



Commonwealth of Massachusetts

Executive Office of
Energy and Environmental Affairs

Electric Connections Improvements Forum

September 15, 2026
Boston, MA



Introduction to EEA



- The Executive Office of Energy and Environmental Affairs (EEA) is a cabinet-level office that oversees the Commonwealth's six environmental, natural resource, and energy regulatory agencies.
- EEA seeks to protect, preserve, and enhance the Commonwealth's environmental resources while ensuring a clean energy future for the state's residents.
- Energy agencies
 - Department of Energy Resources (DOER)
 - Department of Public Utilities (DPU; quasi-judicial)
 - Massachusetts Clean Energy Center (MassCEC; quasi-public)

Agenda



Introduction

- Forum objectives
- EEA Load Connection Initiative
- Recap from last forum
- Power Forward update

Utility Updates

- Joint utility updates on takeaways from last forum
- National Grid presentation on passive house design and grid connection
- Q&A

Flexible Interconnection (IX)

- Eversource presentation
- National Grid presentation
- Flex IX success story – Heywood Hospital
- Q&A

Closing and Next Steps

SHARE INFORMATION

Share information about the grid connection process and improvements under development.

PROVIDE TRANSPARENCY

Provide transparency into the state and electric distribution companies' (EDCs¹) work related to grid connections.

IDENTIFY PAIN POINTS

Discuss customer “pain points” with the grid connections process and develop solutions.

¹The state's investor-owned utilities, Eversource, National Grid, and Unitil, are referred to as the electric distribution companies, or EDCs.

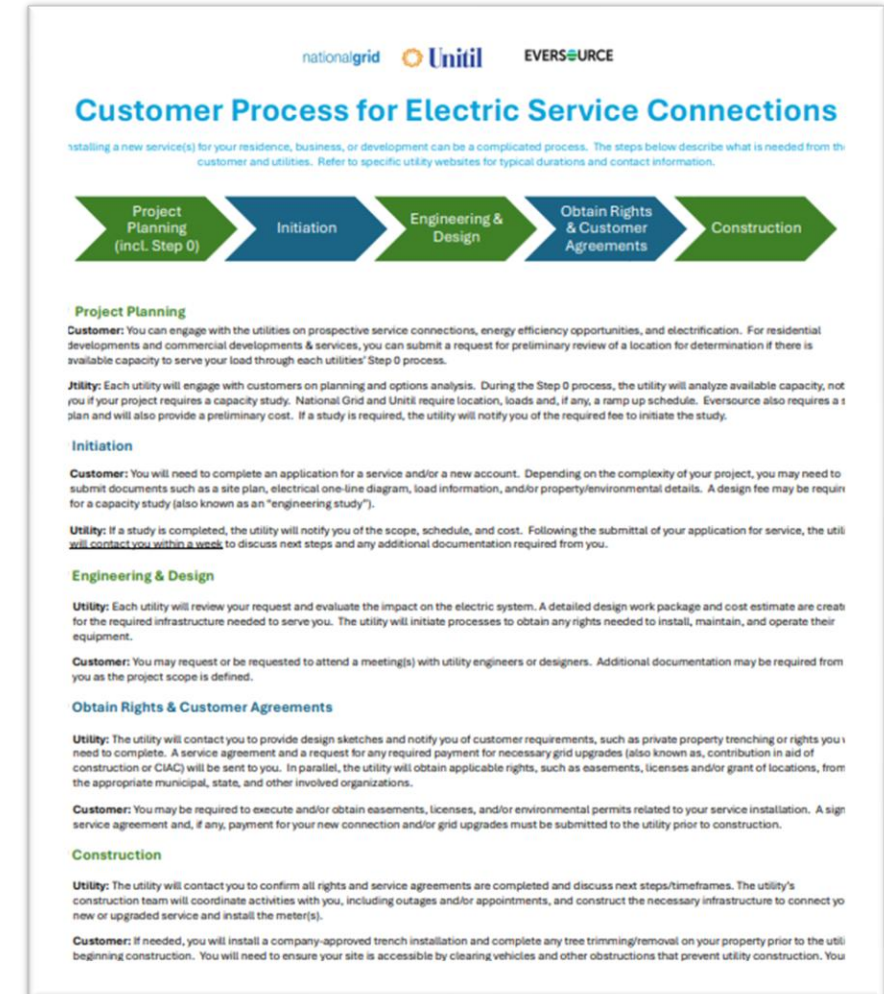


EEA Load Connection Initiative

- Last year, EEA launched a [new initiative to address interconnection challenges](#):
 - **Targeted engagement with stakeholders** including municipalities, businesses, and housing developers to better understand the "pain points" in the load connection process.
 - **Monthly meetings with the EDCs** to understand their processes and identify ways to improve the customer experience.
 - **Developing projections of anticipated transportation and building electrification load** in the next ten years, and the impact of this new load on the electric grid, to inform future grid planning efforts to avoid grid connection and capacity issues in the future.

Customer Experience Improvements Collaboration

- We continue to work with the EDCs to develop (1) better resources for customers and (2) ways to provide customers with more timely information on grid capacity and interconnection costs. Examples include:
- **Contributions In Aid of Construction (CIAC) Policy Explainers:** National Grid and Eversource have developed documents to explain their CIAC policies, e.g., what customers will need to pay to move forward with grid upgrades
- **101 website:** EEA launched a [101 website](#) with interconnection process summaries and links to relevant utility websites.
- **Capacity Maps:** New capacity map from Eversource, Unitil developing a dynamic capacity map, and National Grid is updating their online map
- **Step 0:** All three companies publicized their process for providing detailed grid capacity information (and, for Eversource, grid cost estimates) ahead of the formal new service request process
- **Power Forward:** Eversource and National Grid process to evaluate grid capacity and upgrade costs for multiple housing projects in a municipality. DOER offers funding for eligible municipalities.





Enabling Sustainable Economic Development Work Group

- The Office of Energy Transformation (OET) has a focus area working group to develop solutions to create economic development zones that have grid capacity and are clean energy-ready, to enable businesses like climatetech or advanced manufacturing to more quickly and easily expand and grow.
- Through the [Enabling Sustainable Economic Development Work Group](#), OET hopes to enable the following:
 - **Expand grid capacity and streamline the process** for connecting new customer economic development-enabled load to the electric grid.
 - **Help drive economic development to areas with least grid impacts** and are aligned with existing capacity and/or future plans.
 - **Attract more businesses** like advanced manufacturing, life sciences, climatetech, and AI.
 - **Increase competitiveness** with other jurisdictions that provide energy-focused support/amenities.
 - **Additional focus on and coordinated stakeholder input into EEA's ongoing work to meaningfully improve the interconnection** of new load and energy resources to the electric grid.

Recap of Last Forum



The first Electric Connections Improvements Forum was held on March 17, 2026.

Following presentations from the EDCs and NAIOP, attendees held small group discussions to identify “pain points” in the customer connections process.

The following topics were identified as needing further work, information and follow up from the EDCs:

1

**Project communication,
timelines, and customer
communications dashboard**

2

**Grid upgrade cost
transparency**

3

**Integrating load connection
and distributed generation (DG)
interconnection requests**

4

**Incorporating passive house
and/or specialized code into
utility processes**



**MASSACHUSETTS
OFFICE OF ENERGY
TRANSFORMATION**

Power Forward: Helping Municipalities Build More Housing in Massachusetts

Power Forward: Bridging Grid Planning and Development

- Challenge
 - Housing demand is outpacing supply in Massachusetts, compounding affordability challenges in LMI and EJ communities.
 - Municipalities and developers often lack early visibility into grid capacity, creating uncertainty around project feasibility, cost, and timing.
- What's Needed
 - Earlier, more actionable insights into grid capacity to inform development decisions before projects are too far along.
- Power Forward
 - Provides municipalities with tools and information to evaluate grid capacity at development sites- helping reduce uncertainty, improve siting decisions, and support affordable and mixed-use housing.
 - Allows all municipalities to explore up to three sites for the cost of one.
 - Allocates \$3 million in capital funding to support municipalities with identified infrastructure needs.



