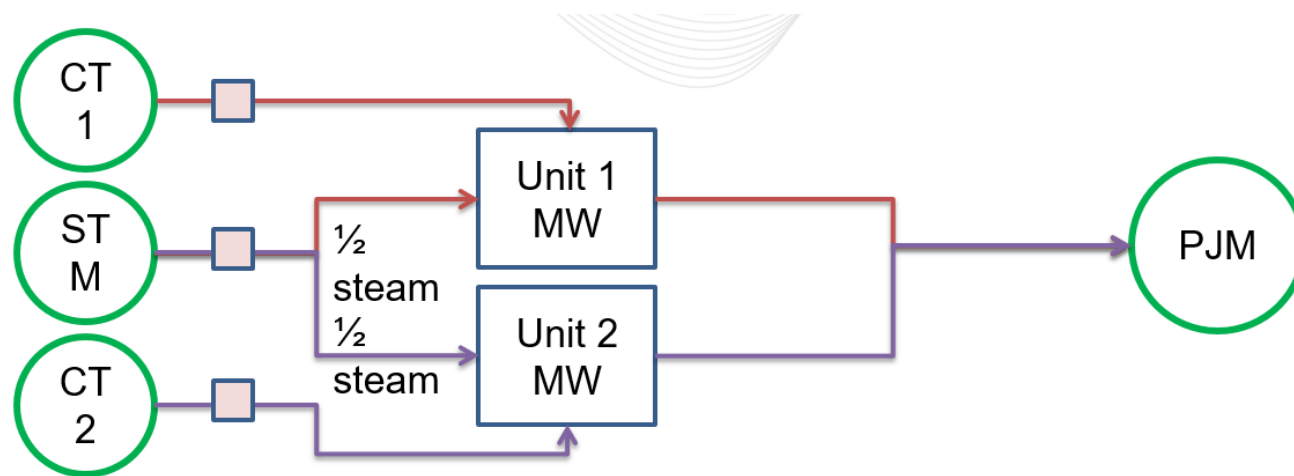


Pseudo Modeled Combined Cycle Unit's Minimum Run Time Parameter Limit Issue

Tom Hauske
Markets and Reliability Committee
March 23, 2022

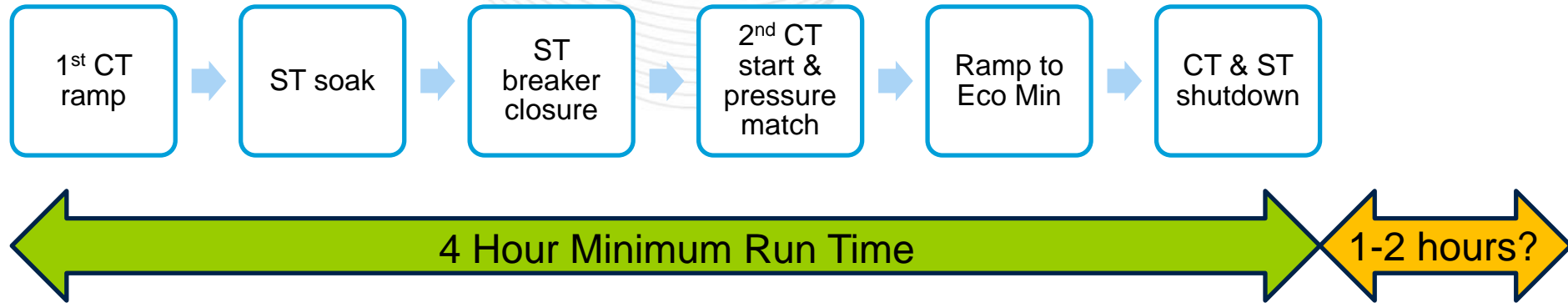
- Market Sellers can model a combined cycle unit as multiple pseudo units composed of a single Combustion Turbine (CT) and a portion of the Steam Turbine (ST)



