

Integrating Demand Resources into Power System Operations and Planning

Panel Members

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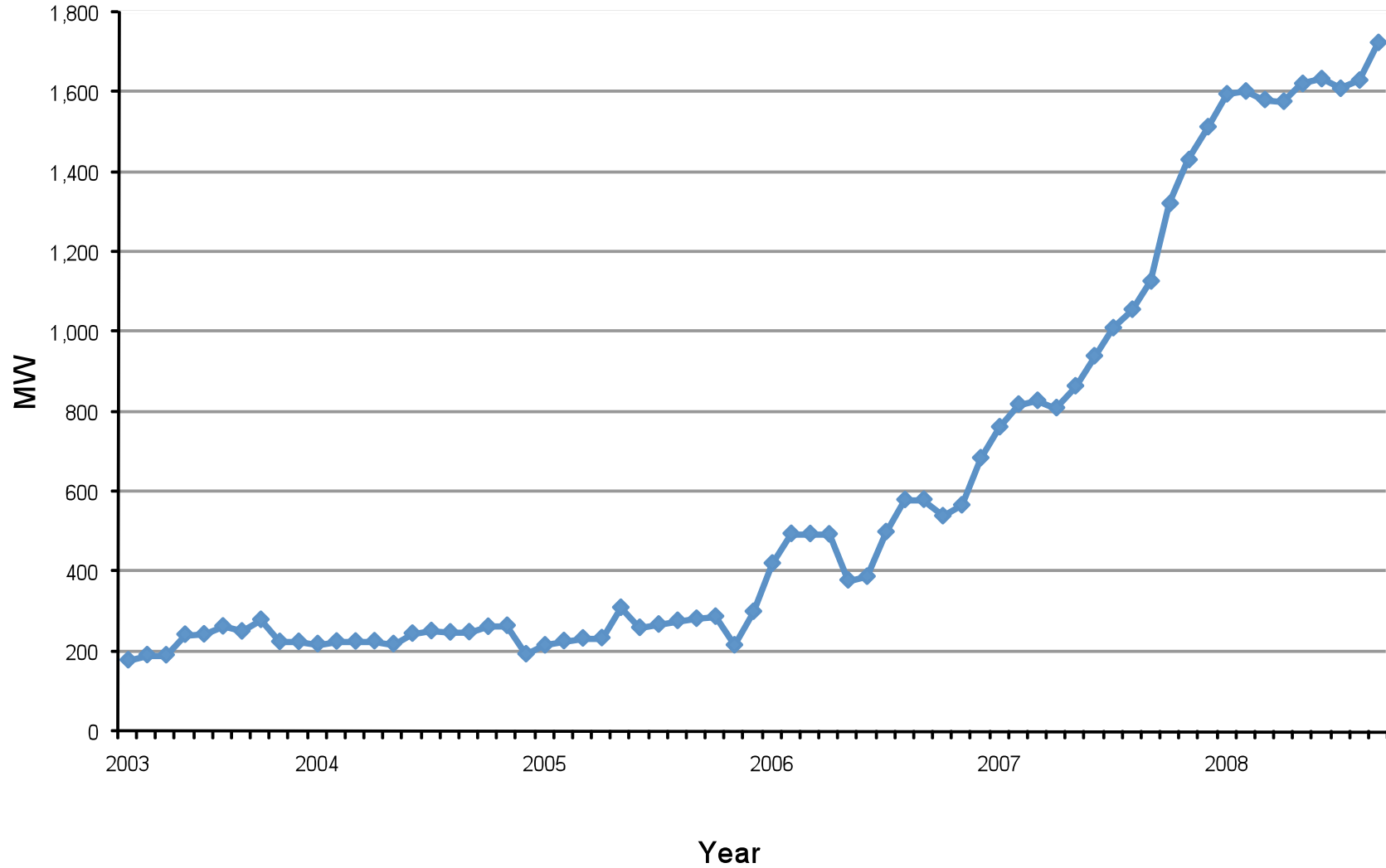


Demand Resources in ISO New England's Forward Capacity Market

Demand Resources in the Forward Capacity Market

- Installed Measures that result in verifiable reductions in end-use consumption of electricity on the New England power system.
- **Passive Demand Resources (Passive DR)**
 - Save energy (MWh) during peak hours.
 - Are *not* dispatchable.
- **Active Demand Resources (Active DR)**
 - Are designed to reduce peak loads (MW).
 - Can reduce load based on real-time system conditions or ISO instructions.