Power Forward Funding for Municipalities

- **Eligibility:** Municipalities served by National Grid & Eversource.
- **Funding availability:** Up to \$100,000 per pre-approved municipality per year.
- **Program cap:** \$1.5 million in 2026 and \$1.5 million in 2027 (\$3 million total)
- **Limitations:** One funding allocation per municipality per year
- **Administration:** Funding available through Massachusetts Department of Energy Resources (DOER), in coordination with the Executive Office of Energy and Environmental Affairs (EEA)

Pre-Approved Municipality Funding Criteria

- "Adjacent", "Commuter Rail", or "Rapid Transit" MBTA communities that have adopted the specialized stretch code or are in Gateway Cities
- Top three MBTA communities for pending housing units (as of November 2025)
- Gateway Cities and mid-sized towns selected based on per capita income, recent growth, grid capacity, and location (Central and Western Massachusetts)



How to get started

- We recommend the following steps:
 - Consult our [Connecting Buildings to the Grid website](#) to see if your municipality is eligible for funding.
 - Identify priority sites for affordable or mixed-use housing development.
 - Review available grid capacity to understand whether those sites can support planned development.
 - **Make sure they are on the same or adjacent feeders if you're interested in up to 3 sites!**
 - Identify where additional electric capacity or grid upgrades may be needed to unlock housing opportunities.
 - Apply for a Power Forward engineering study for more detailed information on capacity, cost, and timing for up to three sites.
 - National Grid – [link here](#)
 - Eversource – [link here](#)
 - Use the study results to inform both housing development decisions and future grid investment needs.





Questions?





Updates from Electric Utilities

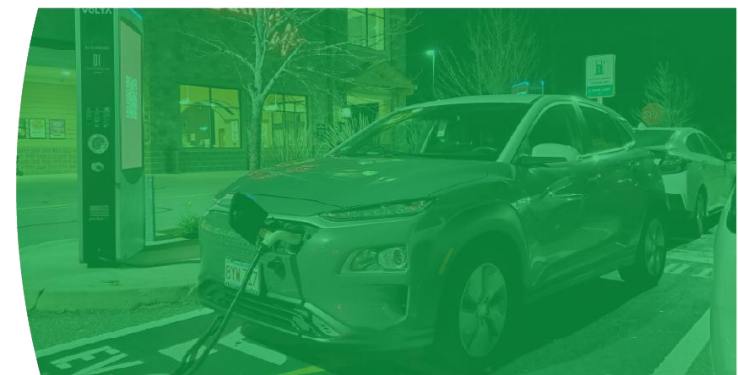
nationalgrid

Unitil

EVERSOURCE

Connections Update

September 15, 2026



EVERSOURCE

nationalgrid

Unitil

Agenda

- **Project Communications**
- **Integrating Load Connections and DER Interconnection Requests**
- **CIAC Definitions**
(Contribution In Aid of Construction)



Project Communications

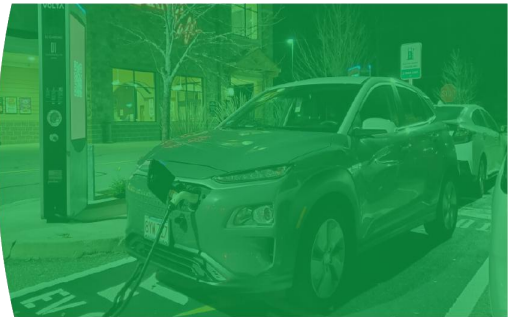
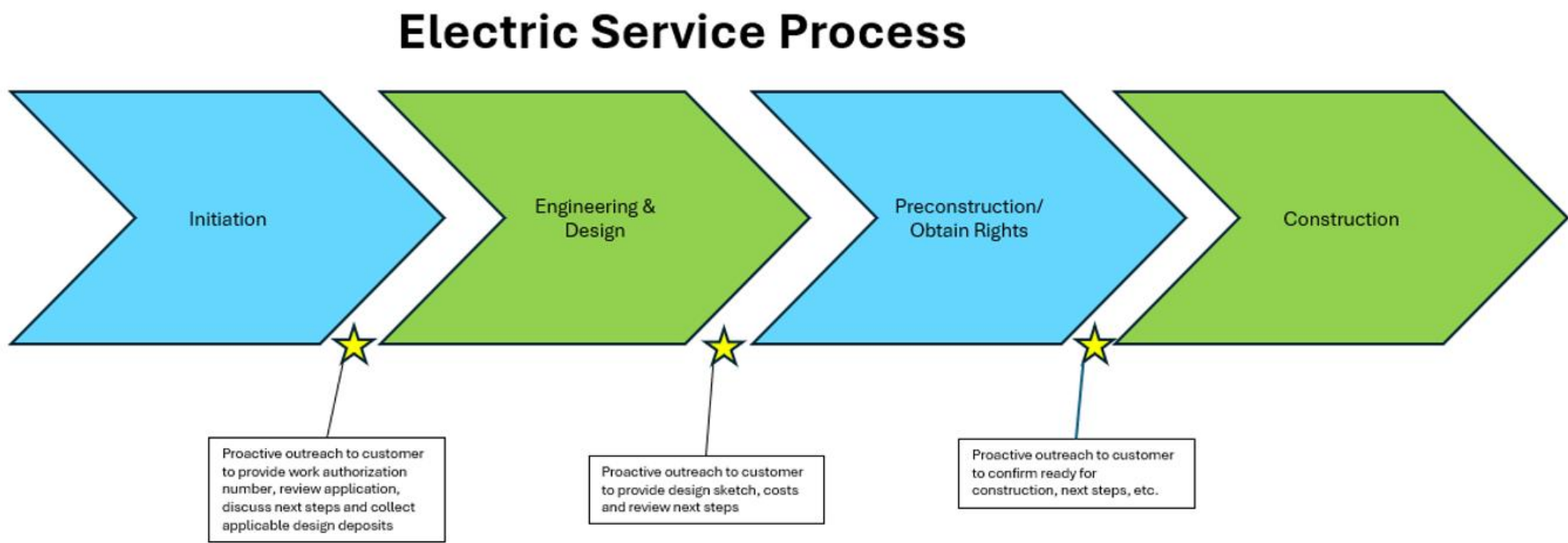
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EVERSOURCE

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Unitil

Project Communications



Project Communications

Eversource Typical Job Durations

Job Type	Initiation	Engineering & Design (Eversource)	Pre-Construction	Construction (Eversource)	Average EVERSOURCE Duration
Simple Overhead (<400A)	TBD - Customer Dependent	1-3 Weeks	TBD - Dependent on customer/city/town/state	1-3 Weeks	2-6 Weeks
Underground Small Service (0-75KVA)	TBD - Customer Dependent	2-5 Weeks	TBD - Dependent on customer/city/town/state	2-4 Weeks	4-9 Weeks
Overhead Small Service (0-75KVA)	TBD - Customer Dependent	2-5 Weeks	TBD - Dependent on customer/city/town/state	2-4 Weeks	4-9 Weeks
Underground Medium Service (75-300KVA)	TBD - Customer Dependent	4-10 Weeks	TBD - Dependent on customer/city/town/state	4-8 Weeks	8-18 Weeks
Overhead Medium Service (75-300KVA)	TBD - Customer Dependent	4-10 Weeks	TBD - Dependent on customer/city/town/state	3-5 Weeks	7-15 Weeks
Underground & Overhead Large Service (>300KVA)	TBD - Customer Dependent	8-14 Weeks	TBD - Dependent on customer/city/town/state	8-10 Weeks	16-24 Weeks
Developments (Residential & Commercial)	TBD - Customer Dependent	8-14 Weeks	TBD - Dependent on customer/city/town/state	8-10 Weeks	16-24 Weeks
Customer Stations (TNV's, SNV's, SC's) *	TBD - Customer Dependent	16-20 Weeks	TBD - Dependent on customer/city/town/state	10-52 Plus Weeks	26-72 Weeks

* Tertiary Network Vault; Secondary Network Vault; Single Customer (station)

Jobs requiring special permits to perform work in the public way can add an additional 8-12 weeks to obtain, prior to starting actual construction



Integrating Load Connections & DER Interconnection Requests

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How to Apply for Large Load Connections and Distributed Energy Resources (DER) Interconnection Requests



Customers Asking for Parallel Process – Updates and Recommendations

- Eversource PowerClerk application tool asks developer for existing Work Orders at location
 - See future slide for example
- Eversource has Account Executives ready to assist
 - Early communication is crucial to understand project goals and requirements
 - Eversource teams can help advise on certain DER requirements that may impact timing such as potential ASO study requirements and/or CIP locations
- Once discussions occur and final new service requirement is determined appropriate studies can begin.



