

Demand Response in New England

Consumer Liaison Group, Holyoke, MA

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ISO New England

What is Demand Response?

- Customers reducing their electricity consumption in response to either high wholesale prices or system reliability events.
- Customers are paid for their performance based on wholesale market prices.

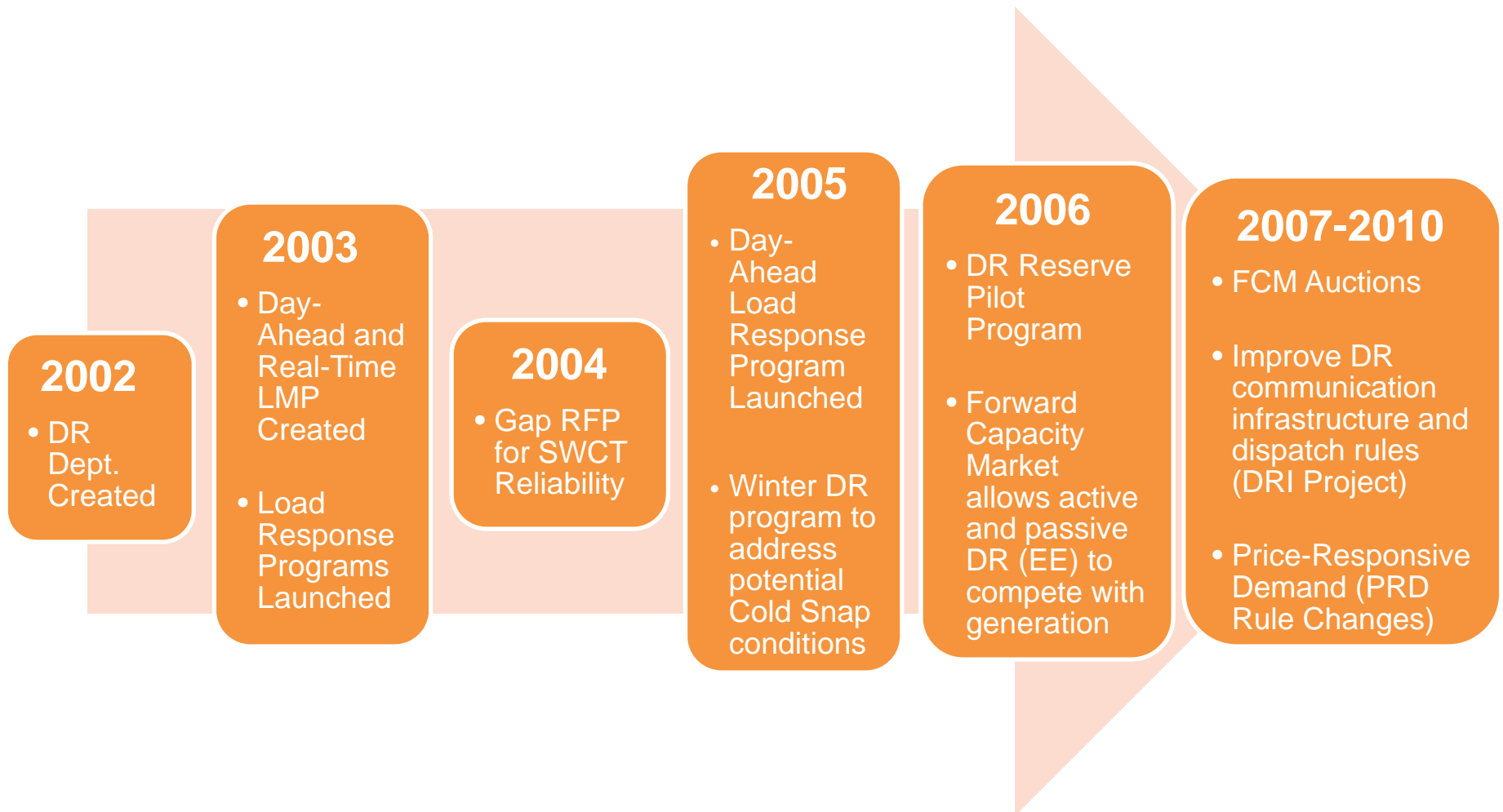
The Role of Demand Resources

- Improves efficiency of electricity use.
 - Shifts consumption to lower cost periods.
 - Relies on more efficient and cleaner supply to meet demand.
 - Reduces peak load – mitigating the need for additional transmission and generation.
- Improves reliability in times of tight supply.

