



Combined Cycle Modeling Options in PJM

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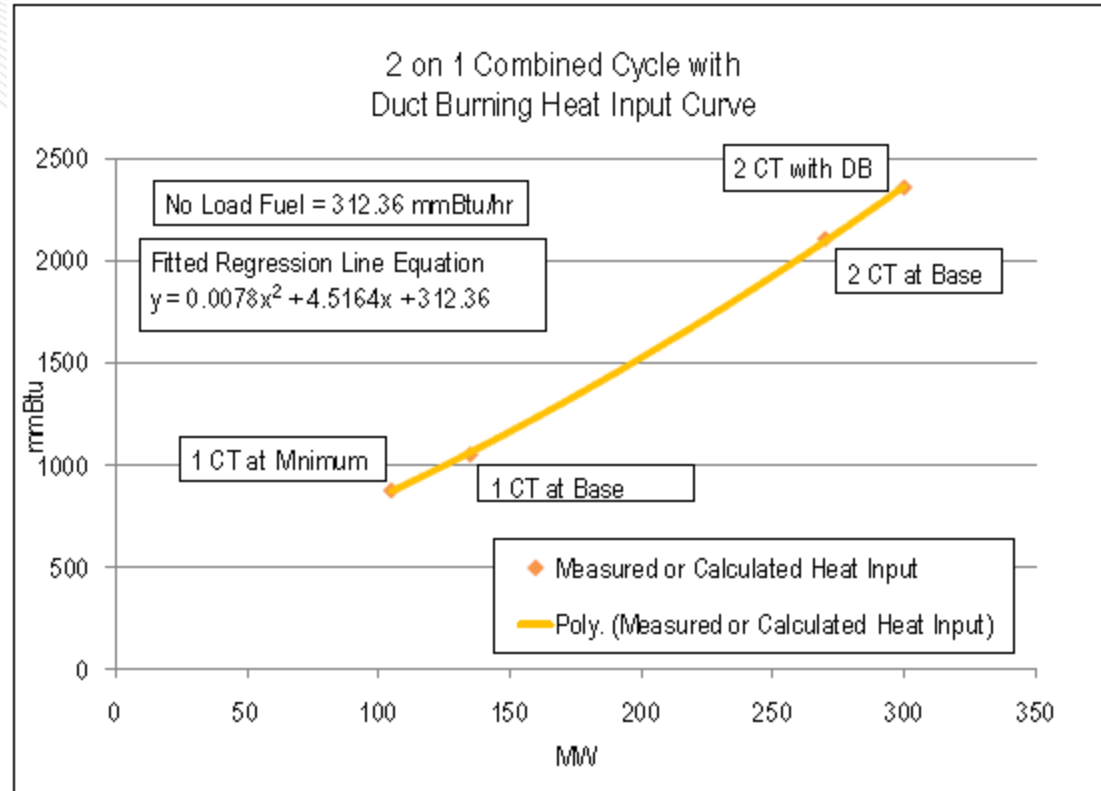
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Combined Cycle Owners Users Group

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- Using adjusted No-load to create a CC offer curve
- Segmented ramp rate for modeling the timing of configuration changes
- Changing Eco Min hourly to indicate available configurations
- Pseudo Model to separate configurations into separate market units

- The No-load can be adjusted to create a monotonically increasing offer curve (See Example B.4 in Manual 15)



- Segmented ramp rates can be used to model:
 - Starting of additional CTs
 - Starting Duct Burners
 - However there are no minimum run times and the offer segment could be dispatched down in the next SCED case.

MW	Segments	Ramp Rate	
150	250	10 MW/Min	Eco Min to Base Load
250	300	0.1 MW/Min	Duct Burner

- CC Owners could update Eco Min hourly to hourly specify whether the unit is in a 1 X 1 or 2 X 1 configuration.

Hour	Eco Min	Configuration
8	100	1 x 1 Configuration
9	200	2 x 1 Configuration
10	200	2 x 1 Configuration
11	100	1 x 1 Configuration

- Split Combined Cycle into a separate market units that contain 1 CT and a portion of the steam turbine.
 - Requires changes to EMS Model and telemetry
 - Separate Markets Gateway input for each unit
 - Power Meter submittals for each market unit must include their portion of ST MWs

2X1 Combined Cycle Unit Modeled as 2 Market Units

