ROCHESTER
PUBLIC UTILITIES
WE PLEDGE, WE DELIVER®

PURPA “Shall Consider” Standards:

Demand-Response Practices

and

Electric Vehicle Charging Programs

Public Hearing
Tuesday, January 10, 2023 – 5:00 PM
RPU Community Room

PURPA Public Hearing Agenda

1) What are PURPA “Shall Consider” Standards?
2) Public Notice Requirements
3) Demand-Response Practices
4) Electric Vehicle Charging Programs
5) Public Questions, Comments and Discussion
6) Next Steps

Public Utilities Regulatory Policies Act (PURPA)

1) What are PURPA "Shall Consider" Standards?

Pub. L. 95-617 (Nov. 9, 1978), 16 U.S.C. § 2601 *et seq.*

Public Utility Regulatory Policies Act of 1978

1) **increased conservation** of electric energy,

2) **increased efficiency** in the use of facilities and resources by electric utilities, and

3) **equitable retail rates** for electric consumers

Section 111 contains a list of standards that covered utilities "must consider"

RPU is a "nonregulated utility" that sells over 500m kWh per year

1) How Does RPU "Consider" PURPA Standards?

Pub. L. 95-617 (Nov. 9, 1978), 16 U.S.C. § 2601 *et seq.*

1) There must be a **public hearing** on the standards

2) There must be **written findings** based on the evidence submitted

3) There must be an **RPU Board decision** on

4) **Whether or not** to adopt a standard responsive to the statute

5) The Board's decision and written findings must be **available to the public**

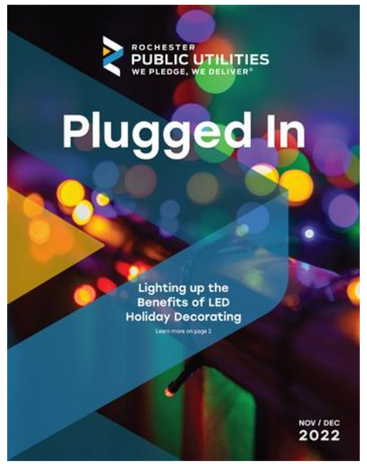
2) Public Notice Requirements

PURPA § 111 (a – c), 16 U.S.C. § 2621 (a – c)

a) 10/24/22: RPU Board authorizes public notice

b) 12/03/22: Notice published in *RPU Plugged In*

c) 12/03/22: Notice published in *Rochester Post-Bulletin*



d) 01/03/23: Documentation made available in RPU lobby and on rpu.org

e) 01/10/23: Hearing conduct according to RPU's rules and applicable law

f) 01/19/23: Post-hearing comments due by mail or to rpuboard@rpu.org

Demand-Response Practices

3) Demand-Response Practices

Infrastructure Investment and Jobs Act, Pub. L. 117-58 (Nov. 15, 2021), § 40104

Demand-response practices.—

(A) In general.--Each electric utility shall **promote the use of demand-response and demand flexibility practices** by commercial, residential, and industrial consumers to reduce electricity consumption during periods of unusually high demand.

(B) Rate recovery.— …

(ii) Nonregulated electric utilities.--A nonregulated electric utility may establish rate mechanisms for the timely recovery of the costs of promoting demand-response and demand flexibility practices in accordance with subparagraph (A).

Level-Setting: Demand (kW) versus Energy (kWh)

Demand: Rate of Energy Use

July: 120 kW August: 150 kW September: 110 kW

Demand = 150 kW (the maximum rate of energy use)

