Combined Cycle Modeling Options

Design Components	Additive (Pseudo) Model — Combustion Turbines can be modeled as separate Market Units. Steam Turbine is split evenly and modeled as part of the Combustion Turbines.		Alstom Configuration Model — Existing Add-On Combined Cycle Module which has the ability to model Combined Cycle Units as single Market Unit with many configurations.	
	PROS	CONS	PROS	CONS
1 eMKT/EMS Implementation		Combined Cycle Enhancements would have to be developed.	Existing Add-on Module	Logic to tie ITSCED solution to RTSCED solution to permit state transitions needs to be devloped.
2 Rebidding into Real Time Energy Market	Combustion Turbine Modules that are not picked up in the Day Ahead Energy Market can be Re-bid into the real time energy market at a different $/MWh.			Configurations that are not picked up in the Day Ahead Energy Market cannot be Re-bid into the Real Time Energy Market.
3 Flexibility - More	Unit Owners can offer individual Combustion/Steam Turbine Modules	Unit Owners may not offer Efficiency Increase gained from Operation of all Modules. Duct firing is implicitly handled by the unit max and price curve (same as today)	Unit Owner can offer Multiple Configurations (1x0, 1x1, 2x1) including Duct Firing.	
4 Flexibility - Less	Units owners can still offer all Combustion/Steam Turbines Modules as one Market Unit.		Unit Owner can still offer only one Configuration.	
5 eMKT Operational Parameters	Each Market Unit will have its own set of Unit parameters: separate Start-up and Min Run Times, separate Up & Down Ramp Rates, Maximum Daily/Weekly Starts, Min Down Time.		Each Configuration will have its own set of Unit parameters: separate Start-up and Min Run Times, separate Up & Down Ramp Rates, Maximum Daily/Weekly Starts, Min Down Time.	
6 Simple Cycle Operation		Separate Simple Cycle Unit Required	Simple Cycle Operation can be one of the Configurations offered.	
7 Transitioning Between Operating Configurations		Needs to be handled in the segmented ramp rate	A Transition Matrix is defined which shows Allowable Configurations Transitions. Switching to a new configuration will honor the startup time and cost to transition to the next state.	
8 Steam Turbine Warmup Periods	Included in Market Unit Startup Cost & Time	Needs to be handled in the segmented ramp rate	Included in Configuration Startup Cost & Time	
Peaking Operation Modes		Peaking Operation Modes such as duct burners, Fogging, & Peak Firing are handle via the Bid Curve and eco max. RTSCED will possibly dispatch the unit in and out of the peaking band without honoring min run time.	Peaking Operation Modes such as duct burners, Fogging, & Peak Firing can be a Separate Configuration. New logic will require ITSCED to allow RTSCED to dispatch into peaking bands and will honor startup and min run time.	
9 Metering		Either New Metering or Telemetry required for each combustion turbine Module (including apportioned Steam Turbine Output).	No new metering required	