### GLENBROOK HIGH SCHOOLS

Regular Board Meeting March 8, 2010 District Business Office

TO:

Dr. Mike Riggle Hillarie Siena

Kimberly L. Ptak

DATE:

FROM:

MARCH 8, 2010

RE:

**DISCUSSION: EnerNOC Demand Response** 

### CRITICAL QUESTION

Should the board approve participation in EnerNOC's Demand Response Program?

### BACKGROUND

EnerNOC is a Boston based publicly traded company. EnerNOC does not sell energy, but rather has agreements in place with power grids in North America as well as Europe. The power grid supporting our area is PJM (Pennsylvania, New Jersey, and Maryland) which serves our area east to the Atlantic Ocean. Rather than building expensive power plants only needed for the extreme peak periods, power grid companies, like PJM, pay EnerNOC to find sites, like Glenbrook, to participate in a Demand Response Program. EnerNOC shares its payment with its participants. EnerNOC pays participants to be available to reduce energy use when the power grid is under stress or prices are spiking. Energy reductions would involve shutting off non-essential lighting, changing thermostat settings, turning off unnecessary equipment or transferring the electric load to a back-up generator. Participants receive a quarterly payment in exchange for agreeing to be "on-call" and reducing energy if there is a demand response event. Events are generally in August and September and after 3pm.

The annual payment for a district our size is \$63,600 in year one, this is based on the assumption our district could shed 2000 kw of electricity. At our summer peak, we are using an estimated 3000 kw of electricity. In the event our district is asked to reduce energy and, for whatever reason, we are unable, there is no penalty to the district. Future payments may be reduced if actual energy reduction is significantly less than what was estimated. The district is completely in control of how much energy is shed during an event. This program has been in existence since 2003 and, to date, there has not been an event in the mid-west region. There is an annual, 1 hour, test that is conducted early August of every year. If there is a demand response event, the district would receive an additional \$500 per hour of event. There is no cost to the district for participation in this program.

### PAYMENT TABLE

Year 1	\$63,600
Year 2	\$40,200
Year 3	\$6,000 (an additional power plant is anticipated to be added in Year 3 – decreasing pmt)
Year 4	\$36,000
Year 5	\$36,000

<b>AGENDA</b>	ITEM#	
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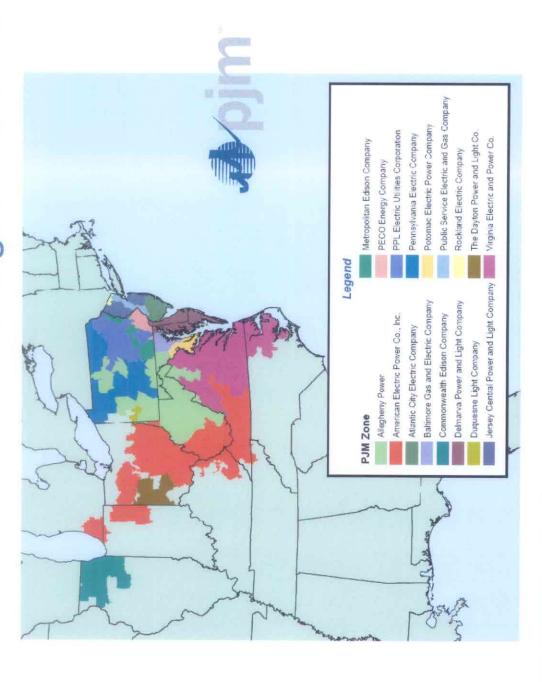
### FREE ENERGY MGMT TOOL

The district will have free access to PowerTrak, a web-based software application. PowerTrak allows users to track energy usage, analyze spikes in electricity usage and maximize performance during demand response events.

### LOCAL SCHOOL DISTRICTS PARTICIPATING

Lockport HS
Lincolnway HS
Lake Park HS
Maine Township HS
Lake Zurich
Warren HSs
Libertyville HSs
College of Lake County
Joliet Public Schools
Elmhurst Public Schools
Oak Park River Forest High School
Oak Lawn (in discussions)

# PJM Interconnection - the largest in the world



O ENERNOC



# Reduce Energy and Earn Revenue

### with EnerNOC Demand Response in PJM

### WHAT IS ENERNOC DEMAND RESPONSE IN PJM?

EnerNOC's demand response (DR) programs in PJM reduce power usage in order to prevent blackouts and help maintain reliable and affordable electricity across the PJM service territory.