Energy: Rate of Energy Use Over Time

100 watt bulb burns for 10 hours

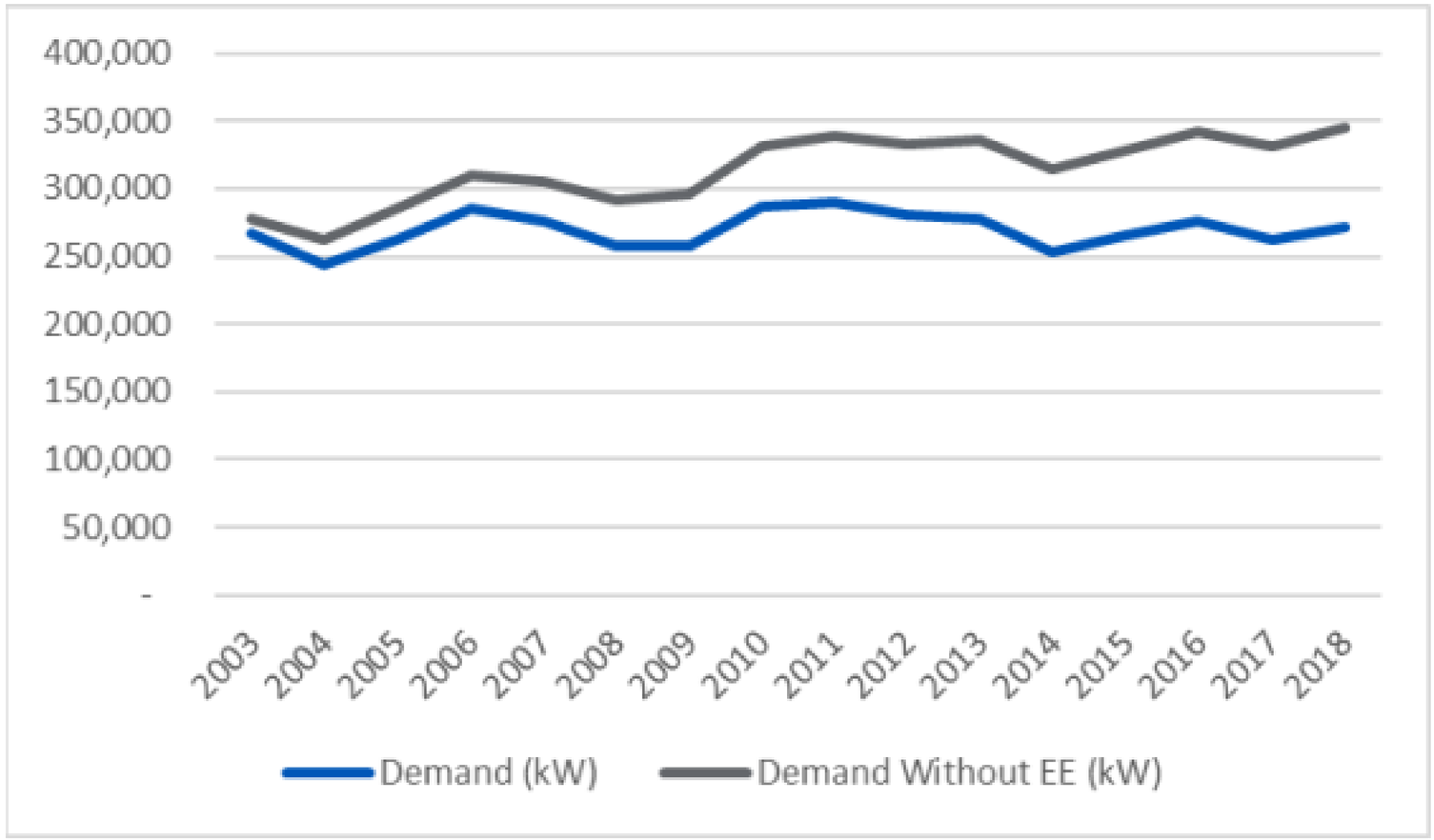
Energy = 1 kWh (100 watts x 10 hours = 1,000 watt-hours)

Electric energy systems are designed and built to meet **peak demand**

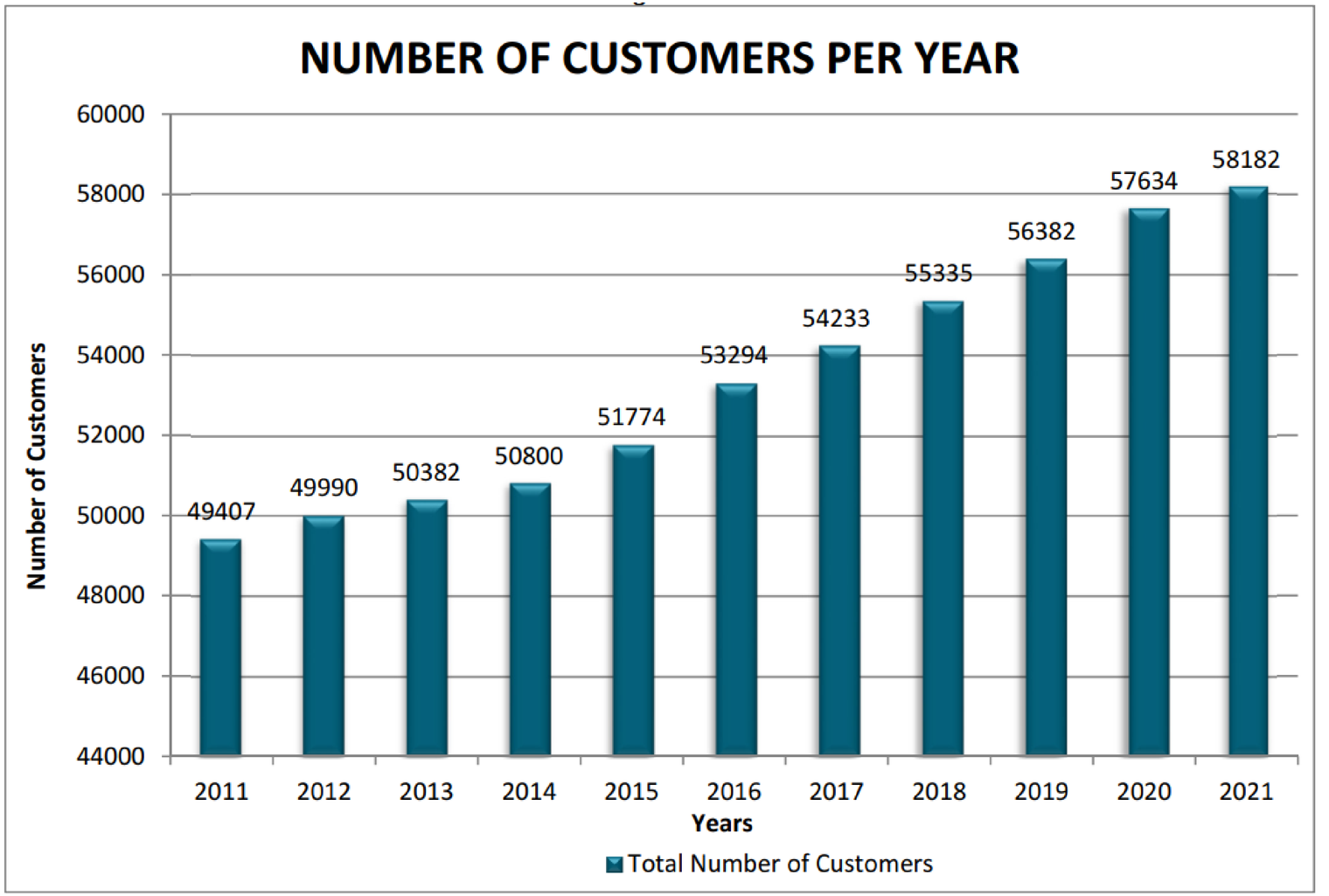
RPU's Historic Peak Demand: **292 MW** (July 2011)

