



Updated Operating Parameter Definitions

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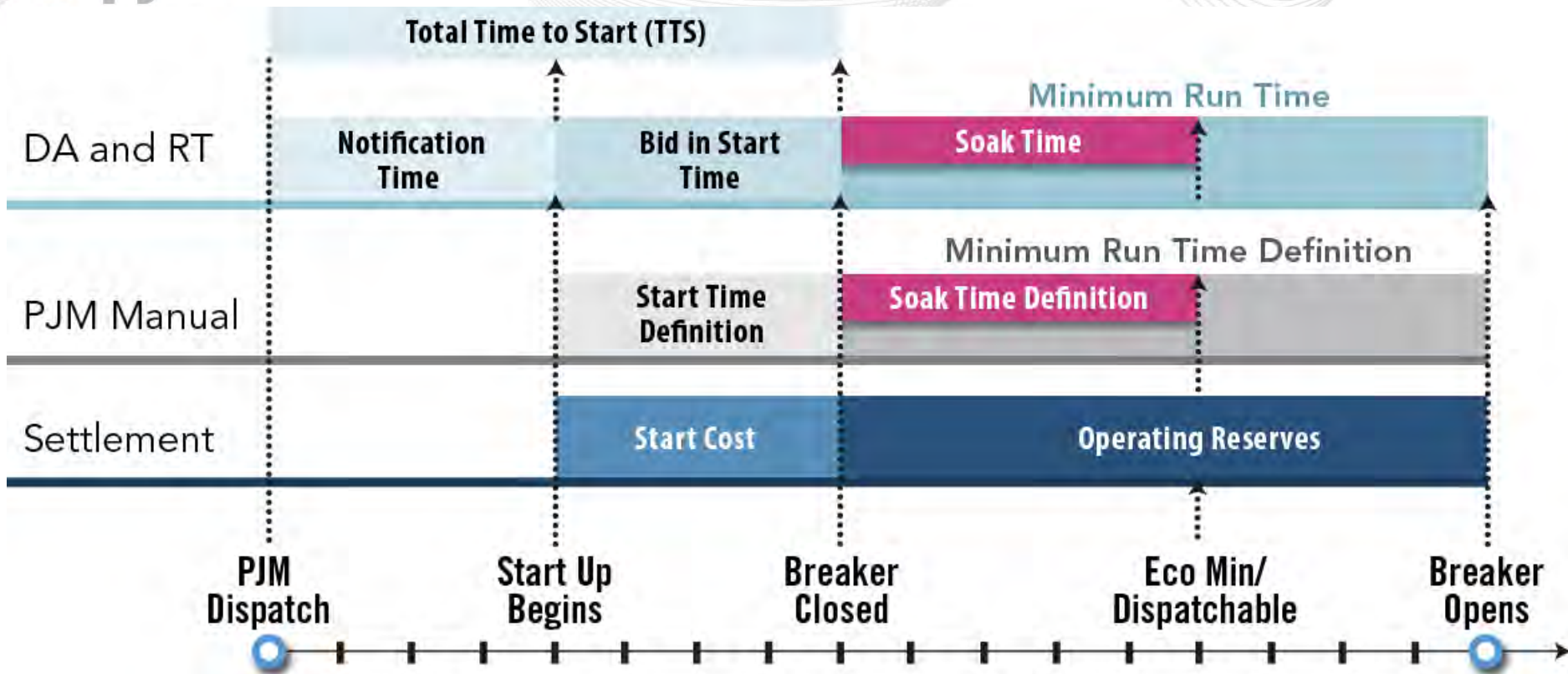
Market Implementation Committee