### HOW DOES IT WORK?

Commercial, institutional, and industrial organizations agree to reduce a set amount of electricity consumption in response to high peak demand, high electricity prices and other system needs. Participants receive recurring payments in return for enrolling in our demand response network and being ready to respond to demand response events.

### IS THERE ANY COST TO PARTICIPATE?

No, there is no cost to participate. EnerNOC will install all required metering and technology free of charge, as well as provide you with free basic access to PowerTrak®, EnerNOC's energy management software that allows you to better manage energy consumption at your facility.

### **HOW DO I PARTICIPATE?**

Participating in demand response with EnerNOC is simple.

- Our team works with you to identify your reduction potential and strategy for participation. We outline these reduction measures in a detailed Demand Response Plan.
- We install a server at your facility to establish communication with our Network Operations Center (NOC), so we can monitor your energy consumption levels in real-time, 24/7.
- Next, EnerNOC simulates a demand response event to ensure that you are comfortable with the procedures outlined in your Demand Response Plan.
- EnerNOC then officially enrolls your facility into the appropriate program. The amount you commit to reduce can be adjusted as your electric loads change and as you gain experience in the program.

### WHY SHOULD I PARTICIPATE?

### REVENUE TO YOUR BOTTOM LINE

EnerNOC DR is a simple and smart way to put money back into your business with zero upfront costs

### TAKE CONTROL OF YOUR ENERGY COSTS

Get access to PowerTrak®, our easy-to-use web-based software that provides you with the real-time energy information you need to better manage your energy costs.

### GET LEANER - AND GREENER

EnerNOC DR helps your facility become more energy efficient while providing a clean, costeffective alternative to building new power plants.

### GIVE BACK TO YOUR COMMUNITY

Your support increases the reliability of the electric orid and helps decrease overall energy prices

### What is PJM?

PJM [or PJM Interconnection] is the regional transmission organization that oversees the electricity resources across all or parts of thirteen states in the Mid-Atlantic region and beyond. PJM is responsible for ensuring that there is enough electricity supply to meet demand across the region.



PJM Service Territory



### PJM DEMAND RESPONSE PROGRAM OVERVIEW

You can enroll in one or more of PJM's three programs. EnerNOC works with you to develop a participation strategy based on a number of factors, including load profile, operational constraints, and reduction ability.

	Emergency Load Response Program	Economic Load Response Program	Synchronized Reserves Market
Program Description	Participants agree to reduce electricity consumption during system emergencies.	Participants voluntarily reduce electricity consumption during times of high wholesale prices.	Participants reduce electricity consumption on short notice in case of an unexpected emergency (e.g., a power plant outage or transmission line failure).
Financial Incentives	Payments are guaranteed, regardless of whether an event is called.	Participants are paid for their reductions and can earn 5% – 10% of their electricity bill.	Payments are guaranteed, regardless of whether an event is called.
	A customer who agrees to reduce consumption by 1 MW will earn \$20k - \$50k/year.	Payments are based on Real-Time or Day-Ahead wholesale energy prices.	A customer who agrees to reduce consumption by 1 MW will earn \$10k - \$30k/year.
Frequency of Events	0-4 events per year (on average), between June and September.	Participation is voluntary, so frequency of events is per discretion of the customer.	0-5 events per month (on average),
	No more than 10 events are called per year.	or the costoffer.	Events are called at PJM's discretion.
Event Notification	2 hours	At least 1 hour	10 minutes
Event Duration	Average event = approx. 4 hours.	Participants decide how many hours and how often to reduce consumption.	Average event = less than 15 minutes.
	Events last a maximum of 6 hours.	and the state of t	Events last a maximum of 30 minutes.

### WHAT TYPES OF REDUCTIONS CAN I MAKE?

Common examples include:

- Lighting
- · Manufacturing processes
- HVAC equipment
- · Battery chargers
- · Pumps
- · Industrial freezers

Our customers find that many energy intensive processes can simply be shifted by a few hours to facilitate event participation. In certain states, the use of backup generation is also allowed. EnerNOC handles all generator permitting and management.

EnerNOC has extensive experience creating reduction strategies that work within the operational limitations of a wide variety of unique facilities. We work with hospitals, manufacturers, universities, hotels, data centers, office buildings, municipalities, in addition to many other industries—ask us about our experience working with customers like you.

### WHAT HAPPENS DURING AN EVENT?

### Notification

When PJM anticipates the need for capacity, PJM dispatches the EnerNOC demand response network into action. Once an event is called, EnerNOC will send you a notification via email, phone, or pager informing you that the demand response event will begin.