Considerations for contractors

- Disconnect between the new service contractor and the DER developer and changing versions/revisions of each other proposed projects during the process.
- DER regulatory processes and alignment with project timing
 - Potential Group Studies
 - Queues
 - ASO for projects over 1 MW



How to Apply for Residential New Developments/Construction and DER Interconnection Requests

Customers Asking for Parallel Process – Updates and Recommendations

- Eversource PowerClerk application tool asks developer for existing Work Orders at location –
 - Important for contractor to provide Work Orders's
 - See future slide for example
- Eversource has Account Executives ready to assist
 - Not automated so will need DER Account Executive assistance
 - Early communication is crucial to understand project timing goals and requirements
 - Individual coordination meetings as needed
- Engineering can review and approve the new service requests first and close that as complete and final
- Once customer has accepted no more changes to new service request the DER can be reviewed and approved

Considerations for contractors

- Important for alignment between customer multiple contractors
- DER Projects under 25 kW need to be approved within 25 days but are currently being approved within one week so waiting for new service to be complete and applying after has minimal impact
- DER regulatory processes and alignment with project timing
 - Timeline Enforcement Mechanism that tracks DER interconnection timelines that would be impacted by any new service delays or customer changes



National Grid: Modernizing Hosting Capacity Analysis



[National Grid Modernizes Hosting Capacity Analysis Video](#)

CIAC Policy

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CIAC Definitions - Eversource

Labor: Actual, physical work performed by Eversource to complete the necessary installations, removals or upgrades. This may include, but is not limited to, cable and wire, poles, transformers, conduit, splicing, etc. These charges also include administrative tasks, such as supervision, scheduling, engineering, etc.

Material: All equipment and material needed to physically build the project, including wires, poles, transformers, splicing kits, etc.

Outside Services: Services required to supplement physical work to build projects. These services may include contractors, equipment rental, paving, police detail for safety, etc.

Vehicles: Charges related to operating vehicular equipment including fuel, maintenance, etc.



CIAC Definitions - Eversource

Revenue Credit: The estimated distribution revenue Eversource expects to receive from the new electric service over 4.4 years (subject to the Line Extension Policy). This credit is estimated based on forecasted load from the facility, square footage, or building type.

Carrying Charge: Cash or property received from a customer or potential customer, as a contribution in aid of construction (CIAC), that is taxable to Eversource. The carrying charge compensates the Company for any financial loss caused by tax rules. In accordance with the Massachusetts Department of Public Utilities (DPU) regulations, the customer that provides the CIAC should bear this cost.

Costs Subject to Carrying Charge

- Payments received as a prerequisite of service to a new location
- New service on private or public property that is owned or maintained by Eversource
- Relocation of services
- Cash received where the cost is more than the revenue credit
- Contributed property

Costs Exempt from Carrying Charge

- Highway relocations
- Relocations under a government program for the public good, not related to the provision of service
- Connection fees (and other fees charged to expense/revenue)
- Temporary service connections
- Construction on private property owned and maintained by the customer



CIAC Definitions - Eversource



Private Property Charges: The Eversource Line Extension Policy is specific to revenue credits for work in the public way. Any work on private property is completed at a direct cost to the customer and is not offset by revenue credits.



Design Deposit: Any applicable deposit or credit already paid to start the work order process.



CIAC Definitions - Eversource

Individual Residential

Definition – Single family residential line extension

Estimated Cost of Construction – If construction costs exceed the cost to construct one wooden pole and 150 feet of secondary wire, the customer is responsible to pay the excess costs, if any, as well any carrying charges.



CIAC Definitions - Eversource

Residential Development

Definition - A “development” is more than one lot in a residential real estate tract along a privately owned public way, a road or street open to public use, whether or not the public way will remain private or become municipally or state-owned in the future.

Estimated Cost of Construction - The cost of construction is the estimated cost of equipment or upgrades to provide electric service to each lot within the development, which may include the cost of any line extensions or modifications to existing infrastructure. In developments located within an area that is accepted by the municipality as a public way, Eversource will apply a revenue credit to the CIAC based on the estimated revenue received over a specific period of time



CIAC Definitions - Eversource

Commercial Service

Definition –A non-residential lot or development to be served by a line extension on a non-residential rate

Estimated Cost of Construction - The cost of construction is the estimated cost of equipment and upgrades required to provide electric service to a customer or each lot within the development. This may include the cost of any line extensions or modifications to existing infrastructure. Eversource will apply revenue credit to the CIAC based on the estimated revenue received over a specific period of time for work performed in the public way or future public way



Understanding Electric Service Connection Charges in Massachusetts

AUGUST 2026

Whether you're building a new home, developing a neighborhood, or connecting a commercial property, it's important to understand the requirements and costs of electric service. For new or upgraded service, some projects may require upfront charges before construction begins. These charges cover the costs of infrastructure needed specifically for your project, helping ensure those costs are paid by the customers who benefit from the work.

Our line extension charges and fees are established through the Schedule of Fees and Charges and Line Extension Policies contained in the Company's [Terms and Conditions for Distribution Service tariff](#), as approved by the Massachusetts Department of Public Utilities.

For detailed information about obtaining new electric service, refer to the [Customer Process for New Electric Service Connections](#) guide.

National Grid CIAC Explainer, continued

At-a-Glance Summary

Customer Type	How Costs are Determined	Key Customer Obligation	Refund Available
New Residential Customer	Standard footage allowance; charges apply beyond allowance based on a per foot flat rate.	Pay for line extension beyond allowance and certain customer-owned work. Payment plan is available.	None
New Residential Development	Development allowance based on number of lots; charges apply beyond allowance based on a per foot flat rate.	Pay for footage beyond allowance and development infrastructure.	Limited refund provision.
Commercial, Industrial & Multi-Unit Residential	Cost-Revenue analysis Contribution in Aid of Construction (CIAC).	Pay costs not justified by anticipated incremental revenue.	One-time recalculation may apply.
Residential Service Upgrade Requiring System Upgrades	Cost-Revenue analysis Contribution in Aid of Construction (CIAC).	Pay costs not justified by anticipated incremental revenue.	One-time recalculation may apply.

Unitil CIAC Explainer

At-a-Glance Summary

- CIAC Explainer is in the Process of being added to the Company's website.
- Single-Phase Overhead Services (Residential and Business)
 - Company provides one pole and one length of wire (or one service drop) for a new connection on a private road. The customer is responsible for costs beyond this basic setup. Payment is due before construction starts.
- Line Extensions Along Public Ways (for larger projects)
 - Projects are evaluated to determine whether they meet our rate of return criteria. If the criteria is not met, the customer (or developer) is responsible for the difference, and payment is due before construction starts. If several properties share the same new line, this cost is split among them.
- Underground Service (Residential and Business)
 - Like line extensions, these projects are evaluated to determine whether they meet our rate of return criteria. If the criteria is not met, the customer (or developer) is responsible for the difference, and payment is due before construction starts.
 - If several properties share the same new line, this cost is split among them.
 - **Unitil's Responsibilities**
 - We connect the property's underground equipment to our system (including installation of up to 150 feet of cable for a single home, or up to 120 feet of cable per house in a development) and install all meters and associated wiring and equipment.
 - **Customer Responsibilities**
 - Customers are responsible for all other construction including digging and refilling trenches; providing pipe (conduit), cable beyond the allowance listed above, equipment boxes, pads, or enclosures; and all repaving and restoration work.