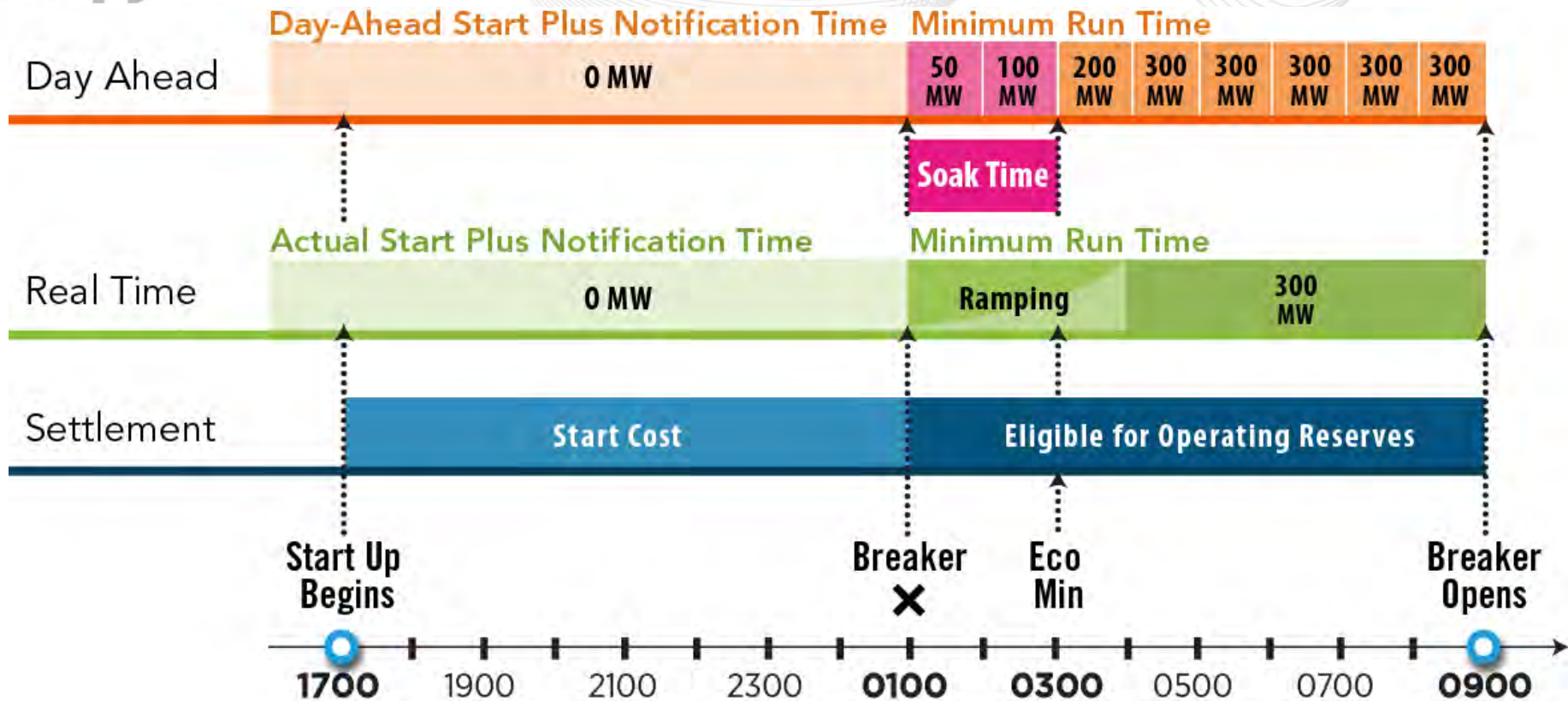
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A number of operating parameters that are only defined in the eMKT/Markets Gateway User's Guide have led to confusion among the members on what values should be entered into eMKT/Markets Gateway. PJM has also identified a few terms in Manual 15 that could be clarified.