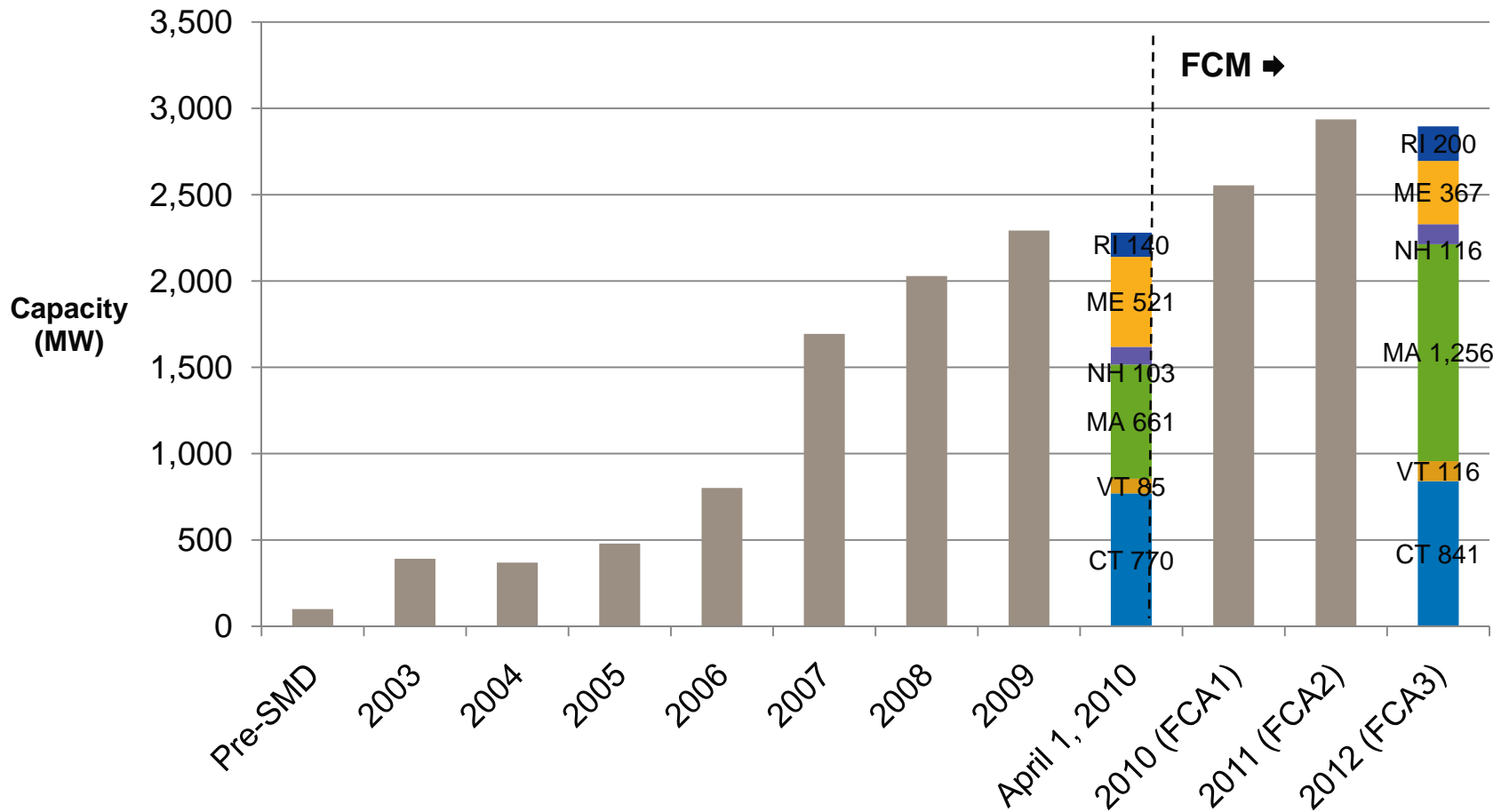
Value of Demand Response

- **Reliability Benefits**
 - Rapid implementation and fast response at reasonable cost.
 - Compare to the implementation, response and cost of generation.
- **Regional Economic Benefits**
 - Allows energy to be used more efficiently – reduces energy waste and helps meet environmental goals.
 - Reduces spot market price spikes, price volatility and risk.
 - Limits supplier market power.
- **Customer Benefits**
 - Gives customers control.
 - Reduced electricity bills.

ISO New England Efforts to Expand Demand Resources



Demand Resources Growing in New England



Total DR Enrollment in ISO Programs, as of April 1, 2010

2010-2012: Total DR Cleared in FCM (New and Existing)

Forward Capacity Auction Objectives

- The FCM uses a competitive ***Forward Capacity Auction (FCA)*** process to determine which resources to buy, how much to buy, and how much to pay.
- A “descending-clock auction” is used to select a portfolio of generation and Demand Resources to meet Installed Capacity Requirements.
- All qualified resources that clear the auction are paid the market-clearing price (\$/kW-month), subject to performance incentives and penalties.

