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ENERGY

The Changing Role of Utility-Based DR Programs

Presentation to MADRI Working Group
Meeting #34

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Outline of Presentation

- » Traditional approaches to utility DR program deployment
- » The evolving nature of utility DR program utilization
- » Costs and benefits of utility DR programs

Reliability-Triggered versus Price-Triggered Options

» **Reliability-triggered options**

- Called in response to emergency conditions on the grid (ex. outages)
- Typically provide short notification time due to unpredictable nature of emergencies
- Most existing DR options are reliability-triggered

» **Price-triggered options**

- Called in anticipation of high market prices
- Dynamic pricing is typically price-triggered but may also be triggered by extreme weather which might impact the market price

Typical Utility DR Programs

- » Reliability-based DR programs
 - Direct load control programs
 - Curtailable/interruptible rates
 - Demand bidding/buyback programs
 - Third-party/load aggregator programs
- » Price-triggered DR programs
 - Time-of-use rates
 - Real-time pricing
 - Critical peak pricing
 - Peak time rebates

Utilities are looking at a broader value proposition for DR

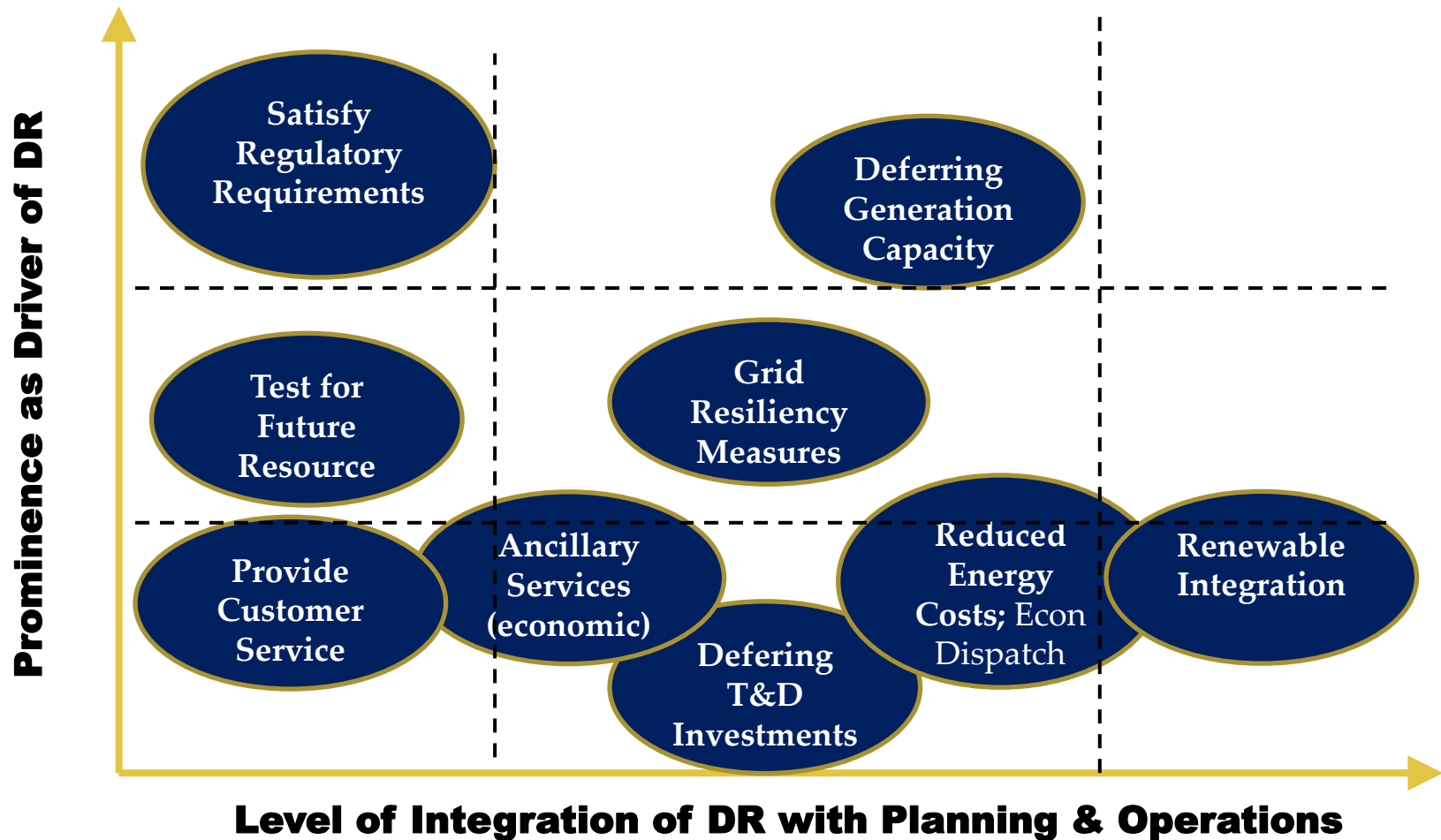
Value of DR depends on:

- amount of curtailable MW
- the frequency and duration with which the curtailments can occur
- direct measure of value provided by curtailments (eg, avoided cost)

But the **value realized by utilities** is heavily influenced by two additional factors:

1. Drivers of (rationale for) program development; and
2. Roles in program planning and design within the utility.

Drivers of DR Programs Determine the Level of Integration Across the Utility



Integrating DR programs with existing EE programs

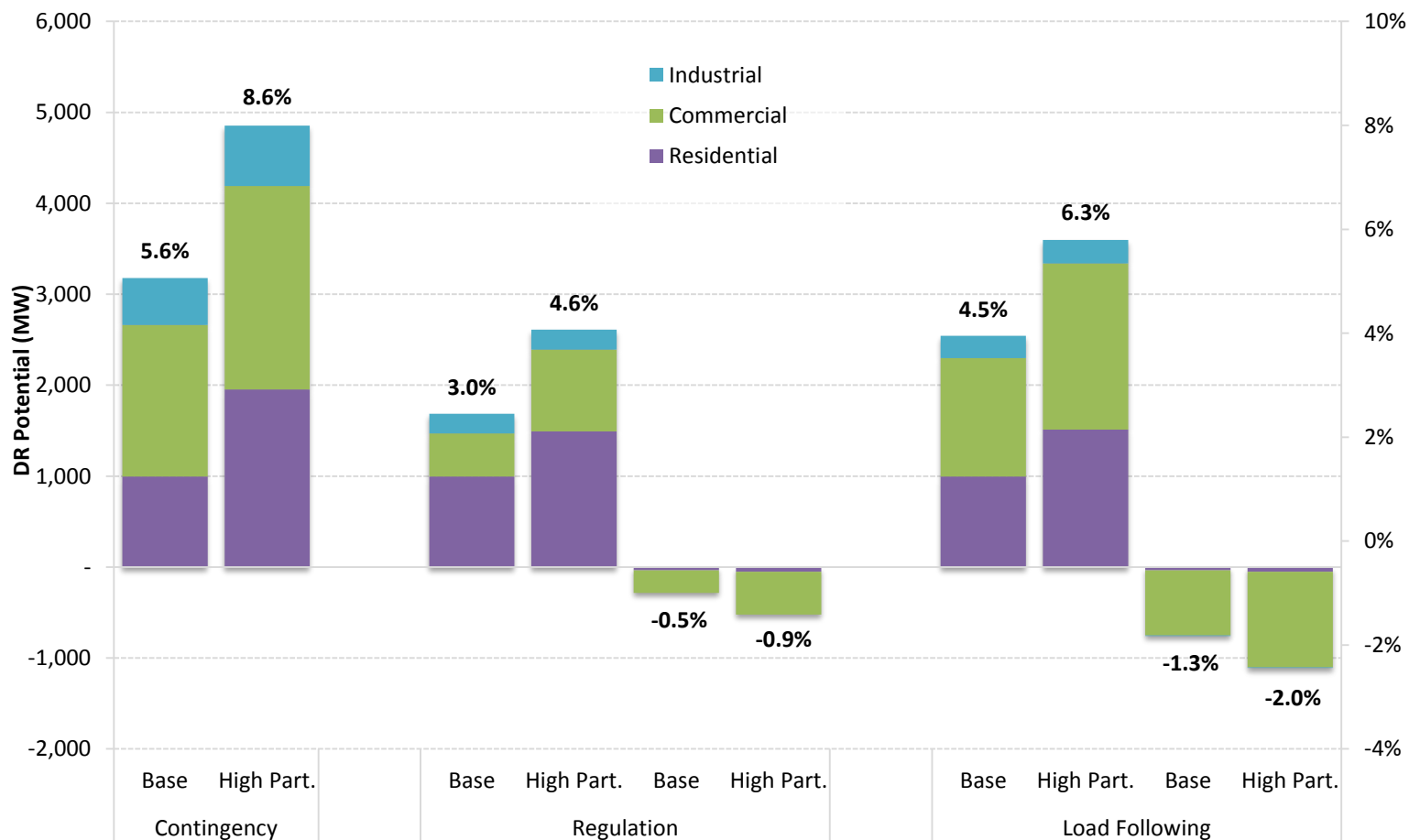
- » Historically utility DR and EE programs were separated due to regulatory silo'ing
- » Customers don't usually understand how these programs differ
- » Regulators are interested in finding ways to improve the deployment efficiencies of all customer programs
- » Examples of DR program efforts that have integrated with existing EE programs:
 - California's IOU efforts
 - NV Energy's integrated EE/DR efforts

Utilities are looking for ways to meet the needs of a more distributed, consumer-focused energy system

- » Utilities and regulators are beginning to consider ways in which least-cost demand-side options can be fully integrated into a vast array of utility planning and operational activities
- » Examples of customer-side initiatives (including DR) that are integrated with utility grid operations:
 - Southern California Edison's Preferred Resources pilot in response to the SONGs outage
 - New York PSC's *Reforming the Energy Vision* proposal

Renewable Integration

DR potential for renewable integration for the Western Interconnection on a typical summer weekday in 2020



Costs and Benefits of DR Programs

- » Traditional cost-effectiveness metrics
 - Benefits derived from long-term avoided capacity costs
 - Costs typically represent the customer incentives plus the costs to administer the programs
- » New approaches to DR cost-effectiveness are needed to address additional value propositions
- » Examples of where DR cost-effectiveness methods are being reconsidered
 - California – DR rulemaking docket in light of emerging CAISO capacity market construct
 - Pennsylvania – Act 129 re-authorization is raising the possibility of reinstating DR programs under new C/E rules

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