



# 2022 PATHWAY TO NET ZERO



**SHREWSBURY**  
ELECTRIC & CABLE OPERATIONS  
ELECTRIC - INTERNET - TV - PHONE

# TABLE OF CONTENTS



- CARBON PORTFOLIO ROADMAP..... 3**
- POWER SUPPLY..... 4**
- NEXTZERO..... 6**
- CARBON-BASED INCENTIVE REPORTING..... 8**
- EV REBATE PROGRAM..... 9**
- SOLAR REBATE PROGRAM..... 10**
- ELECTRIFICATION &  
EFFICIENCY LOAN PROGRAM..... 11**
- AWARDS AND RECOGNITION..... 12**
- OUTREACH..... 14**
- DATA TABLES..... 15**





**CARBON  
FREE  
ROADMAP**

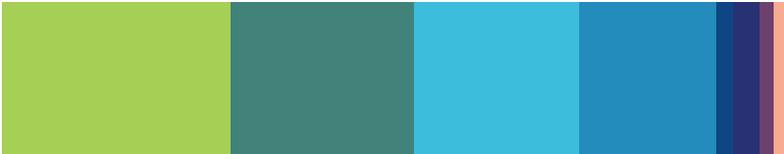


# POWER SUPPLY



MWh/RECs	Percentage of Non-Carbon Sales	Name	REC Type
4,117	1.42%	Berkshire Wind	MA Class 1
259	0.09%	MLP/DOER Solar Rebate	MA Class 1
140	0.05%	MLP Solar Rebate	MA Class 1
207	0.07%	Green Light Program	MA Class 1
609	0.21%	ME Class 2	ME Class 2
8,037	2.77%	Hydro Québec	Hydro Québec System Mix
45,133	15.54%	NYPA Hydro	VT Tier II
90,157	31.05%	Nuclear	EFEC / CES-E
148,659	51%	Total	
290,365	Total Shrewsbury Electrical Sales		
51%	Shrewsbury Carbon-Free Electrical Sales		

## 2022 kWh PURCHASES BY FUEL SOURCE



# POWER SUPPLY



SELCO's Power Supply Policy & Greenhouse Gas Emission Standard, adopted in 2021, establish clear annual targets that will lead to a 100% non-carbon power supply by 2032. As SELCO decarbonizes our power portfolio, we can serve as a clean foundation to help the broader community attain its climate action goals. Each time a Shrewsbury resident or business switches from fossil-fuel-based technologies to those reliant on electricity, emissions are avoided. In 2022, SELCO exceeded our minimum target of 50% non-carbon for the portfolio year, finishing at 51%.

SELCO voluntarily retired RECs associated with Berkshire Wind, and the SELCO rebated, customer-owned solar systems. Nuclear provides a significant percentage of SELCO's non-carbon power supply from regional plants, including Seabrook and Millstone. SELCO also purchased regional unbundled hydro RECs to reach the department's non-carbon power supply goal for 2022. Looking ahead, SELCO is actively working to increase bundled power purchase contracts (energy with RECs) to meet the department's goals.

SELCO supports a variety of renewable energy resources within its territory, especially solar, as the department has a large system located atop the capped Landfill on Rt. 20 and has a long-standing PPA with another large system on Cherry St. SELCO is in current negotiations with another solar developer looking to site a large rooftop system on a new commercial development.

## NEXTZERO



# NEXTZERO

## NEXTZERO RESIDENTIAL PROGRAMS\*

2022 was a successful year for residential participation in SELCO's suite of incentive programs through NextZero. A total of **\$210,141** was distributed on a total of **1,736** incentives through NextZero programs, including free home energy audits, air-source heat pump consultations, and rebates on efficient appliances, weatherization, heat pumps, smart thermostats, battery electric yard equipment, and EV chargers. Customers also leveraged ongoing incentives through SELCO's demand response program Connected Homes, where smart devices like thermostats, EV chargers, batteries, mini-split controllers, and heat pump water heaters are dispatched a few times per month, reducing load and stress on the grid, helping keep SELCO's rates low.