### Response

At the start of the event, your facility will reduce its electricity usage according to your pre-determined Demand Response Plan.

### Support

Before, during, and after an event, EnerNOC's Network Operations Center (NOC) remains in communication with your facility. The NOC staff is available 24/7/365, monitoring your sites and supporting you to ensure that you achieve the highest possible levels of performance and payments.

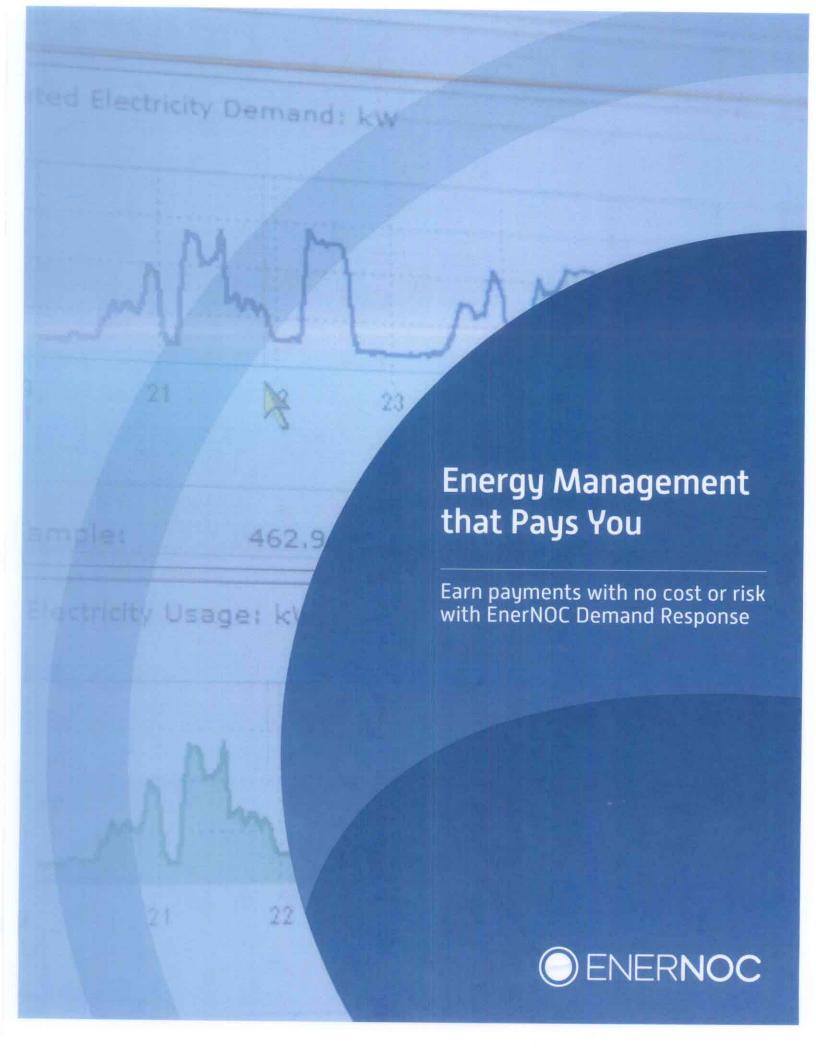
### WANT MORE INFORMATION?

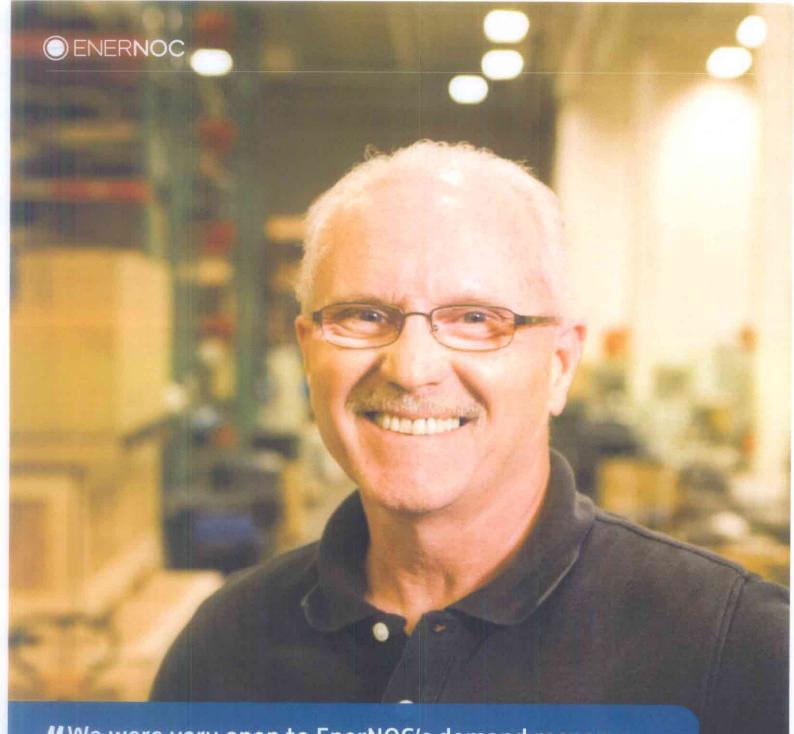
To learn more about how your business can participate in demand response with EnerNOC, call [866] 366-7820 or visit www.enernoc.com/get-started.

