

**WOODFORD COUNTY BOARD OF EDUCATION
AGENDA ITEM**

ITEM #: **DATE:** July 22, 2024

TOPIC/TITLE: Enel Energy Demand Response

PRESENTER: Shane Smith

ORIGIN:

- TOPIC PRESENTED FOR INFORMATION ONLY (No board action required.)
- ACTION REQUESTED AT THIS MEETING
- ITEM IS ON THE CONSENT AGENDA FOR APPROVAL
- ACTION REQUESTED AT FUTURE MEETING: (DATE)
- BOARD REVIEW REQUIRED BY

- STATE OR FEDERAL LAW OR REGULATION
- BOARD OF EDUCATION POLICY
- OTHER:

PREVIOUS REVIEW, DISCUSSION OR ACTION:

- NO PREVIOUS BOARD REVIEW, DISCUSSION OR ACTION
- PREVIOUS REVIEW OR ACTION

- DATE:
- ACTION:

BACKGROUND INFORMATION:

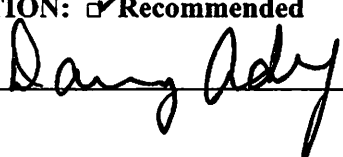
Attached is the correspondence with ENEL to engage in an energy demand response program, where the district can (if we reduce consumption during requested periods) get a rebate for participation. There is no cost to the district and no requirements to reduce energy consumption if detrimental to any district activity. The district has participated in a similar program for several years. Please see attachments for additional details.

SUMMARY OF MAJOR ELEMENTS:

IMPACT ON RESOURCES:

TIMETABLE FOR FURTHER REVIEW OR ACTION:

SUPERINTENDENT'S RECOMMENDATION: Recommended Not Recommended



AGREEMENT FOR THE ENERGY EFFICIENCY BUSINESS DEMAND RESPONSE PROGRAM

This Agreement is made effective on the 1st day of November, 2024 by and between KENTUCKY UTILITIES COMPANY ("Company") and WOODFORD COUNTY PUBLIC SCHOOLS ("Customer") (Company and Customer referred to collectively as "Parties" and each individually as "Party").

Program Description. Participants in the Company's Business Demand Response Program ("Program") agree to help reduce the Company's demand when system-wide demand for electricity is high or system reliability is at risk. Participation in the Program requires Customer to reduce their individual energy load in accordance with an outlined Customer-specific load reduction process or by utilizing onsite generation sources during the Program Event to achieve the Customer's Nominated Capacity. The Program Event period shall be set by Company and in accordance with the terms and conditions contained in the applicable provisions of the Company's tariff. The Company's tariff terms and conditions and applicable rate schedule, rider(s) and adjustment mechanism(s), as from time to time approved by and on file with the Public Service Commission of Kentucky, are made part of this agreement as if fully written herein.

Summary of Key Program Rules.

The Program Event is the period determined by Company's generation dispatch team during which load reduction is necessary from participants within the Program. A single event is expected to last a minimum of four (4) hours and a maximum of eight (8) hours, not to exceed more than one (1) event per day, and an aggregate of one hundred (100) hours in a Term. The Company will provide an Event Notification a minimum of sixty (60) minutes in advance of a Program Event. Prior to the beginning of each Term, the Customer shall provide a Nominated Capacity, which will represent their designated load reduction capacity, in kW, during a Program Event. Upon receiving an Event Notification, the Customer will have an opportunity to opt out of participating in that Program Event.

A Capacity Payment will be made to Customer in an amount equal to the incentive rate multiplied by the Customer's calculated Delivered Capacity during a Program Event, averaged over the Program Events during the Term, and capped at 100% of the Customer's Nominated Capacity. Delivered Capacity will be Customer's calculated performance during each Program Event with respect to the Customer Baseline, subject to Company approval. A Customer's Baseline is determined by calculating the average of the five (5) most energy intensive days over the ten (10) business days preceding the event.

Notwithstanding the foregoing, Customer will receive payment only in those Term(s) in which there is at least one Program Event called and following the completion of the full Term. Customers who have opted out of a Program Event will receive no payment for that Program Event. All payments shall be associated with Customer's participation in the Program after the Term is over and the Delivered Capacity has been verified. All payments shall be made within forty-five (45) days following the end of the Term.

Term. This Agreement shall be effective for a one (1) year term, starting on the effective date. The Agreement shall automatically extend for additional one (1) year terms unless terminated sooner by either Party giving thirty (30) days' prior written notice to the other Party. Company may also terminate this Agreement at any time if Customer elects to opt-out of three (3) consecutive Program Events or demonstrates a zero (0) kW reduction during three (3) consecutive Program Events.

Software and Data Acquisition. Company will install, own, operate, and maintain the metering equipment of its choice that is suitable to generate interval data. Software (and hardware) to access the interval data will be installed by Company, via its contracted third-party vendor. Installation may take up to one hundred twenty (120) days should inventory not be readily available for installation.

Indemnification. Customer shall indemnify, defend, and hold harmless Company from any loss, damage, or expense (including, but not limited to, attorney's fees) incurred by reason of injury or death of any person whomsoever, or damage to any property whatsoever, resulting from, or arising out of, any matter related to this Agreement. Customer's obligations under this section shall not apply if the loss, damage, expense resulting from injury or death of any person or damage to property is a result of negligent act of Company or its employee(s).