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.
 - Include On-Peak and Seasonal Peak Resources.
- **Active Demand Resources (Active DR)**
 - Are designed to reduce peak loads (MW).
 - Can reduce load within 30 minutes based on real-time system conditions per ISO instructions.
 - Include Real-Time Demand Response (RTDR), Real-Time Emergency Generation (RTEG).

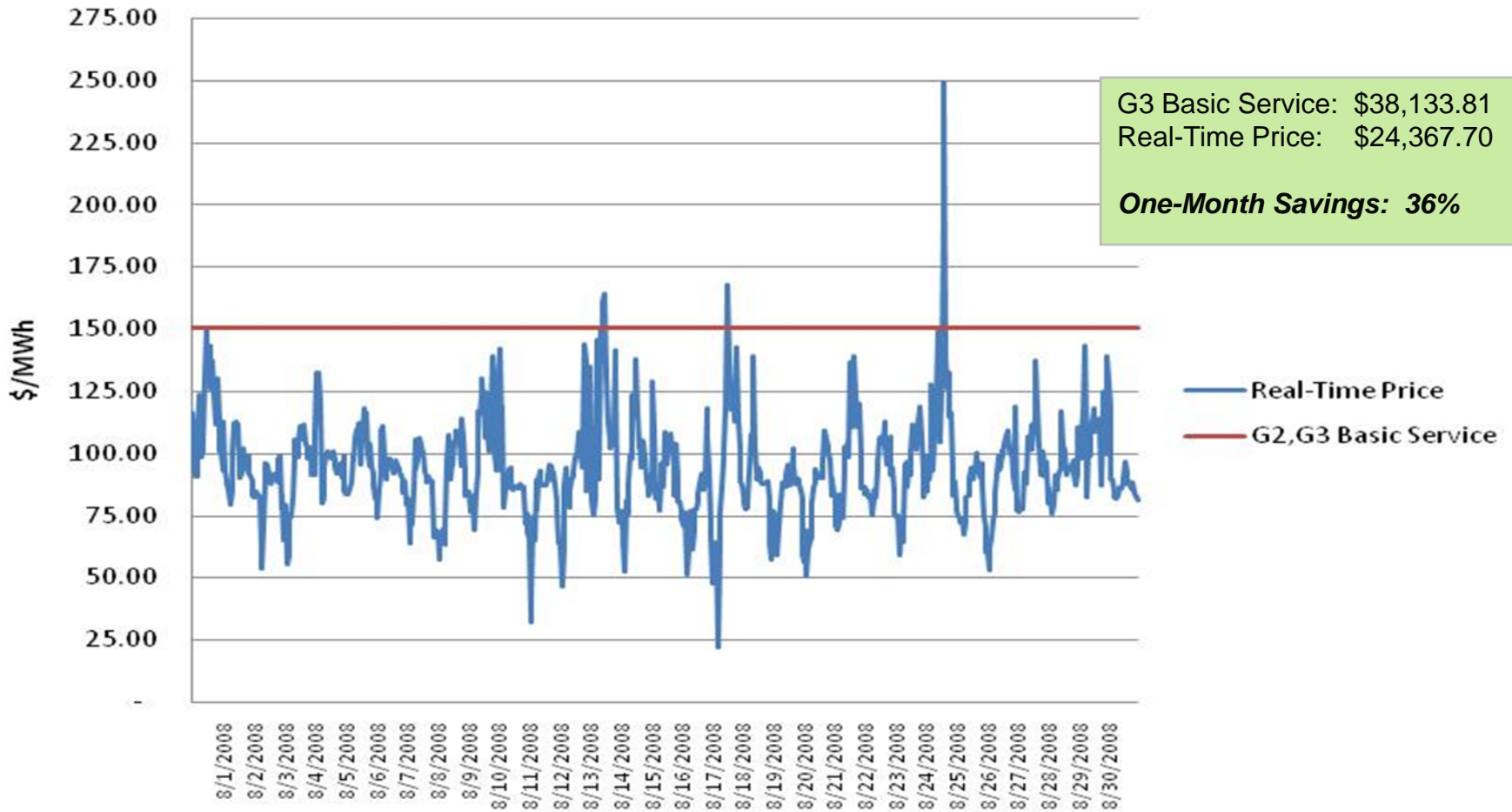
Demand Response Opportunities for Consumers

- Participation through Demand Response Aggregators
 - Aggregators pool customer resources to achieve higher and more reliable demand reductions.
 - Aggregators are paid through the wholesale markets.
 - Customers are paid by the aggregator.
- Smart Grid Technologies
 - Some utilities may begin offering “smart-grid” programs allowing customers to more easily conserve during peak times when energy prices are at their highest, or to shift their energy usage from the peak to off-peak.

