Get Paid for Your Flexibility

Frequently Asked Questions About Demand Response

With most commodities, value is determined by two key factors: price and quantity. But when it comes to energy, a third component—time—plays a big role. When you use energy is just as important as the price you pay for it and how much you use. Ultimately, a facility's ability to be flexible about when they use energy represents both a value and a cost. Utility and grid-sponsored demand response (DR) programs allow you to monetize that flexibility.

Demand response, which provides financial payments to facilities who agree to reduce energy in response to grid signals, is gaining traction as a go-to energy management best practice for facilities across the globe—and if you look at the benefits, it's easy to see why. Through DR, facilities can earn substantial payments for being on call to reduce nonessential energy use when the electric grid needs support—a win-win for both facilities looking to boost their bottom-line, and the communities they serve. The payments earned from these programs can then be reinvested into better energy management software tools and services designed to reduce costs and improve operational performance.

This brochure is designed to help you understand exactly what DR is, how it works, and what benefits it delivers for both energy consumers and the electric grid serving their communities.

What is Demand Response?

Practically speaking, electricity cannot be easily stored on a large scale. As a result, supply and demand for electricity must remain in a balance. When demand goes up (e.g., due to an increase in energy usage during a heat wave, or due to a decrease in supply when a transmission line goes down) utilities and grid operators have a few options:

- Risk a blackout (not a popular option)
- Buy electricity on the open markets (expensive)
- Fire up the next peaking power plant (if there is one that's not already running)
- Dispatch a demand response network

Instead of adding more generation to the system, demand response pays large energy users to reduce consumption to help maintain the balance.

The 3 Cost Drivers of Energy

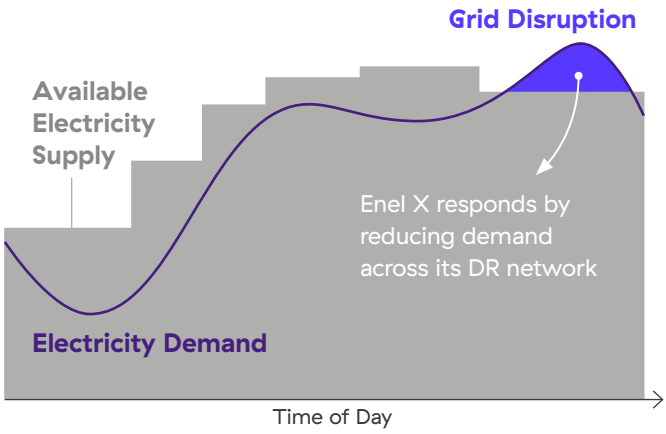
HOW MUCH YOU USE

HOW YOU BUY IT

WHEN YOU USE IT

By addressing all three cost drivers of energy, organizations can better control spend and uncover hidden value.

When you use energy has value to your local electric grid. Demand response programs help you realize that value.



Balancing supply and demand on the electricity grid is difficult and expensive. Large energy users that are willing to help alleviate strain on the grid by reducing energy when demand is high are compensated for their flexibility through demand response.

Let's use the airline industry as an analogy. It would be too expensive for the airlines to permanently expand capacity (i.e., add additional planes, crew, gates, etc.) simply to meet the demand for flights on the heaviest travel days. Instead, it's more cost-effective to be efficient with their finite resources by creating incentives for those who are willing to be flexible with their schedule when a flight is overbooked. Similarly, DR programs incentivize facilities for their energy flexibility—offering substantial payments in exchange for temporary energy reductions when demand is high.

The result is essentially a "virtual power plant" made up of a network of energy users from across hundreds of unique industries that voluntarily lower their demand for electricity when dispatched by the grid or utility or third-party provider. Utilities are willing to pay for this DR capacity because it is typically cheaper and easier to procure than traditional generation.

What Are the Benefits?

Many organizations begin tackling energy costs with demand response because it creates a valuable revenue stream that can be reinvested to deliver even greater savings. But DR programs offer a broad set of financial, operational, and environment benefits for participating facilities.

Funds to Offset Energy Management Initiatives

In exchange for being on call to reduce energy, participants receive what are called "capacity" payments—a regular financial payment based on the contracted reduction amount. When dispatches are called, participants receive additional "energy" payments, based on the amount of energy reduced during dispatches. Payment amounts vary depending on the program rates offered by the utility or grid operator sponsor. Your provider will work with you to ensure that you receive the maximum financial benefits for your participation.