Representations and Warranties. Customer agrees that it will not use data made available in a manner that could result in or create an unsafe condition of any kind should the data signal from Company's metering equipment be lost or inaccurate for any reason whatsoever. Customer further agrees that any installation, operation, maintenance, repair, replacement, or removal of Customer installed equipment will not interfere with Company's access to or operation and maintenance of its facilities or equipment. Company makes no warranty, express or implied, as to the safety, durability, reliability or continued operation of the meter or associated equipment.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by these duly authorized representatives.

KENTUCKY UTILITIES COMPANY

WOODFORD COUNTY PUBLIC SCHOOLS

Signature: _____

Signature: _____

By: _____

By: _____

Title: _____

Title: _____

Date: _____

Date: _____

Site Address and Contact Details Attachment

Customer will have the option to update the Nominated Capacity before the start of a new Term. Site Contact Details should be updated as the changes occur.

Contract Account Number	Meter Number	Site Address	Nominated Capacity (kW)
300002099517	2803329	830 Yrone Pike, Versailles, KY 40383	50
300000009468	2852404	180 Frankfort St, Versailles, KY 40383	50
300006864379	2801735	100 School House Rd, Versailles, KY 40383	50
300003426479	35231396	120 Woodburn Hall Rd, Versailles, KY 40383	50
300001380173	C523603	1300 Troy Pike, Versailles, KY 40383	50
300000383921	2850594	500 Northside Dr, Midway, KY 40347	50

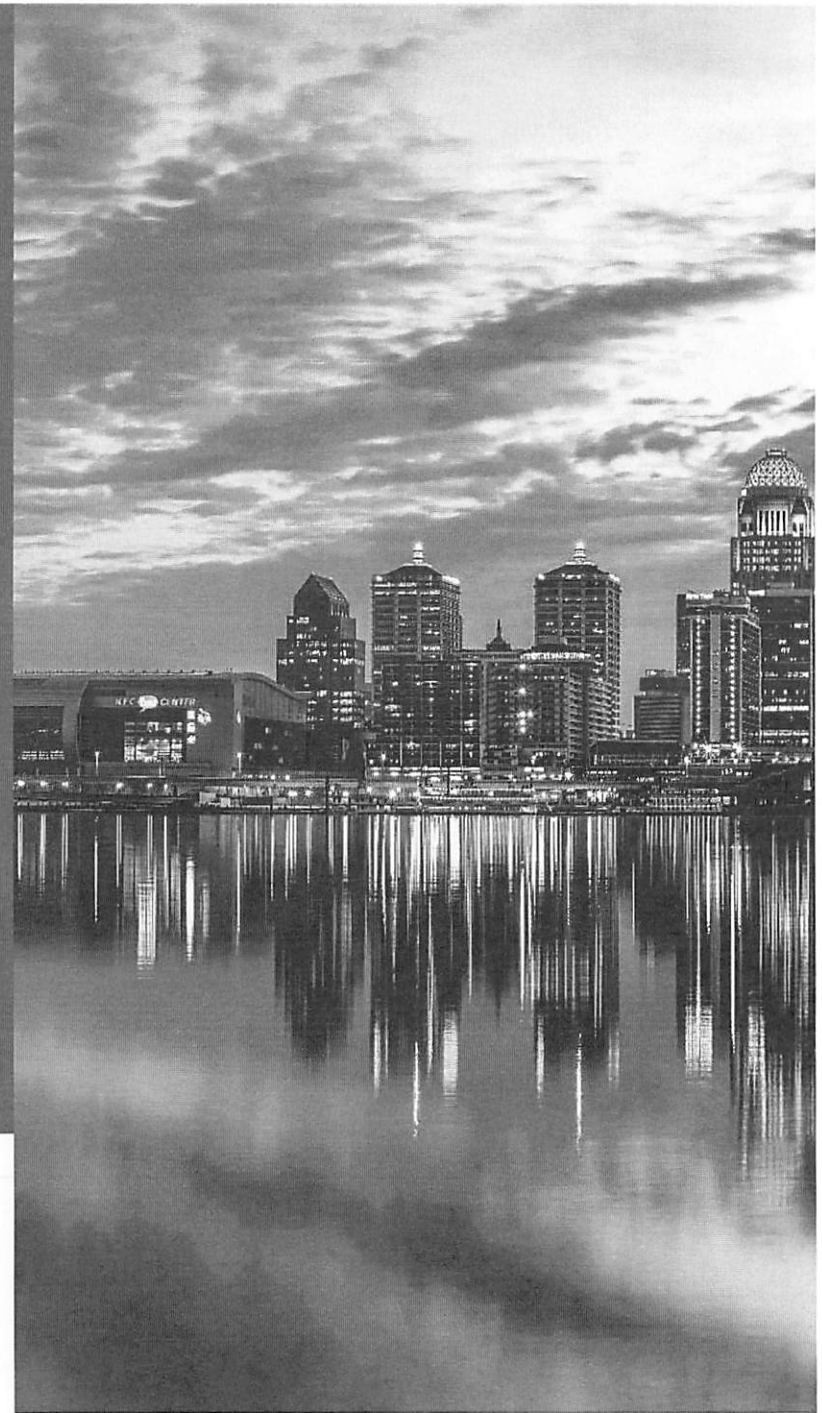
	Primary Site Contact Details	Secondary Site Contact Details	Alternate Site Contact Details
First and Last Name	Shane Smith		
Phone Number	859-879-4600 ext 2114		
Alternate Phone Number			
Email Address	shane.smith@woodford.kyschools.us		
Other Details			