Grid Upgrade Pricing

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Grid Upgrade Pricing

System Upgrade or Modification (15 - 35kV)	Typical Cost Range
Overhead (OH) Point of Interconnection (POI) / Point of Common Coupling (PCC)	\$400,000
Underground (UG) POI/PCC 600A - Electrical - above 500kw	\$650,000
Conductor upgrade/reconductoring (open wire - spacer)	\$1 - 1.3 million per mile
Voltage conversion	\$1.5 - 2.0 million per mile
Express feeder extension	\$1 - 1.3 million per mile
New overhead line extension	\$1.1 - 1.7 million per mile
Overhead line extension - single phase to three phase	\$600,000 - 1.3 million per mile
Install/remove capacitor bank (600 - 1800kVAR)	\$100,000

Grid Upgrade Pricing

System Upgrade or Modification (15 - 35kV)	Typical Cost Range
Install overhead primary metering	\$50,000
Overhead switch installation (disconnects - loadbreak)	\$50,000
Install line regulators	\$75,000 - 200,000
Overhead transformer upgrade/installation (25 - 300kVA)	\$20,000 - 40,000
Pad-mounted transformer upgrade/installation (75 - 2500kVA)	\$80,000 - 150,000
3-phase riser pole installation	\$30,000
Recloser upgrade/installation	\$100,000 - 150,000
Pad-mounted switchgear installation	\$250,000 - \$300,000
Underground cable installation	\$1.9 - 9.5 million per mile
Underground cable replacement	\$1.9 - 9.5 million per mile
RTAC Installation	\$75,000

National Grid's Electric Service Cost Estimator

<https://www.nationalgridus.com/MA-Business/New-Electric-Service/Electrical-Service-Cost-Estimator>

Electrical Service Cost Estimator

Typical System Modifications and Estimated Costs for Commercial Customer Connections

Designed for developers, engineers, and commercial customers in the early stages of project planning.

Planning a new commercial project or upgrading your electrical service? Understanding the potential cost of electric infrastructure is a critical step in early project planning and budgeting. This page provides typical system modifications and estimated cost ranges for connecting commercial projects to the electric distribution system in Massachusetts. Use these estimates to:

- Build preliminary budgets
- Assess site feasibility
- Anticipate infrastructure requirements
- Prepare for discussions with National Grid during project design

Our goal is to provide transparency into potential infrastructure costs so you can plan with confidence and avoid surprises later in your project. Please keep in mind: actual project requirements and costs can vary based on site conditions, system capacity, and design needs. These estimates are intended for planning purposes only and are subject to change. For a detailed evaluation and precise cost assessment, we recommend working directly with our team. To start the process, please call Customer Service at **1-800-375-7405**.

Multifamily Passive House Load Presentation

September 15th, 2026

national**grid**



Early Results Suggest Passive House Electric Loads Are Lower Than Current Planning Assumptions

19,220 passive house units in the pipeline throughout all MA electric utility territories from program years 2020-2025 requires accurate load sizing to avoid grid overbuild. Current loads are hypothesized to be overestimated.

Why This Matters

- Load forecasts drive connection timing and infrastructure investment
- Overestimation may increase projects costs and incur delays
- Improved load estimation increases housing affordability and scalable, efficient growth

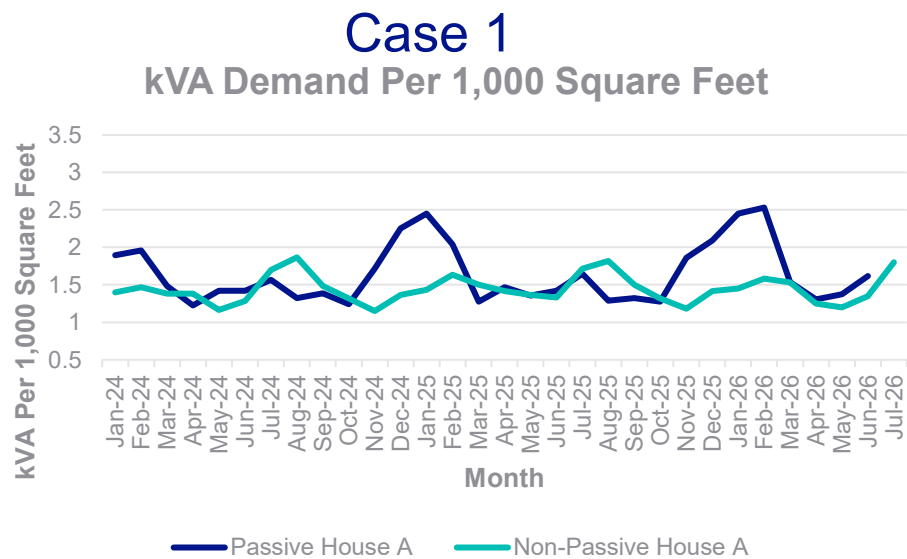
Some Benefits Research Has Identified Outside of MA

- **Lower peak demand:** HVAC peaks reduced up to 30% (summer) and 50% (winter) and ~45% lower annual load
- **Increased capacity:** Enables ~20% more units without exceeding grid limits
- **Load shifting:** Heating demand delayed, moving load out of evening peak windows
- **Lower Annual Energy Use:** 40-50% lower energy use (EUI) vs. Conventional buildings
- **Flatter Load Profiles:** More stable heating demand despite outdoor temperature changes

Potential Impact

- Reduced interconnection costs
- Faster project energization
- Improved utility infrastructure utilization

Passive House Uses Less Energy and Produces Lower Peak Demand



Passive House A (2022)

- 53 units
- 61,233 sq ft
- No EV charging

Gas Heated Non-Passive House A (2017)

- 46 units
- 60,000 sq ft
- No EV charging

*Actual peak demand is calculated by GIS system based on kWh and a load factor of 17-18%



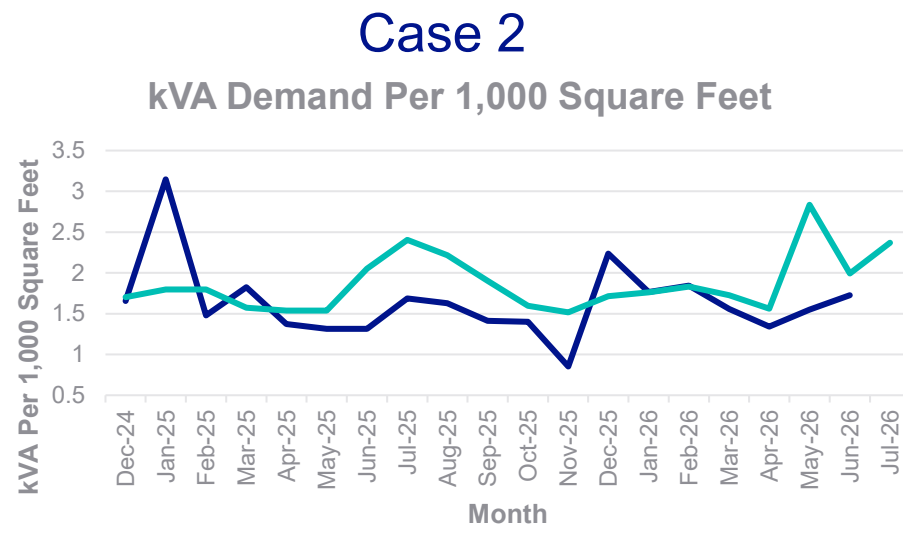
Lower annual consumption



Lower peak demand than estimates



More stable load profile



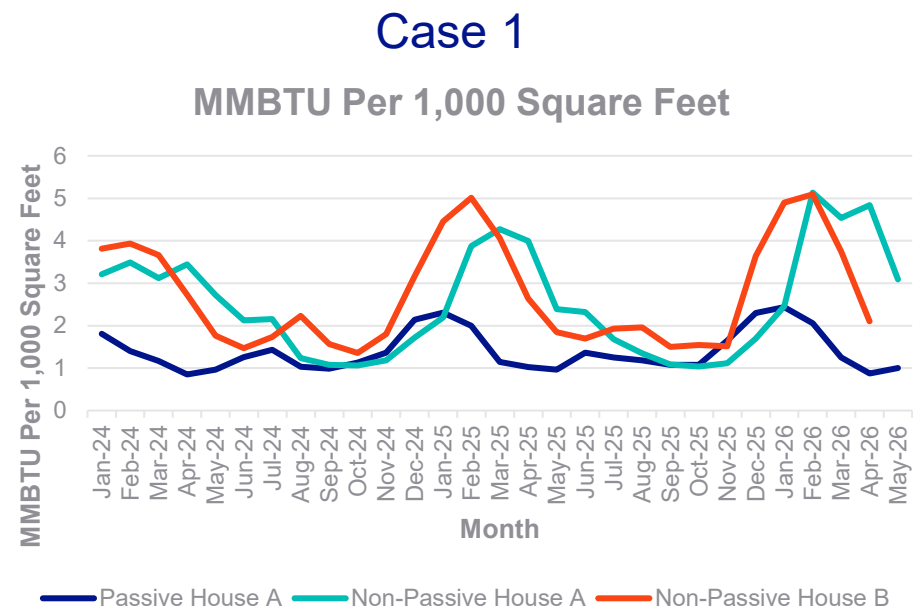
Passive House B (2022)