Advanced Warning of Grid Issues

DR is one of the last lines of defense when brownouts or black-outs are imminent. For this reason, participants tout the advanced notifications they receive as part of DR participation as one of the key benefits. Whether it's 30 minutes or 2 hours or day-ahead notification (the amount of notification time depends on the program), energy managers are able to use this time to prepare and protect their operation accordingly.

Visibility into Energy Consumption Trends

Depending on your facility's current technology, Enel X may install a small gateway device to establish communications with our Network Operations Center (NOC). This connection provides your organization access to real-time energy consumption data to adjust your performance during DR dispatches and uncover opportunities to reduce energy spend.

More Reliable Electricity in Your Community

DR helps maintain affordable electricity in your local region and provides a clean, cost-effective alternative to building

"When there is an extreme need for power, we're able to reduce what we use. In turn, we're helping the community because more power is available for the general population. It's a win-win for everybody."

— Pat Gorbett, CEO, Great Lakes Cold Storage

new power plants in the community. Your participation in these programs helps contribute to a cleaner, more reliable and more efficient electric grid—and keeps energy prices stable for all.

Who Can Participate?

Typically, any facility that can reduce at least 100 kilowatts of electricity is a good candidate for demand response.

Examples may include schools and college campuses, hospitals and healthcare facilities, manufacturing facilities of all types, food processing and cold storage facilities, commercial property buildings, grocery stores and retail malls, government buildings, and much more.

How Demand Response Works

There are three steps to participation:

Prepare

- **Design a Custom Energy Reduction Plan**

  Enel X will work with you to identify ways to reduce non-essential energy without affecting business operations, comfort, or product quality. It's our job to create a strategy that delivers maximum value with the minimum operational impact.

  Energy reduction measures are customized for each unique facility and can include turning off lighting, air conditioning, pumps, and other non-essential equipment. Many facilities find that energy-intensive processes can simply be shifted by a few hours to facilitate dispatch participation. In some geographic areas, facilities may participate by switching to backup generation, thereby reducing demand on the grid. Enel X will work with your facility to create a customized participation strategy that works for you.

Respond

- **Receive and Acknowledge Dispatch Notification**

  When the utility or grid operator anticipates the need for support, it dispatches a signal to its DR providers. The provider will then send you a notification via phone/email/SMS informing you that the dispatch will begin and how long it will last (typically between 15 minutes and 4 hours). Once you acknowledge the notification, you're ready to respond.

- **Implement Energy Reduction Plan**

  At the start of the dispatch, your facility will reduce its electricity usage according to your pre-determined

Sample Energy Reduction Strategies

College Campus

- Reduce HVAC to minimum levels
- Reduce lighting to minimum levels
- Shut down select buildings
- Transfer load to back-up generator

Manufacturing Facility

- Shut down production lines or certain operations temporarily
- Cycle off energy-intensive equipment
- Reduce use of air conditioning
- Eliminate unnecessary lighting

Commercial Real Estate Building

- Reduce lighting in common areas (e.g. corridors, lobbies)
- Raise set points on chillers a few degrees
- Shut down laundry washers and dryers
- Shut down one elevator per building

Cold Storage Facility

- Adjust room temperature set points
- Reduce cooling load (chillers)
- Cycle off energy-intensive equipment (pumps, ice-makers, etc.)
- Adjust operating pressures

energy reduction plan. Energy reductions can be managed manually on-site, or depending on your provider's capabilities, conducted automatically by your provider with a click of a button.

Many providers offer cloud-based applications that allow participations to log in and see their dispatch performance in real-time, to ensure they are meeting their reduction targets.

Restore

> **Return to Normal Operations**

Once the DR dispatch is over, participating facilities will receive a notification that they are now clear to return to normal operations. Your partner will remain in contact with you before, during, and after the dispatch to ensure that you are hitting your reduction targets and ensuring the highest level of financial payments.

Conclusion

Not all kilowatts are created equal, so an organization's ability to be flexible about when they use energy represents both a value and a cost. By reducing energy in response to grid signals, organizations can turn that flexibility into a payment stream, which can then be re-invested into energy management efforts to drive even more bottom-line savings.

Only when demand response becomes part of a holistic strategy do organizations truly reap the benefits of energy management.

Being able to see your dispatch performance in real-time helps you identify and address any issues in order to maximize your financial opportunity.

"Being able to take advantage of downtime has really helped us internally to get our maintenance act together. And we did it with an 'empty wallet' approach; we didn't have to invest in capital to make our operations more efficient."

— Anthony Magistrale, Electrical Engineer, Tissue Manufacturing, Kimberly Clark