



# Division of Energy



## Contracts Meeting

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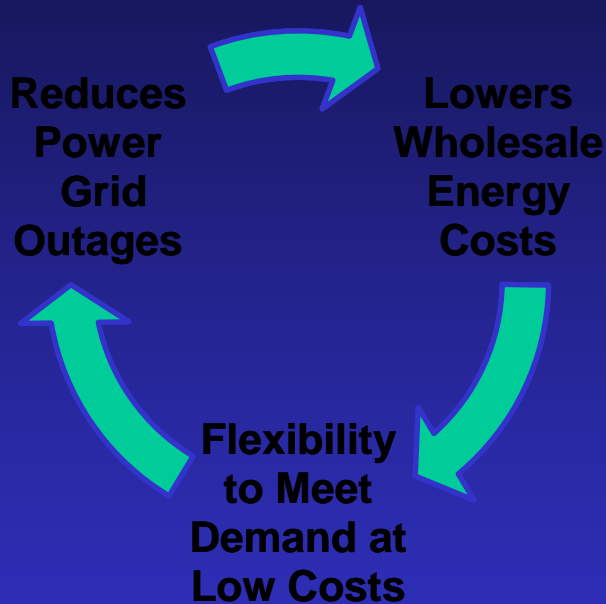


# Overview

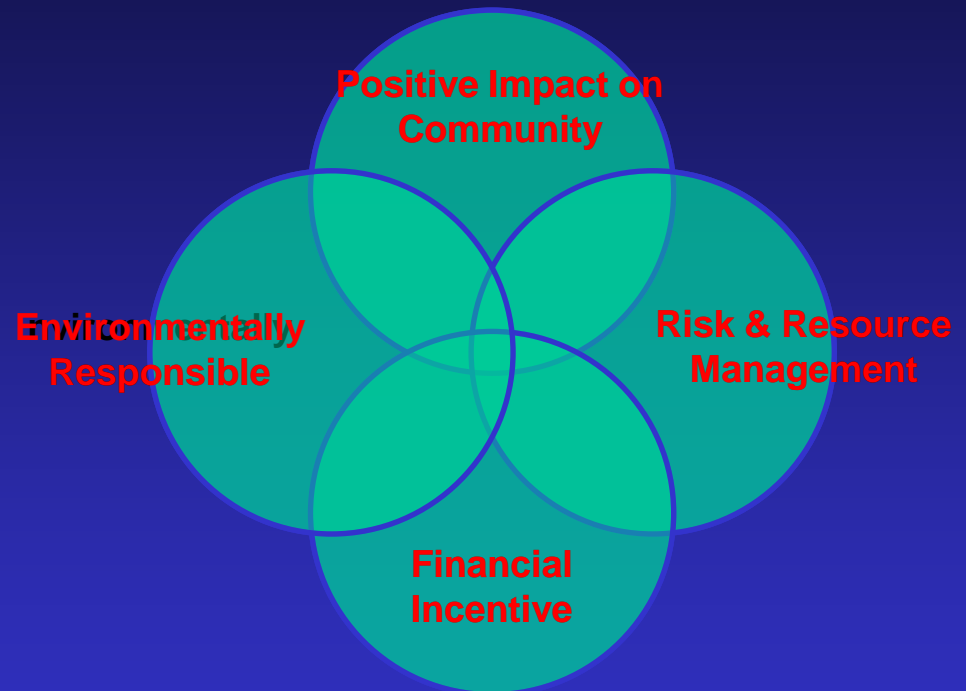
- 1. Demand Response pays large facilities to reduce KWH.
- 2. No risk, no fees, virtually no obligation, no cap-ex.
- 3. Why – to reduce grid ops cost, avoid new construction.
- 4. Who – EnergyConnect, PJM, and You.
- 5. EnergyConnect client base – VCU, UVA, Sears Tower, Regan National Airport, US Steel, etc.
- 6. How – Engineering support, Leading online software suite.
- 7. How Much – Largest city facilities could earn \$1M+ annually
- 8. How Soon – 23 days from contract to revenue generation

