



# Manual 15

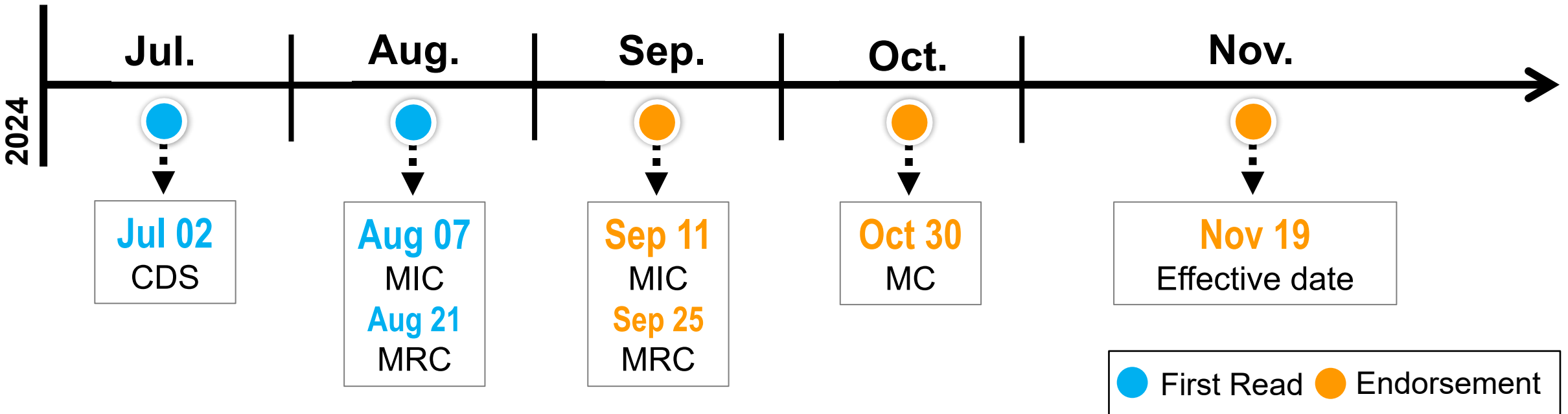
## Biennial Review Changes

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Action Required	Deadline	Who May Be Affected
Review Manual 15 updates	08/07/2024	Market Sellers

- 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



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## M15 Biennial Review



### Member Hotline

(610) 666 – 8980

(866) 400 – 8980

[custsvc@pjm.com](mailto:custsvc@pjm.com)

**PROTECT THE  
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THINK BEFORE  
YOU CLICK!**



Be alert to  
malicious  
phishing emails.

**Report suspicious email activity to PJM.**  
(610) 666-2244 / [it\\_ops\\_ctr\\_shift@pjm.com](mailto:it_ops_ctr_shift@pjm.com)



# Appendix

**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

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

**Note:**

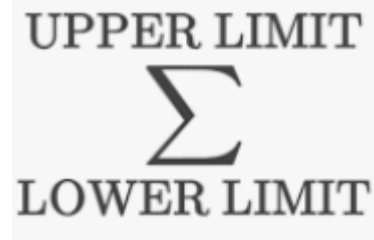
Move up to correct location

)

