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A River of Energy Solutions

Maximizing the Value of your Demand Response Participation

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Agenda



**Luke McAuliffe,
VP Demand Response**

- Benefits from DR Participation
- DR Opportunities and Programs
- Why Competition Works
- Case Studies
- 5 Steps to Effective DR Participation
- Q&A

The \$64,000 Question...

- **Who is the best Demand Response Provider (DRP) for my organization?**
 - There are many, many DR providers who can provide the same services, ongoing monitor software systems, reporting, etc. **You have choices...**
 - Informed buyers can create contract terms that dictate revenue splits, performance and monitoring requirements
 - DR providers can then compete on an “apples to apples” basis to provide the highest revenue split to the buyer on the buyers terms
 - While many facility managers see DR revenues as “found money” it’s still your found money...maximize it!

Benefits from DR participation

- Revenue earned from program participation can be sent directly from your DR provider to your utility company to pay down your electricity bills
- Revenue earned from program participation by GSA can be applied against Budget Authority Act 63 and used to fund energy efficiency projects
- Revenue earned and retained from these programs can be used to pay for mandatory energy efficiency reduction projects in support of Executive Order 13514 and 13423 goals
- Revenue earned from these programs can be substantial – don't leave money on the table by giving away too much!

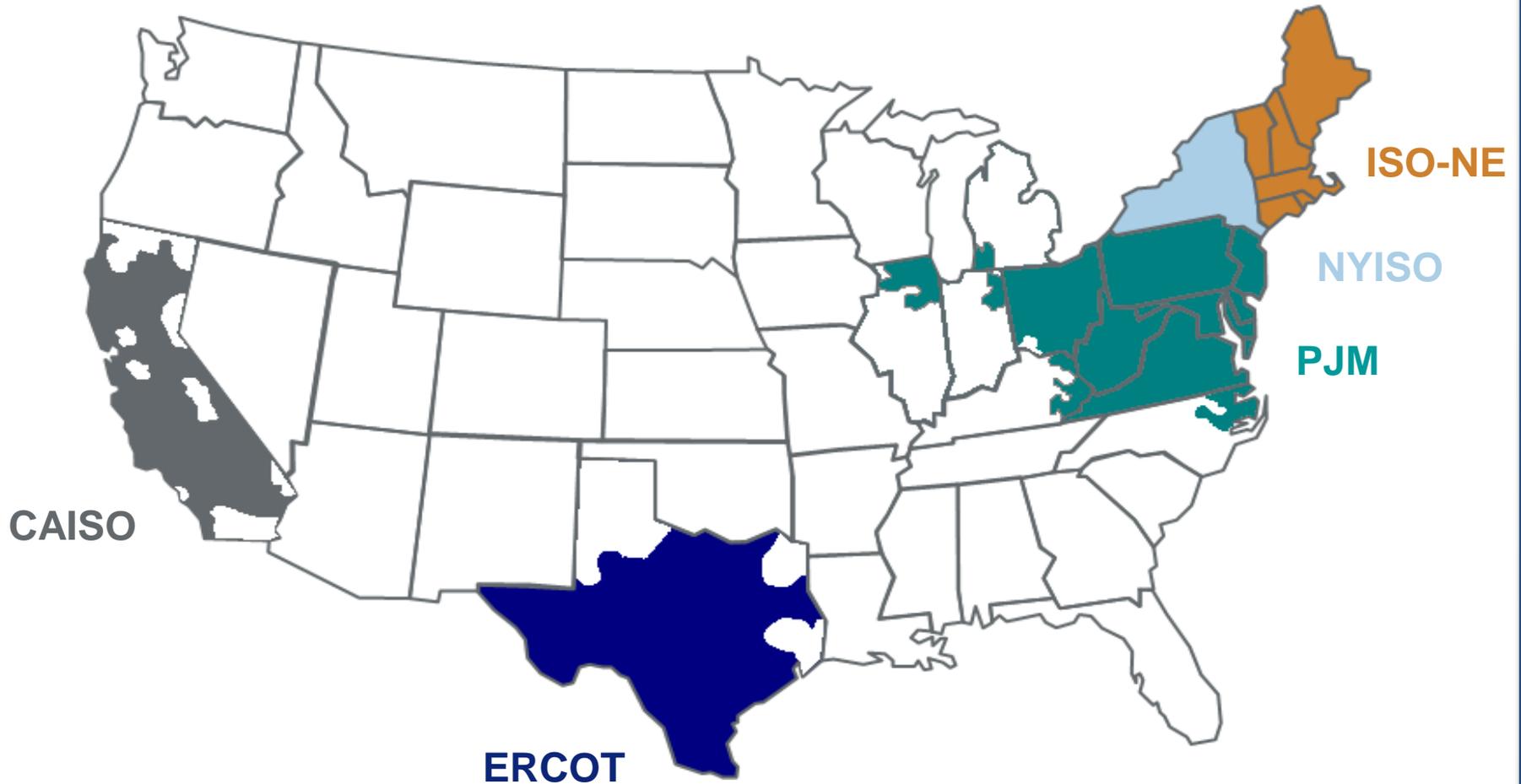
What Is Demand Response?