- 84 units
- 102,008 sq ft
- No EV charging included until June 2026 (40 chargers)

Gas Heated Non-Passive House B (2022)

- 80 units
- 85,718 sq ft
- No EV charging

Passive House Has a Flatter Energy Use Profile



Passive House A* (2022)

- 53 units
- 61,233 sq ft
- No EV charging

Gas Heated Non-Passive House A (2019)

- 50 units
- 78,488 sq ft
- No EV charging

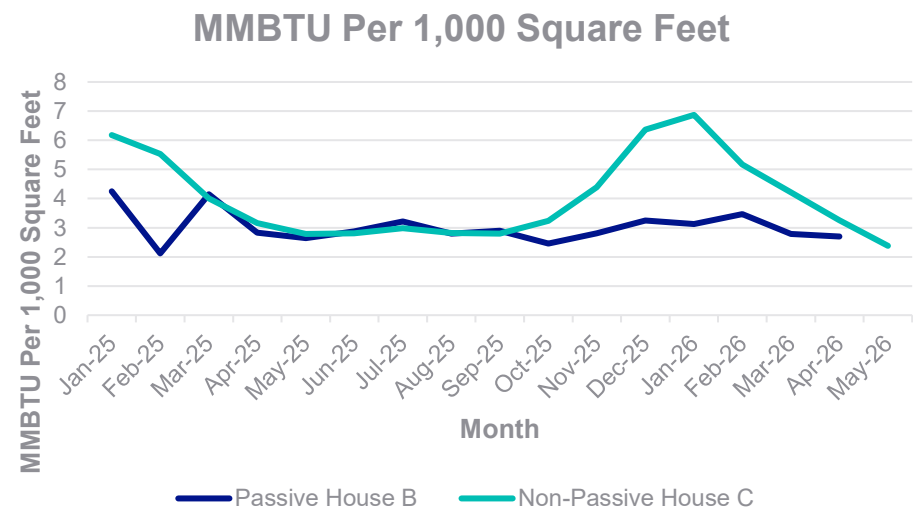
Gas Heated Non-Passive House B (2017)

- 46 units
- 60,000 sq ft
- No EV charging

*Passive house development outside of NG gas territory, no therm usage recorded in MMBTU calculation

Passive House Has a Flatter Energy Use Profile

Case 2



Passive House B (2022)

- 84 units
- 102,008 sq ft
- No EV charging included

Gas Heated Non-Passive House C (2015)

- 75 units
- 94,188 sq ft
- No EV charging

nationalgrid



Q&A



Break



Flexible Interconnection

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EVERSOURCE



Flexible Interconnection

When the grid cannot provide full service right away, flexible interconnection may offer another path forward. Flex IX lets a project connect to the grid with agreed limits on how much electricity it can use or send back.

Start sooner

Connect before a major grid upgrade is complete.

Build in phases

Use available capacity now, then expand as grid upgrades come online.

Make more sites workable

Keep projects moving in areas with limited grid capacity.

Reduce some upfront costs

Using an agreed limit may avoid or delay some grid upgrade costs.

Load and DER can work together

Flex IX can allow new development and new DER to be planned together, using on-site generation or storage to help offset new electricity demand, and can help the full site work within one grid limit.



Flexible Interconnection with Signed ISA's

Flexible Interconnection

What is Flex IX?

An adaptive grid interconnection strategy that limits generation or load capacity based on live conditions or pre-planned operating schedules, bypassing or deferring costly network capacity upgrades to fast-track project deployment

Eversource Flex IX Offerings Today:

- **Scheduled connections** (i.e., pre-planned site operating schedules), a.k.a. Dispatch Limiting Schedules (DLS); Eversource owned DER Gateway (RTAC) is programmed with the schedule
- **Export or Import Limitation Schemes** (permanent derating) – The final export limit is a fixed number, but the asset-side capacity management is flexible and active. Co-located storage absorbs excess generation and manages its export. Allows sites to host generation assets (e.g., 3x solar) far exceeding grid export limits.

How to Apply for Flex IX?

Dispatch Limiting Schedules are developed for all sites >500 kW



Case 1 – Station Upgrades

System details:

4,998 kW PV & DC-coupled BESS

The developer's proposed BESS design is intended to charge from both the grid and the on-site PV system and discharge to grid.

Site Dispatch Limiting Schedules (DLS):

The following slide presents the unconstrained discharge limit schedule and constrained charge limit schedule for the proposed facility.

System Constraints:

Station thermal capacity (forward load)

The proposed charge limit schedule eliminates the need for station capacity upgrades or expansion.

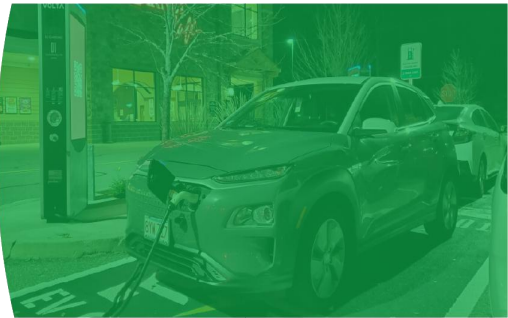
The customer has agreed to the proposed SOS and has signed the ISA.



Case 1 – Station Upgrades

Site Dispatch Limiting Schedule (DLS):

Discharge Limit Schedule	07:00 - 12:00	12:00 - 15:00	15:00 - 19:00	19:00 - 07:00
Spring	100% [4998 kW]	100% [4998 kW]	100% [4998 kW]	100% [4998 kW]
Summer	100% [4998 kW]	100% [4998 kW]	100% [4998 kW]	100% [4998 kW]
Fall	100% [4998 kW]	100% [4998 kW]	100% [4998 kW]	100% [4998 kW]
Winter	100% [4998 kW]	100% [4998 kW]	100% [4998 kW]	100% [4998 kW]
Charge Limit Schedule	06:00 - 11:00	11:00 - 15:00	15:00 - 22:00	22:00 - 06:00
Spring	100% [4000 kW]	100% [4000 kW]	100% [4000 kW]	100% [4000 kW]
Summer	75% [3000 kW]	0% [0 kW]	0% [0 kW]	75% [3000 kW]
Fall	100% [4000 kW]	100% [4000 kW]	100% [4000 kW]	100% [4000 kW]
Winter	100% [4000 kW]	100% [4000 kW]	100% [4000 kW]	100% [4000 kW]



Case 2 – Feeder Upgrades

System details:

1,992 kW PV system

Site Dispatch Limiting Schedules (DLS):

The following slide presents the constrained discharge limit schedule for the proposed facility.

System Constraints:

Feeder thermal capacity

The proposed DLS reduces the scope of required feeder thermal upgrades, significantly lowering the customer's point-of-interconnection (POI) costs.

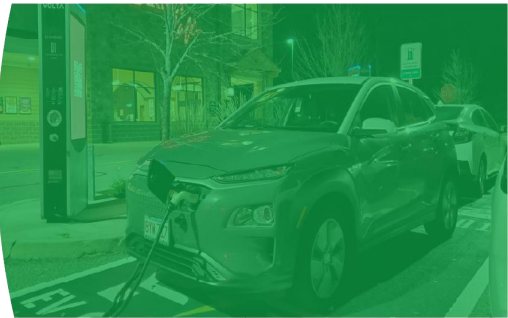
The customer has agreed to the proposed SOS and has signed the ISA.



