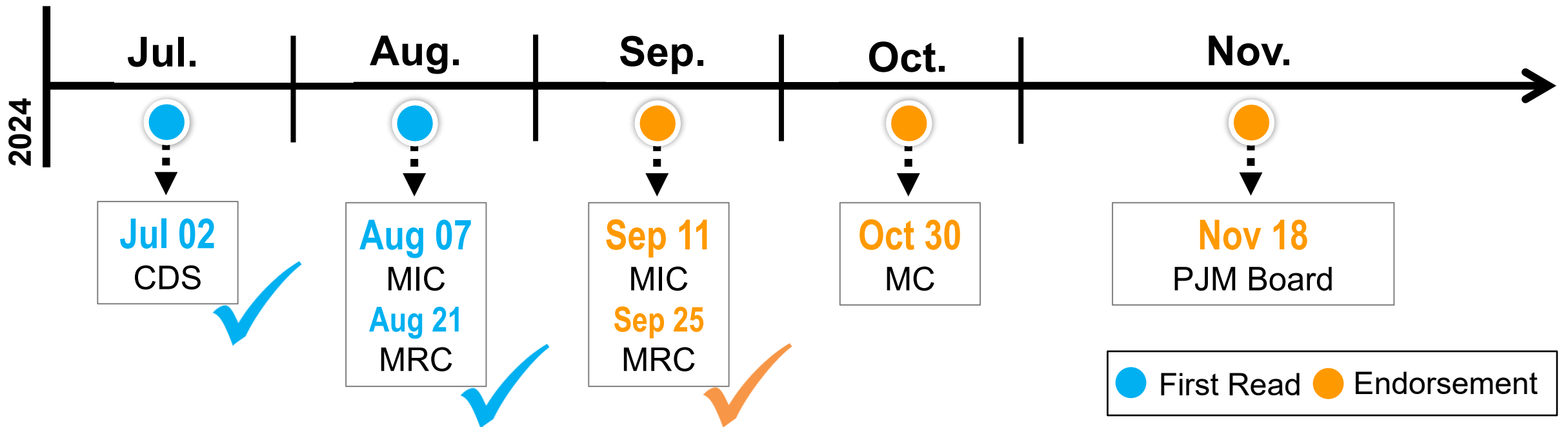


Manual 15

Biennial Review Changes

Jennifer Warner-Freeman
Members Committee
October 30, 2024



- Throughout - Standardize No Load, no-load, No – Load, etc. to no-load
- 2.6.11 - Remove table of original VOM default values to avoid confusion
- Update numbering of sections 3.3.1, 3.3.2, 4.3.1, 6.3.1, 6.3.2, 7.3.1
- 2.4, 4.4, 5.4, 6.4 – Remove the extra "+" from the of the Startup Cost formula and change TRFC to TFRC
- 6.4 - Remove blank Note: box
- 7.2 - Remove $()()$, fix errant "(", fix summation notation
- 11.2.1 - Correct the fuel cost formula by changing the multiplication to division
- 13.3 - Remove "Name to be determined" from Exhibit 26
- Att. B - Update graphs to have appropriate Y-axis labels

2.6.11 Default Adders

A Market Seller may elect to utilize a default minor maintenance adder or submit unit-specific minor maintenance costs to the Office of Interconnection and the Market Monitoring Unit. All maintenance costs on a unit-specific basis must be submitted to the Office of Interconnection and the Market Monitoring Unit.

A Market Seller may include a default operating costs adder in the cost-based energy offer in lieu of submitting unit-specific operating costs for review and approval.

~~The default adders are as follows:~~

Technology Type	Default Minor Maintenance Adder (\$/MWh)	Default Operating Costs Adder (\$/MWh)
Combined Cycle	0.98	0.40
Combustion Turbine	3.59	0.75
Reciprocating Engine	4.03	1.62
Fossil Steam	1.71	2.87

The default adders ~~shown above~~ shall be escalated annually utilizing the Handy-Whitman Index and shall be posted annually by the Office of Interconnection. The default adders may not be utilized by a Market Seller prior to the expiration of a unit-specific maintenance adder or operating costs adder previously approved by the Office of Interconnection.