# The Benefits of Demand Response

## Power Grid Benefits



## Electric Customer Benefits

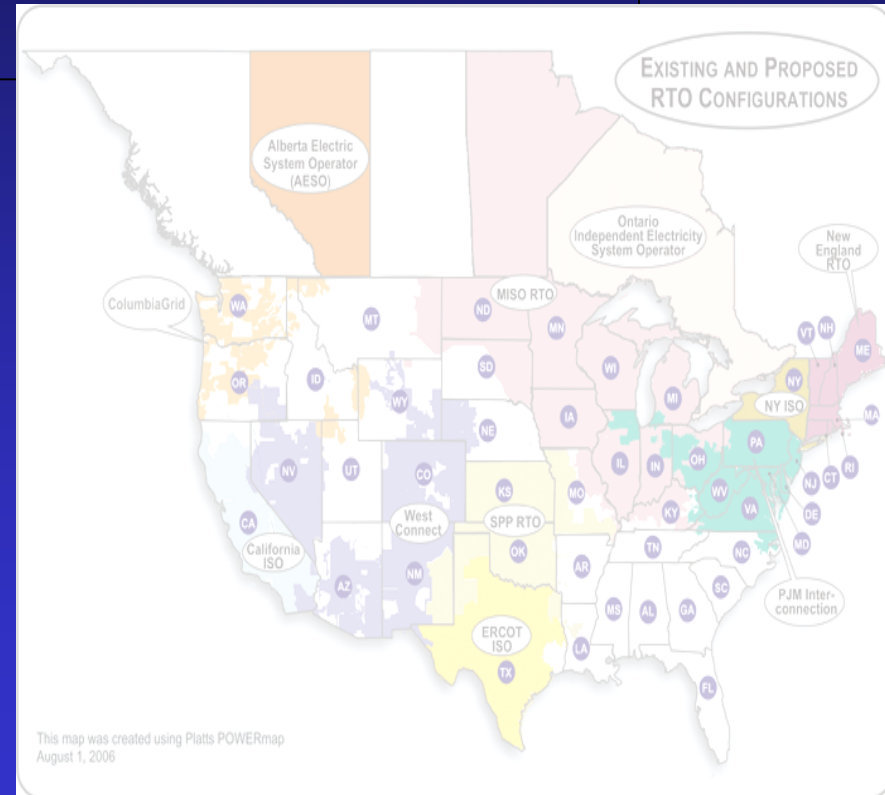


Demand Response is one of the few “technologies” available that can address energy and environmental issues positively while creating economic development opportunities!