LG&E and KU Nonresidential Demand Response Program with Enel

Unlock the revenue potential
in your energy infrastructure



PPL companies



We are Enel, a global leader in the energy transition



Enel has pledged
zero carbon by 2040

\$190 B

Invested in clean
energy by 2030



Enel is the world's largest
private player in **renewables**

By installed capacity. Includes renewable managed capacity.

11.4 GW

Renewable capacity
in North America
61 GW globally



Enel is a world leader in
demand response (DR)

4.9 GW

DR capacity
in North America
9.6 GW globally

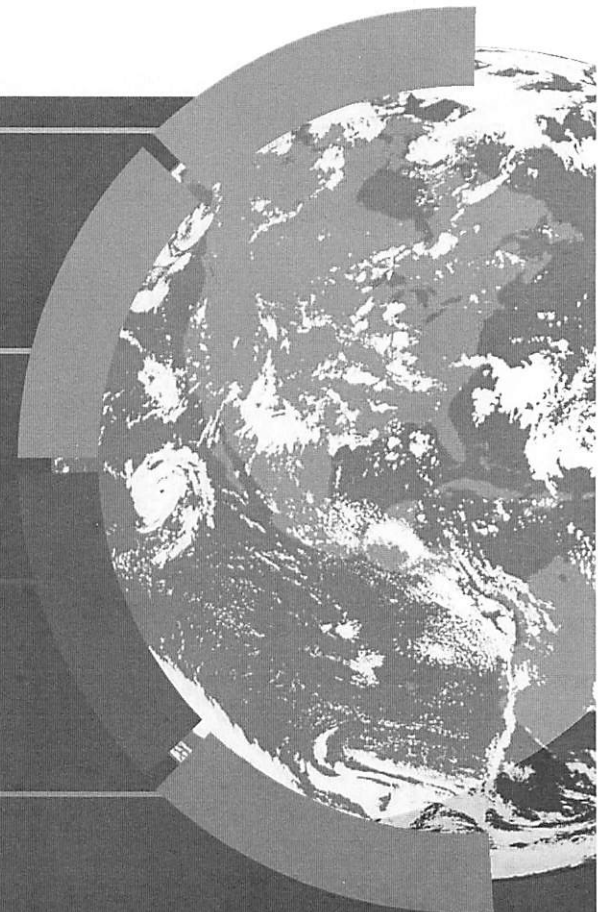


Enel manages a large
portfolio of **DR resources**

9,000+

Customer sites enrolled
in North American DR
markets with Enel

Data as of April 2024



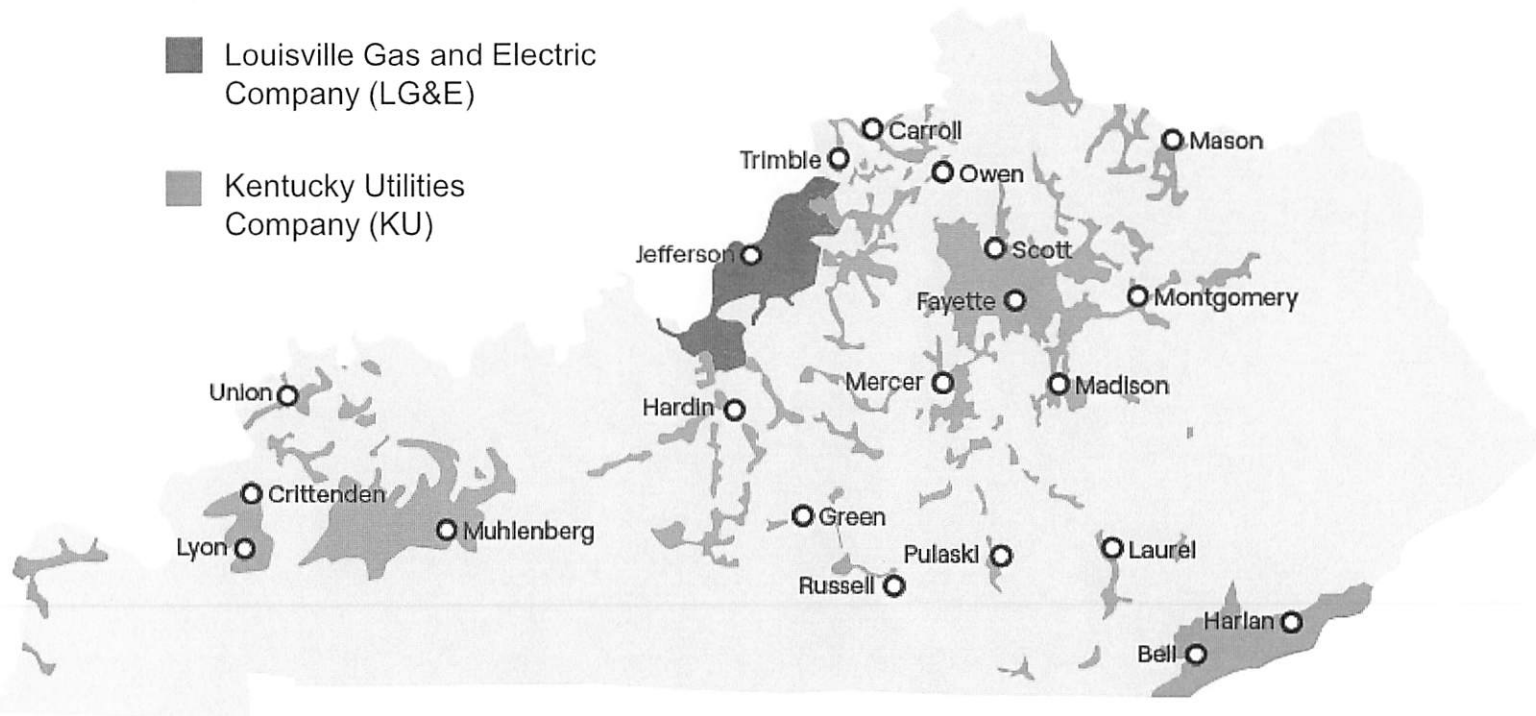
Enel's partner: LG&E and KU

Enel and LG&E and KU have partnered to bring more opportunities to C&I customers in Kentucky



LG&E and KU demand response service area

- Louisville Gas and Electric Company (LG&E)
- Kentucky Utilities Company (KU)



