Proxy and Expansion Units and Implications for ICR

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Scott Hodgdon
Engineer, Resource Adequacy

ISO new england

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Presentation Overview

- Why Discuss Expansion and Proxy Units?
- Defining Expansion and Proxy Units
- Determining Expansion and Proxy Units
- Installed Capacity Requirements (ICR) under Different Expansion and Proxy Unit Assumptions
- Observations and Recommendations for Calculating Forward ICR Values

Why Discuss Expansion and Proxy Units?

- In years where New England is not able to meet the 0.1 days/year resource planning criterion, units must be added in order to calculate the ICR
- The characteristics (MW rating and availability) assumed for the units affect the ICR that is calculated
  - The more reliable the units, the lower the ICR and vice versa

Defining Expansion and Proxy Units

- For purposes of this presentation, expansion and proxy units will be defined as:
  - **Expansion Unit** – Unit addition to the power system that is assumed to have a rating and availability consistent with units that have been added historically or, are expected to be added in the future
  - **Proxy Unit** – Generating unit with average rating and availability characteristics of the system

Determining Expansion and Proxy Units

- Expansions Units can be determined by:
  - Reviewing the characteristics of units recently added to the system
  - Reviewing the the characteristics of units in the System Impact Study queue
- Proxy units can be determined using average system characteristics and LOLE calculations
  - Using average availability characteristics New England generating units
    - 5.54% EFORd and 4 weeks of maintenance
  - Replace all units in system with proxy units
    - Adjust the capacity ratings until initial LOLE is obtained
    - Results using RSP06 assumptions shown on following slide
  - Replacing all system capacity with proxy units leaves system LOLE unchanged

Proxy Unit Calculation

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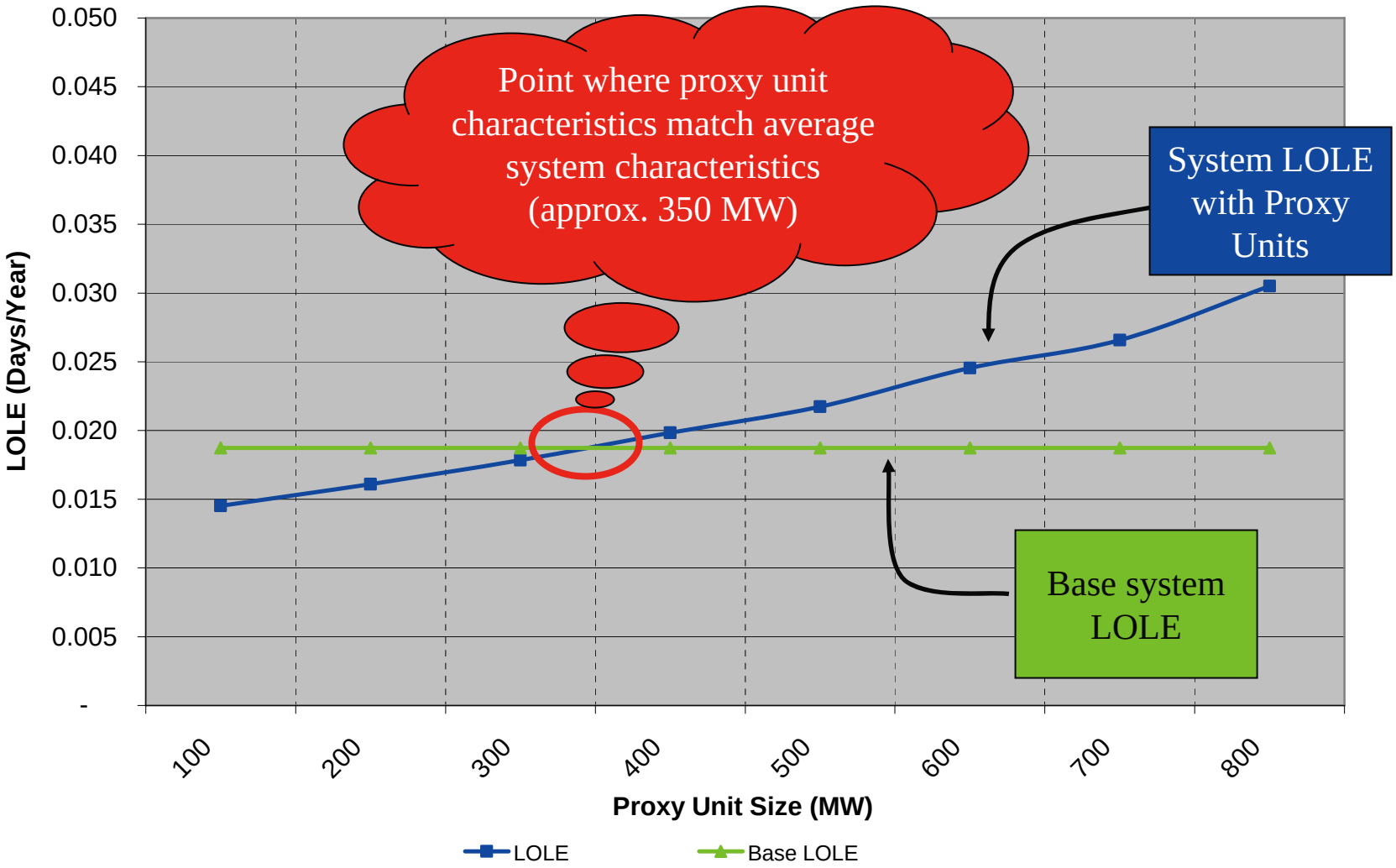
Proxy Unit Results for 2006 RSP System



