MIC Item 04 - Operating Parameter Packages

Design Component	Status Quo	~~Package A~~	Package B	Package C	PJM/IMM Package
Cold/Warm/Hot Notification Time (hour)	The time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state. Start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc.	The time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state. Start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc. This should include travel time to get to the plant when it is not staffed, and the time it takes to procure gas for dispatch.	The time interval, measured in hours, between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state.	The time interval, measured in hours, between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state. This should include travel time to get to the plant when it is not staffed, and the time it takes to procure gas for dispatch.	Status Quo
Cold/Warm/Hot Start-up Time (hour)	The time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero for a generating unit in its cold/warm/hot temperature state. For a Combined Cycle unit it is the time interval from the beginning of the start sequence to the point after first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero. Start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc.	The time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero for a generating unit in its cold/warm/hot temperature state. For a Combined Cycle unit it is the time interval from the beginning of the start sequence to the steam turbine generator breaker closure.	The time interval, measured in hours, from the beginning of the start sequence to the generator breaker close for a generating unit in its cold/warm/hot temperature state. For a Combined Cycle unit it is the time interval from the beginning of the start sequence to first combustion turbine generator breaker close. Start sequence includes steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment.	The time interval, measured in hours, from the beginning of the start sequence to the generator breaker close for a generating unit in its cold/warm/hot temperature state. For a Combined Cycle unit it is the time interval from the beginning of the start sequence to first combustion turbine generator breaker close. Start sequence includes steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment.	Status Quo

Minimum Run Time (hour)	The minimum number of hours a unit must run, in real-time operations, from the time after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero to the time of generator breaker opening, as measured by PJM's state estimator. For Combined Cycle units this is the time period after the first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero and the last generator breaker opening as measured by PJM's state estimator.	The minimum number of hours a unit must run, in real-time operations, from the time after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero to the time of generator breaker opening, as measured by PJM's state estimator. For Combined Cycle units this is the time period after the ~~first combustion~~ steam turbine generator breaker closure ~~which is typically indicated by telemetered or aggregated state estimator MWs greater than zero and~~ to the last generator breaker opening as measured by PJM's state estimator.	The minimum number of hours a generating unit must run, in real-time operations, from the time the unit is dispatchable to the time when the unit is released by PJM.	The minimum number of hours a generating unit must run, in real-time operations, from the time the unit is dispatchable to the time when the unit is released by PJM.	The minimum number of hours a unit must run, in real-time operations, from the time after the unit is dispatchable to the time of generator breaker opening, as measured by PJM's state estimator. For Combined Cycle units this is the time period after the unit is dispatchable to the time of the last generator breaker opening as measured by PJM's state estimator.
Cold/Warm/Hot Soak Time (hour)	The minimum number of hours a unit must run, in real-time operations, from the time after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero to the time the unit is dispatchable. For Combined Cycle units this is the minimum number of hours from the time just after the first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero and the time the unit is dispatchable.	The time interval, measured in hours, from the generator breaker closure to dispatchable point for a generating unit in its cold/warm/hot temperature state. For a Combined Cycle unit it is the time interval from the steam turbine generator breaker closure to its dispatchable point. Time to Dispatchable includes any thermal soaking steps after synchronization. For Combined cycle units, Time to Dispatchable includes starting and synchronizing additional gas turbines.	TIME TO DISPATCHABLE: The time interval, measured in hours, from the generator breaker close to dispatchable point for a generating unit in its cold/warm/hot temperature state. For a Combined Cycle unit it is the time interval from the first combustion turbine generator breaker close to its dispatchable point. Time to Dispatchable includes any thermal soaking steps after synchronization. For Combined cycle units, Time to Dispatchable may include starting and synchronizing additional gas turbines and steam turbine.	TIME TO DISPATCHABLE: The time interval, measured in hours, from the generator breaker close to dispatchable point for a generating unit in its cold/warm/hot temperature state. For a Combined Cycle unit it is the time interval from the first combustion turbine generator breaker close to its dispatchable point. Time to Dispatchable includes any thermal soaking steps after synchronization. For Combined cycle units, Time to Dispatchable may include starting and synchronizing additional gas turbines and steam turbine.	The minimum number of hours a unit must run, in real-time operations, from the time after generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero to the time the unit is dispatchable. For Combined Cycle units this is the minimum number of hours from the time just after the first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero and the time the unit is dispatchable. (Un-nested) (New PLS Parameter)

Minimum Down Time (hour)	The minimum number of hours under normal operating conditions between unit shutdown and unit startup, calculated as the shortest time difference between the unit's generator breaker opening and after the unit's generator breaker closure, which is typically indicated by telemetered or aggregated state estimator MWs greater than zero. For Combined Cycles units this is the minimum number of hours between the last generator breaker opening and after first combustion turbine generator breaker closure which is typically indicated by telemetered or aggregated state estimator MWs greater than zero.	The minimum number of hours between the time of the last breaker opening and the beginning of the start sequence of a generating unit. For Combined Cycle units this is the minimum number of hours between the last generator breaker opening and the beginning of the start sequence. (Un-nested Version)	The minimum number of hours between the time of the last breaker opening and the beginning of the start sequence of a generating unit.	The minimum number of hours between the time of the last breaker opening and the beginning of the start sequence of a generating unit.	Status Quo
Ramp Down Time (hour) – New Un-nested Parameter	Part of Minimum Run Time	The time, in hours, to reduce the output of the unit(s) from Economic Minimum to breaker open/last breaker open.	The time interval, measured in hours, from the time when a generating unit is released by PJM to the last breaker opening. Ramp Down Time is a function of the output of the unit when released by PJM and the MW at which the last breaker opens. The time from release to Eco min is determined by MW output at release and ramp down rate. The time from Eco min to breaker open can be an offered parameter value.	The time interval, measured in hours, from the time when a generating unit is released by PJM to the last breaker opening. Ramp Down Time is a function of the output of the unit when released by PJM and the MW at which the last breaker opens. The time from release to Eco min is determined by MW output at release and ramp down rate. The time from Eco min to breaker open can be an offered parameter value.	Status Quo
Maximum Run Time (hour)	The maximum number of hours a unit can run over the course of an operating day as measured by PJM's state estimator.				Status Quo

Day Ahead Model Updates			Day Ahead model should estimate MW during Time to Dispatchable (breaker close to Eco min) and Ramp Down Time (release to Eco min and Eco min to breaker open).	Day Ahead model should estimate MW during Time to Dispatchable (breaker close to Eco min) and Ramp Down Time (release to Eco min and Eco min to breaker open).	TBD