SMMPA currently supplies **216 MW** of Rochester's demand

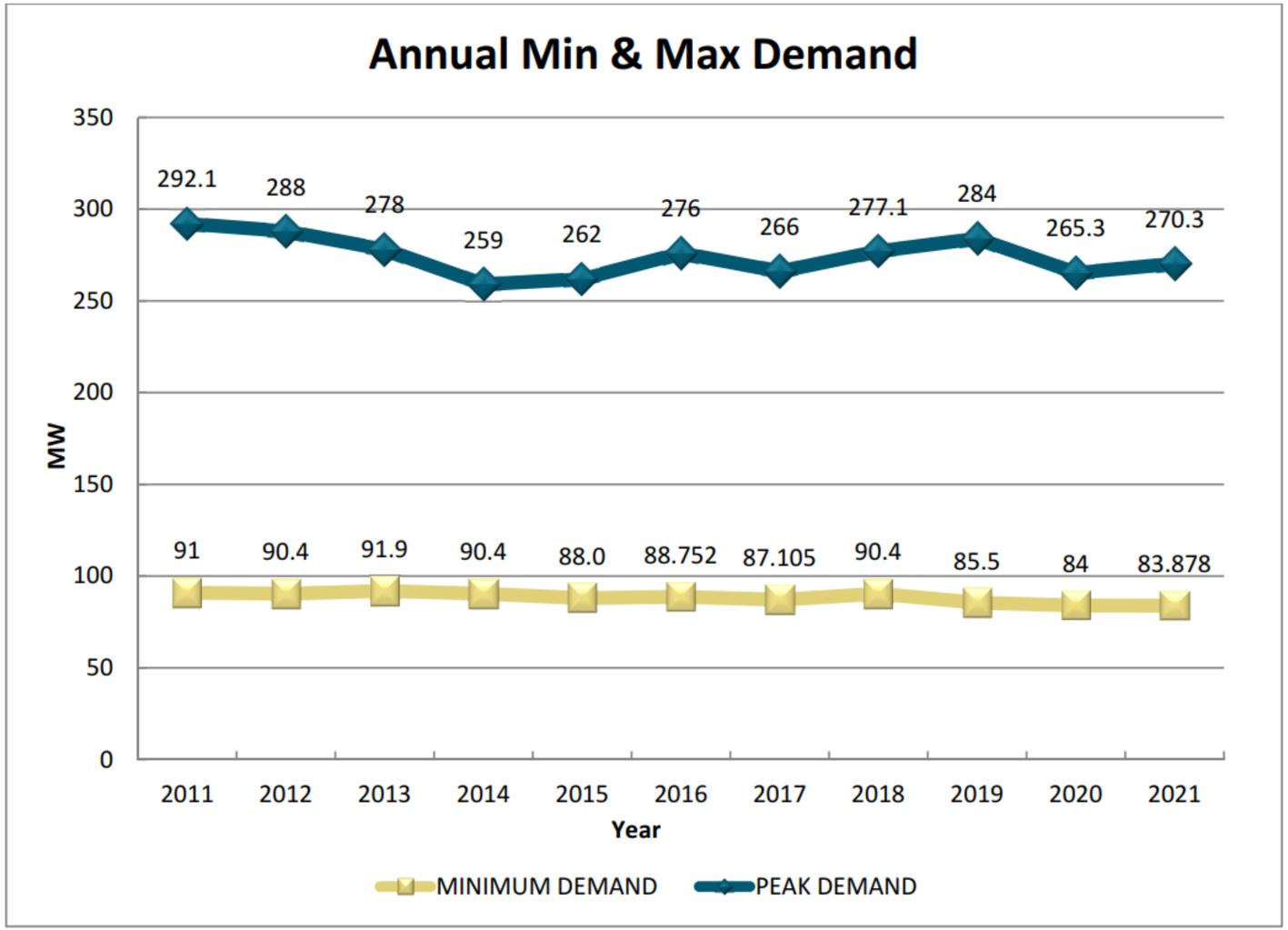
Figure 1-2: RPU Historical Demand Requirements (kW)