In alignment with this program, SELCO adjusted the charging time limitations for its EV Charger program to be for peak events only, no longer weekdays, 5-9 pm. This accomplishes the same goal of load management during critical times.

Another key change for 2023 was adjustments to rebate amounts to support the most impactful measures with regard to decarbonization, particularly heat pump HVAC rebates are significantly boosted for 2023, up to **\$10,000** per household.

\*A detailed breakdown of individual program totals can be found in the data tables section.



# NEXTZERO

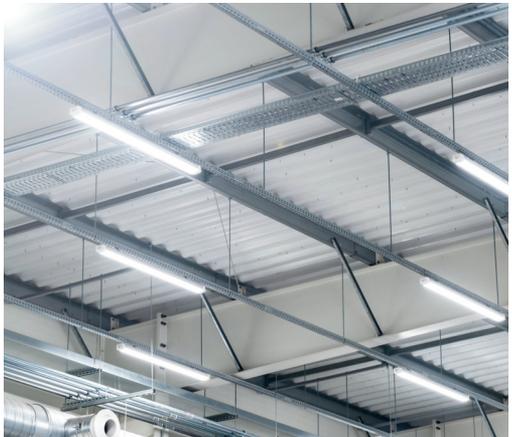


# NEXTZERO

## NEXTZERO COMMERCIAL PROGRAMS\*

In 2022, SELCO awarded a total of **\$5,638** to four commercial customers who upgraded their buildings with efficient LED lighting, HVAC, and weatherization. Looking ahead to 2023 and beyond, SELCO is shifting the focus of the program to decarbonization from efficiency, awarding rebates based on modeled tons of carbon reduced instead of modeled kilowatt hours (kWhs) reduced. With electrification, the overall kWhs one customer may use will increase, yet emissions will be reduced with avoided fossil fuel use.

\*A detailed breakdown of individual program totals can be found in the data tables section.



# CARBON-BASED INCENTIVE MODEL REPORT



## NEXTZERO

SELCO partnered with MMWEC and theCenter for EcoTechnology (CET), MMWEC's residential audit provider, to release a report detailing a new model designed to help municipal light plants develop carbon-based incentives for MMWEC's NextZero program.

The model uses carbon as the metric for deriving incentive levels and for comparing carbon benefits from a range of measures, including efficiency, electrification, renewable energy, demand response, and storage. In addition to the carbon analysis, the model also calculates the economic impacts of installed measures for the customer and utility.

The model, to be used by NextZero program managers and utility staff, is designed to be easily adapted to reflect the unique aspects of each utility. Users have control over utility-specific inputs, including electricity pricing, electricity carbon emission factors, existing utility incentives, and carbon price, which is a price per ton of carbon avoided.

SELCO has plans to utilize this model in its rebate programming, including in the NextZero Prescriptive HVAC program and its solar rebate program.

The report can be viewed at:  
<https://www.centerforecototechnology.org/carbon-based-incentives-report/>

# EV REBATE PROGRAM



## EV REBATES

SELCO's first full year of offering its Electric Vehicle Rebate Program was a resounding success, with **100** recipients and nearly **\$114,000** awarded in 2022.

Of those **100** customers, **72** invested in full Battery EVs (BEVs), **26** plug-in hybrid EVs (PHEVs), and **two** electric bikes.

These EVs are estimated to offset over **2,320** tons of carbon throughout their useful life.

Including the **7** BEV rebates and **6** PHEV rebates in 2021, the total greenhouse gas emissions impact this program has had since the beginning is modeled at **2,600** tons of carbon.



# SOLAR REBATE PROGRAM



## SOLAR REBATES

In 2022, **25** new residential solar projects were awarded rebates, totaling nearly **\$160,000**. A total of **28** projects applied for interconnection, with **three** electing not to receive a rebate.

Going forward, the program will be scaled back substantially from the 2022 rate of **\$0.80/w DC up to \$8,000**, now awarding **\$0.10/w DC up to \$1,000** per address. This was partially motivated by the conclusions from SELCO's carbon-based incentive model that suggested this more appropriate amount, given the department's increasing non-carbon power supply.