# PJM DR Event History

Year	No. of Events	Dates	Region	Duration
2003	0	,	1	
2004	0	.1	1	1
2005	2	July 27, 2005 August 4, 2005	Mid-Atlantic, Dominion Mid-Atlantic	4 hours 3 hours
2006	2	August 2, 2006 August 3, 2006	Mid-Atlantic Mid-Atlantic	4 hours 5 hours
2007	-	August 8, 2007	Mid-Atlantic, Dominion	4 hours
2008	0		ť	
2009	-	August  Performance Event (vs. Emergency)	All	1 hour

-





We were very open to EnerNOC's demand response story. Everyone here, from the manufacturing staff to our executives, was behind the idea of reducing energy, getting paid for it, enhancing the environment, and protecting our community. It seemed like an obvious win-win for us.

John Mycroft, Facilities, Environmental, Health, and Safety Manager Hexagon Metrology, North Kingstown, RI

# It PAYS to do EnerNOC Demand Response—part of our comprehensive energy management services.

- Earn payments—with no cost or risk
- Reduce your energy costs
- Increase operational reliability
  - · Support your community

### Put energy to work for your business

Commercial, institutional, and industrial organizations in the United States pay more than \$200 billion in energy expenses each year. But savvy energy users are finding new ways to manage their energy usage in a way that adds money back to their bottom line. EnerNOC pays more than \$50 million a year to the thousands of commercial, institutional, and industrial sites in our demand response network. Demand response [DR] boosts the bottom line and brings other powerful benefits to our customers, their communities, and the environment. And demand response is just one offering in our comprehensive suite of energy management offerings—from helping you manage energy supply risk to driving energy efficiency to tracking your carbon footprint.

### What is EnerNOC Demand Response?

EnerNOC Demand Response pays you to reduce energy use at your facility when the grid is under stress or prices are spiking. Depending on your organization's needs and abilities, energy reductions might involve shutting off some non-essential lighting, changing thermostat settings by a few degrees, turning off any unnecessary equipment, or delaying energy-intensive processes until after a demand response event has passed. If you have on-site generation capabilities, you can also choose to transfer your electric load to a back-up generator—effectively removing your organization from the grid for a brief period.

EnerNOC Demand Response is a simple way for your business to earn payments – with no cost or financial risk. EnerNOC has helped thousands of commercial, institutional, and industrial organizations like yours design energy reduction plans that ensure that everyday business operations continue ahead unaffected, while maximizing the payments and other benefits of participating in demand response.

# Get paid to reduce energy use... and more

Participating in EnerNOC Demand Response offers a long list of other benefits that go beyond the bottom line. Here are just a few:

### **BE PREPARED**

Peak demand can sometimes cause stress on the grid overall, leading to voltage irregularities, brownouts, or blackouts. Unforeseeable emergencies, such as wildfires or transmission line failures, can also create system-wide challenges. Participating in demandresponse gives you an opportunity to get advance warning of impending grid emergencies, and to help business continuity planning.

### **GIVE BACK TO YOUR COMMUNITY**

Help reduce peak demand in your community and help keep electricity rates low. Further your company's commitment to sustainability and the environment, and give your employees and stakeholders another reason to feel good about your company and its efforts to support the community.

### **GET POSITIVE ATTENTION**

Generate great press that helps inspire other businesses in your community to be more sustainable. EnerNOC's marketing team works with you to share your story.

<sup>3 &</sup>quot;Revenue from Retail Sales of Electricity to Ultimate Eustomers," Energy Information Administration: Official Energy Statistics from the U.S. Government, May 15, 2009.

