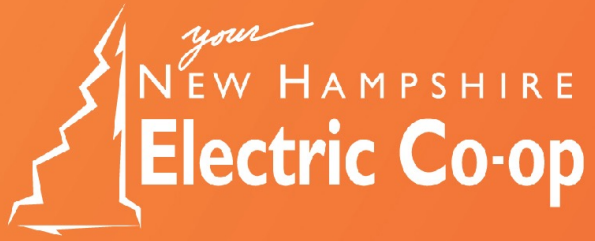


your
NEW HAMPSHIRE
Electric Co-op



Transactive Energy Rate Pilot

Institute for Local Self-Reliance
Podcast
January 30, 2023
3:00 PM – 4:00 PM



Agenda

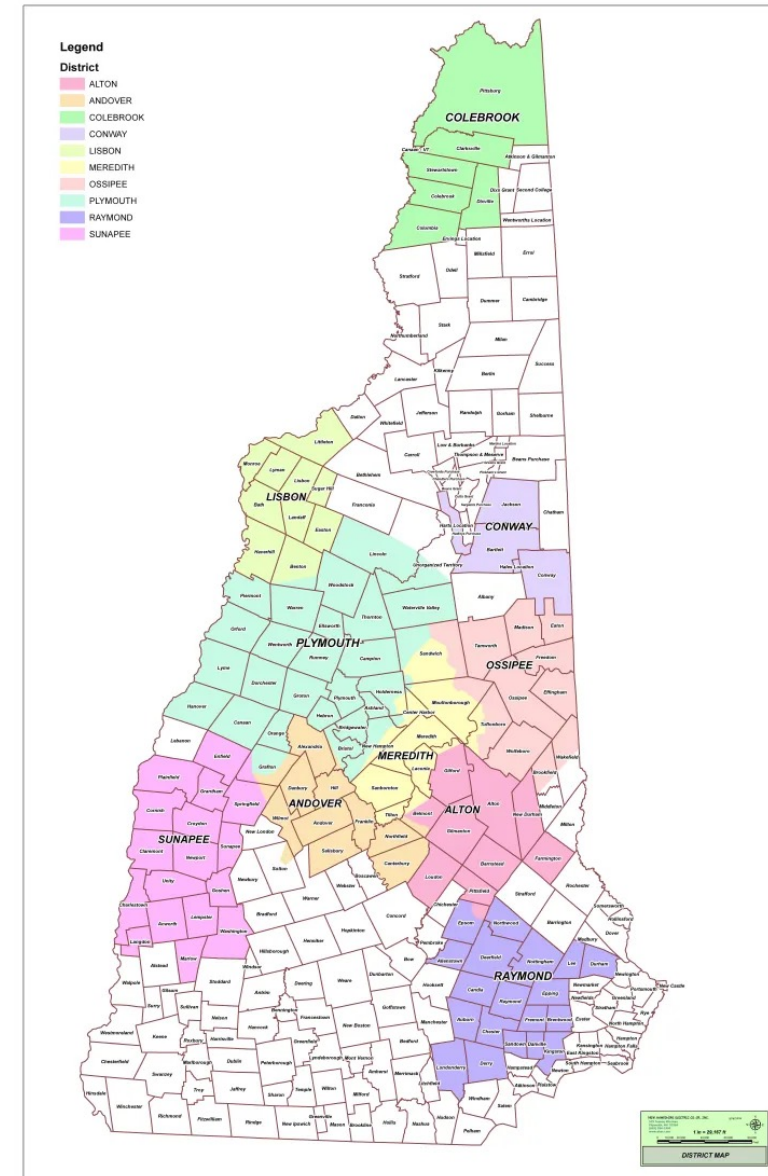
- NHEC Strategic Planning Goal
- Transactive Energy Rate (TER)
- Member Benefits

“By 2025 we will have 350 gigawatt hours worth of energy storage at our disposal through our electric car fleet. Between 2025 and 2030 this will grow to 1 terawatt hours worth of storage. That’s more energy than is currently generated by all the hydroelectric power stations in the world. We can guarantee that energy will be used and stored and this will be a new area of business.”

[Michael Jost, Chief Strategist Volkswagen](#)

About NHEC

- Founded in 1939
- 230 employees serving more than 85,000 homes and businesses in 118 communities, with over 6,000 miles of line (~15 services/mile)
- Largest electric cooperative in New England and second largest electric utility in New Hampshire
- New Hampshire is open to retail competition and NHEC is a “Default Service” provider of energy
- Launched NH Broadband LLC with goal to get fiber-to-the-home internet to all unserved and underserved NHEC members



Transactive Energy Business Model: Strategic Plan Goal



2017: Transactive Energy Business Model becomes a Focus Area in Strategic Plan



2019: Transactive Energy Business Model Pilot to use “Price Signals”



2020: Develop a Transactive Energy Rate “Price Signal”



2021-2022: Test the mechanics of a Transactive Energy Rate

- Develop and test the required elements of a transaction.
 - Publishing, accounting, verification, reporting, payment



2023: Launch the Transactive Energy Rate Pilot

- Publish the Day Ahead hourly price
- Compensate or charge members on device performance
- Q1 2023 launch targeted (one year, 500 member pilot, batteries and EV’s to start)

Transactive Energy Rate Example

How a Transactive Energy Rate Works

Register a Device to Rate

Members or Participating Aggregators will register their device for the rate.

V2G Chargers & EVs
Batteries (incl. Solar)

Day-Ahead Hourly Price Signals

The utility passively sends a set of day-ahead 24 hourly price signals to registered devices.