3.2 Fuel Cost

Note:

The information in Section 2.2 contains basic Fuel Cost information relevant for all unit types. The following information only pertains to nuclear units.

3.3.1 Basic Nuclear Fuel Cost

Basic Nuclear Fuel Cost -Basic nuclear fuel cost shall be based on the dollars in FERC Account 518, less in-service interest charges (whether related to fuel that is leased or capitalized). This quantity shall be calculated in units of dollars per MMBtu, as forecast for the applicable fuel cycle.

$$\frac{\text{BasicNuclearFuelCost } (\$/\text{MMBtu})}{\text{Fuel Cycle Heat Input (MMBtu)}} = \frac{(\text{Dollars in FERC Account 518} - \text{InterestCost})}{\text{Fuel Cycle Heat Input (MMBtu)}}$$

See definition in FERC account 518 in Attachment A, A2.5

3.3.2 Total Fuel-Related Costs for Nuclear Units

Note:

$$\text{TotalFuelRelatedCostsforNuclearUnits} = \text{BasicNuclearFuelCost} + \text{MaintenanceAdder}$$

3.3 Incremental Energy Cost

Note:

The information in Section 2.3 contains basic Incremental Energy Cost information relevant for all unit types. The following information only pertains to nuclear units.

Renumber
previously mis-
numbered
sections

Change to TFRC

$$\begin{aligned}
 \text{Start up Cost (\$/Start)} = & \\
 & [\text{Start Fuel Consumed (MMBtu/Start)} * \text{TRFC (\$/MMBtu)} * \text{Performance Factor}] + \\
 & [\text{Station Service (MWh)} * \text{Station Service Rate (\$/MWh)}] + \\
 & \text{Start Maintenance Adder (\$/Start)}
 \end{aligned}$$

Note:

Move up to
correct location

$$\text{Pumping Power Cost} \left(\frac{\$}{\text{MWh}} \right) = \frac{\sum_{168}^{\text{Real Time LMP}} \left(\frac{\$}{\text{MWh}} \right) * \text{Pumping Power (MWh)}}{\sum_{168}^{\text{Pumping Power (MWh)}}$$

$$\text{Pumped Storage Fuel Cost (\$/MWh)} = \frac{\text{Pumping Power Cost (\$/MWh)}}{\text{Pumping Efficiency}}$$