Case 2 – Feeder Upgrades

Site Dispatch Limiting Schedule (DLS):

Discharge Limit Schedule	07:00 - 12:00	12:00 - 15:00	15:00 - 19:00	19:00 - 07:00
Spring	60% [1195.2 kW]	60% [1195.2 kW]	60% [1195.2 kW]	100% [1992 Kw]
Summer	60% [1195.2 kW]	60% [1195.2 kW]	60% [1195.2 kW]	100% [1992 Kw]
Fall	60% [1195.2 kW]	60% [1195.2 kW]	60% [1195.2 kW]	100% [1992 Kw]
Winter	100% [1992 kW]	60% [1195.2 kW]	100% [1992 kW]	100% [1992 Kw]
Charge Limit Schedule	06:00 - 11:00	11:00 - 15:00	15:00 - 22:00	22:00 - 06:00
Spring	N/A [0kW]	N/A [0kW]	N/A [0kW]	N/A [0kW]
Summer	N/A [0kW]	N/A [0kW]	N/A [0kW]	N/A [0kW]
Fall	N/A [0kW]	N/A [0kW]	N/A [0kW]	N/A [0kW]
Winter	N/A [0kW]	N/A [0kW]	N/A [0kW]	N/A [0kW]

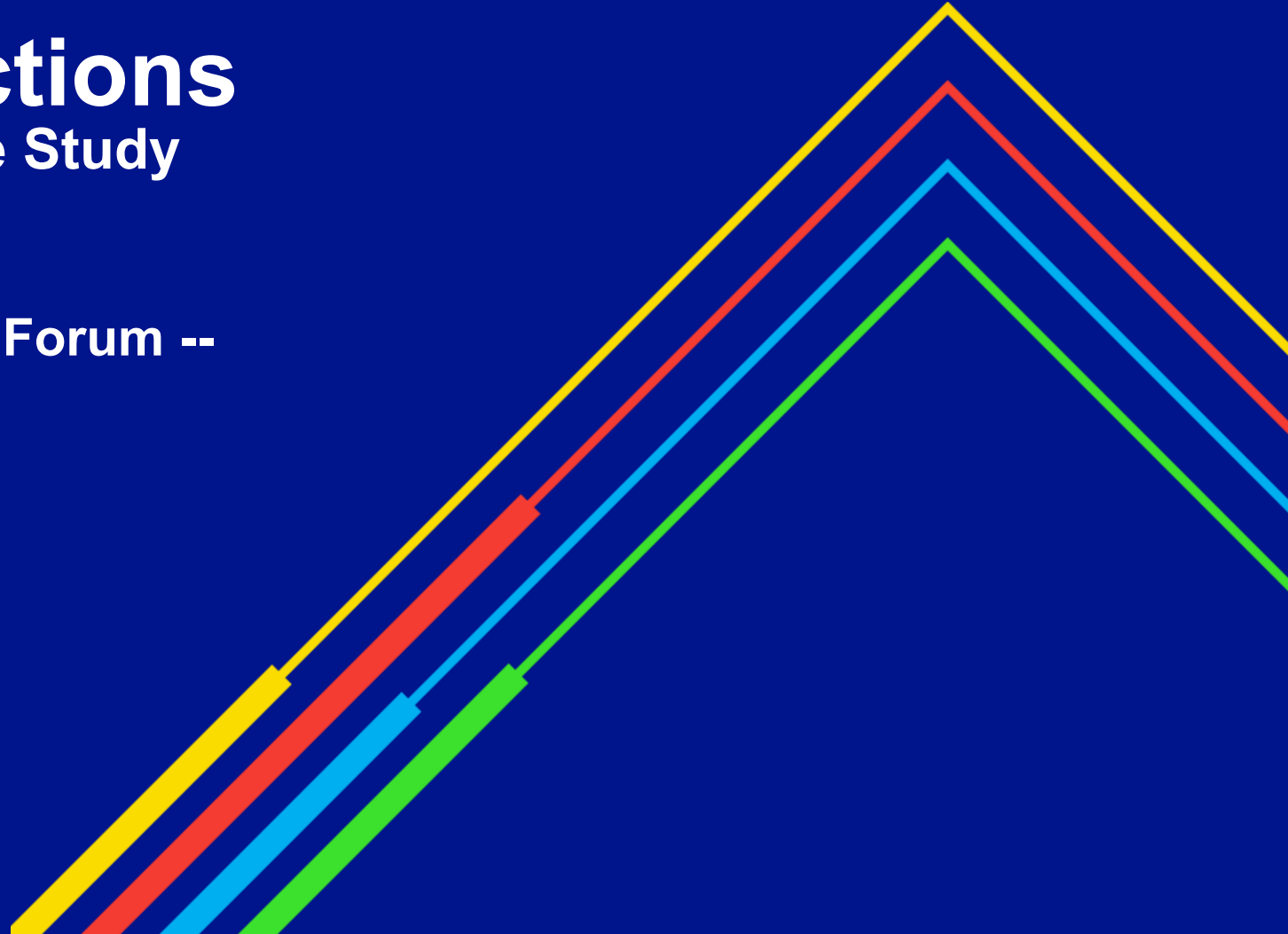


Flexible Interconnections

National Grid's Process and Case Study

Electric Connections Improvements Forum --
September 15, 2026

nationalgrid

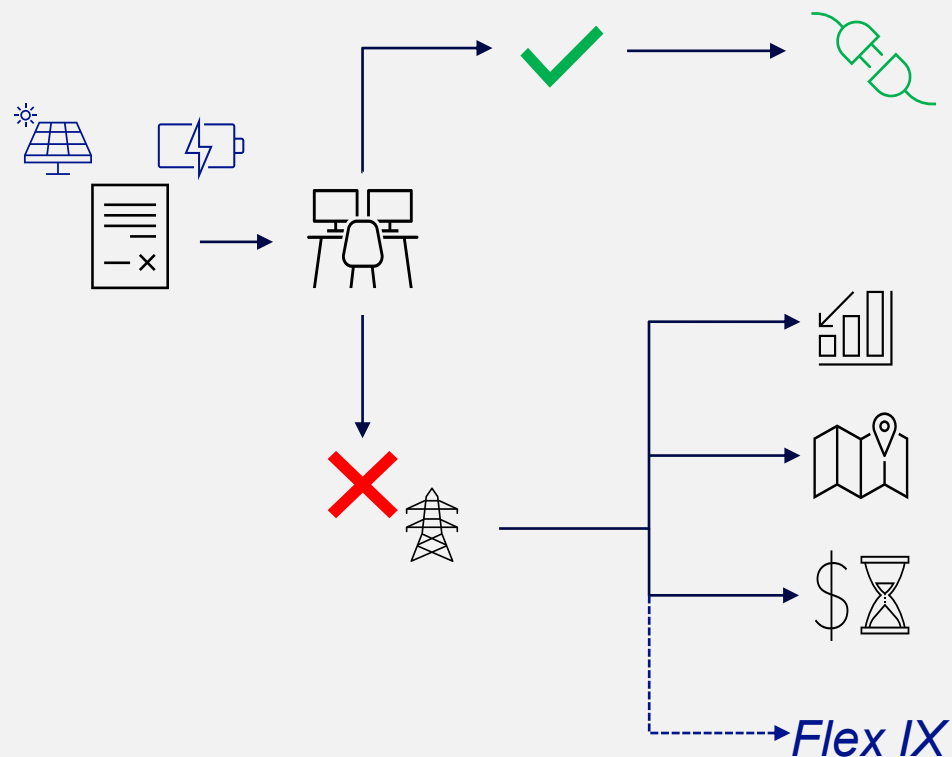


Presentation Content

01/ Flexible Interconnections (Flex IX) Walkthrough

02/ Flex IX Success Story – Heywood Hospital

03/ Q&A



Flex IX: A New Interconnection Option

The Massachusetts grid has become supply constrained

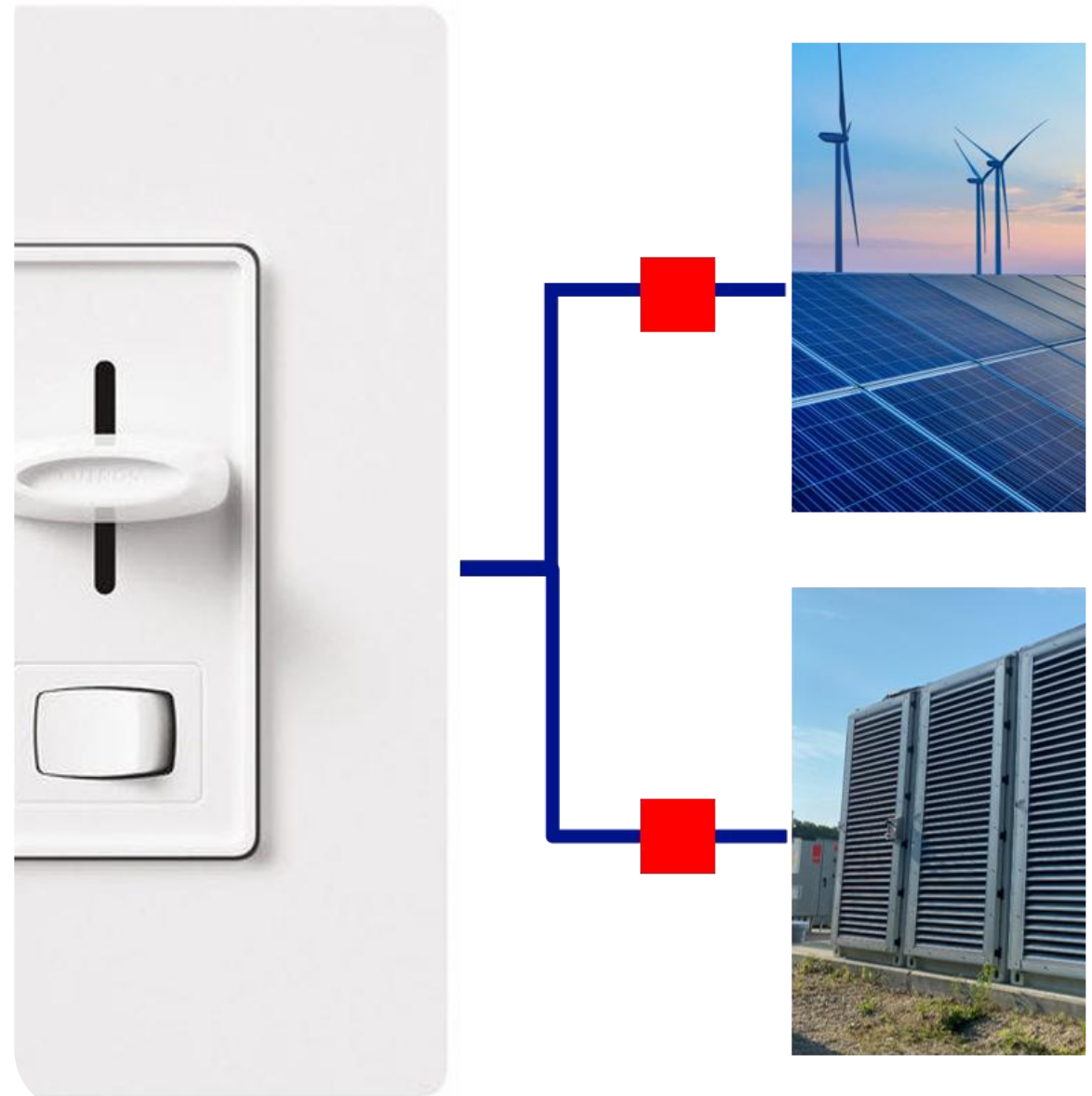
Solar and storage developers are often facing long interconnection timelines and costly upgrades due to a saturated grid. Flex IX brings a new pathway.

Enable DER customers to interconnect more quickly and at lower cost

Flexible Interconnections - Flex IX

Flex IX leverages the addition of a dispatch control function to enrolled **Distributed Energy Resources** (DER) assets.