Inform, not control

Devices React & Share Usage Info

Devices react to price information based on third-party preferences & send usage info to utility.

Buy/use when low
Sell/reduce when high

Monthly Bills & Credits Generated

Participating devices live as a separate utility bill line item & reflect usage cost or credits.

Transparency
New Benefits



Transactive Energy Rate Pilot: Battery Use Example

Transactive Energy Rate (TER) Example

Day	11/16/2022											
Hour Ending	1	2	3	4	5	6	7	8	9	10	11	12
TER (\$/kWh)	\$0.062	\$0.062	\$0.060	\$0.059	\$0.061	\$0.063	\$0.072	\$0.082	\$0.090	\$0.092	\$0.084	\$0.087
Battery kWh (+/-)			10	10								
Charge/(Credit)			\$0.60	\$0.59								
Hour Ending	13	14	15	16	17	18	19	20	21	22	23	24
\$/kWh	\$0.074	\$0.076	\$0.063	\$0.067	\$1.469	\$1.487	\$0.074	\$0.069	\$0.069	\$0.065	\$0.062	\$0.059
Battery kWh (+/-)					-10	-10						
Charge/(Credit)					-\$14.69	-\$14.87						

Member charges the battery pulling energy from NHEC during lowest cost hours

Member discharges the Battery selling energy to NHEC during highest credit hours

*Example of two stand alone batteries with 27 kWh total storage, example creates a \$28.37 credit for the day.

Transactive Energy Rate Member Benefits

Transactive Energy Rate (TER) Pilot: Member Benefits

TER Annual Potential Revenue for Distributed Energy Resources

- Home Battery (5kW, 13.5 kWh): ~\$1,200/yr credit
- EV Charger only (6.6kW, 62 kWh, 13.5k Miles/yr): ~\$350/yr fuel charge
 - ~\$1,800/yr savings at \$4/gallon and 25 MPG (gas engine)
- Vehicle to Grid Charger (6.6kW, 62kWh 13.5k Miles/yr): ~\$1,200/yr net credit
 - ~\$3,350/yr savings at \$4/gallon and 25 MPG (gas engine)
- Solar PV System, RECs sold to NHEC (8.6kW): ~\$1,100/yr credit (no load)
- Residential Solar PV System w/ Battery, RECs sold to NHEC (8.6kW PV), Res. load of 6,100 kWh/yr): ~\$1,700/yr credit

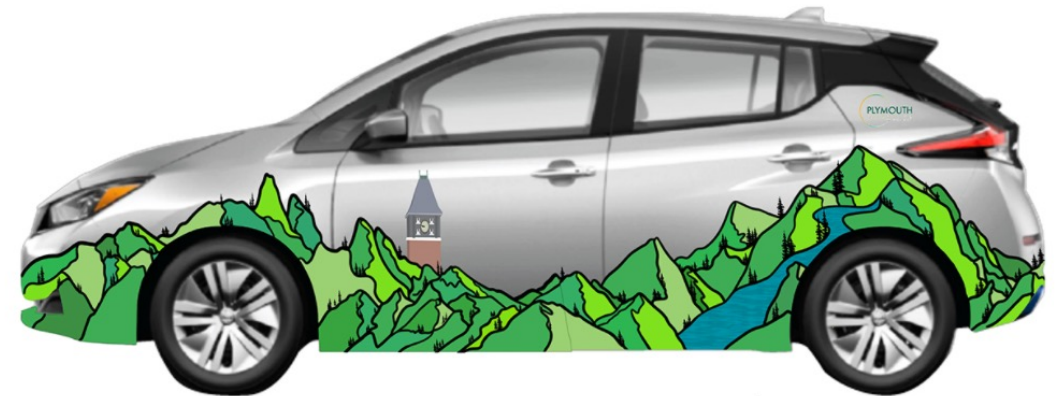


[Dcbel V2G Chargers](#)

Transactive Energy Rate (TER) Pilot: Plymouth State University

Plymouth State University (PSU) has joined forces with NHEC and Fermata Energy to test the Transactive Energy Rate (TER)

- NHEC helped PSU find an affordable lease with Nissan for two new LEAF's
- Fermata Energy installed a 15 kW bi-directional charger on PSU's campus
 - Two 20 kW chargers expected soon
- Fermata Energy maximizes value through scheduling charging and discharging for PSU
- Anticipated TER value created is ~\$4,000/yr for each vehicle (~\$8,000/yr total)



Transactive Energy Rate (TER) Pilot: Integrations

General Motors

- Managed Charging starting Q1 2023
 - Chevy Bolt and Chevy Volt
- V2G testing Q2 2023
 - Chevy Silverado, additional GM models to be included during the term of the program



[Chevy Bolt](#)

Fermata Energy

- V2G fully Integrated July 2022

Generac

- PWRcell batteries and FLO Chargers Q1 2023



[PWRCell](#)



Fermata Energy Charger

1st installation of a Vehicle to Grid charger in New Hampshire

Plymouth State University

15 kW- to be replaced with a 20 kW in the fall (no charge)



19.2 kW

Ford Charge Station Pro

80 amps on demand

It gives. It takes. It works with you, then for you. Unlock the full potential of the F-150® Lightning™

Enables [Intelligent Backup Power](#)

\$1,310.00

Included with F-150® Lightning™ with Extended-Range Battery.

[View product details](#) 



New Hampshire Electric Cooperative

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A utility pole with power lines and transformers against a teal-tinted sky. The pole is the central focus, with several cross-arms and insulators. The sky is a gradient of teal and blue, with some clouds visible. The overall image has a monochromatic teal color scheme.

THANK YOU