<sup>2008</sup> total payment figure



### A simple, compelling solution

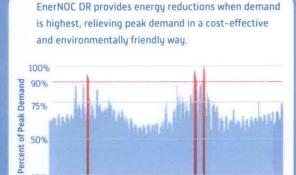
We make participating in EnerNOC Demand Response as simple and straightforward as possible, while removing the risk and providing regular payments at no cost to your business:

- · You get paid for being on standby in case a demand response event is called. And you'll continue to get paid, whether or not you're called upon to help.
- . We work with you to create a customized energy reduction plan designed to deliver the maximum electricity reductions with minimal impact on your business.
- · We install a metering device, free of charge, at your facility to monitor energy consumption and provide you with free access to PowerTrak®, EnerNOC's webbased energy management software.

- . We notify you when your local utility or grid operator initiates a demand response event and needs you to reduce energy.
- You respond by reducing your energy use temporarily. In most programs, you get paid again, based on how well you perform during an event. If you're unable to perform for some reason, you'll never have to pay us a penalty.

That's EnerNOC Demand Response. Thousands of organizations-from heavy manufacturing facilities to leading universities, from hotels to hospitals—are already working with EnerNOC to manage their energy use and benefit from demand response. Isn't it time you joined

### A closer look at EnerNOC Demand Response



Winter

50%

25%

Spring

Summer





# Why partner with EnerNOC for demand response?

EnerNOC Demand Response brings many benefits to your organization, including regular financial payments, consistent cost savings, operational reliability, and the opportunity to help your community and the environment. We make DR easy by taking care of the details so you can stay focused on running your organization. We leverage our deep expertise, quality customer service, and sophisticated technology to ensure that you get the most value possible from demand response.

### Why do thousands of businesses choose EnerNOC for demand response?

# EnerNOC makes implementation fast and simple—at no cost to you.

Your company doesn't have to install or pay for any equipment. EnerNOC takes full responsibility for installing all technology, such as its advanced metering software, so you can stay focused on running your organization.

### EnerNOC means payments, not financial penalties.

Some DR programs make customers pay out-of-pocket penalties for underperforming during an event. Not EnerNOC. We understand that there may be some times when you will not be able to carry out your complete energy reduction plan. Even in these cases, you'll never have to pay us a penalty.

### EnerNOC has the expertise to make DR work for you.

At EnerNOC, our team's experience enabling thousands of demand response sites throughout North America and across hundreds of industries gives us unparalleled insight into how to make DR work best for you. We have the experience and knowledge to help you maximize the financial benefits from participation. It's what we do, and we do it best.

"Enrolling in DR and implementing the program was simple and easy. EnerNOC was extremely professional. They're great to work with. And they did all this work for free."

John MacKorell, Process Improvement Engineer, MGM Industries

"EnerNOC was excellent. Their enrollment checklist walked us through the whole process. Their people were incredibly helpful and answered all our questions. And they're always available when we need them. I wish everything went this smoothly."

Robert Garcia, VP of New Business Development, Ybor City District Cooling

"When you're doing DR, you don't want to make mistakes that affect your company adversely. EnerNOC has deep DR expertise that ensures reliable performance during events. We'd rather partner with experts than take any chances."

Steve Elsea, Director of Energy Services, Leggett & Platt



"For us, DR has turned out to be really easy...
we've found that we're able to make changes
without any effect on the items we store – and we
can put everything back to normal in minutes."

Benny Phillips, Facilities Manager Associated Wholesale Grocers

"Sometimes there is equipment running that we simply can't shut off. With EnerNOC DR we can respond to current conditions and make adjustments that let us meet our energy reduction targets, while ensuring that our business proceeds ahead smoothly."

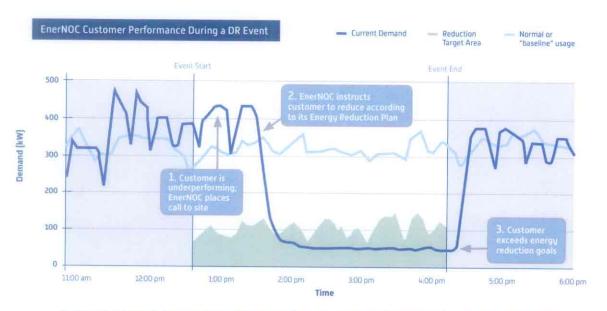
Ben Lovato, General Manager, Albuquerque Tortilla

### EnerNOC tailors demand response to your organization.

Every industry and business has unique demand response opportunities and challenges. Our industry experts spend time at your facility and invest resources and expertise to ensure your customized energy reduction plan works for you. We can even help you create multiple reduction strategies so you can choose the best plan depending on current conditions.