Burns & McDonnell, *Demand Side Management Study* (May 28, 2019)



RPU, *2021 Engineering & Operations Report – Electric System* (Apr. 26, 2022)



RPU, *2021 Engineering & Operations Report – Electric System* (Apr. 26, 2022)

Conservation and Energy Efficiency, 2002 – Oct. 2022

Burns & McDonnell, *Demand Side Management Study* (May 28, 2019)
Supplemented with RPU data through November 2022

CONSERVE & $AVE®

	Demand (MW)	Energy (MWh)
Cumulative Savings, 2002 – 11/22	85.262 MW	378,942 MWh
Average Savings per Year	4.178 MW	18,947 MWh
Average Expense per Year	$553.00	$0.1221

Table 2-1: Existing DSM Programs

CUSTOMER CLASS	PROGRAM	CUSTOMER PARTICIPATION	ESTIMATED PEAK REDUCTION (KW)
Residential	Direct Load Control Air Conditioning	15.2%	2,277
Residential	Direct Load Control Hot Water Heating	1.2%	448
Small General Service	Direct Load Control Air Conditioning	1.7%	23
Small General Service	Direct Load Control Hot Water Heating	0.6%	19
Small General Service	Time-Of-Use (opt-in)	0.0%	-
Medium & Large General Service	Interruptible Rate	2.2%	6,000
Medium General Service	Time-Of-Use (opt-in)	11.7%	466
Total			9,233

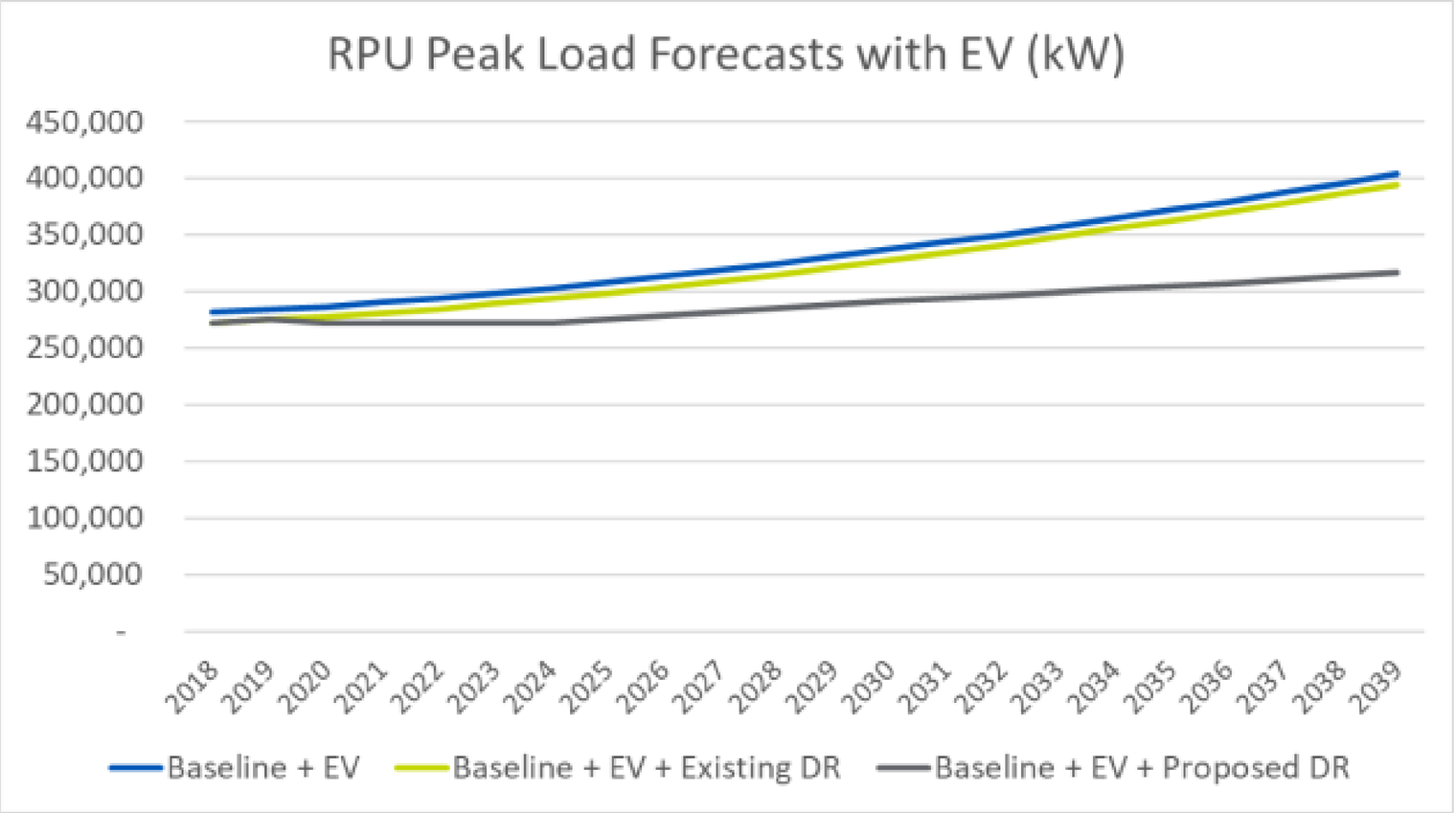
Burns & McDonnell, *Demand Side Management Study* (May 28, 2019)

