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A River of Energy Solutions

# Demand Response and Interruptible Rates: Are They Right for You?

Rick Counihan, VP, EnerNOC, Inc.

# Who is EnerNOC ?

**Market Leader in Commercial & Industrial Demand Response**

- Over 6,300 MW of demand response under management; 10,000 C&I customer sites
- 100+ utility and grid operator customers
- Proven, consistent reliability

**Innovative Smart Grid Energy Management Applications**

SupplySMART

DemandSMART

SiteSMART

CarbonSMART

**Strong Financial Track Record**

- Publicly traded on NASDAQ (ENOC)
- 2010 revenues of $ 280 million
- 500+ full-time employees

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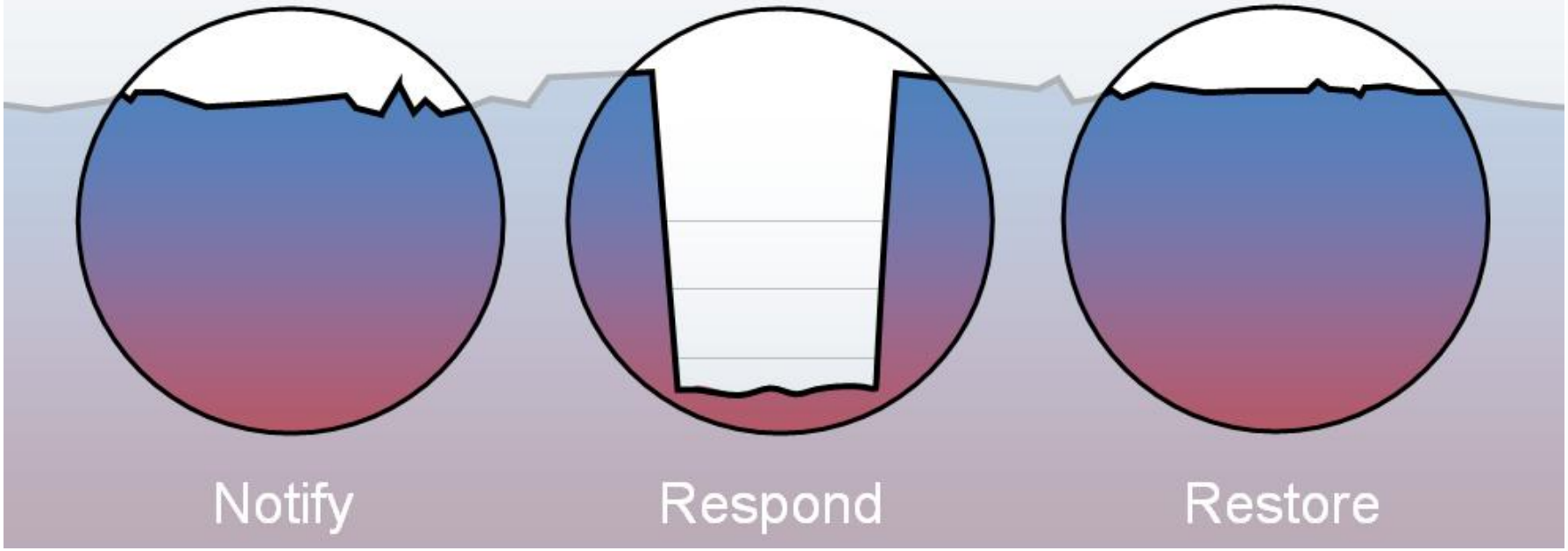
# What is Demand Response ?

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# Demand Response Participation and Execution

**How to Participate**

Curtailment

Self-Generation

**How To Execute**

Automatic

or

Manual

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# EnerNOC's Experience with Federal Entities

### *EnerNOC Experience*

- ✓ > 20 Customers
- ✓ > 40 Distinct Facility Sites
- ✓ > 80 MW of Demand Response Capacity

*EnerNOC managed the complexity of multiple facilities, curtailment actions and the Federal Government's rigorous information security standards to make Demand Response participation feasible for our organization. Furthermore, EnerNOC's personnel understand the unique and intricate workings of Federal organizations. This matters in a successful public-private partnership.*
*- Jim, Engineering Services Manager*
*The Pentagon*

### *Potential Demand Response Strategies*

- ✓ HVAC set-points
- ✓ Air Handlers, Pumps, Fans
- ✓ Lighting
- ✓ Freezer/Refrigeration
- ✓ Elevators, Escalators
- ✓ Shops/labs/hangers with high energy usage
- ✓ Water pumping/irrigation motor loads
- ✓ Emergency Generators


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# Energy Reduction Plan:

## Dover Air Force Base

U.S. AIR FORCE

An Air Force base programmatically reduces chiller load,
other cooling distribution load and cuts non-essential lighting and heating.

| Equipment | Curtailment Plan | Expected kW Reduction |
|---|---|---|
| **Machinery** | • Shutdown various minor loads at multiple facilities | 300 kW |
| **HVAC** | • Program to Building Management System (BMS) to automatically unload 21 of 37 buildings' chillers to 50% at 21 of the Base's 37 buildings that are DDC controlled.<br>• Deploy ice plant/thermal storage assets to displace centrifugal chiller loads | 1300 kW |
| **Lighting, Fans, Compressors, Heating** | • Program current-limiting/lock-out functions to variable speed drive (VSD) chilled water pumps and AHU supply fans in each curtailed building<br>• Cut most air hanger lighting and common area lighting in buildings where possible<br>• Cut hot water pumps, boilers, domestic hot water equipment at largest, non-critical facilities | 600 kW |
| | **TOTAL** | **2,100 kW** |

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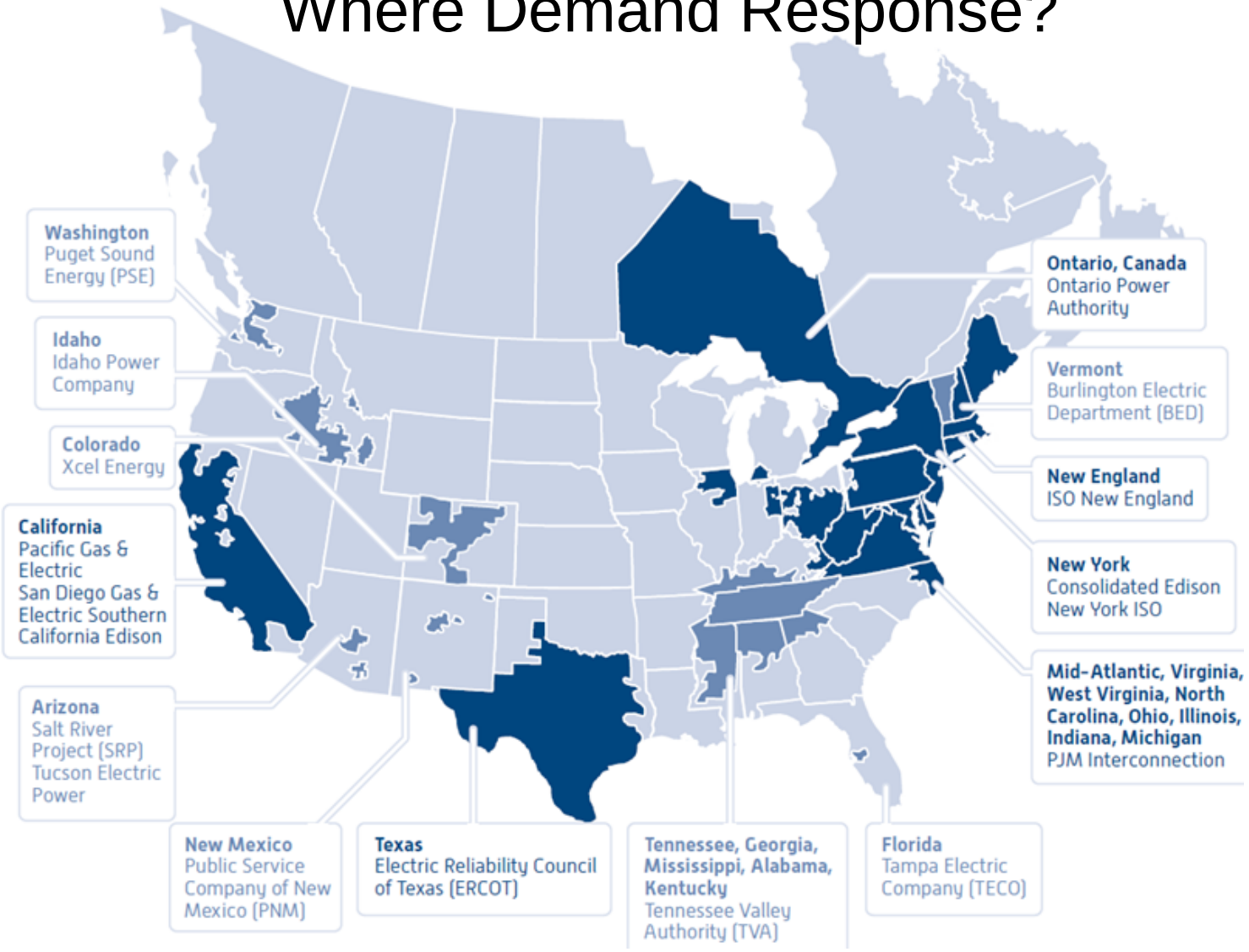
# Where Demand Response?