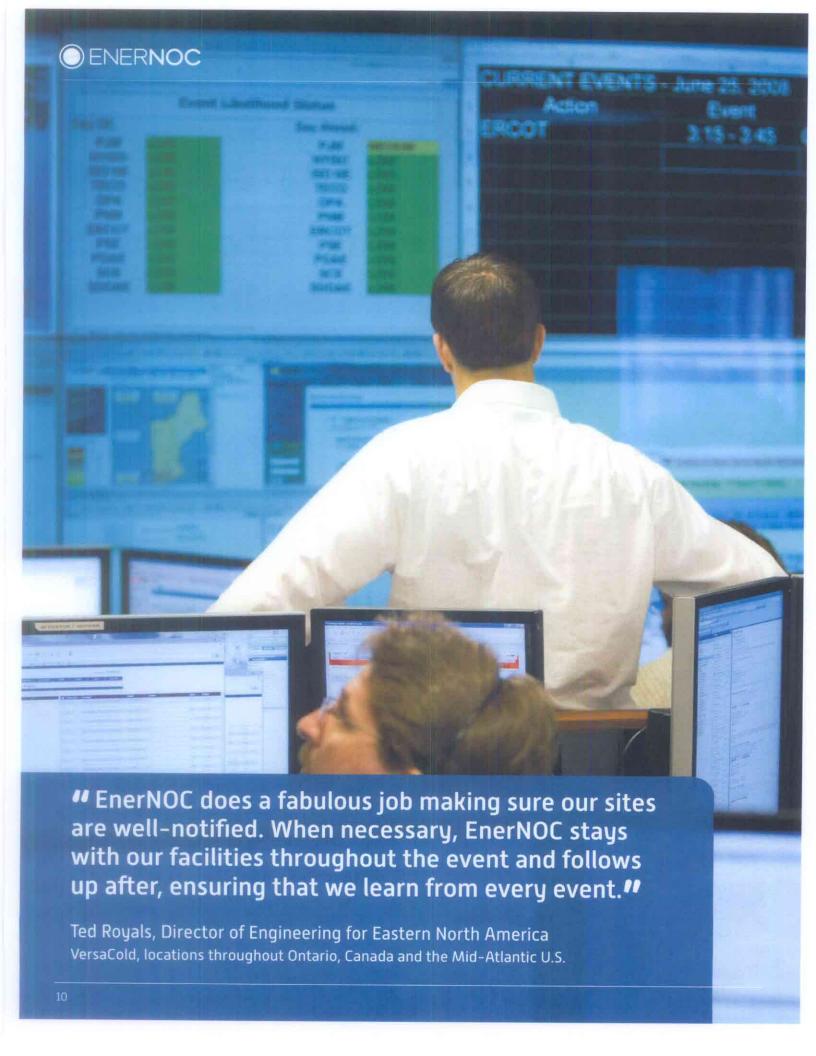
# EnerNOC takes the work out of DR events. EnerNOC can provide you with the ultimate flexibility.

We can even activate your energy reduction plan automatically from our state-of-the-art NOC to minimize the effort required of your facility's staff. If you would rather retain full control over your energy reduction plan, that's OK too — we'll be on standby, monitoring your energy, and ready to coach you to maximize your event performance if needed.



During a demand response event, EnerNOC's team of event analysts monitor your performance in real time from our NOC. If we see that you're not on track to hit your energy reduction goals, you'll get a call from us to help coach you to success.





### EnerNOC provides exceptional customer support and coaching – before, during, and after DR events.

From the beginning of an EnerNOC partnership, we work with you to ensure that you are ready to respond to an event in a way that fits with your operations. During an event, our team of analysts is standing by to make sure you are hitting your target energy reductions and maximizing your DR payments. If you ever run into any challenges, our Network Operations Center (NOC) is staffed 24/7/365, and the average pick-up time for incoming calls is three seconds – that's a faster response than calling 911!

After an event, we follow up with you to see what worked and what didn't. We constantly work to improve and make demand response even easier for your organization.

### EnerNOC sits on your side of the table.

At EnerNOC, we also act as a customer advocate in a dynamic industry – looking out for your best interests as we work with utilities and regulators to create program rules that work for your business. We're constantly staying ahead of fast-changing market dynamics and rules so you don't have to. We're a demand response innovator, a customer advocate, and a trusted voice in the energy industry – just another reason why so many organizations partner with EnerNOC.