That function enables National Grid to curtail a DER site, giving us flexibility to leverage during system constraints.



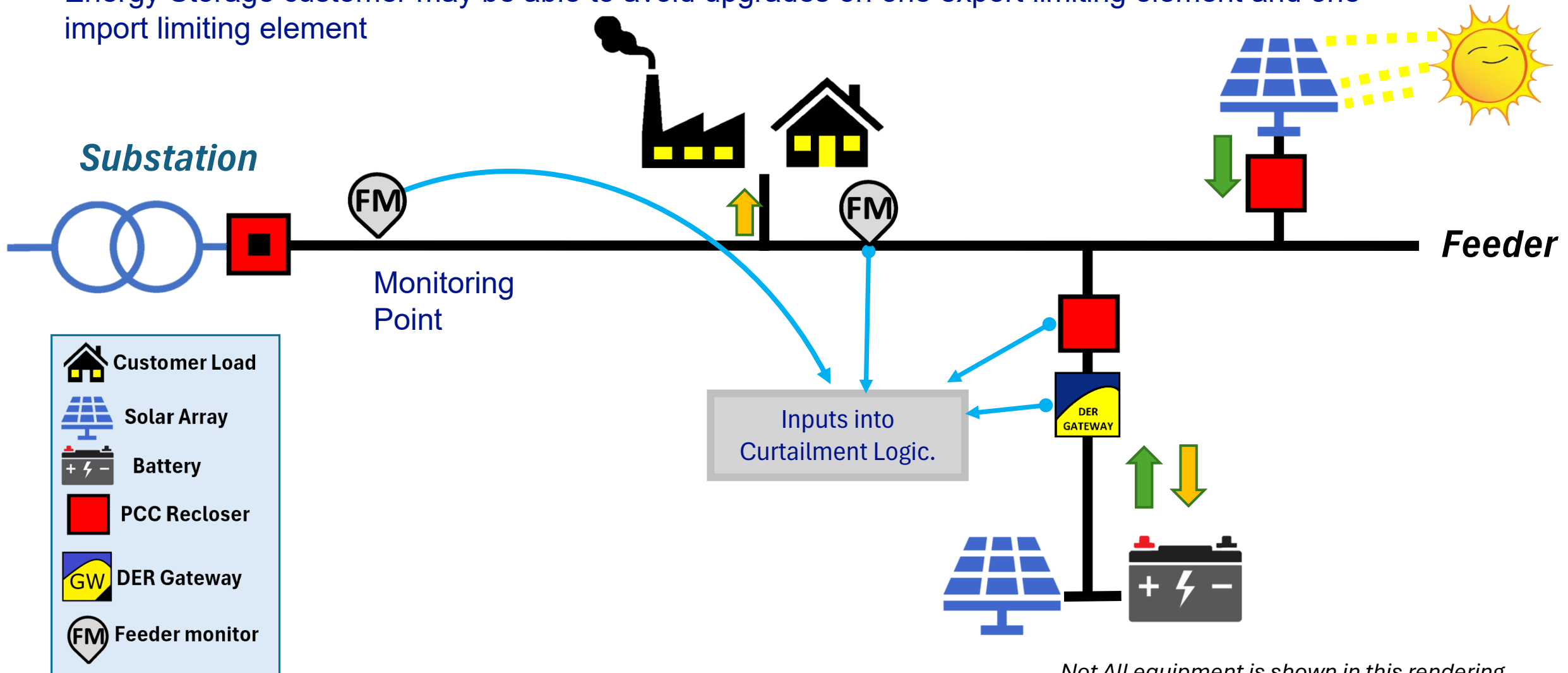
Flex IX - Use Cases

Tailored for Medium Load Customers

	#1 Flex Standard	#2 Flex as Bridge	#3 LPC Lite	#4 LPC	#5 LPC+	#6 LPC ES
Type	PV, BESS, PV+BESS	PV, BESS, PV+BESS	PV Pre-identified substations	PV, PV+BESS	PV, PV+BESS	BESS
Location	FTM & BTM	FTM & BTM	BTM	BTM	BTM	BTM
Size	500kW – 5 MW	500kW – 5 MW	250kW and less	250kW and less	250kW – 499kW	250 kW and less
Parameters	5% curtailment MWh / year target	Temporary flexibility or bridge to less curtailment	Non-Export	Non-Export	Non-Export	Non-Export
Equipment	DER Gateway Installation	DER Gateway Installation	No DER Gateway Installation (cust. relay control)	No DER Gateway Installation (cust. relay control)	DER Gateway Installation (cust. relay control)	DER Gateway Installation (cust. relay control)
Enforcement	Monitoring, Control, Trip Recloser for non-compliance	Monitoring, Control, Trip Recloser for non-compliance	Customer Equipment Compliance Only	Customer Equipment Compliance Only	Monitoring, Control, Trip Breaker for non-compliance	Monitoring, Control, Trip Breaker for non-compliance
Requirements	Resolves one major constraint on the feeder	Large DERs seeking interconnection with significant system upgrade timelines	Adding load is not a requirement	Adding load greater than or equal to generation	Adding load greater than or equal to generation	Adding load is not a requirement