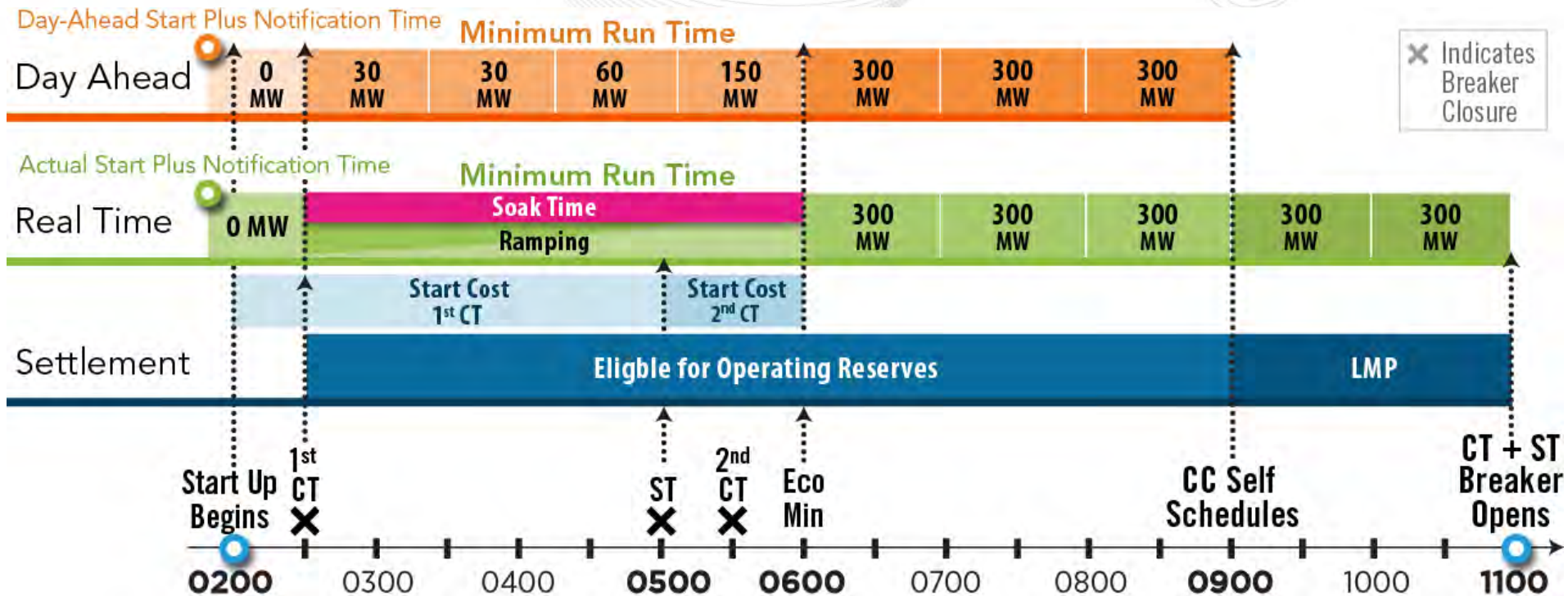
Parameter	Current Location	Definition Location
Notification Time	User Guide	M-11
Start-up Time	User Guide	M-11
Minimum Run Time	User Guide	M-11
Turn Down Ratio	User Guide	M-11
Minimum Down Time	New/User Guide	M-11
Maximum Daily Starts	User Guide	M-11
Maximum Weekly Starts	User Guide	M-11
Maximum Run Time	User Guide	M-11
Soak Time (proposed new parameter)	New	M-11
Start-up cost	M-15	M-15
No-load cost	M-15	M-15
Cancellation fees (cancellation credit)	M-11/28	M-11/28