Louisville Gas and Electric (LG&E) and Kentucky Utilities Company (KU), part of the PPL Corporation family of regulated utilities that serve more than 90 counties and consistently ranked as one of the best utility companies for customer service in the United States.

[Learn more about LG&E and KU business conservation programs](http://lge-ku.com/businessconservation)

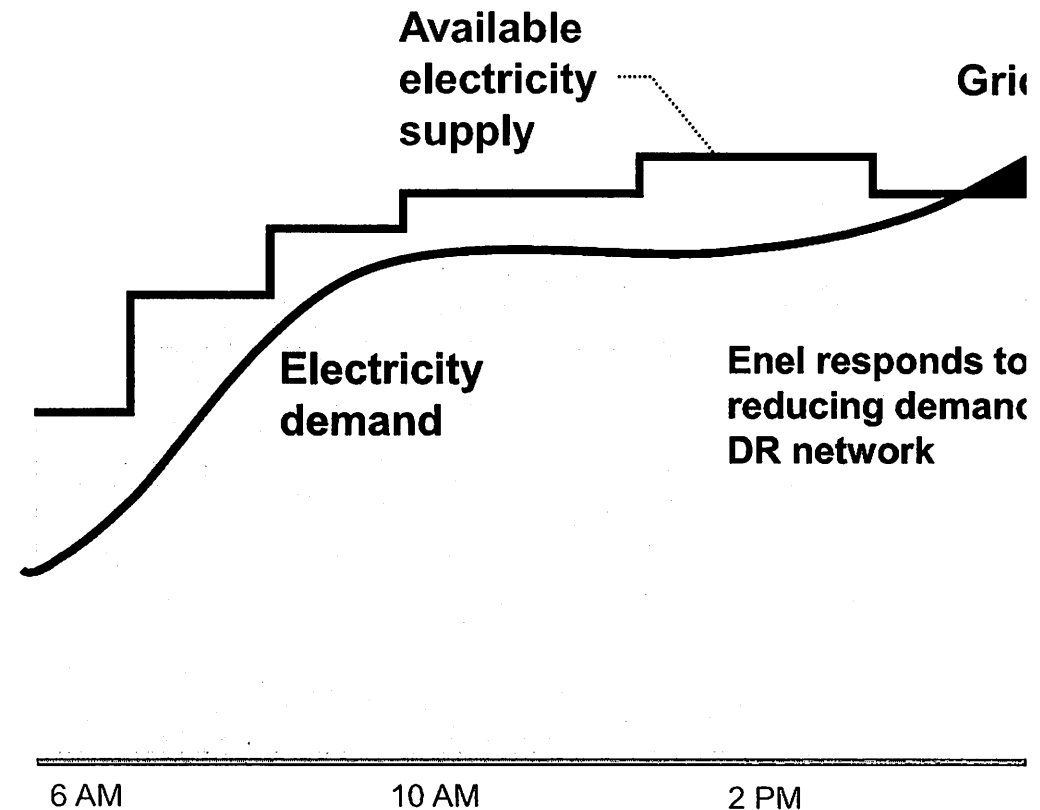
Demand response: reduce or shift demand

Demand response programs pay companies to reduce energy use in response to grid stress



Balancing supply and demand on the electricity grid is difficult and expensive

- Curtailing usage during grid peak demand is a **cost-effective alternative** to building more power plants
- Grid emergencies and peak demand can be due to extreme weather, wholesale price spikes, or unexpected system issues



Benefits of Enrolling in Demand Response



Enel X has a dedicated Account Management team that gives world class service to foster a strong and lasting relationship

Advanced energy monitoring software that enables users to observe their usage at any time

We will work with your facilities to create a customized offering to meet all of your sustainability goals