Proxy Unit Results for 2006 RSP System

- Results illustrate that a proxy unit for the 2006 RSP system is:
  - 350 MW
  - 5.54% EFORd
  - 5 weeks of maintenance

Expansion Units

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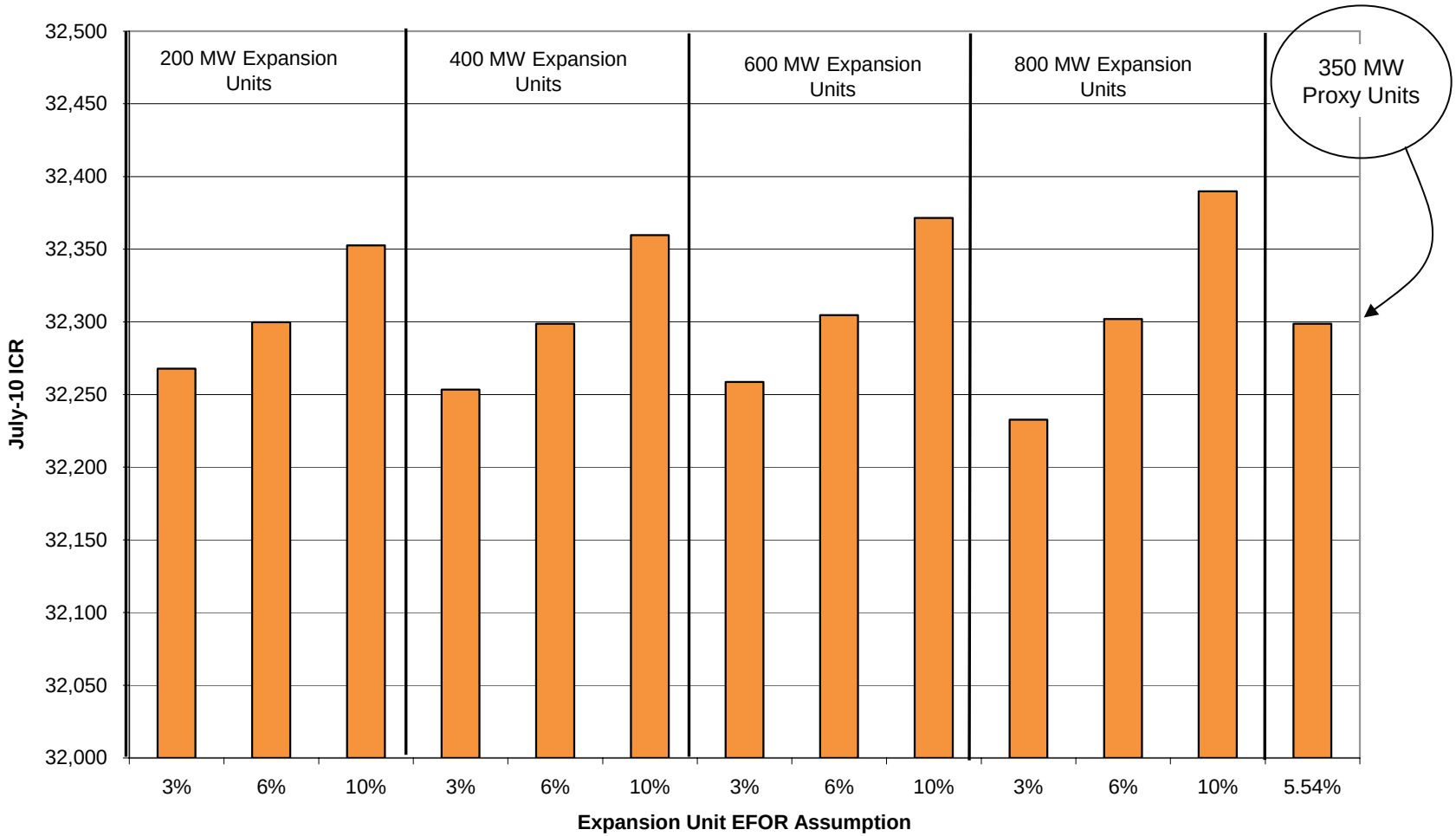
Expansion Units and ICR

- RSP06 calculated the ICR values for the 2007-2015 time period
  - Results illustrated that capacity would need to be added in the 2007 – 2009 timeframe to meet the resource planning reliability criterion of 0.1 days/year LOLE
- Using RSP06 assumptions for 2010-2011 power year, ICR values calculated assuming different expansion unit characteristics
  - Unit sizes were 200 MW, 400 MW, 600 MW, and 800 MW
  - Forced outage rates (FOR) were assumed at 3%, 6%, and 10%
  - Assumed weeks of maintenance kept constant at 5 weeks

Installed Capacity Requirements (ICR) under Different Expansion Unit Assumptions



Observations & Recommendation

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Observations & Recommendation

- ICR from different scenarios investigated are no larger than approximately 150 MW apart (less than 0.5% difference)
  - Expansion units assumed has a minimal impact on ICR
- Using the Proxy Unit would result in an ICR within the range of ICR results using expansion units
- ISO-NE recommends that the proxy unit be used when calculating long-term ICR values
  - 350 MW
  - 5.54% EFORd
  - 5 weeks of maintenance