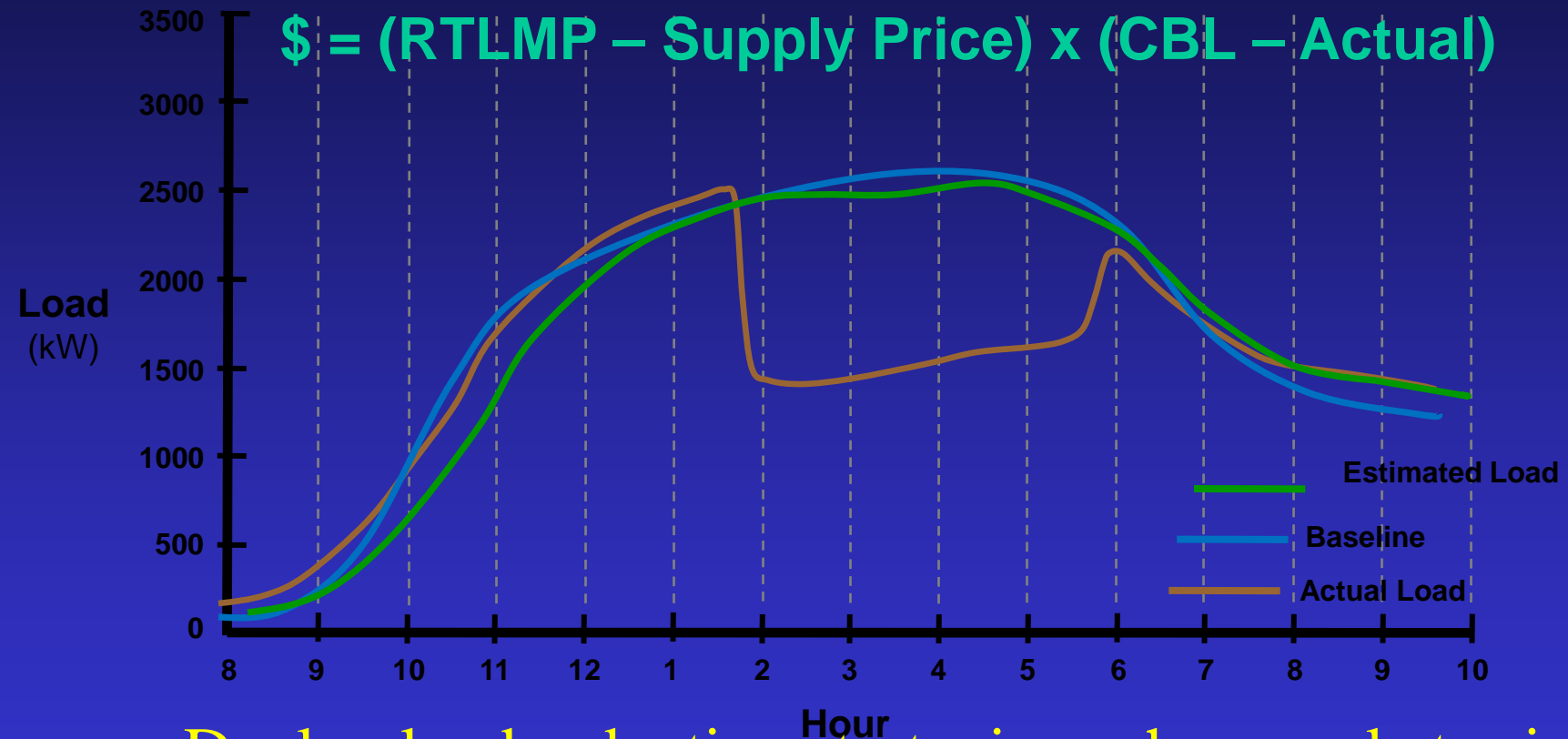
## What is Demand Response?

- Historically – service interruption events deployed by the utility for a reduced retail rate and penalties for failure to comply.

- Today – Power Grid operators directly rewarding individual retail consumers to shift, reduce, or displace energy usage.



# How It Works



- Deploy load reduction strategies when market prices provide incentives to facility.

# Types of DR Programs

	Event Based Programs		Voluntary
	Capacity	Ancillary Services	Energy
Characteristics	Longer notification Longer event duration	Very short notification Short event duration	You make the call when the price is right
Notification Time	2 hours	10 to 30 minutes	Voluntary (Day ahead bid or real time bid)
Curtailement Duration	6 hours	< 1 hour	1 hour blocks
Payments	Standby payments plus energy payments	Standby payments plus energy payments	Energy payments (at premium rates)
Compliance Penalties	Zero Payment	Zero Payment	None
Event Limits	10 Events	Limited number of events	Completely voluntary
Compensation Range	\$12K - \$80K per MW	\$20K - \$110K per MW	\$0.10 - \$1.00 per kWh

Programs and pricing can vary by geography .

Not all program types are available in all geographical areas.



# PJM Presentation of DR Benefits

2008 payments through 9/30 are \$21.4M

EnergyConnect clients represent well over 50% of this total.

We achieve this through cutting edge technology and engineering services.