Earn Payments



Improve Operational Reliability



Strengthen the Grid



Increase Sustainability



LG&E and KU Nonresidential Demand Response Program



Louisville Gas & Electric and Kentucky Utilities Nonresidential Demand Response Program

Territory	Louisville (KY) and Lexington (KY) metro areas and parts of over 75 surrounding
Eligibility	Minimum measured base demand of 200 kW or more over prior 12-month period (existing or expanding customers), ability to curtail at least 50 kW, and paying into DSM n
Demand Response Types	Curtailment and generation
Payments	\$50/kW-year paid by LG&E and KU, based on average performance throughout zero and capped at 100% of nomination
Costs	No upfront or out-of-pocket costs to participate
Program Period & Hours	Year-round, 24hrs a day
Dispatch Notification	At least 60 minutes
Baseline	High 5 of 10 with additive day-of adjustment (upwards only)
Response Duration	4-12 hours
Maximum Dispatch Hours	Up to 100 hours annually
Estimated Annual Dispatch Hours	25 hours or less annually
Testing Requirement	Test required upon enrollment
Technology Requirement	5-minute interval metering

Elementary and Secondary Schools

Top performing Elementary and Secondary Schools curtail **90% of load** on average during a DR event



Industry Detail

+350 - MW enrolled in North America

+1400 - Sites currently enrolled

250 - Average kW curtailed during a DR event

How Elementary and Secondary Schools Participate in DR:

- Raise thermostat set points by 4-6 degrees
- Shut down HVAC chillers, boilers, and air handlers
- Turn off or dim lighting in common areas, hallways, and unoccupied spaces
- Restrict latent loads such as dishwashers and hot water use



Enel X Onboarding Managers work closely with customers to demand response participation maximizes payments and facility disruption

How a demand response dispatch works

1. Notify

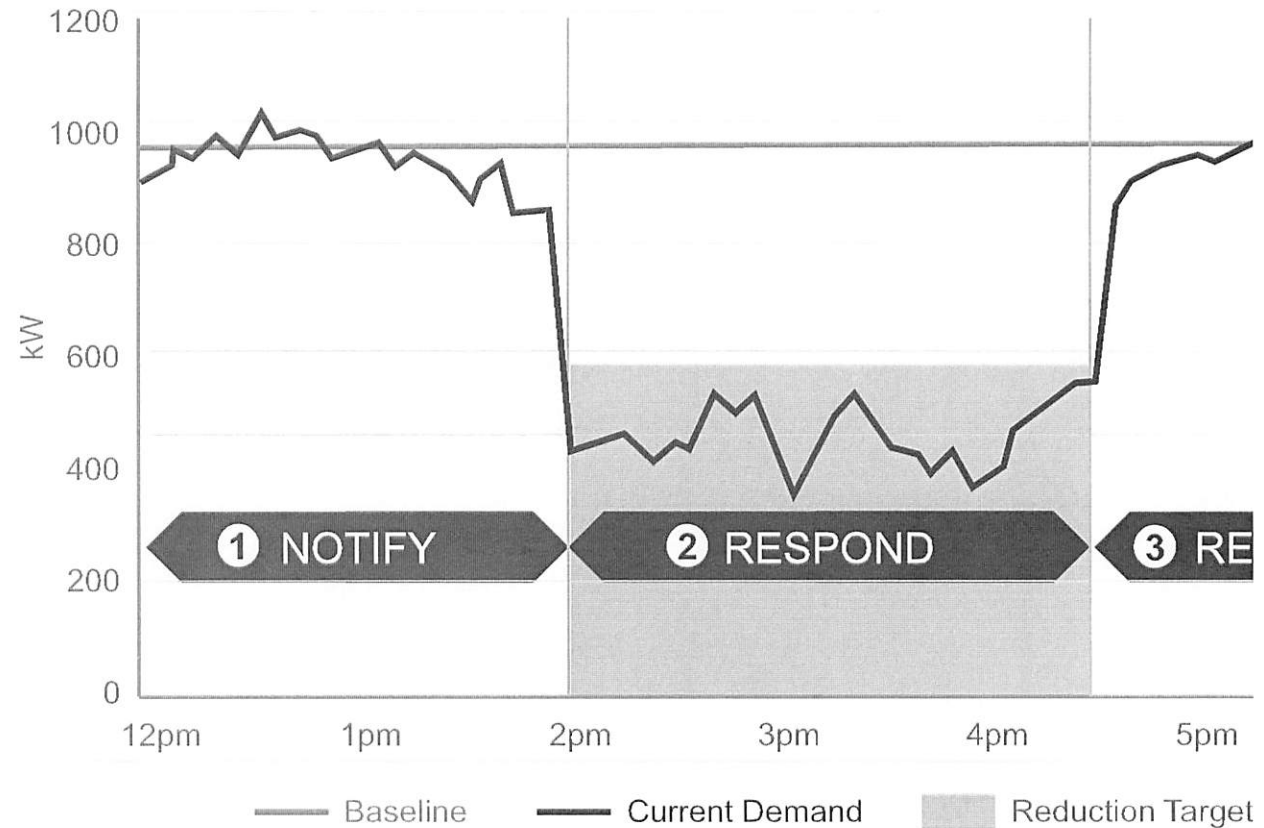
When a dispatch is called, we immediately notify your site contacts via phone, text and/or email

2. Respond

Your site responds by curtailing load manually or automatically

3. Restore

When the dispatch is over, your operations can return to normal levels



Demand response qualification process

Enel has a straightforward process to help decide whether DR makes sense for your sites



1. Data analysis:

We collect and analyze your bills and usage to establish a business case for DR enrollment.