Summary: Annual Average Demand Savings, 2002 – Nov. 2022

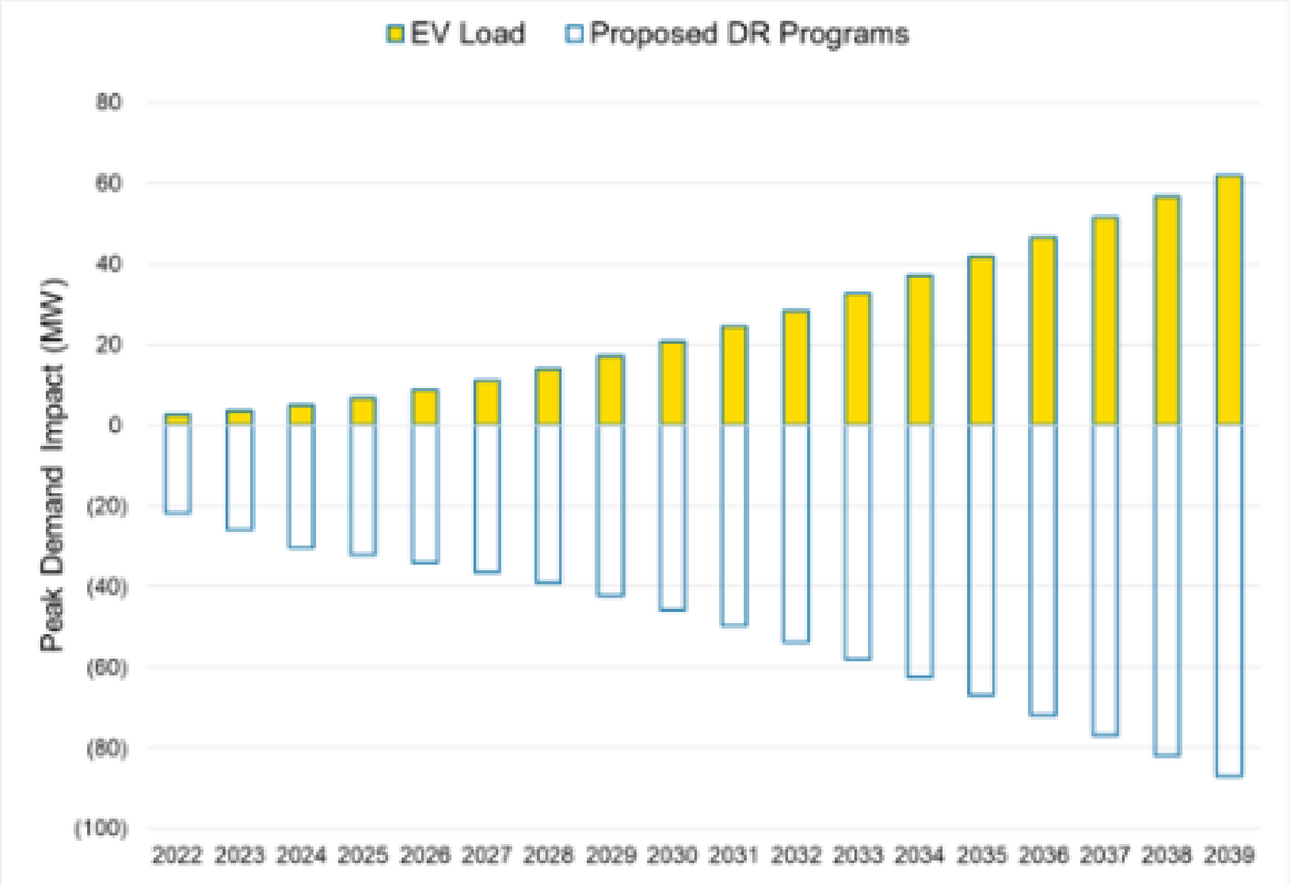
Burns & McDonnell, *Demand Side Management Study* (May 28, 2019)
Supplemented with RPU data through November 2022

	Demand Savings
1. Conservation and Energy Efficiency	4.178 MW
2. Residential Direct Load Control (A/C, Water Heating)	2.725 MW
3. Small General Service Direct Load Control (A/C, Water Heating)	0.042 MW
4. Medium General Service and Large General Service Rates	6.466 MW
Annual Average Demand Savings, 2002 – Nov. 2022	**13.411 MW**

Figure 3-3: RPU Peak Load Forecasts with EV (kW)