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

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

Correct the notation



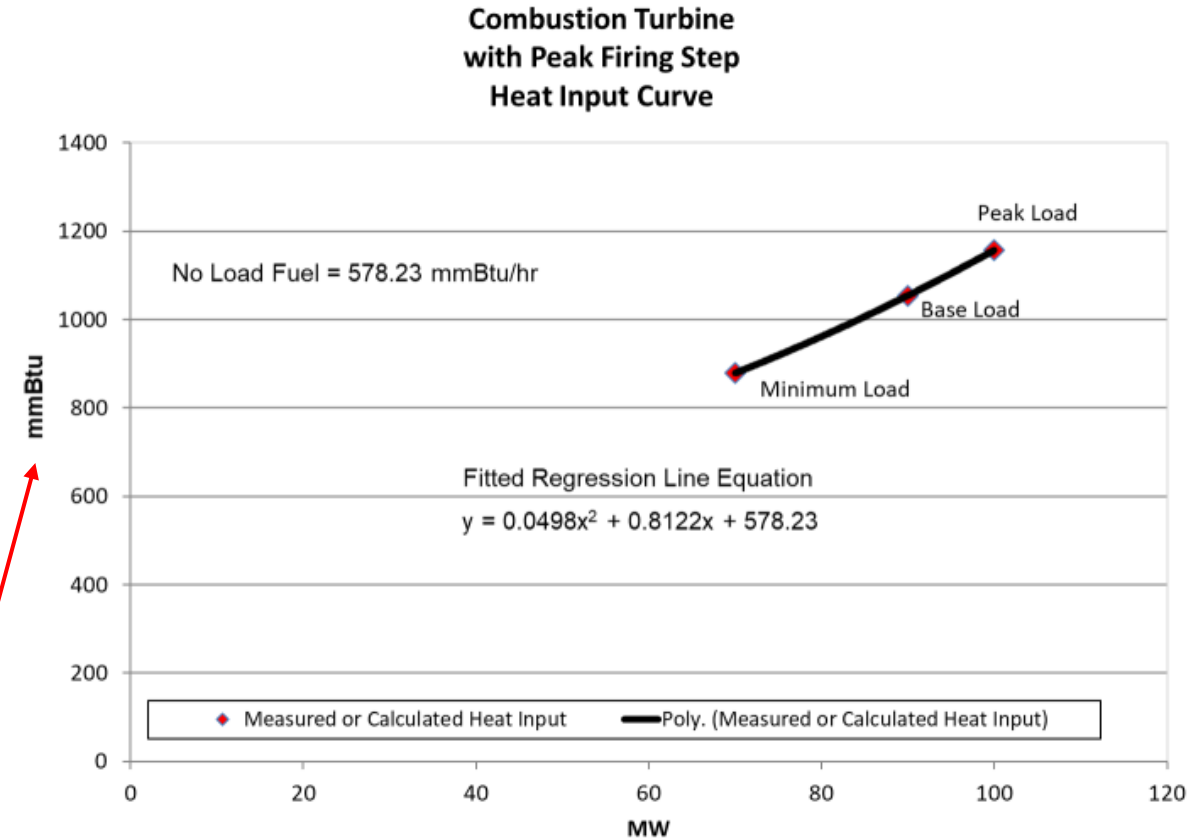
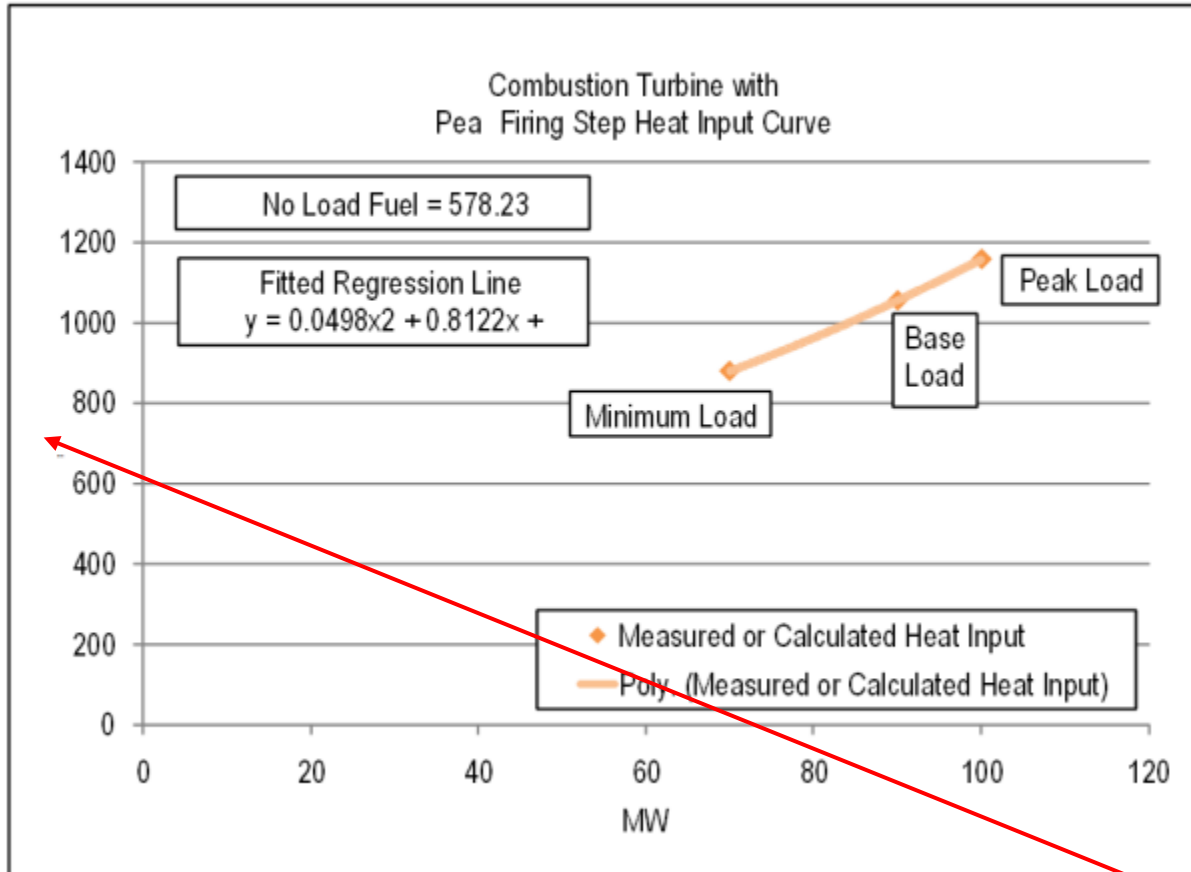
Change to  
division

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

Debt Interest Rate Example Calculation

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

~~Exhibit 26: Name to be determined~~



Replace any graphs with missing Y-axis labels