

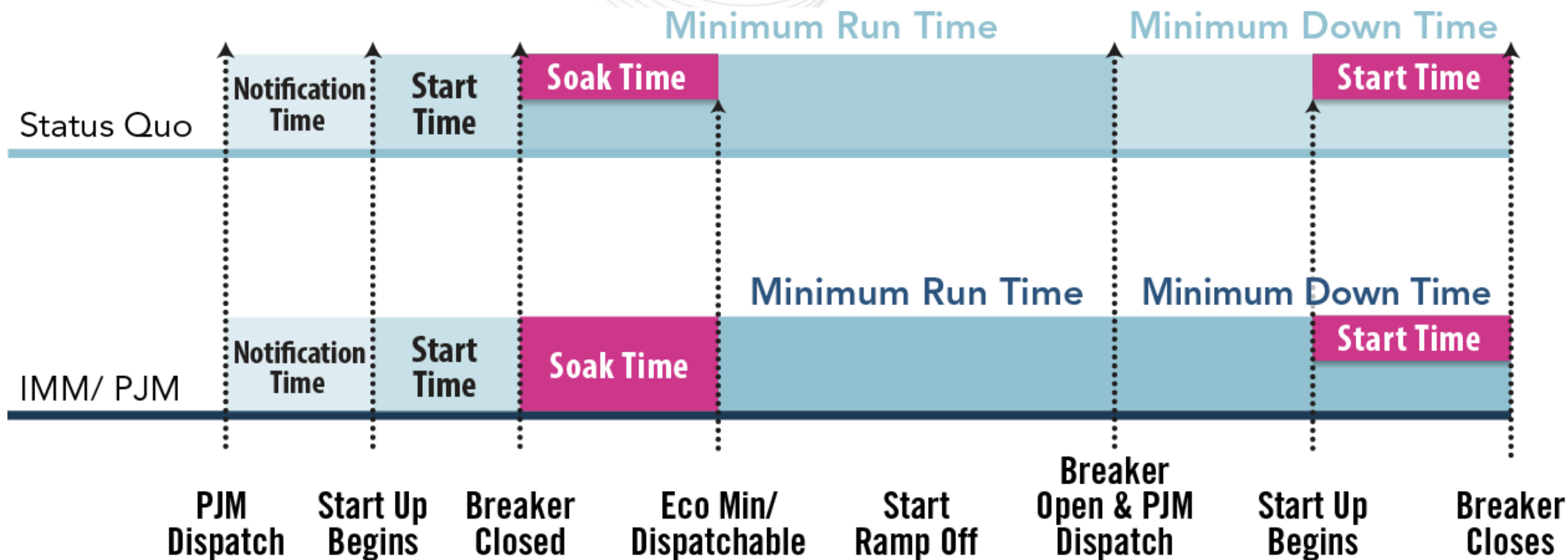
Draft Proxy Parameters for Hot/Warm/Cold Soak Time and Minimum Run Time

Lauren Strella Wahba
Engineer, Generation Department
Modeling Generator Senior Task Force
March 12, 2020



Current Minimum Operating Parameter Matrix

Technology Classification ²	Min Down Time Hrs	Min Run Time Hrs	Max Daily Starts	Max Weekly Starts	Start-up Time			Notification Time Cold/Warm/Hot Hrs	Turn Down Ratio	Max Run Time
					Hot Hrs.	Warm Hrs.	Cold Hrs.			
Reciprocating Internal Combustion Units	0.6	1	12	84	0.1	0.1	0.1	0.1	1.0 or more	24 hrs.
AERO CT Units	1.1	1	6	42	0.1	0.1	0.1	0.1	1.0 or more	24 hrs.
Frame CT Units	1.25	2	4	28	0.25	0.25	0.25	0.1	1.5 or more	24 hrs.
Combined Cycle Units	3.5	4	3	21	0.5	0.5	0.5	1	1.5 or more	24 hrs.
Petroleum and Natural Gas Steam Units	6	4	2	14	2	3	4	1	2.0 or more	24 hrs.
Combined Cycle Based QF Units	4.5	4	3	21	0.5	0.5	0.5	1	1.5 or more	24 hrs.
Solid Fuel NUG Units	8	4	3	21	4	6	10	1	1.5 or more	24 hrs.
Sub-Critical Coal Units	8	8	2	14	4	6	10	1	2.0 or more	24 hrs.
Super-Critical Coal Units - Pre 2000	8	6	1	7	4	6	10	1	1.5 or more	24 hrs.
Super-Critical Coal Units - Post 2000	6	6	1	7	2	2.5	5	1	1.5 or more	24 hrs.
Capacity Storage Resource	Shall not exceed 1 hr.	1	12	84	Start Time + Notification Time shall not exceed 1 hr.				1.0 or more	24 hrs.



- Un-nesting Soak Time from original Minimum Run Time
 - Cold Soak Time + new Minimum Run Time = original Minimum Run Time
- Original Minimum Run Time split between Soak Time and new Minimum Run Time based on mechanical steps performed during each operating parameter

	Soak Time	Minimum Run Time
Mechanical Steps	<ul style="list-style-type: none"> - Steam turbine holds - Combined Cycle pressure matches - Time duration between ramp to dispatchable 	<ul style="list-style-type: none"> - Environmental requirements - Emptying the mills - Time duration between dispatchable and last breaker open



Hot/Warm/Cold Soak Time and Minimum Run Time Proxy Parameters

	Hot Soak Time	Warm Soak Time	Cold Soak Time	Minimum Run Time
Reciprocating Internal Combustion Units	0	0	0	1.0
AERO CT Units	0	0	0	1.0
Frame CT Units	0	0	0	2.0
Combine Cycle Units	0.5	1.0	2.0	2.0
Petroleum and Natural Gas Steam Units	1.0	1.0	2.0	2.0
Combined Cycle Based QF Units	0.5	1.0	2.0	2.0
Solid Fuel NUG Units	1.0	1.0	2.0	2.0
Sub-Critical Coal Units	2.0	4.0	6.0	2.0
Super-Critical Coal Units – Pre 2000	2.0	3.0	4.0	2.0
Super-Critical Coal Units – Post 2000	2.0	3.0	4.0	2.0
Capacity Storage Resource	0	0	0	1.0

**Indicates no change – Technology type does not have a Soak Time