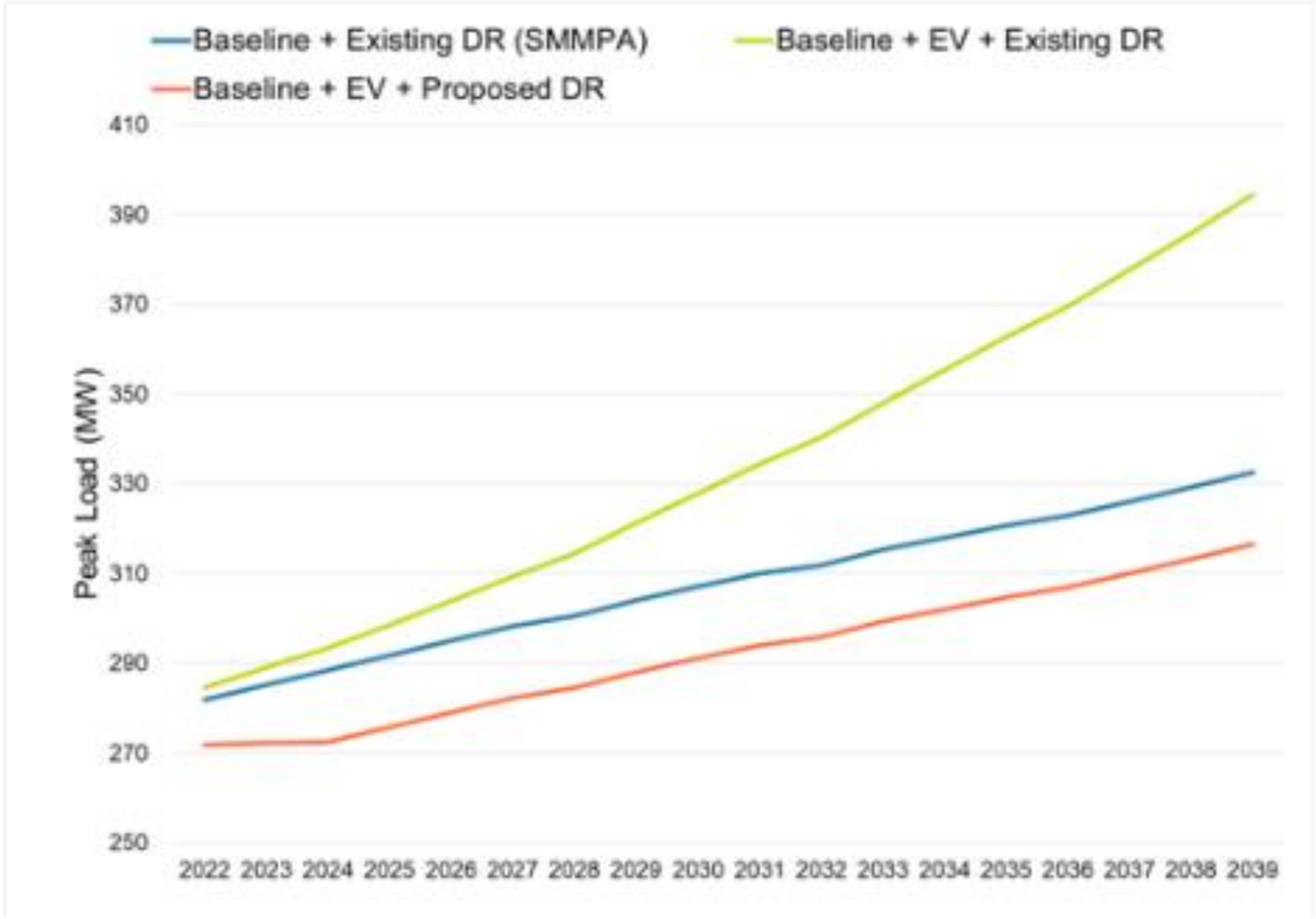


Burns & McDonnell, *Demand Side Management Study* (May 28, 2019)