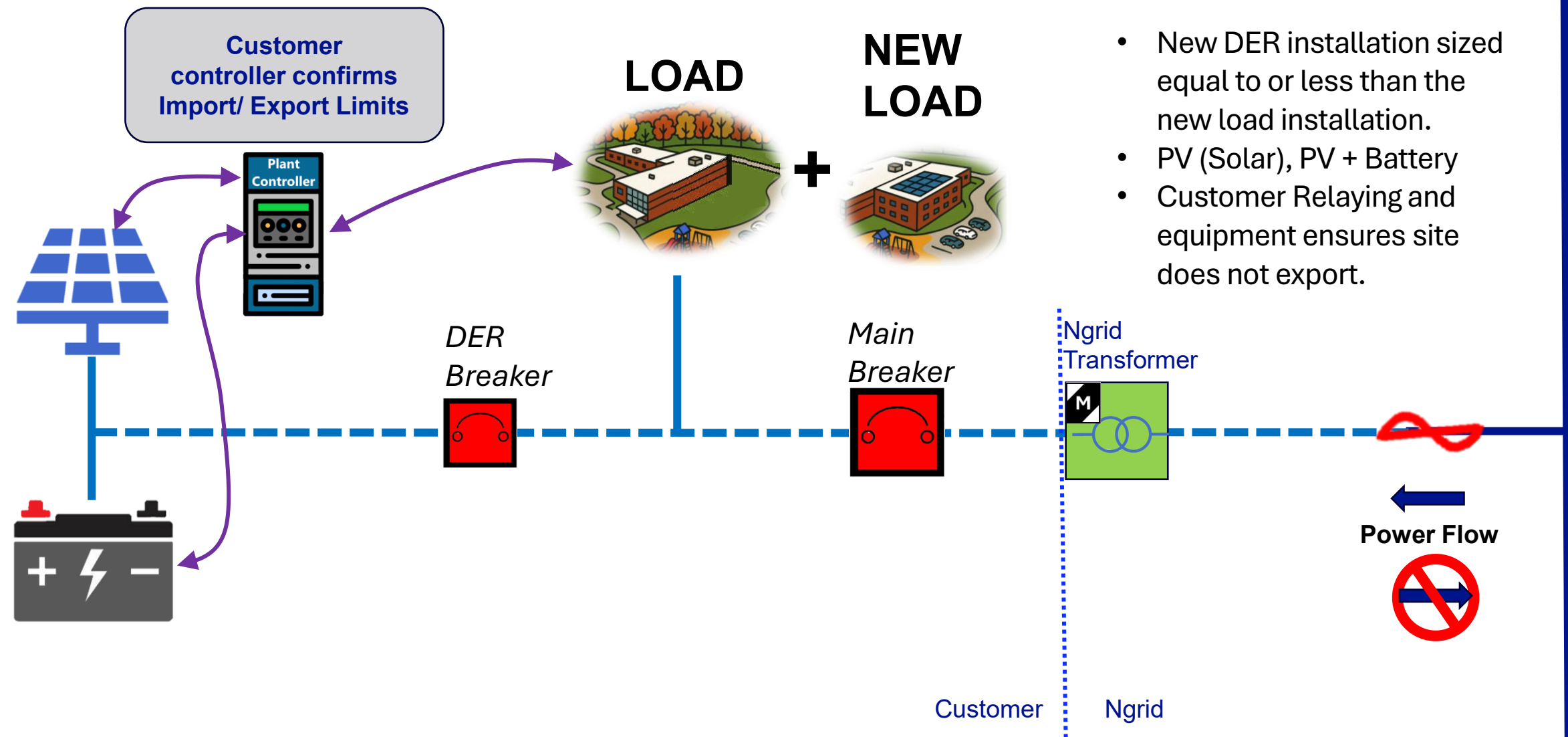
Flex Standard- Illustrative Example

- Solar customers may be able to avoid upgrades on one of the main limiting elements during export conditions.
- Energy Storage customer may be able to avoid upgrades on one export limiting element and one import limiting element



Not All equipment is shown in this rendering

Local Power Control (LPC)- Illustrative Example



- New DER installation sized equal to or less than the new load installation.
- PV (Solar), PV + Battery
- Customer Relaying and equipment ensures site does not export.

Flex IX Success Story – Heywood Hospital



Rocky path to renewables

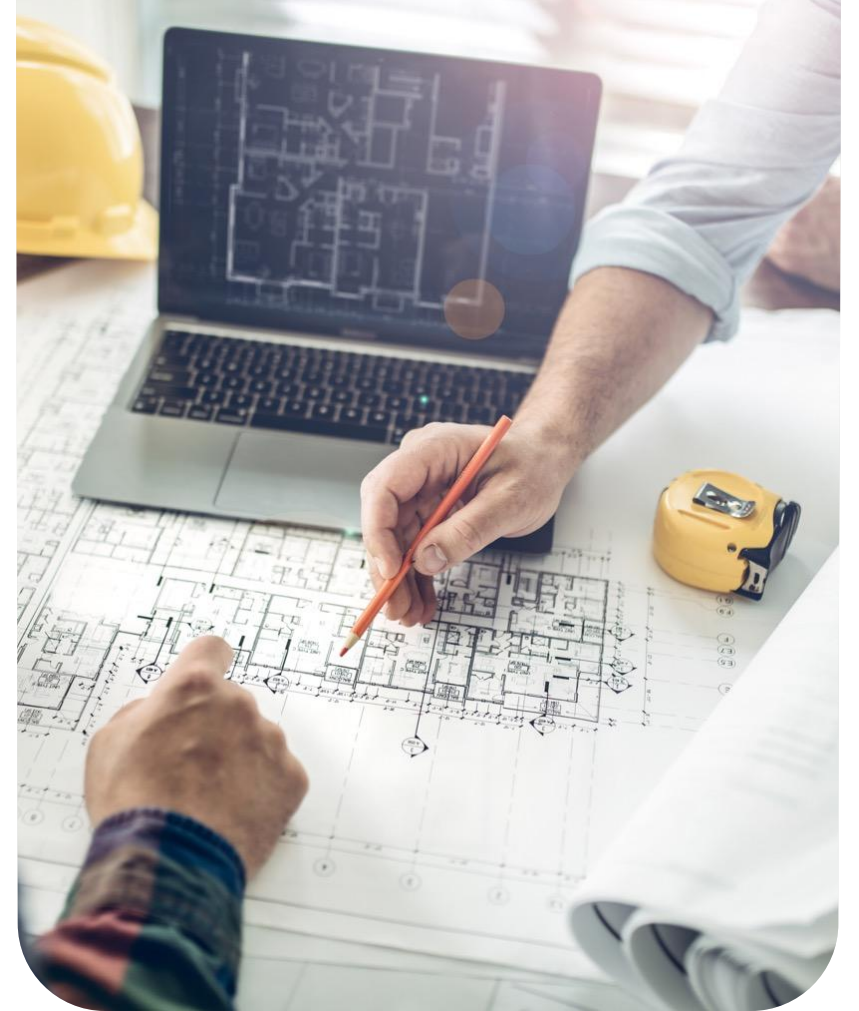
- Hospital's solar ambitions began in 2014, but due to financial struggles with both the institution and the solar installer, the project was put on hold.
- When the hospital revisited the solar project in 2023, they were informed that grid constraints and a group study could stall the project's energization by another several years.

National Grid's Flex IX pilot program

- Ultimately, in a partnership with RER Energy Group and General Energy Solution USA, the project came to fruition.
- By using the "Flex IX Standard" offering, Heywood Hospital could interconnect faster.
- Flex IX technology:
 - DER Gateway, which communicates with the customer's plant controller & National Grid's EMS, allows the utility to limit the risk of thermal overload
- New timeline:
 - Heywood Hospital solar array connects within 6 months.

Q&A and Call to Action

Find out more about Flex IX online
[Flexible Interconnections \(Flex IX\)](#)



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Thank You



Q&A



Next Electric Connections Improvements Forum

Information on the next forum will be emailed to all attendees and posted to the [Connecting New Buildings to the Electric Grid website](#).



Thank You!