



Topaz Power Group LLC

Quick Start Task Force Meeting

November 04, 2009

Austin, Texas

Summary

- Hour Start Unit RUC Clawback
 - White paper
 - Draft proposed NPRR
- Definitions
- Real Time Economic Unit Commitment
 - NYISO
 - ISO-NE
- Action Items

Background

- 8,500 MW of “inherently variable and incompletely predictable” wind
- Desire for operational flexibility
- Current Nodal Protocols
 - No Quick Start BES
 - No Real-Time Economic Unit Commitment
 - Real-Time Commitment depends on
 - Reliability Unit Commitment (including clawback)
 - Self Commitment (with price risk)
 - **The current Nodal Protocols discourage operational flexibility**

Hour Start Unit Value Proposition

➤ Unique

- Short start time and flexibility are competitive advantages

➤ Significant

- OEMs have heavily invested R&D efforts

➤ Inherently Valuable

- Provides short term call option to ERCOT
- **Avoids costs** including sub-optimal operation, fuel, water, and emissions of On-line reserves

Day-Ahead Market

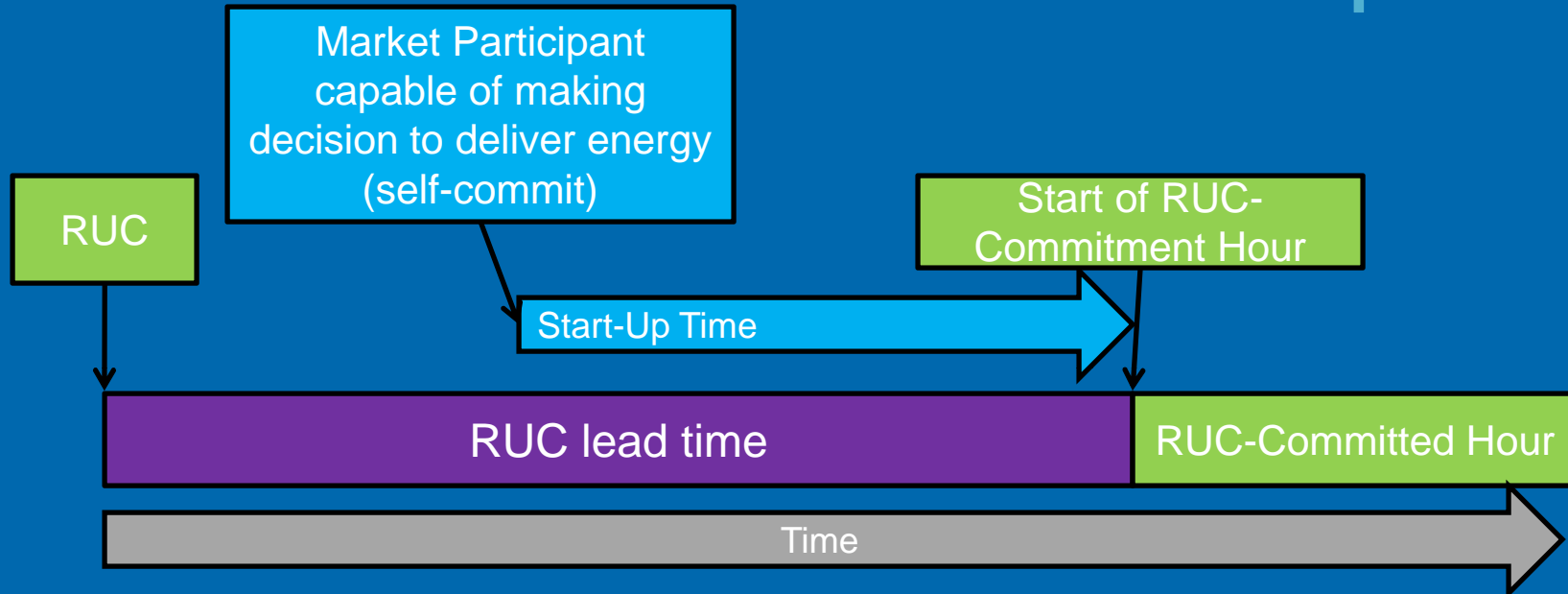
➤ Voluntary DAM Participation

- Nodal Protocols Section 4.1, paragraph (1)
 - “Participation in the DAM is voluntary...”