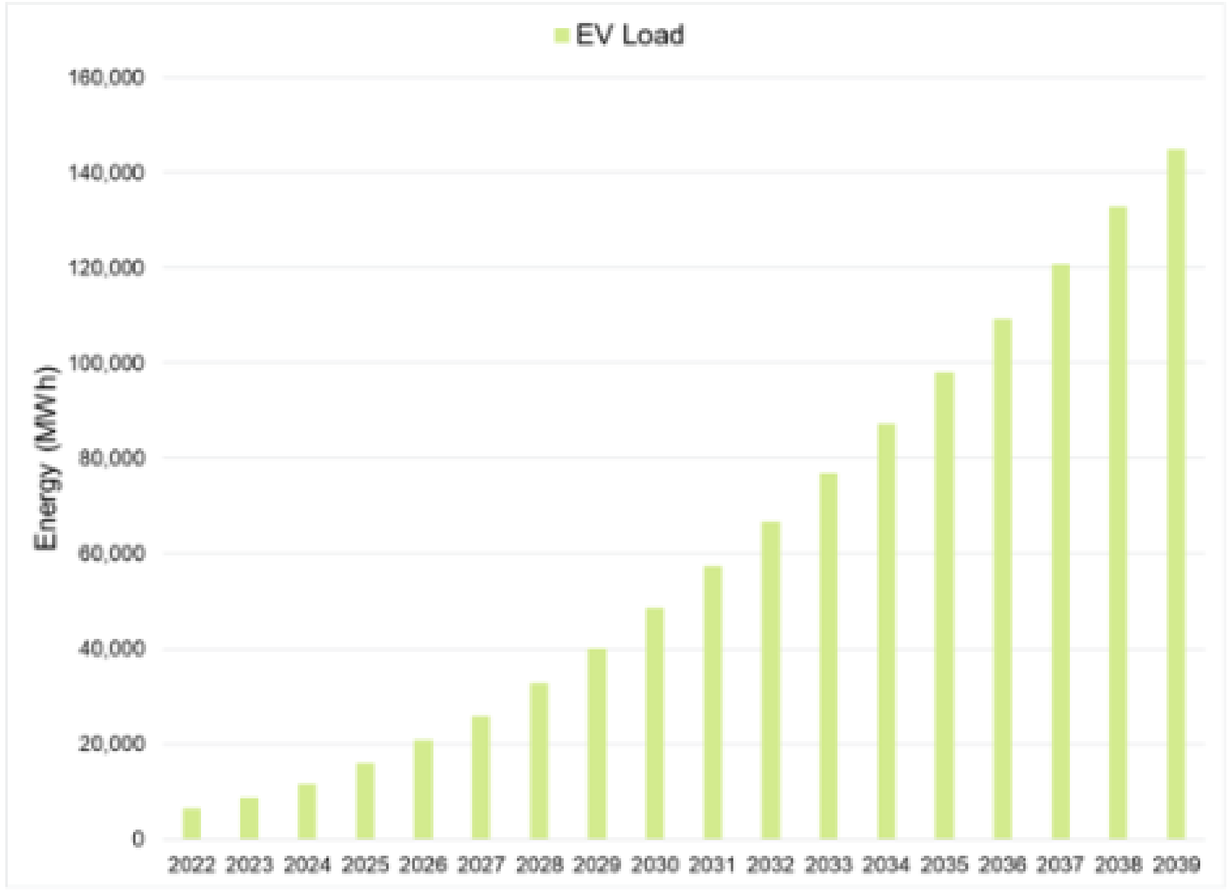
- Demand Response programs offset peak contribution of electric vehicles, AC usage, and water heating.

1898 & Co., *Rochester Public Utilities 2021 Power Supply Plan Roadmap* (Nov. 3, 2021)



- Demand Response programs are essential to negate EV effect on peak demand
- 80 MW offset by 2039
- Baseline + EV + Proposed DR utilized for modeling

1898 & Co., *Rochester Public Utilities 2021 Power Supply Plan Roadmap* (Nov. 3, 2021)



- Two EVs is equivalent to adding a home when comparing energy consumption
- Projected EV growth is equivalent to adding 21,000 homes to the system by 2039

1898 & Co., *Rochester Public Utilities 2021 Power Supply Plan Roadmap* (Nov. 3, 2021)

Table 3-1: New Demand Response Programs Evaluated

CUSTOMER CLASS	PROGRAM	*EST. 5-YR RAP (CUSTOMERS)	*EST. RAP PEAK REDUCTION (KW)
Residential	Direct Load Control Air Conditioning	15.2%	9,562
Residential	Direct Load Control Hot Water Heating	1.2%	446
Residential	DLC Smart Thermostats	10.0%	6,300
Residential	DLC Electric Vehicle Charging	50.0%	2,499
Residential	Time-of-Use (EV)	50.0%	2,499
Residential	Time-of-Use (opt-in)	28.0%	9,800
Residential	Battery Energy Storage	1.0%	2,500
Small General Service	Direct Load Control Air Conditioning	1.7%	115
Small General Service	Direct Load Control Hot Water Heating	0.6%	19
Small General Service	DLC Smart Thermostats	5.0%	2,378
Small General Service	Battery Energy Storage	1.0%	1,575
Medium & Large General Service	Interruptible Rate	45.0%	8,505
Medium & Large General Service	Battery Energy Storage	1.0%	375
Total			46,575

*Estimated 5-Year Realistic Achievable Potential of Customer Participation & Estimated Realistic Achievable Potential of Peak Demand Reduction (kW)

Burns & McDonnell, *Demand Side Management Study* (May 28, 2019)

Summary: RPU Projected Demand Savings, 2023 – 2034

Burns & McDonnell, *Demand Side Management Study* (May 28, 2019)

	Demand Savings
1. Continuation of Conservation and Energy Efficiency Programs	44.976 MW
2. Residential Direct Load Control, Smart Thermostats, and TOU	33.606 MW
3. Small General Service Direct Load Control, Smart Thermostats	4.087 MW
4. Medium General Service and Large General Service Rates	8.880 MW
Projected Demand Savings, 2023 – 2034	**91.549 MW**

RPU's 2030 Resource Plan assumes 80 MW of DR by 2039 under all scenarios

Staff Recommendation: Demand-Response Practices

Because of:

1) **demand-response practices that have saved an average of 13 MW per year from 2002 through 2022;**
2) **existing and proposed demand-response practices are projected to save another 91 MW through 2034 based on current data; and**
3) **RPU's 2030 Resource Plan that assumes 80 MW of demand-response under all plan scenarios by 2039;**

the RPU Board need not adopt a standard to incent demand-response practices.

