

# Variable Operations and Maintenance Cost Proposals

MRC

July 26, 2018

Joe Bowring  
Joel Romero Luna  
Catherine Tyler



Monitoring Analytics

# The Sole Purpose of Cost-Based Offers is Market Power Mitigation

- **The stated purpose of PJM Manual 15 is to support market power mitigation (see M15 Section 1.6.1).**
  - **Cost offers do not guarantee avoidable cost recovery.**
- **Market power is only mitigated if suppliers cannot raise prices above a competitive level.**
- **The competitive level is short run marginal cost.**
- **The IMM's package is the only proposal that would mitigate market power in the PJM Energy Market.**

# Variable Operations Costs

- **Variable Operations and Maintenance Costs are currently separated in Manual 15.**
- **Manual 15 does not currently define variable operations costs. They appear throughout M15.**
  - **Other fuel related costs**
  - **Incremental adjustment parameter**
  - **VOM combined in some calculations, like no load.**
- **The IMM and RECO packages clarify and consolidate the use of variable operations costs.**
- **The PJM and AEP proposals do not.**

# Magnitude of Short Run Marginal Costs

Unit Type	Short Run Marginal Costs (\$/MWh)	Heat Rate (Btu/kWh)	VOM (\$/MWh)
CT	\$28.95	9,437	\$0.25
CC	\$20.07	6,679	\$1.00
CP	\$30.52	9,250	\$4.00
DS	\$142.62	9,660	\$0.25
Nuclear	\$8.50	NA	\$3.00
Wind	\$0.00	NA	\$0.00
Solar	\$0.00	NA	\$0.00

- **The VOM level in the State of the Market Report reflects only variable operations costs.**
- **Short run marginal costs also include fuel and emissions allowance costs.**

# Variable Maintenance Costs

- **Manual 15 describes maintenance costs based on FERC accounts and excludes some maintenance costs from energy market cost-based offers.**
- **OA Schedule 2 describes:**
  - **incremental maintenance**
  - **incremental labor costs**
  - **peak prepared for maintenance costs**
  - **maintenance adder**
- **Only the IMM package would clarify that maintenance costs are not short run marginal costs and not includable in cost-based offers.**

# Maintenance Costs in Cost-Based Offers

- **The IMM monitors and analyzes the use of maintenance costs in cost-based offers.**
- **Includable maintenance costs are not consistently defined across market participants.**
- **The IMM and RECO packages provide transparency around the application of the market rules with respect to VOM**
- **The PJM and AEP packages do not provide transparency around the application of the market rules with respect to VOM.**

# Market Impacts

- **Maintenance costs affect LMP directly for marginal units. (See SOM Table 3-85)**
- **Maintenance costs affect uplift, run hours, cycling, and withholding for all units.**
- **Specific provisions in M15 exacerbate the effects of maintenance costs on the energy market.**
  - **Maintenance in dollars per start or per hour**
  - **Cyclic starting and peaking factors**

# VOM Outcomes Ranked by Effectiveness of Market Power Mitigation

- 1. Short Run Marginal Cost, IMM package**
- 2. Capped VOM levels, RECO proposal**
- 3. Status Quo**
- 4. Increase allowable maintenance costs, optional EIA Defaults, no fixed maintenance for energy only resources, AEP package**
- 5. Increase allowable maintenance costs, include fixed maintenance for energy only resources, PJM package**



# Tariff Changes

- **Clear definitions of includable costs in cost-based offers should be included in the PJM tariff.**
- **The IMM package includes tariff changes, because the IMM thinks the result of any VOM package should be clarified in the tariff.**
- **All packages should be held to the same standard regarding whether tariff changes are required to define VOM in cost-based energy offers.**

**Monitoring Analytics, LLC**

**2621 Van Buren Avenue**

**Suite 160**

**Eagleville, PA**

**19403**

**(610) 271-8050**

**[MA@monitoringanalytics.com](mailto:MA@monitoringanalytics.com)**

**[www.MonitoringAnalytics.com](http://www.MonitoringAnalytics.com)**