Correct the
notation

UPPER LIMIT
 \sum
LOWER LIMIT

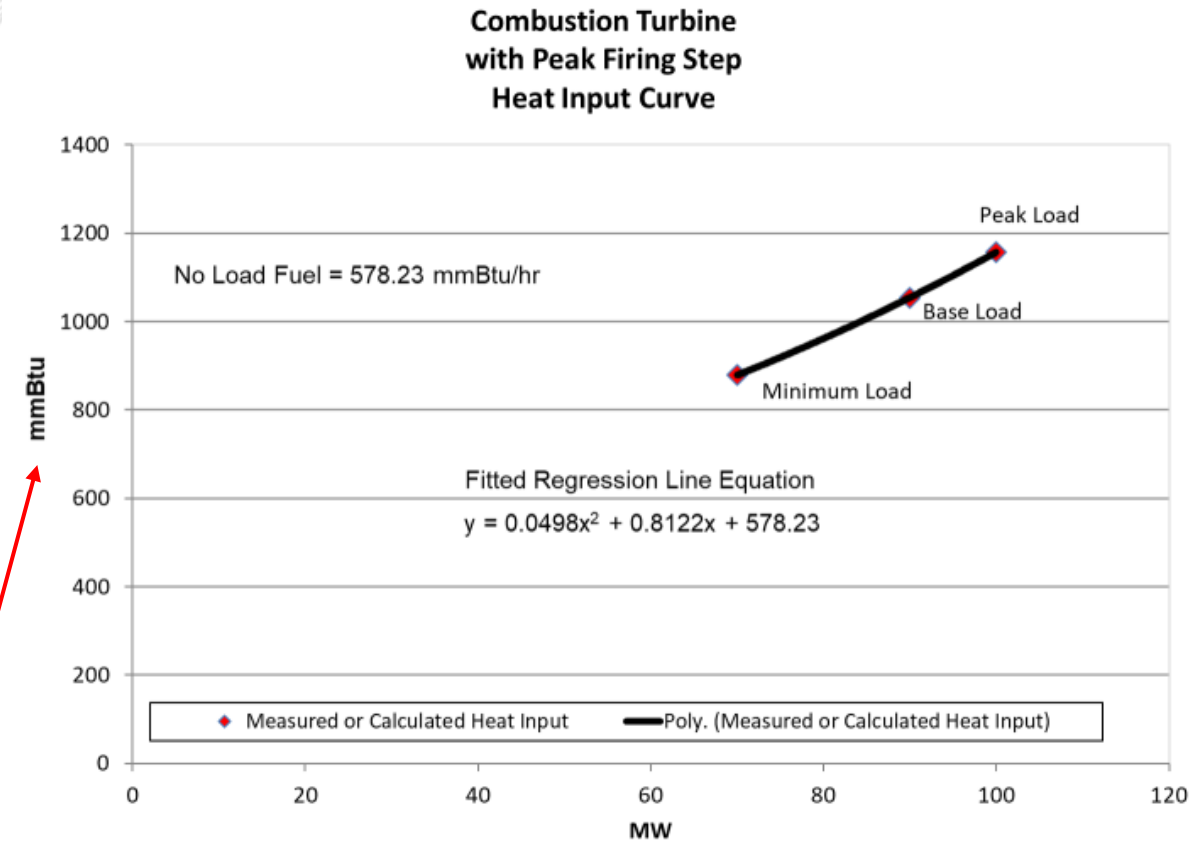
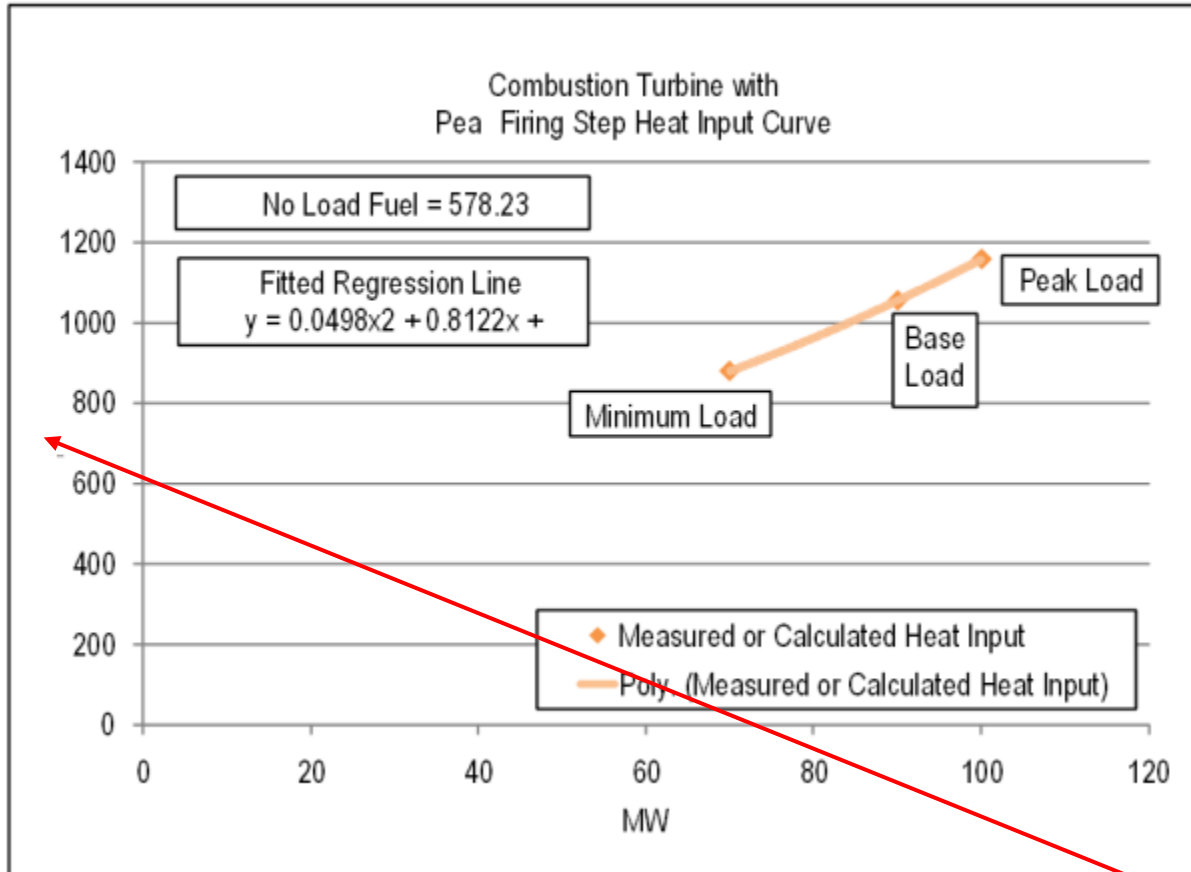
Change to
division