"We've got it down to a science. We get a call and click the EnerNOC button within our building management system to shut down the appropriate machinery when we're ready. Then when we go back online, we bring it all back up in stages. It goes really, really smoothly."

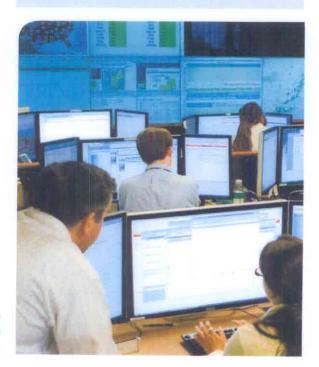
Randy Swartz, Maintenance Manager, Cabot Creamery

"Within a few minutes, EnerNOC just makes the changes. We just continue working."

John Mycroft, Facilities, Environmental, Health, and Safety Manager, Hexagon Metrology

"The EnerNOC team is very qualified and helped simplify the somewhat confusing field of demand response. They have proven to be an excellent partner. And they're very responsive – so I get quick answers to any questions I have."

Randy Groff, Facilities Manager, Four Seasons Produce



The NOC is available 24/7/365 to ensure consistent and dependable customer support - before, during, and after events.



# A gateway to better energy management

EnerNOC serves as a reliable, proven energy partner to thousands of companies like yours throughout North America. Demand response is the cornerstone of our business, but our commitment to you only starts there. We can assist you in other areas of energy management, serving as a comprehensive solutions provider and partner.

### Take action to lower your energy costs

Demand response is a gateway to complete energy management. As part of participating in DR, EnerNOC gives you free basic access to PowerTrak®, EnerNOC's web-based energy management software, which provides a real-time view of your energy consumption. PowerTrak gives you valuable insights into how your organization is using energy, allowing you to make better-informed decisions that can save your organization money and improve its efficiency.

### Increase energy efficiency

We can analyze your energy use to bring you new insights and opportunities for savings. Our Monitoring-Based Commissioning (MBCx) solution can uncover substantial opportunities for raising your energy efficiency through continuous analysis of your building operations. Reduce energy use without large capital investments.