Proposed Operating Parameter Relationship

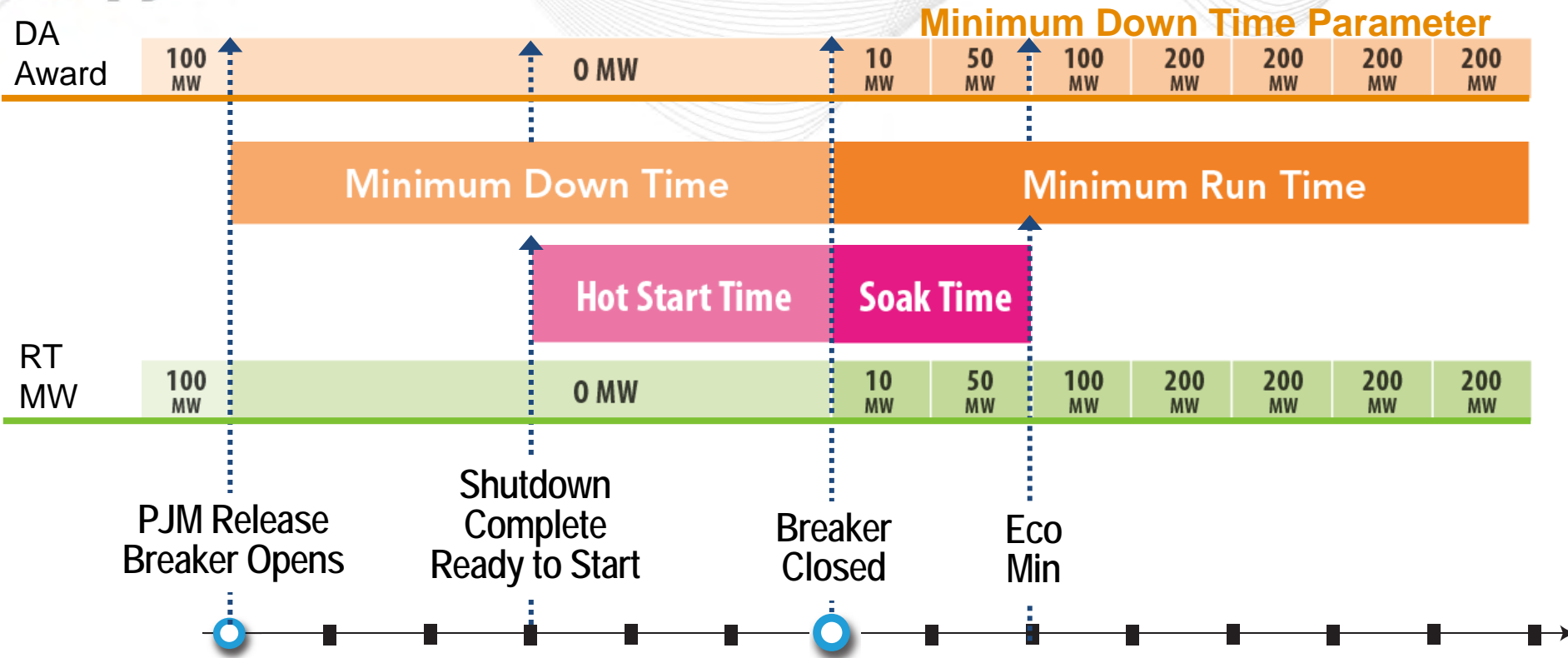




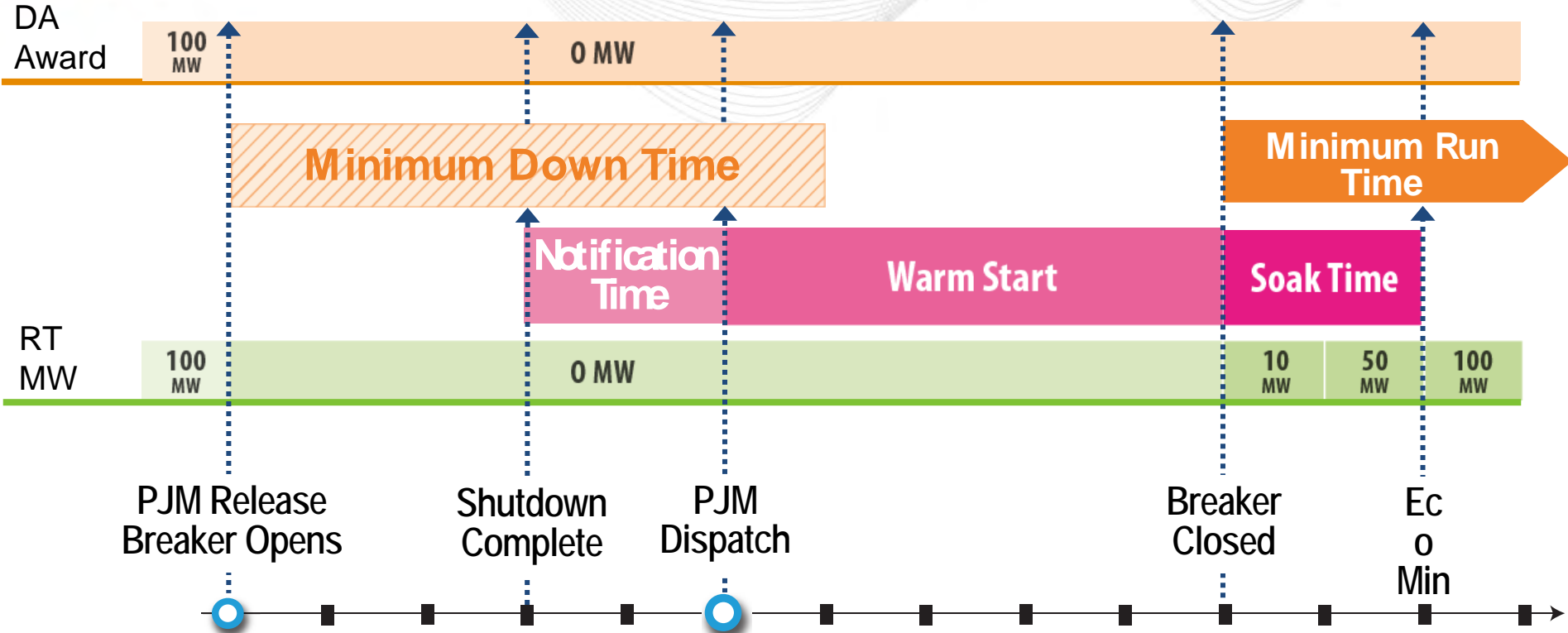
Operating Parameter Relationship - Combined Cycle Example