## Summary of Benefits

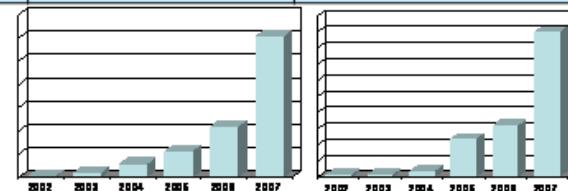
### Potential benefits of demand response:

- Increased customer control of energy costs and reduced bill volatility
- Operational savings for EDCs and LSEs
- Lower market prices and reduced price volatility
- Enhanced grid reliability
- Potential environmental benefits



The screenshot shows the PJM website interface. At the top, there is a navigation menu with links for 'careers', 'site map', 'legal & privacy', and 'contact us'. Below this is a search bar with a 'search' button and a link to 'advanced search'. The main content area features a section titled 'Working to Perfect the Flow of Energy' with a sub-header 'PJM Interconnection, a regional transmission organization, plays a vital role in the U.S. electric power system.' This is followed by a bulleted list of PJM's functions: ensuring reliability, operating an efficient wholesale market, and managing long-term transmission planning. Below this is a paragraph about the website's role in providing real-time data and a link to an 'overview'. A footer note states 'PJM © 2008 All rights reserved.' To the right of the main content, there are several sidebars: 'Quick Links' with links to 'LMP Day-Ahead', 'Real-Time Operational Data', 'eSite | eData (Guest)', 'Emergency Procedures', 'Training', and 'RPM Report (PDF)'; 'RTO Load' showing '70948 as of 01:25 PM EPT'; 'LMP Data' showing 'DMED (Zone) \$50.66'; and 'Recent News' with several headlines including 'PJM Board Authorizes \$1.8 Billion in Transmission Additions, Upgrades' and 'Whitehead Promotion'.

	Total MWh	Total Payments
2002	6,727	\$801,119
2003	19,518	\$833,530
2004	58,352	\$1,917,202
2005	113,393	\$12,000,354
2006	217,056	\$16,118,042
2007	608,745	\$45,173,237



# PJM fine tunes program, ECI responds

- In 2008, PJM has fine tuned the Demand Response program to enhance the program's effectiveness. EnergyConnect software platform is readily modifiable to incorporate these changes.
- Changes include:
  - More precise CBL – now 4 of 5 days in a 45-60 day window
  - Limit on participation to 70% of a 30 day window
  - Enhanced documentation required, greater focus on price response
  - Possible Weather Sensitive Adjustments
  - PJM screening should reduce LSE/EDC denials
- The program remains a financial incentive to support the grid when under stress as reflected by high Real Time prices, and EnergyConnect is now the leading provider of PJM Economic CSP services.



# New tool for more precise participation

## Price Forecast and Response Notifier

### Price Forecast and Response Notification Report

Facility: University of Abcdefg  
Target Date: Monday, September 22, 2008  
LMP: APS

Welcome to the eServices price response notification report.

Energy price forecasts have met or exceeded the trigger criteria for the target date, as indicated by the x's in the table below:

Schedule Trigger Criteria			
From Hour	Through Hour	Price	Minimum Hours
11	18	\$75	2

	Hour Beginning =>																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Price Forecast	\$44	\$39	\$36	\$34	\$38	\$47	\$60	\$58	\$61	\$64	\$66	\$72	\$76	\$82	\$86	\$85	\$88	\$84	\$77	\$85	\$103	\$70	\$52	\$49
Recommended Sched.													X	X	X	X	X	X	X					

If you are an authorized user registered in eServices click the link below to login to eServices to enter the recommended reduction schedule, or view/change the existing schedule(s). NOTE: action is required to schedule the reduction.

- [Click here to login to eServices](#)  
EnergyConnect now sends the Day Ahead price for the following day to participants via email. This allows the participant to plan to better focus efforts on the hours most likely to be valuable to the grid and to the participant.