- Our IDA (Interval Data Analysis) tool is best-in-class at validating your DR potential, based on actual data from your site.

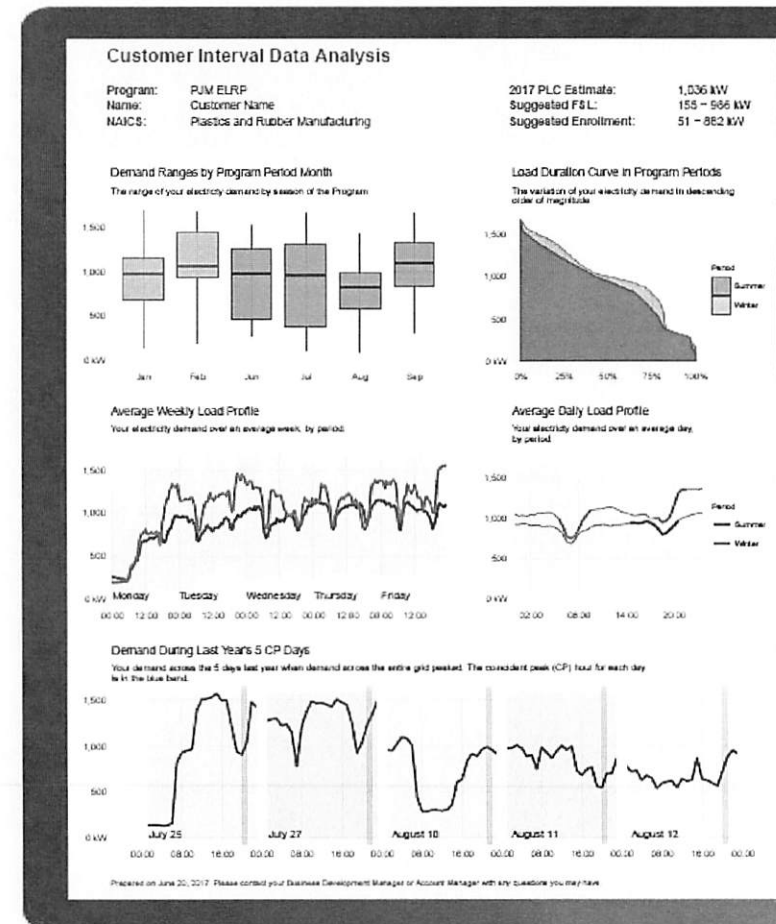
2. Technical validation:

We meet with key stakeholders to determine your operational feasibility.

- In addition to your load profile, we factor your operational schedule and equipment intended for curtailment to assess the opportunity.

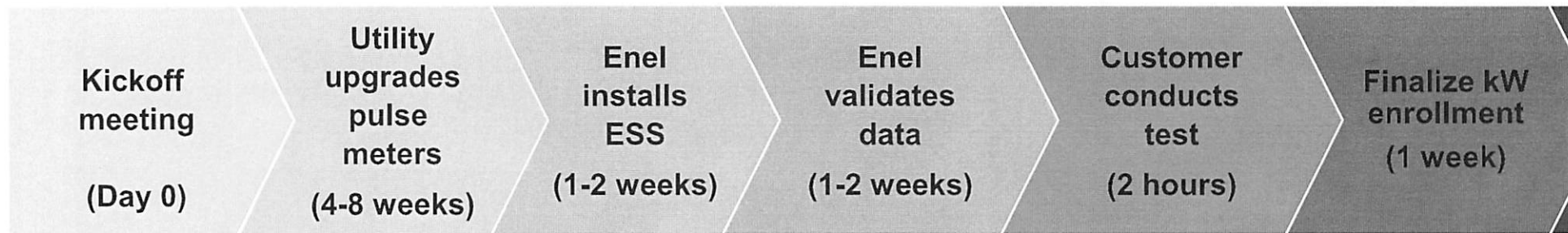
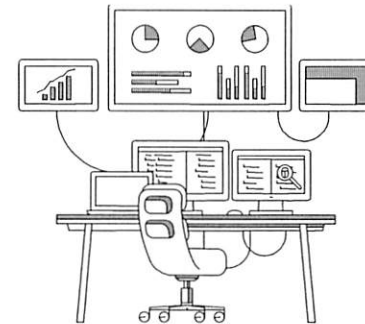
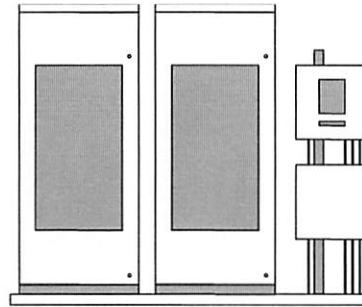
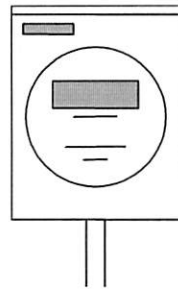
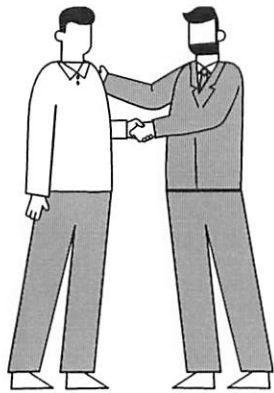
3. Business case Go/No-Go:

We review the business case with key stakeholders to come to the best decision for your organization.