In 2023, SELCO has shifted focus and funding to higher-impact electrification measures like heat pumps. The net metering rate remains unchanged, crediting the full retail rate per kWh produced by solar.



# ELECTRIFICATION & EFFICIENCY LOANS



## 0% FINANCING LOANS

SELCO revamped its loan program for 2022, refocusing on electrification more so than energy efficiency, adding heat pumps, and service upgrades to be eligible for **0%** interest loans.

**Six** residential customers leveraged this program to fund projects at their homes to electrify and improve energy efficiency. **Three** loans were for added insulation, and **three** \$10,000 loans were for whole home heat pumps, all displacing oil heating systems.

The total loan amount disbursed was **\$38,462.50**, most electing for the longest repayment period of 60 months.

This loan, combined with SELCO rebates, Mass Save rebates (if an Eversource natural gas customer) and state/federal tax credits can cover 100% of total project costs for some customers.



## AWARDS & RECOGNITIONS



### SMART ELECTRIC POWER ALLIANCE (SEPA) UTILITY TRANSFORMATION CHALLENGE SCORECARD

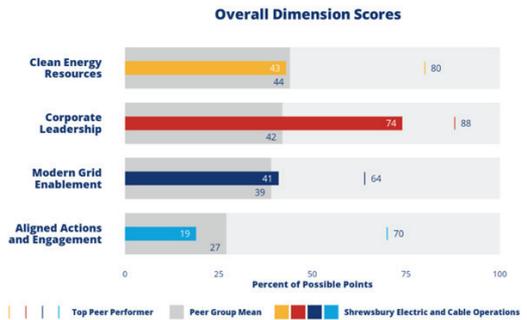
In 2022, the Smart Electric Power Alliance (SEPA) launched the second iteration of its Utility Transformation Challenge, an initiative to assess and present a holistic view of U.S. utility progress in transforming the energy system towards a carbon-free electricity system. SELCO's IR team answered an extensive questionnaire and scored 46/100, in the 61st percentile for public power/cooperative respondents. SELCO scored near average for the dimensions of Clean Energy Resources and Modern Grid Enablement, below average for Aligned Actions and Engagement, and well above average for Corporate Leadership, as seen on page 6. Within the Clean Energy Resources dimension, SELCO can improve its load reduction capacity. Within the leadership dimension, SELCO's carbon reduction target scored exceptionally high, as the department's 2032 100% non-carbon goal is more aggressive than most other public utilities.

To modernize SELCO's grid, the department can improve its planning and forecasting, innovative rate design, and grid-enabling technology, like AMI smart meters, which will deploy soon. Within the dimension of Aligned Actions & Engagement, SELCO can improve its efforts to develop a strong and cutting-edge workforce, as well as continue to electrify its fleets.

# AWARDS & RECOGNITIONS



## SMART ELECTRIC POWER ALLIANCE (SEPA) UTILITY TRANSFORMATION CHALLENGE SCORECARD



## APPA SMART ENERGY PROVIDER

In 2022, SELCO was once again designated as a Smart Energy Provider by the American Public Power Association, with a new high total score of 90/100! This was awarded for demonstrating a commitment to and proficiency in energy efficiency, distributed generation, and environmental initiatives that support the goal of providing safe, reliable, low-cost, and sustainable electric service. SELCO is a proven leader in smart energy programming and services.

# OUTREACH



## ELECTRIFY EVERYTHING SCAVENGER HUNT

In partnership with Shrewsbury’s local climate action group Tipping Point 01545, SELCO organized a unique electrification-themed scavenger hunt during the summer of 2022.

Eye-catching signs with QR codes were strategically placed at six parks throughout the town. Scanning the QR code with a smartphone brought users to a video of SELCO’s Integrated Resources Analyst, Patrick Collins, presenting easy-to-understand educational information and visuals about cutting-edge electric technology like air source heat pumps, EVs, induction cooking, electric yard equipment, battery storage, and solar.