# Curtailment & Reduction Strategies

	Commercial Buildings	Industrial Facilities	Shopping Malls	Restaurants	Hotels / Motels	Hospitals	Agricultural Facilities
Turn off decorative lighting	√	√	√	√	√	√	√
Turn off non-essential lighting	√	√	√	√	√	√	√
Turn off decorative fountains	√	√	√	√	√	√	
Adjust thermostat settings	√		√	√	√	√	√
AC or fan cycling – deploy VFD	√		√	√	√	√	√
Adjust chilled water temp	√		√	√	√	√	√
Reduced elevator usage	√		√		√	√	
Delay dishwashing	√			√	√	√	
Delay laundry processes	√			√	√	√	
Turn of ice machines	√			√	√	√	
Delay use of battery chargers		√	√				
Turn off non-essential pumping		√					√
Shift manufacturing process		√					√

# Voluntary Participation in Energy Programs

**ENERGYCONNECT**  
ENERGY AUTOMATION NOW

Logout | HOME | BID GENERATOR | LMP REPORTING | FINANCIAL REPORTING | PARTICIPANT LIST | MANAGE USER ACCOUNT

**DA Bid Generation**  
[Back to Facility/Date Picker](#)  
Facility: [REDACTED]  
Day Ahead Bids for Thursday, August 03, 2006

Quantity (MWh)	Bid Price	Quantity Awarded (MWh)	Price Awarded	Hour Starting (Bid Time)	Latest Load (Aug-02)	Temp (Aug-02)	CBL (Aug-03)	Temp Forecast (Aug-03)	Estimated Load	CBL Less Est. Load	DA LMP (Aug-03)	RT LMP (Aug-03)
<input type="text"/>	\$75.00			08/03/2006 00:00 EDT	5945		4820		5945	-1125	85.10	101.01
<input type="text"/>	\$75.00			08/03/2006 01:00 EDT	5972		4761		5972	-1211	69.92	68.12
<input type="text"/>	\$75.00			08/03/2006 02:00 EDT	5977	80	4721	73	5977	-1256	53.93	34.86
<input type="text"/>	\$75.00			08/03/2006 03:00 EDT	6021		4718		6021	-1303	35.11	25.49
<input type="text"/>	\$75.00			08/03/2006 04:00 EDT	5934		4796		5934	-1138	33.70	27.80
<input type="text"/>	\$75.00			08/03/2006 05:00 EDT	6048	78	5205	70	6048	-843	33.72	32.49
<input type="text"/>	\$75.00			08/03/2006 06:00 EDT	6652		5865		6652	-787	45.05	33.56
<input type="text"/>	\$75.00			08/03/2006 07:00 EDT	7446		6899		7446	-547	66.56	23.24
<input type="text"/>	\$75.00			08/03/2006 08:00 EDT	8456*	79	7899	71	8456*	-557*	78.98	64.74
<input type="text"/>	\$75.00			08/03/2006 09:00 EDT	1865*		8200		1865*	6335*	94.78	77.76
<input type="text"/>	\$75.00			08/03/2006 10:00 EDT	132*		8223		132*	8091*	104.19	83.06
<input type="text"/>	\$75.00	2.0	\$114.70	08/03/2006 11:00 EDT	45*	87	8239	77	45*	8194*	121.46	94.16
<input type="text"/>	\$75.00	2.0	\$114.70	08/03/2006 12:00 EDT	0*		7731		0*	7731*	114.70	75.95
<input type="text"/>				08/03/2006 13:00 EDT								

- Customers decide when to participate based on market prices or estimated market prices
- Automated software confirms a DR transaction directly to the grid
- Verification and settlement with grid embedded in the process

# EnergyConnect in the news

Press Release

Source: EnergyConnect

## Defense Energy Support Center Enters into Master Demand Response Agreement with EnergyConnect

EnergyConnect is chosen as a provider of demand response services to the U.S. government

Tuesday November 11, 2008, 8:00 am EST



LAKE OSWEGO, Ore.--(BUSINESS WIRE)--EnergyConnect, an industry leader in innovative demand response technologies, today announced that it has been selected as a provider to the Department of Defense (DOD) and other federal government agencies.