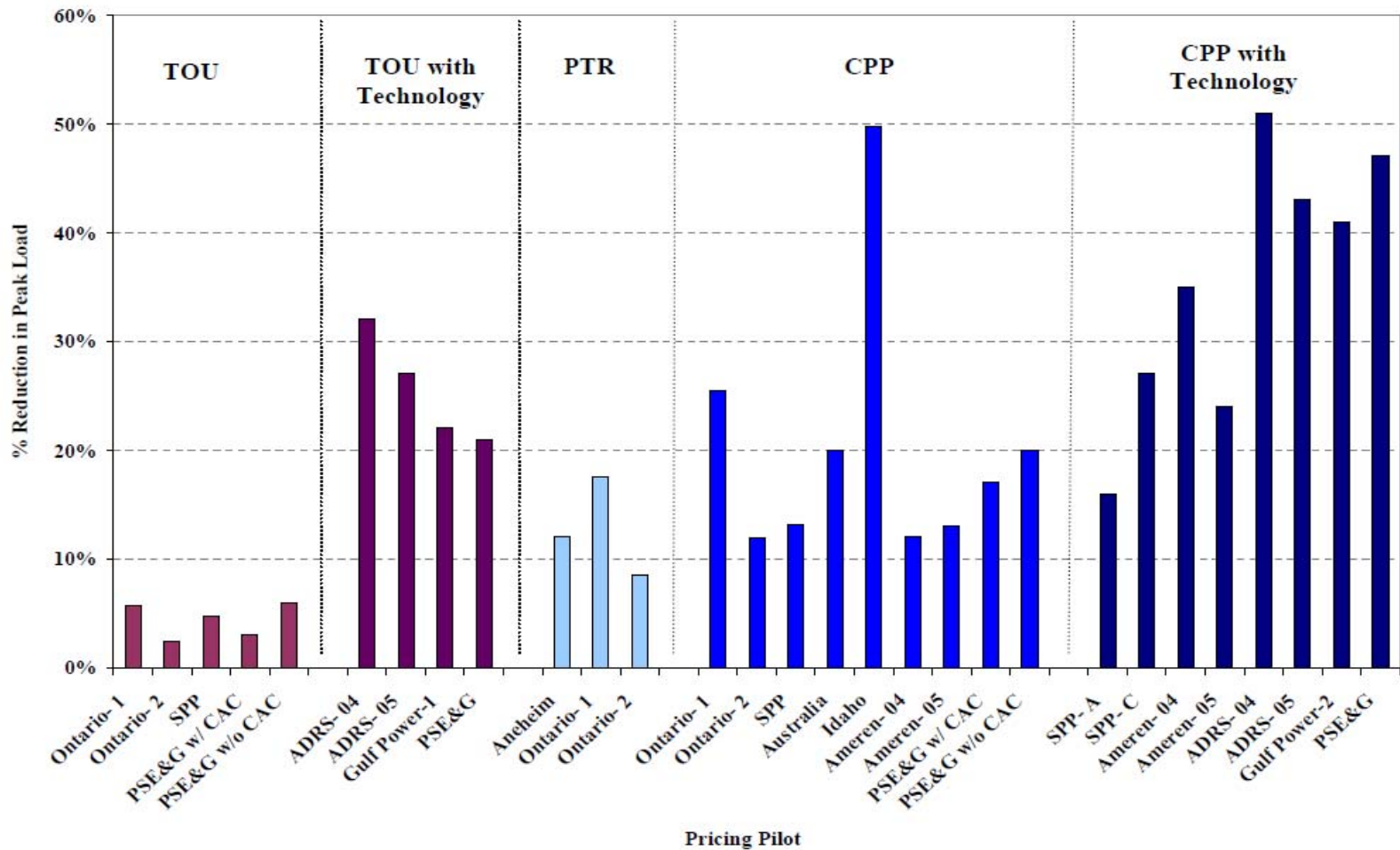


A Smarter Grid Gives Customers More Opportunities to Benefit from Low Prices

G3 Generation Supply Costs August 2008



The Impact of Smart Grid Prices and Technologies on Reducing the Peak



TOU = Time Of Use PTR = Peak Time Rebate CPP = Critical Peak Pricing CAC = Central Air Conditioning