Active Demand Resources (2003 to Current)



Demand Resources in the FCM

Demand Resource Type	Cleared MW for 2010/11	Qualified MW for 2011/12	Total MW
Active	1,854	967	2,821
Passive	700	419	1,119
Total	2,554	1,386	3,940

Notes:

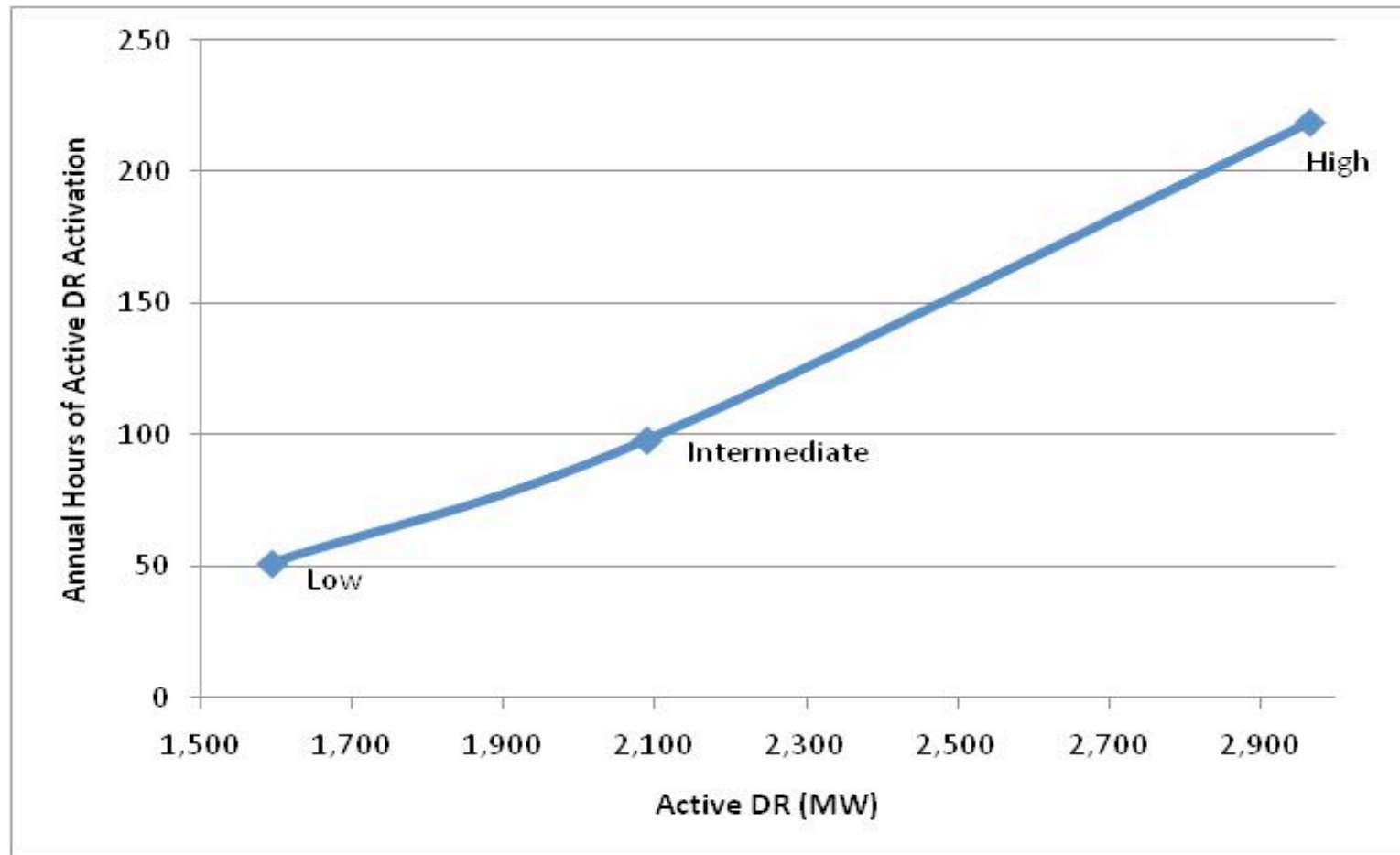
- All MW values are grossed up by the appropriate reserve margin and T&D loss factor.
- Use of Real-Time Emergency Generation Resources to meet ICR is limited to 600 MW. The 600 MW cap has not been applied on this table.