# DATA TABLES



Audits	Total Qty 2022	Qty Q1	Qty Q2	Qty Q3	Qty Q4
Audits	185	48	46	56	35
LED Bulbs	555	144	138	168	105
PII Verification Visits	21	6	6	5	4
'22 GOAL - 100	761	198	190	229	144

Audits Total \$ 2022	\$ Q1	\$ Q2	\$ Q3	\$ Q4
\$49,580	\$12,864	\$12,328	\$15,008	\$9,380
\$1,110	\$288	\$276	\$336	\$210
\$2,415	\$690	\$690	\$575	\$460
\$53,105	\$13,842	\$13,249	\$15,919	\$10,050

ASHP Consultations	Total Qty 2022	Qty Q1	Qty Q2	Qty Q3	Qty Q4
# ASHP Consult	143	20	48	48	27
# Gold Manual J	93	7	22	45	19
# Gold Design Consult	1	0	1	0	0
# Gold Design Review	24	0	9	11	4
# Gold Verify	19	0	3	6	10
'22 GOAL - 112	280	27	83	110	60

ASHP Consults Total \$ 2022	\$ Q1	\$ Q2	\$ Q3	\$ Q4
\$10,010	\$1,400	\$3,360	\$3,360	\$1,890
\$23,715	\$1,785	\$5,610	\$11,475	\$4,895
\$95	\$0	\$95	\$0	\$0
\$3,840	\$0	\$1,440	\$1,760	\$640
\$2,185	\$0	\$345	\$690	\$1,150
\$39,845	\$3,185	\$10,850	\$17,285	\$8,525

Cool Homes	Total Qty 2022	Qty Q1	Qty Q2	Qty Q3	Qty Q4
Central AC	10	9	1	0	0
Air Source Heat Pumps	4	0	1	2	1
Ductless Mini Splits (Single-Zone)	16	7	5	3	1
Ductless Mini Splits (Multi-Zone)	18	7	2	2	7
'22 GOAL - 175	48	23	9	7	9

Cool Homes Total \$ 2022	\$ Q1	\$ Q2	\$ Q3	\$ Q4
\$2,500	\$2,250	\$250	\$0	\$0
\$2,250	\$0	\$500	\$1,000	\$750
\$5,000	\$2,100	\$1,500	\$900	\$500
\$10,250	\$3,500	\$1,000	\$1,000	\$4,750
\$20,000	\$7,850	\$3,250	\$2,900	\$6,000

# DATA TABLES



ENERGY STAR Appliances	Total Qty 2022	Qty Q1	Qty Q2	Qty Q3	Qty Q4
Air Purifier	11	4	1	4	2
Clothes Washer	73	25	16	9	23
Clothes Dryer	45	18	8	4	15
Heat Pump Clothes Dryer	0	0	0	0	0
Dehumidifier	51	12	6	17	16
Heat Pump Water Heater	8	0	2	3	3
2 Speed Pool Pump	0	0	0	0	0
Variable Speed Pool Pump	9	1	1	3	4
Refrigerator	64	19	10	12	23
Heat Pump Pool Heater	0	0	0	0	0
Induction Range (Replacing Gas/Propane)	1	0	0	0	1
Induction Range (Replacing Electric)	3	0	0	1	2
<b>'22 GOAL - 400</b>	<b>265</b>	<b>79</b>	<b>44</b>	<b>53</b>	<b>89</b>

ENERGY STAR Total \$ 2022	\$ Q1	\$ Q2	\$ Q3	\$ Q4
\$440	\$160	\$40	\$160	\$80
\$3,650	\$1,250	\$800	\$450	\$1,150
\$2,700	\$900	\$400	\$650	\$750
\$0	\$0	\$0	\$0	\$0
\$1,530	\$360	\$180	\$510	\$480
\$4,000	\$0	\$1,000	\$1,500	\$1,500
\$0	\$0	\$0	\$0	\$0
\$2,250	\$250	\$250	\$750	\$1,000
\$3,200	\$950	\$500	\$600	\$1,150
\$0	\$0	\$0	\$0	\$0
\$500	\$0	\$0	\$0	\$500
\$300	\$0	\$0	\$100	\$200
\$18,570	\$3,870	\$3,170	\$4,720	\$6,810