$$\text{Fuel Cost } \left(\frac{\$}{\text{MWh}} \right) = \left(\text{average charge cost } \left(\frac{\$}{\text{MWh}} \right) * \text{efficiency factor} \right)$$

Debt Interest Rate Example Calculation

	Value
Most recent Net CONE ATWACC	8% (2018 value)
(Current year -2) Moody Utility Index	4.68%
Current year Moody Utility Index	3.5%
Current year CRF Debt Interest Rate	ATWACC + (only if greater than 200 basis points) [2020 Moody Utility index – 2018 Moody Utility Index]
Current year CRF Debt Interest Rate	8.0% + (only if greater than 200 basis points) [3.5% - 4.68%] = 8%

~~Exhibit 26: Name to be determined~~



Replace any graphs with missing Y-axis labels

Presenter/ SME:
Jennifer Warner-Freeman,
Jennifer.Freeman@pjm.com

M15 Biennial Review



Member Hotline

(610) 666 – 8980

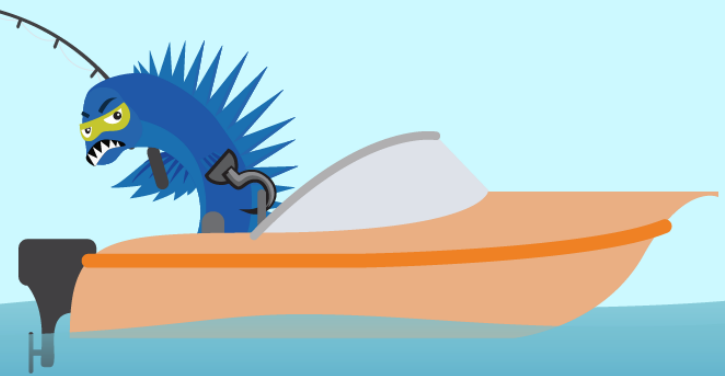
(866) 400 – 8980

custsvc@pjm.com

**PROTECT THE
POWER GRID**
**THINK BEFORE
YOU CLICK!**



**BE ALERT TO
MALICIOUS PHISHING
EMAILS**



Report suspicious email activity to PJM.
Call (610) 666-2244 or email it_ops_ctr_shift@pjm.com