"Demand response is an essential component to any long-term, national energy strategy, and it is affirming to see the federal government leading by example," said George Barnes of EnergyConnect. "We are pleased to have been selected as a provider of important demand response services to the federal government."

8. This Agreement may not be modified in any manner unless in writing and signed by both Parties and supersedes all prior or contemporaneous discussions and writings. Parties shall keep proprietary information exchanged under this agreement confidential to the extent possible. This Agreement shall be construed under Federal Law.

9. Participant shall notify EnergyConnect in writing no later than 30 days prior to the change of electricity rate or supplier to a facility, and provide a copy of the new supply agreement, and an invoice when available, to facilitate continuity in the Program.

10. Participant shall work exclusively with EnergyConnect in this regard through the period of this Agreement as extended.

The Parties hereby approve and accept these terms. Exhibit A regarding Account Information and a W9 are also attached.

EnergyConnect, Inc. Participant: Defense Energy Support Center  
 Gene Amadori, President (Signature) Lawrence T. Finkis (Signature)  
 7935 Cliffview Dr. Poland, Oh 44514 Address: 8715 John J. Kingman Rd, Ft. Belvoir, VA  
 Date: 10/21/08 Date: 10/21/08

Fax Number: 1-866-858-0478  
 gamedur@energyconnectinc.com



### Governor Kaine Announces EnergyConnect Contract - Contract will improve reliability of Virginia's electricity grid and reduce load -

COMMONWEALTH OF VIRGINIA - Governor Timothy M. Kaine today announced that Virginia has entered into a contract with EnergyConnect that will help improve the reliability of Virginia's electricity grid and will provide incentive payments for reducing the load on the grid. EnergyConnect is a wholly owned subsidiary of Microfield Group Inc.

Virginia's Energy Plan recommends that the state government lead by example," Governor Kaine said. "This contract does exactly that."

The program will benefit all citizens of the Commonwealth by reducing the need for electrical utilities to build additional generating plants, transmission, and distribution lines.

The contract will see to it that the demand is reduced on the grid during times of peak electrical load, such as a very hot day in July or August, or in an emergency. A Curtailment Services Provider, such as EnergyConnect, works with the electric utility and the Regional Transmission Organization. Reducing the load helps the grid by making more electricity available to new owners and reduces the need for electric utilities to start additional generating units. In the event of an emergency, such as the loss of a transmission line, this program could help stabilize the electricity grid by taking load off of the utility and preventing a complete collapse of the grid.

DESC), which is tasked by the federal procurement solutions to the Department

EnergyConnect will assist state agencies, educational facilities, and other public bodies in curtailing their use of electricity during periods of peak use. Payments for this electrical demand curtailment will be made directly to the participating organization and has the potential of exceeding \$10 million per year in payments to state agencies. This will provide an additional funding source for agencies in these challenging financial times.

"We look forward to working with Governor Kaine to provide the Commonwealth with cleaner, more efficient sources of energy," said Rodney M. Boucher, Chief Executive Officer of Microfield Group. "EnergyConnect is committed to ensuring that Virginians benefit from the most advanced demand response technology available."

- \$125,000 Loan for \$535/mo.
- \$200,000 Loan for \$855/mo.
- \$275,000 Loan for \$1,175/mo.
- \$350,000 Loan for \$1,495/mo.

Source: Bankrate.com

Go »

RateMarketplace

EnergyConnect's FlexConnect demand response program.

The FlexConnect program enables large electricity consumers to earn money by voluntarily curtailing power usage in

response to high market prices or regional power shortages. It allows consumers to make informed, automated decisions about when to engage in electricity load shifting or curtailment events based on the user's operational flexibility and up-to-the-minute electricity market pricing.