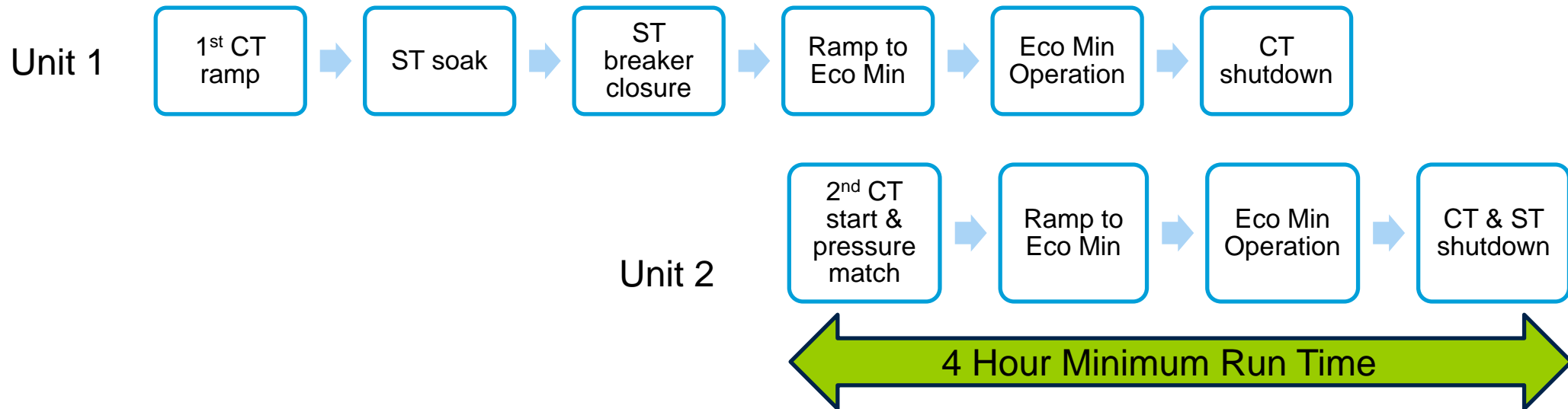
- If the Market Units of a pseudo modeled combined cycle unit are dispatched at different times on parameter limit schedules, the potential exists for one or more of the pseudo modeled units to operate for some period beyond the Minimum Run Time Parameter limit for an identical non-pseudo modeled combined cycle unit.

Comparison of 2x1 CC with pseudo modeled 2x1 CC when dispatched on a Parameter Limited Schedule

2x1 Non-Pseudo Modeled CC



2x1 Pseudo Modeled CC



- Add language to Manual 11 Energy and Ancillary Services Market Operations to require Market Sellers to update the minimum run time of any second and subsequent pseudo modeled block to remove the associated steam turbine start-up time that is included in the parameter limit.

- Add to Generation Offer Business Rules
 - *Refer to Section 2.3.4.6 of this Manual regarding updating the Minimum Run Time parameter in Markets Gateway for a combined cycle pseudo model block(s) when one or more pseudo modeled combined cycle blocks are not dispatched in Realtime.*

- Add new Section 2.3.4.6

2.3.4.6 Minimum Run Time for Pseudo Modeled Combined Cycle Units

The approved combined cycle minimum run time unit specific parameter includes the time necessary for start-up of the unit's steam turbine. Submitted cost-based and Price-based PLS offers must be at least as flexible as the approved parameter limits for the resource, and if 1 or more of a pseudo modelled combined cycle blocks is not dispatched in the Real Time with associated pseudo model block(s), Market Sellers must update the minimum run time parameter of the second and any subsequent pseudo model blocks, to remove the associated steam turbine start-up time that is included in the parameter limit. Such update must occur if and when the subsequent units are dispatched, if not before.

- Update Manger of Real Time Market Operations to Brian Chmielewski
- Corrected typographical errors in Section 2.3.4.3

- MIC Solution Option & First Read – 1/12/2022 & 2/9/2022
- MIC Endorsement – 3/9/2022
- MRC First Read – 2/24/2022
- MRC Endorsement -3/23/2022

- Key Dates for the annual Unit Specific Parameter Adjustment process:
 - Market Sellers must submit a request by 2/28/2022
 - PJM must provide a determination on the request by 4/15/2022
 - PJM will provide any guidance developed under this initiative to any pseudo modeled combined cycle which requests an adjustment this review period or existing pseudo modeled combined cycle with an approved unit specific minimum run time parameter.

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