- Demand Response (DR)
 - A service to the grid where customers reduce their electricity use
 - Reduction may be in response to grid system need or economic signals from competitive wholesale electric markets or retail rates
 - Participation in DR programs occur through demand response providers (DRPs) or sometimes directly through the local utility company

DR Program Market Participation

DR Program	Wholesale Electric Markets		
	Capacity	Energy	Ancillary
Emergency	X	X	
Economic		X	
Synchronous Reserve		X	X

DR Opportunity Map



Utility sponsored (non-competitive) opportunities exist in many other states

DR Program Overview

Market	Type of Program	Notification	Event Duration	Frequency	Avg. Event length	Meter	\$/MW/YR (20XX)
CAISO	Emergency	day ahead	tbd by customer	12x - summer	Varies	15 mins	\$50K
	Emergency	day of/ 2 hrs	1-4 hrs	1-2x p/yr	12x; 44 hrs	15 mins	\$60K
ERCOT	Emergency	10 mins	4 hrs	1x in 10 yrs	tbd	15 mins	\$66K
	Ancillary	10 mins	varies	3-4x p/yr	1.5 hrs	4 secs	\$105K
ISO-NE	Emergency	30 mins/2 hrs	2-4 hrs	1-2x p/yr	4 hrs	5 mins	\$35K-\$51K
	Economic	day ahead/ morning of	tbd by customer	tbd by customer	tbd by customer	60 mins	\$.50 p/kWh + full LMP
NYISO	Emergency	20 hrs/2 hrs	4 hrs	1-2x p/yr	No limit	60 mins	\$25K - \$107K
	Sync Reserves	10-30 mins	1-60 mins	Varies by region	Varies by region	6 secs	\$37K - \$97K
	Economic	day ahead/ 1 hr	tbd by customer	tbd by customer	tbd by customer	60 mins	\$.50 p/kWh + full LMP
PJM	Emergency	2 hrs	up to 6 hrs	1-2x p/yr	4 hrs	60 mins	\$40K
	Sync Reserves	10 mins	up to 30 mins	24x p/yr	6 hrs p/yr	1 min	\$40K
	Economic	day ahead/ real time	tbd by customer	summer months	Varies	5 mins	Full LMP
	Emergency (FE-ATSI)	2 hrs	2-4 hrs	1-2x p/yr	4 hrs	60 mins	\$39K

Markets, programs, requirements and terms can be complicated. The more you know, the better able you will be to determine which programs are the most beneficial to your organization...and ensure you are getting the most value from your participation.

Make Competition Work for You

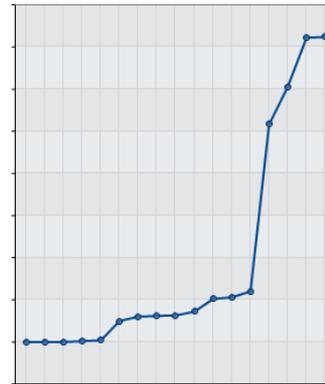
Create Terms

Bid your Requirements Competitively

Subset of Active DRPs

Are my contractual terms favorable?

- Do I have out of pocket liability if I fail to perform?
- How often can I expect payments?
- Should there be fees with enrollment?
- How long should I sign up for?