➤ “Voluntary” implies choice

- MP **must be able to self-commit, within its capabilities**, for the DAM to be voluntary
- If MP cannot self-commit, within its capabilities, then there is no choice outside of the DAM and therefore, the **DAM is not voluntary**

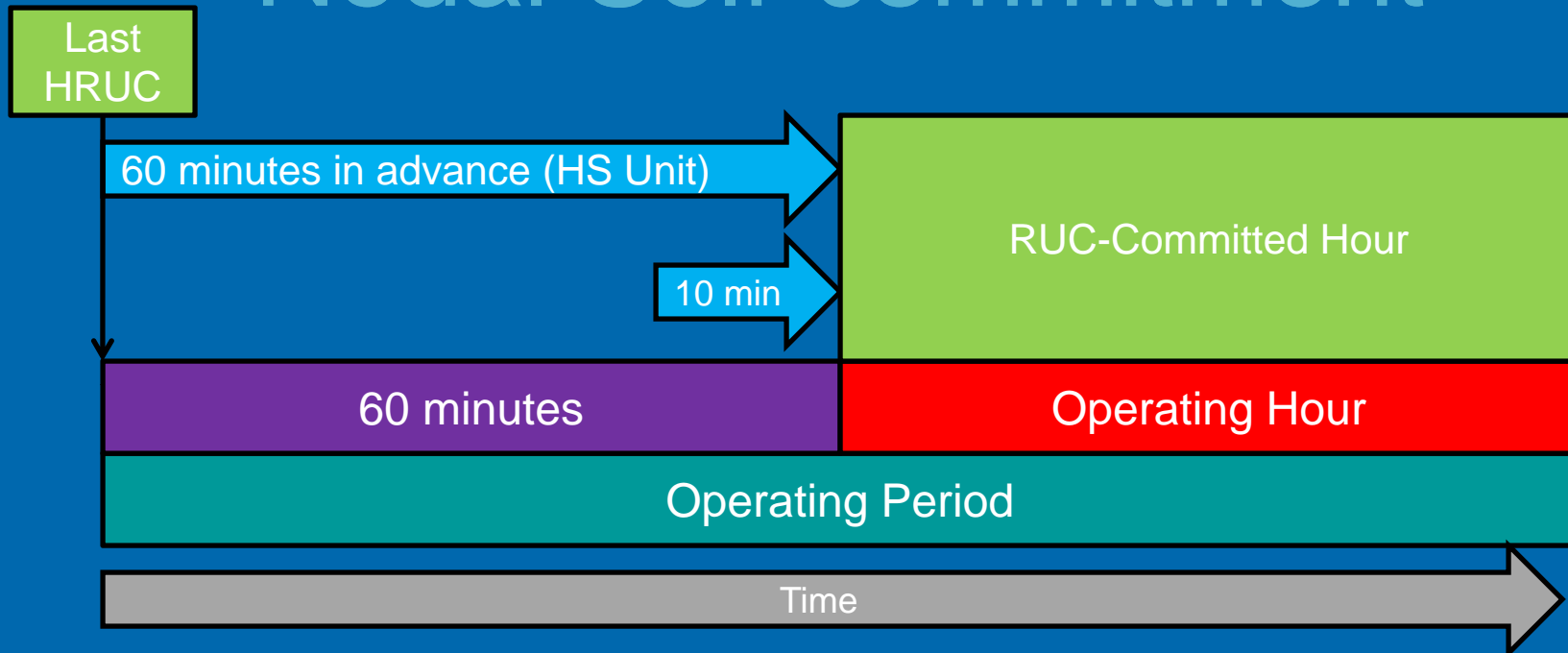
Self-commitment Example



If RUC lead time exceeds Start-Up Time:

- 1) RUC deprives MP of its ability to make decision to deliver energy within its capabilities (self-commit);
- 2) RUC ignores the inherent operational flexibility;
- 3) MP has no alternative to the DAM;
- 4) Therefore, the DAM is not voluntary for the MP.

Nodal Self-commitment



HRUC **deprives** Market Participants of ability to make the decision to deliver energy from Hour Start Units in the hour preceding Real Time

RUC Clawback

- Topaz proposes categorically removing clawback for all Hour Start Units
 - Regardless of DAM participation
 - Regardless of Energy Emergency Alert
- Mitigation for valuable operational flexibility is:
 - Contrary to voluntary DAM participation
 - Inequitable

Existing DAM Incentives

- Mitigated Offer Cap
 - Only in Real-Time SCED, not DAM
- Price Risk
 - $RTSPP < Cost$; RTSPP must cover Start-up
 - Not present in DAM or RUC
- Liquidity
 - DAM will likely represent most liquid, transparent venue for transactions
 - MP faces significant illiquidity risk thereafter

Energy Emergency Alert

- Topaz proposed revising Nodal Protocols 5.7.2, paragraph (3)
- NERC Standard EOP-002-2.1 reads:
 - **2.6.1 All available generation units are on line.** All generation capable of being on line in the time frame of the emergency is on line, including quick-start and peaking units, regardless of cost.
- RUC clawback is a consideration of cost

No Participation on DAM

- Sufficient incentives to encourage participation
- Legitimate reasons for not participating in DAM
- DAM up to 38 hours before Real Time
 - The DAM is irrelevant to Hour Start Units
 - The value of Hour Start Units is in Real-Time
- **Punitive 100% clawback** for valuable operational flexibility is **inequitable**

Action Items

➤ RUC Clawback

- Review NPRR & white paper
- Proceed to WMS and PRS