Challenges for the Future

- **More Demand Resources sooner than expected:**
 - When writing market rules, ISO expected it would take a few years to reach the Active DR levels achieved under FCA #1.
 - Since completion of the initial rules, enrollment in the real-time demand response program has increased by 400%.
- **Active DR is now replacing a significant amount of generation.**
 - Large amount of Active DR creates operational challenges.

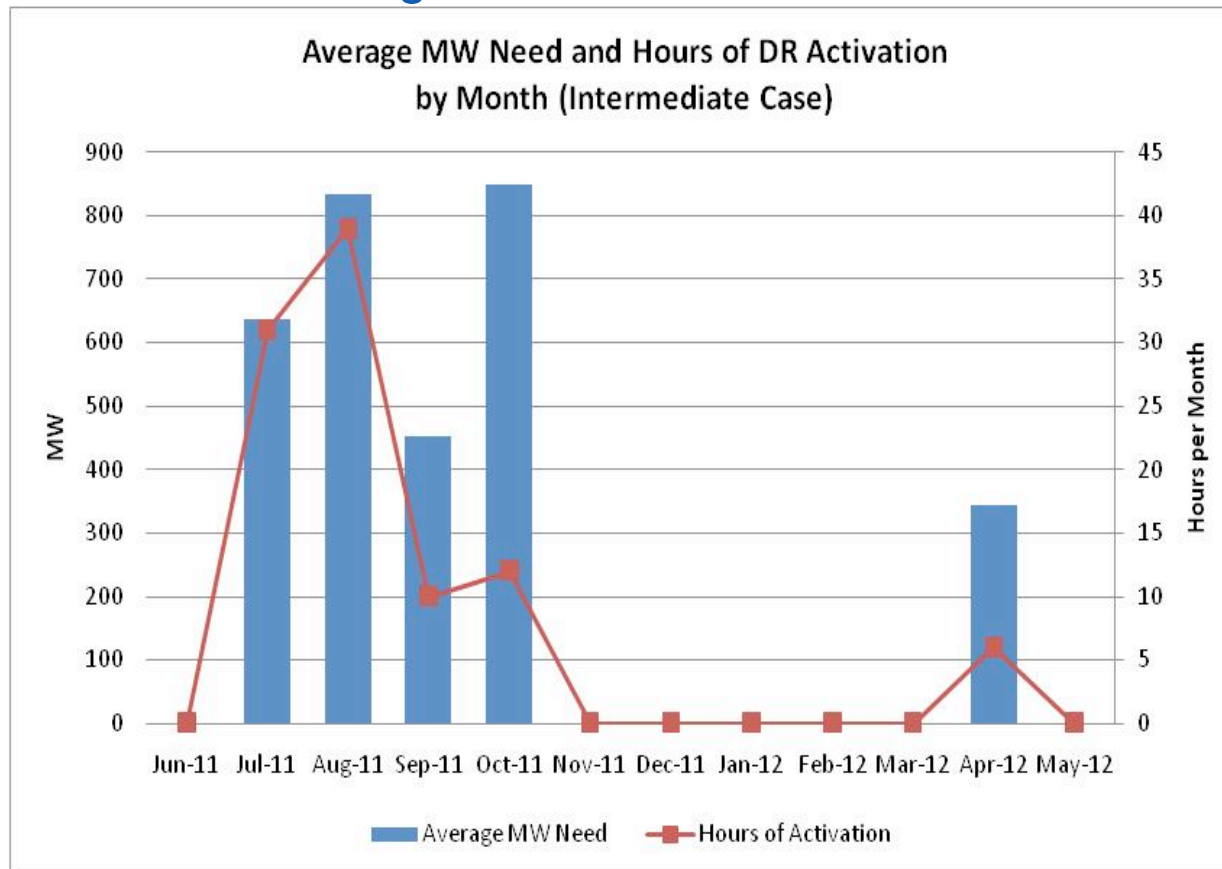
Operable Capacity Analysis – Observation #1

- As the quantity of Active DR increases, the dispatch frequency increases.



Operable Capacity Analysis – Observation #2

- Active DR will be needed during Off Peak months.
 - Increasing amounts of DR displace generation.
 - DR needed when generators are unavailable



Operable Capacity Analysis – Observation #3

- Few Hours when 100% of Active DR Is needed.