Bid



Would you sole source other procurements where there are multiple, creditworthy, competing vendors or sign up to their terms and conditions instead of dictating what is important to you?

Case Study: Industrial Manufacturer

Situation

- Customer runs a two shift manufacturing operation
- Manufacturing line represents approximately 2/3 of total energy consumption
- Never participated in Demand Response
- Procurement, engineering, and plant management involved in determining capability
- No on-site generation: planned participation via equipment shut-down

Results

- Determined economics were lucrative to company and would not adversely affect production capability
- Conservatively identified ~8 MW of curtailment through coordinated analysis between engineering and plant mgmt
- Both 1 and 2 year terms were priced sequentially
- Competitive process drove more intense bidding in second auction
- Results exceeded 90% payment
- Testing recently completed, comfortably in excess of enrollment

A competitive process allows you to include DR participation considerations in your electricity supply contract

5 Steps to Effective DR Participation

Demand More from Demand Response

Understand the Market Opportunity

Determine the Right DR Program for Your Facility

Go to Market Wisely

Drive Contract Terms on Your Terms

Ensure Performance

- Many early adopters of DR viewed it as found money and consequently did not maximize their payment
- As the market has matured, informed customers are seeking more value

5 Steps to Maximize DR Participation

Understand the Market Opportunity

Determine the Right DR Program for Your Facility

Go to Market Wisely

Drive Contract Terms on Your Terms

Ensure Performance

- Assess the value of performance to help prioritize
- Payments can vary dramatically within an ISO, utility to utility
- Questions to consider
 - What is estimated payment value of participation?
 - What is my facilities opportunity cost?
 - Hard costs – down production time, overtime pay
 - Soft costs – inconvenience, lower quality of environment

5 Steps to Maximize DR Participation

Understand the Market Opportunity

Determine the Right DR Program(s) for Your Facility

Go to Market Wisely

Drive Contract Terms on Your Terms

Ensure Performance

- Inventory the landscape of programs and sift through the alphabet soup
- Assess whether you can meet the program requirements
- Determine how much load you can curtail and how – e.g. GLD or FSL
- Get buy-in from internal stakeholders

5 Steps to Maximize DR Participation

Understand the Market Opportunity

Determine the Right DR Program for Your Facility

Go to Market Wisely

Drive Contract Terms on Your Terms

Ensure Performance

- Engage the market; be proactive in seeking a DRP
- Generate a competitive environment
- Be strategic with your timing into the marketplace

5 Steps to Maximize DR Participation

Understand the Market Opportunity

Determine the Right DR Program for Your Facility

Go to Market Wisely

Drive Contract Terms on Your Terms

Ensure Performance

- Define the product clearly
- Ensure you are receiving payment for your full curtailment amount
- Align incentives for DRP performance
- Minimize non-performance risk

5 Steps to Maximize DR Participation

Understand the Market Opportunity

Determine the Right DR Program for Your Facility

Go to Market Wisely

Drive Contract Terms on Your Terms

Ensure Performance

- Ensure DRPs have met essential performance requirements
 - Notification capability
 - Market experience
 - Contract commitments

Case Study: Biotech Manufacturer

Situation

- Customer produces cutting edge biologics and immunization drugs
- Customer's facility is truly "mission critical" with production lines unable to be interrupted for even a moment or risk ruining tens of thousands of dollars of product
- No previous DR experience
- Backup generation of 15MW

Results

- Reviewed customer's equipment and determined it was more than sufficient to remove their full peak load contribution (PLC) of 5,058 kW
- Both 1 and 2 year terms were priced
- Received 15 unique bids
- Results of competitive process yielded over \$250,000 of annual payments

A competitive process to source your DRP can maximize your DR value by securing a higher split of revenue

Before you sign on the dotted line...

- **Am I positioned to take advantage of every DR opportunity in the market?**
 - Do I understand all the current - and future - program options that are available to me?
- **Am I maximizing the DR revenue from my existing assets?**
 - Do I know what DR programs I should and should not pursue? Am I getting a competitive split from my DR provider?
- **Am I maximizing the value I can earn with my DR enrollment?**
 - There are additional energy management strategies you can participate in with enrollment such as system peak load notification, daily peak load shaving alerts, etc. Do I know how and if I should I pursue them?



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Thank You!

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