Onboarding timeline

Enel's DR onboarding process is designed to be fast, cost-effective and scalable with an emphasis on customer satisfaction and support



6-13 weeks

Benefits of Participating with Enel X



A new revenue source without any exposure to out-of-pocket costs

Number of Schools	Nomination per School (kW)	Annual Revenue
6	50	\$15,000

Annual Payments: Customers receive payments for participating. The more kW a customer nominates, the higher the payments.

Advance Warning of Grid Disruptions: Protects sensitive equipment and power.

Free Interval Metering: Utility to monitor equipment at each location. Customers can access the data for settlement and for day-to-day energy activities.

Zero Cost: Cash Flow is always positive.

No Penalties: Customers remain on their normal energy usage at all times and are protected from penalties if the system is down during an event (payments will be made for performance).



Appendix

Dispatch performance calculations

Scenario for customer participation in the program



LG&E KU pays customers based on their **average performance over all event hours and events** throughout the year. There are no penalties for underperformance, but payments are capped at 100% of nominated kW.

In this example, see how higher performance from Customer 1 generated **\$12,500 more** than Customer 2. Customer 1 will likely have nomination increased next season.

Enrollment: 1,000 kW Payment rate (\$/kW-year): \$50 DR events in year: 5 events		
Dispatch events	Customer 1	Customer 2
Event 1	600 kW (60%)	600 kW (60%)
Event 2	800 kW (80%)	750 kW (75%)
Event 3	1,350 kW (135%)	900 kW (90%)
Event 4	1,500 kW (150%)	500 kW (50%)
Event 5	1,000 kW (100%)	1,100 kW (110%)
Average performance	1,050 kW (105%)	770 (77%)
Customer seasonal earnings	\$50,000	\$38,500

Baselines and performance management can increase program earnings

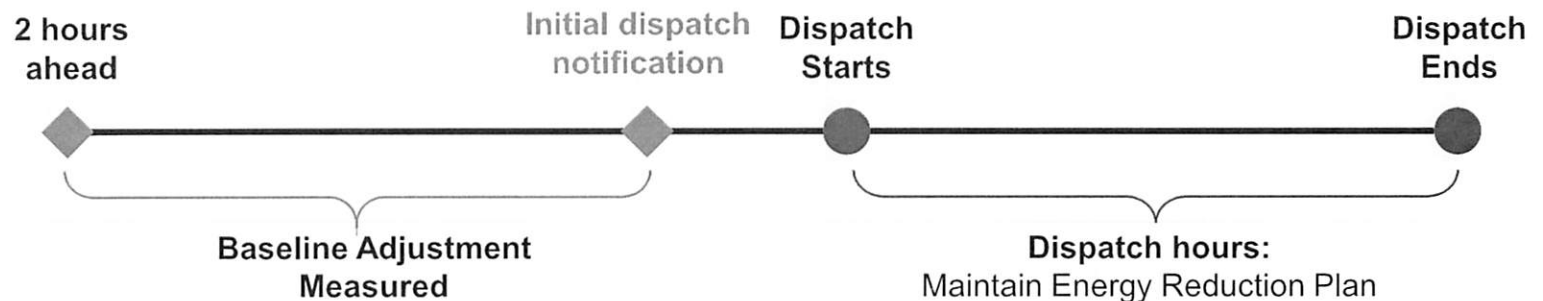
Baselines are a crucial component of how DR performance is measured in a test or dispatch, and managing your baseline can optimize performance

What is a baseline?

- Calculated using average of the **highest 5 of 10** previous days of energy usage
- Adjusted upwards only (no negative adjustment) based on **consumption during the window beginning 2 hours before the initial dispatch notification**
- Performance is measured by the average difference between facility demand and baseline during a dispatch

Maximize your performance

- Start reducing before dispatch to ensure you meet your target but not incur penalties
- Continue to execute your reduction plan for the duration of the dispatch