HEI	Total Qty 2022	Qty Q1	Qty Q2	Qty Q3	Qty Q4
Blower Door & Air Sealing	5	1	1	2	1
Insulation	8	1	1	3	3
Duct Sealing	1	1	0	0	0
<b>'22 GOAL - 20</b>	<b>14</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>4</b>

HEI Total \$ 2022	\$ Q1	\$ Q2	\$ Q3	\$ Q4
\$2,472	\$500	\$500	\$1,000	\$472
\$3,948	\$500	\$500	\$1,500	\$1,448
\$200	\$200	\$0	\$0	\$0
\$6,619	\$1,200	\$1,000	\$2,500	\$1,919

# DATA TABLES



Wi-Fi Thermostats	Total Qty 2022	Qty Q1	Qty Q2	Qty Q3	Qty Q4
Wi-Fi Thermostats	66	38	11	6	11
'22 GOAL - 60	66	38	11	6	11

Wi-Fi Thermostats Total \$ 2022	\$ Q1	\$ Q2	\$ Q3	\$ Q4
\$5,891	\$3,472	\$979	\$518	\$1,012
\$5,891	\$3,472	\$979	\$518	\$1,012

Battery Operated Lawn Equipment	Total Qty 2022	Qty Q1	Qty Q2	Qty Q3	Qty Q4
Lawn Mower	91	0	35	37	19
Hedge Trimmer	15	0	2	5	8
Pressure Washer	0	0	0	0	0
Rototiller	0	0	0	0	0
Chain or Pole Saw	14	0	4	5	5
Leaf Blower	36	0	10	9	17
String Trimmer	54	0	15	24	15
Snow Blower	17	0	2	3	12
'22 GOAL - 300	227	0	68	83	76

Battery Lawn Equipment Total \$ 2022	Qty Q1	Qty Q2	Qty Q3	Qty Q4
\$9,805	\$0	\$3,500	\$3,685	\$1,900
\$600	\$0	\$80	\$200	\$320
\$0	\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0	\$0
\$560	\$0	\$160	\$200	\$200
\$900	\$0	\$250	\$225	\$425
\$1,350	\$0	\$375	\$600	\$375
\$1,700	\$0	\$200	\$300	\$1,200
\$14,195	\$0	\$4,565	\$5,210	\$4,420

Connected Homes Enrollments	Total Customers	Total Devices	Batteries	EV Chargers	Mini Split Controls	Water Heaters	Thermostats	Nest Devices
SELCO as of 12/31/21	63	97	1	3	0	4	8	81
Q1	5	15	0	2	0	1	1	11
Q2	16	24	0	0	0	1	3	20
Q3	7	16	0	1	0	0	0	15
Q4	50	107	0	1	6	1	7	92
Total Added Enrollments 2022	78	162	0	4	6	3	11	138
Total Enrollments	141	259	1	7	6	7	19	219

Connected Homes Incentives	YTD Total	Q1	Q2	Q3	Q4
SELCO	\$3,930	\$345	\$1,495	\$1,625	\$465

# DATA TABLES



MLP Solar Rebate Grant (incl grants funded 100% by MLPs)	Total Projects	Total kW Capacity	Total MLP Rebate \$	SELCO Rebates	Total	Goal
Q1	2	20.0	\$12,000			
Q2	1	8.2	\$4,896			
Q3	0	0	\$0			
Q4	0	0	\$0			
<b>2022 Totals</b>	<b>3</b>	<b>28.2</b>	<b>\$16,896</b>	<b>25</b>	<b>28</b>	<b>30</b>

EV Scheduled Charging Program	# of Chargers Distributed	Total Incentives	Goal
Q1	11	\$6,900	
Q2	10	\$6,600	
Q3	13	\$8,800	
Q4	13	\$8,700	
<b>2022 Totals</b>	<b>47</b>	<b>\$31,000</b>	<b>35</b>

Prescriptive Lighting and HVAC Programs	Complete Projects	Total Rebates
Q1	2	\$2,350
Q2	1	\$288
Q3	0	\$0
Q4	1	\$8,700
<b>2022 Totals</b>	<b>4</b>	<b>\$5,638</b>

**POWERING THE FUTURE.**