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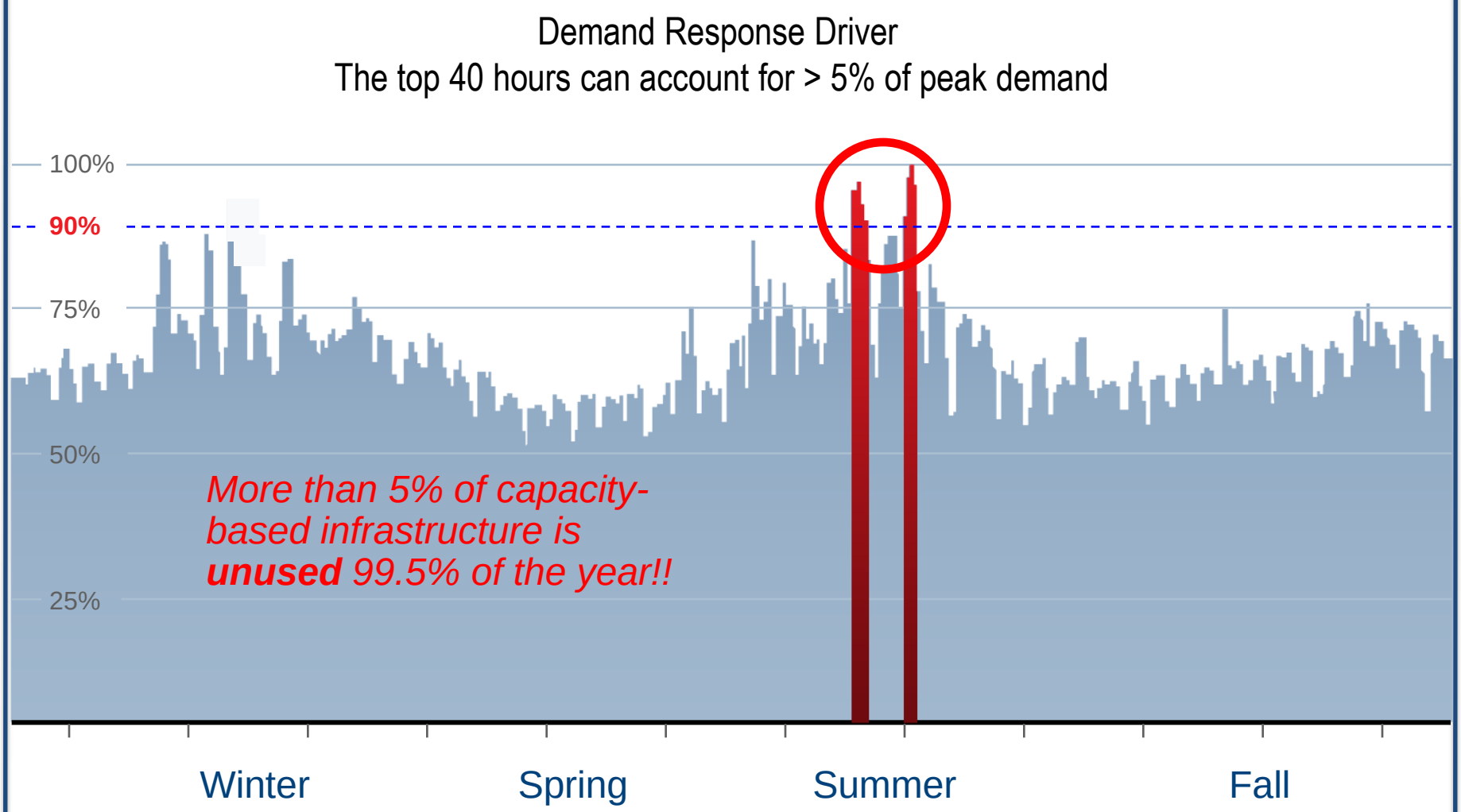
# Why Demand Response?

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# What's the Difference Between EE and DR?

**WE PAY YOU!**

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# Benefits and Costs of DR

## Benefits

- Financial
- Advance warning
- Support the grid

## Costs

- Inconvenience
- Potential penalties

# So What Do You Need to Think About?

- Is DR offered in my area?
- What can I turn down for 2-8 hours without endangering my mission?
- How fast can I respond? Can I automate?
- Do I have back-up generators that I could use?

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Thanks!

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