for each unit each year