Day-Ahead Dispatch / Min Gen Event



Real-Time Dispatch After Shutdown



Cold/Warm/Hot Notification Time (hour) — *The time interval between PJM notification and the **beginning of the start sequence**, **which includes any valve operation, startup of auxiliary equipment of beginning a checklist necessary for startup**, a generating unit that is currently in its cold/warm/hot temperature state.*

- *Replace parentheses with commas*

Red text are the previously presented changes to definitions in the user guide or manuals
Yellow highlights incorporate additional changes due to stakeholder feedback

Cold/Warm/Hot Startup Time (hour) — *The time interval, measured in hours, from the beginning of the start sequence, which includes any valve operation, startup of auxiliary equipment of beginning a checklist necessary for startup, to the generator breaker closure 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 ~~steam turbine~~ generator breaker closure.*

- *Replace parentheses with commas*

Minimum Run Time (hour) — *The minimum number of hours a unit must run, in real-time operations, from the time **of generator breaker closure to the time of generator breaker opening** (as measured by PJM's state estimator). **For Combined Cycle units this is the time period between the first combustion turbine generator breaker closure and the **last** steam-turbine-generator breaker opening.***

Turn Down Ratio — *The ratio of a unit's economic maximum MW to its economic minimum MW. (Manual 11 section 2.3.4)*

- *This definition has already added to M11*

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 the **unit's generator breaker closure**, as measured by telemetry available to PJM. **For Combined Cycles units this is the minimum number of hours between **the last** ~~steam turbine~~ generator breaker opening and **first combustion** ~~steam~~ turbine generator **breaker closure**.***

- *Added “under normal operating conditions”*

Maximum Daily Starts — *The maximum number of times that a unit can be started in a day under normal operating conditions.*

Maximum Weekly Starts — *The maximum number of times that a unit can be started in one week under normal operating conditions (168 hour period starting Monday 0001 hour).*

Maximum Run Time (hour) — *The maximum number of hours a unit can run before it needs to be shut down, calculated as difference between the time **of the first generator breaker closure** to the time **of the last generator breaker opening**.*

- *Added “of the first” and “of the last”*

Hot/Warm/Cold Soak Time (hour) — *The minimum number of hours a unit must run, in real-time operations, from the time of generator breaker closure to the time the unit is ~~at economic minimum or dispatchable~~. For Combined Cycle units this is the minimum number of hours from the time of the first combustion turbine generator breaker closure and the time the unit is ~~at economic minimum or dispatchable~~.*

- Deleted “economic minimum”

Start-up Costs (\$) — *The **unit** costs incurred by a Market Seller to bring the boiler, turbine, and generator from shut-down conditions to the point of breaker closure ~~and synchronization to the Transmission System~~ and is determined based on the cost of start fuel, total fuel-related cost, performance factor, electrical costs (station service), start maintenance adder, and additional labor cost if required above normal station manning.*

- Added “unit”

No-load Costs (\$/hour) — *The hourly **fixed** cost of a Market Seller, expressed in \$/hour, needed required to create the starting point of a monotonically increasing incremental cost curve (offer curve) for a generating unit.*

- Deleted "fixed"

Cancellation Fees (\$) — *The actual costs incurred by a Market Seller, that are typically included in Start-up Costs, when PJM cancels a pool-scheduled generation resource's start and the resource has not yet reached generator breaker closure ~~synchronized to the grid~~. Cancellation Fees shall be capped at the appropriate Start-up Cost for the resource as specified in its offer data.*

**Referenced in M-11 and M-28 as "cancellation credit" and "cancellation fees"*