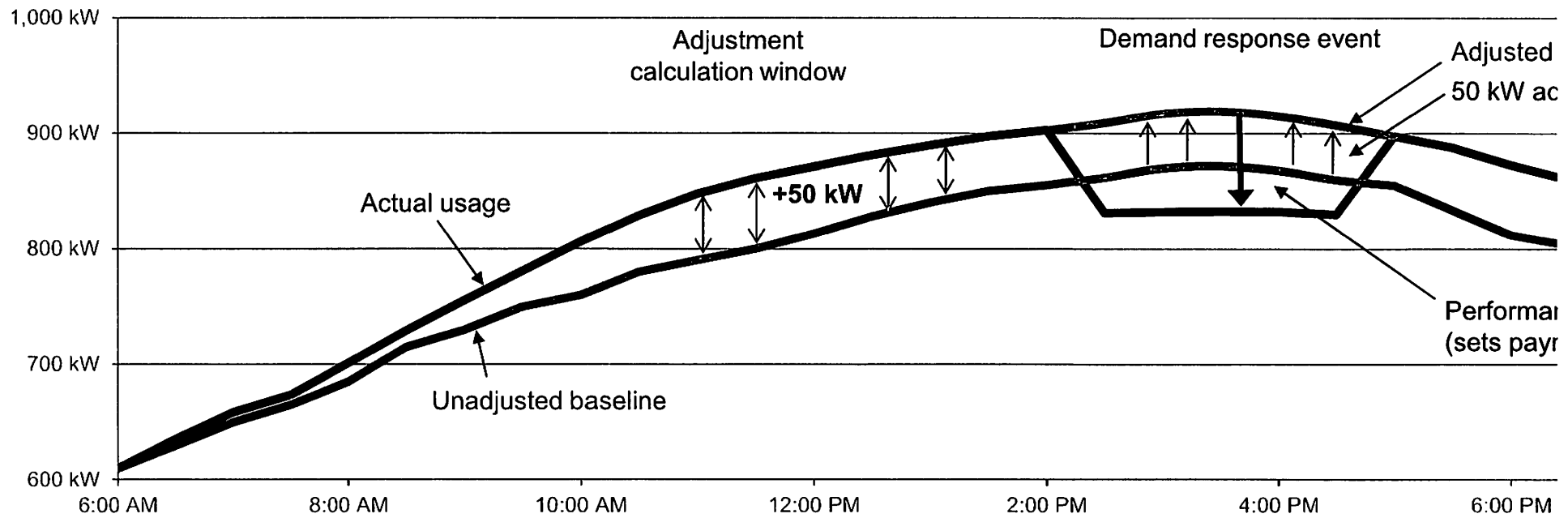


Performance measurement

In-day adjustment for the program



In-day adjustment example



Enel X Flex is a fully integrated platform with improved performance and data security



Site
Enel X Platform Demo - 1 Marina Park Drive

Information: Name: Marina Park Drive, Location: Essex, State: VA, Country: US

No additional energy related information for the Enel X Platform Demo - 1 Marina Park Drive located at Marina Park Drive.

Equipment: Energy Reduction Plan: **Site Contacts**

The profile page of your account contains your site name and phone number. You can easily access and update that information at any time.

Site Contact List + Add Contact

Act	Name	Mobile No.	Phone No.	Email	Design Role	Primary	Enrollment	Facility Contact	Site Active
+	John Doe	202-555-1234	202-555-1234	john.doe@enelx.com	Account Administrator	✓	✓		✓
+	Jane Smith	202-555-5678	202-555-5678	jane.smith@enelx.com	Account Administrator	✓			✓
+	Mike White	202-555-9012	202-555-9012	mike.white@enelx.com	Account Administrator				✓

Self-Service
Update contact, site, or participation information at any time. Gives you control over your own information.

Demo Customer: **Enel X Platform Demo - 1 Marina Park Drive**

Energy Reduction Plan

Contacts

Name	Phone	Email
John Doe	202-555-1234	john.doe@enelx.com

Trails Trail Trail

Trail Settings

Trail Name: []

Trail Type: []

Trail Status: []

Trail Location: []

Trail Description: []

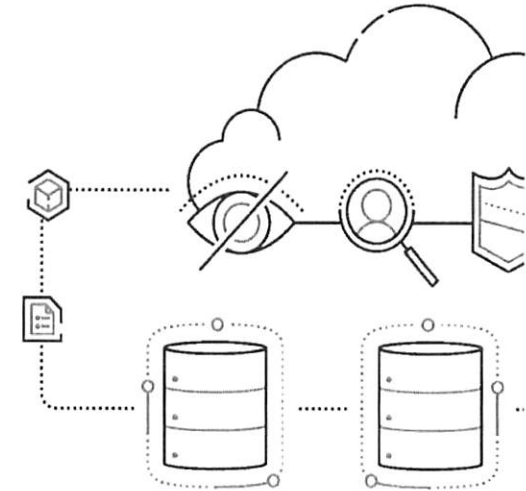
Trail Start Date: []

Trail End Date: []

Trail Active: []

The Enel DR Platform utilizes robust cyber security controls to prevent unauthorized data access

- All customer data, including real-time facility consumption data, is archived in AWS S3
 - S3 maintains compliance programs, such as PCI-DSS, HIPAA/HITECH, FedRAMP, EU Data Protection Directive, and FISMA
- AWS's infrastructure incorporates state of the art technology to prevent any possible cyber security incident. Internally Enel also has a dedicated CERT team that monitors security incidents.
 - Data is encrypted using server-side encryption that encrypts data at the object level
- Only Enel's cloud administrators have access to the production data
 - S3 Audit Logs list the requests made for complete visibility into who is accessing what data
- Enel has multiple layers of perimeter security controls including physical, technical and administrative controls. Perimeter security includes IDS/IPS, WAF, Security groups, VPN remote access, MFA, RBAC, etc.
- Physical controls to the site are managed by AWS and no one has physical access to AWS sites
- All of the Enel's internal processes goes through annual SOC2 Type II Audit conducted by third party independent auditors. Please refer to our audit report for details.



Thank You!

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