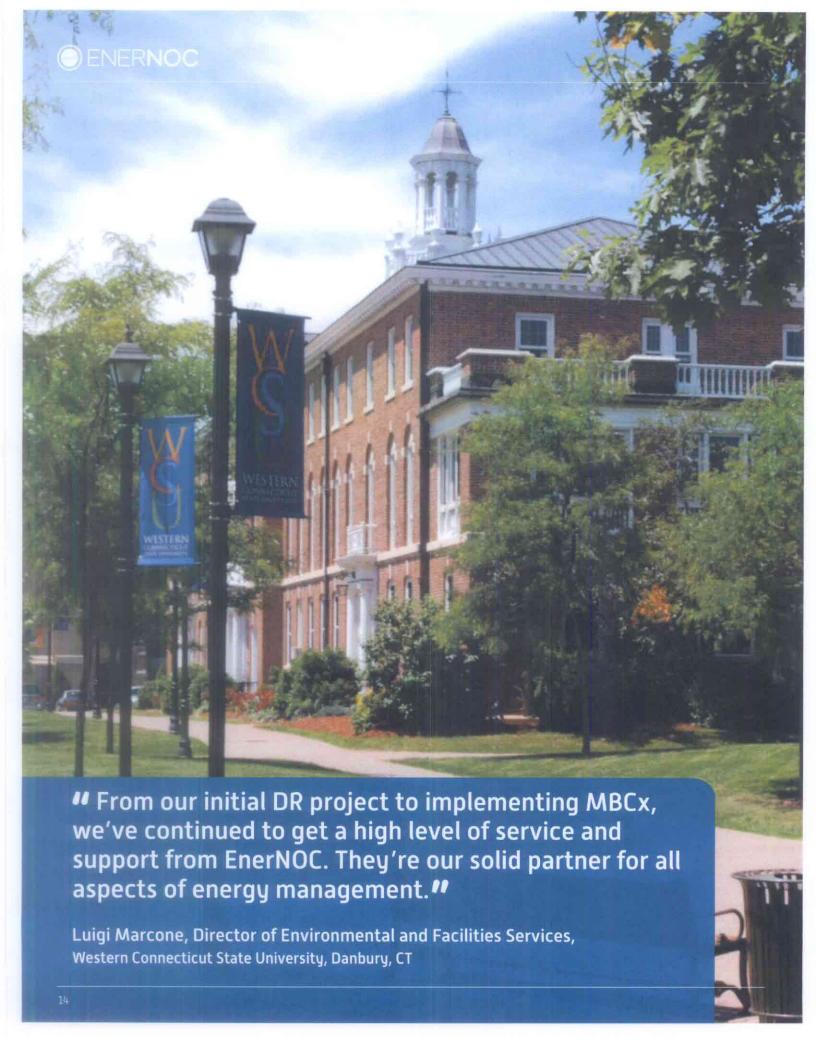


EnerNOC's full suite of energy management solutions help businesses improve efficiency and save money.

EnerNOC's web-based energy management software, PowerTrak, provides real-time visibility into your energy consumption — giving you the data you need to perform your best during DR events and better manage overall energy costs.







### Make smarter energy purchasing decisions

In some regions of North America, energy is deregulated, which means customers have a choice when it comes to choosing which energy contracts meet their needs. The process can be complicated and time consuming, but our Energy Supply Management services can help you navigate complex energy markets to find the right types of energy contracts, at the right price.

### Manage your carbon emissions

EnerNOC's CarbonTrak® software integrates powerful enterprise carbon management software that helps you monitor, mitigate, and monetize your carbon footprint.

When you work with EnerNOC, you get an experienced, innovative energy partner committed to staying at the forefront of the ever-evolving energy industry. For comprehensive energy services and solutions, the choice is clear—EnerNOC.

"The more we learned about the energy markets, the more we understood the potential cost savings we could achieve by doing things differently."

Stephen Myer, Chair of the BRCPC Energy Sub-committee, Baltimore Regional Cooperative Purchasing Committee

"EnerNOC talked to us about our business and our goals. They looked at our current bills. And they came back with a proposal that matched our needs—and saved us a lot of money."

Vince Rivetti, President, Bridesburg Foundru

## Partner with EnerNOC Today

To find out more about EnerNOC demand response and our comprehensive suite of energy management services, call [866] 366–7820 or visit www.enernoc.com/get-started.

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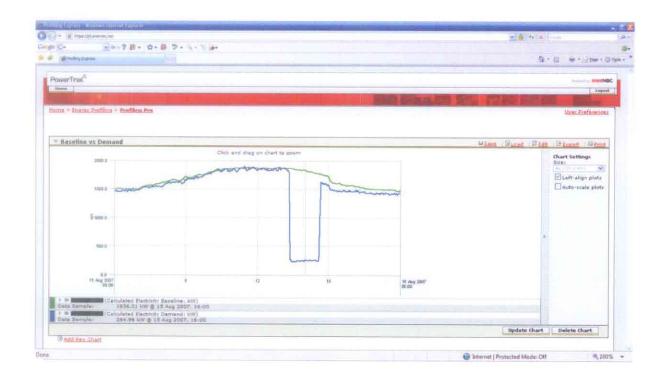
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### FREQUENTLY ASKED QUESTIONS

### What is PowerTrak?

PowerTrak is a Web-based software application at the core of EnerNOC's patented demand response solutions. PowerTrak allows our customers to track first-hand information related to their energy usage, verify the accuracy of their utility bills, and maximize performance during demand response events. Information can be viewed on screen, downloaded into Excel or other format, and shared with different stakeholders throughout an organization in order to make more informed decisions about energy usage.

### How do I use PowerTrak?

You can access this portal from your own computer, around the clock. You have your own private access to your meter data, which is the same data our NOC views during demand response events. Our NOC is active 24/7/365 and so is PowerTrak.

### How do I get started?

Once you are connected to the NOC, your EnerNOC representative will set up your PowerTrak account and password and train you on how to use PowerTrak. If you have

any questions after you're set up, you can reach out to support@enernoc.com or 1.888. ENERNOC 24/7/365.

### What can I do with PowerTrak?

PowerTrak takes the guesswork out of energy usage and performance during demand response events, helping you to lower your energy bills and maximize your demand response earnings.

You can see information like your total energy demand, the maximum amount of energy you use at any given time, your projected or typical usage (baseline) for any given time, and other useful tools that empower you to become a smarter, more efficient energy user.

### How much does this cost?

PowerTrak is free for EnerNOC demand response customers.

### Where can I find more information?

You can visit EnerNOC's website, www.enernoc.com for more information, email info@enernoc.com, or contact your EnerNOC representative.