Electric Vehicle Charging Programs

4) Electric Vehicle Charging Programs

Infrastructure Investment and Jobs Act, Pub. L. 117-58 (Nov. 15, 2021), § 40431

Electric vehicle charging programs.--Each State shall consider measures to **promote greater electrification of the transportation sector**, including the establishment of rates that—

(A) promote affordable and equitable electric vehicle charging options for residential, commercial, and public electric vehicle charging infrastructure;

(B) improve the customer experience associated with electric vehicle charging, including by reducing charging times for light-, medium-, and heavy-duty vehicles;

(C) accelerate third-party investment in electric vehicle charging for light-, medium-, and heavy-duty vehicles; and

(D) appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure.

Level-Setting: Types of EV Charging Infrastructure

Burns & McDonnell, *Electrification Market and Technical Assessment* (Apr. 29, 2019)

Figure 2-6: Different EVSE Types

Source: (Alternative Fuels Data Center) (Brodd, 2017)

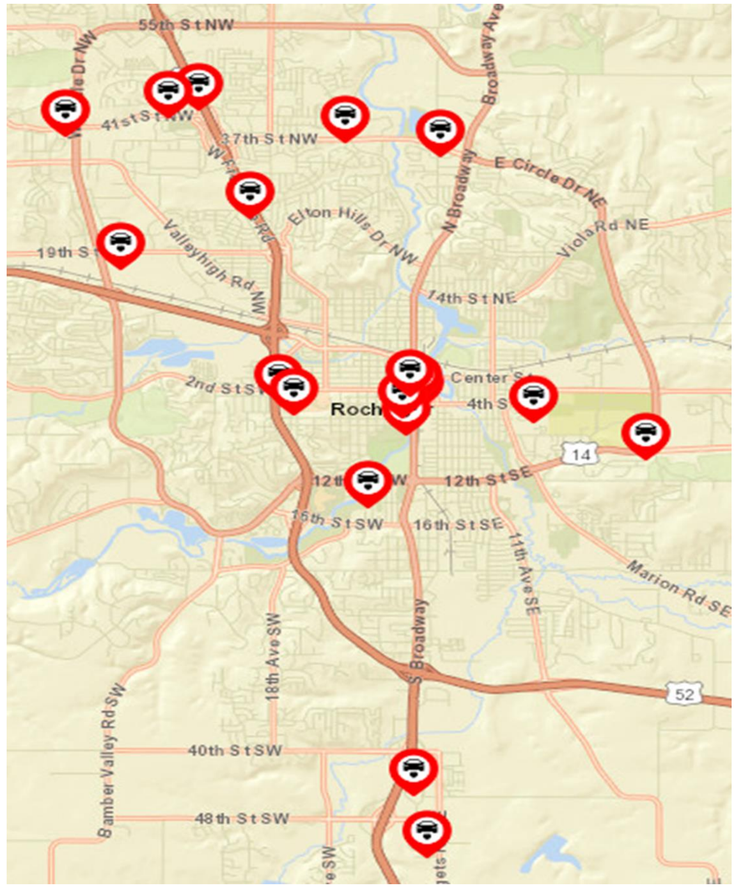
Table 2-1: Summary of EVSE Types

	Level 1	Level 2	DC Fast Charging
Input Voltage	Single Phase 120VAC	Single Phase 240VAC	Three Phase 480VAC
Charge Power	1.4-1.9 kW	3.5-19.2 kW (typ. 7 kW)	50-350 kW
Charge Port	J1772	J1772	J1772 CCS, CHAdeMO, Tesla Combo
Charge Time	12-24 hours	4-8 hours	80% charge in 20-30 min
Typical Location	Home	Home/Workplace	Highways/Rest Stops Near Highway

Rochester Has 45 EV Charging Ports at 19 Locations

RPU, “Electric Vehicles (EV)”, https://www.rpu.org/education-environment/electric-vehicles-ev.php

Location	Type	Ports
Berkman Apartments	NEMA 14-50	2
Center Street Ramp	J-1772	2
First Street Parking Ramp	J-1772	1
Goodwill	J-1772	8
HyVee North	J-1772	2
HyVee South	Tesla	1
LaQuinta	J-1772 Tesla	2
Miracle Mile Shopping Center	J-1772 CCS/SAE CHAdeMO	4
Nissan of Rochester	J-1772	2
Olmsted Medical Center	J-1772	1
Park Place Motor Cars	J-1772	4
RCTC	J-1772	1
Rochester Public Works	J-1772	4
Rochester Parking Ramp No. 6	J-1772	2
RPU Service Center	J-1772	2
SMMPA	J-1772	1
SoRoc on Main	J-1772	2
Third Street Parking Ramp	J-1772	2
TownPlace Suites	Tesla	2



RPU Promotion of Electric Vehicle Charging Programs

RPU, “Electric Vehicles (EV)”, https://www.rpu.org/education-environment/electric-vehicles-ev.php

MnDOT estimates 880 EVs on the road in Olmsted County

RPU Electric Vehicle Owners Club has 91 members

RPU assisted in launching two 60-ft battery-electric buses

Buses $1.25m, charging station $1.1m; project cost $3.65m

Information about free Electric Vehicle classes

Saturday, February 25, 2023, 10:00 am-12:00 pm

Northrop Community Education Center, Room 308

SMMPA recently installed Level 2 chargers

983 sessions for over 10,300 kWh in 2021

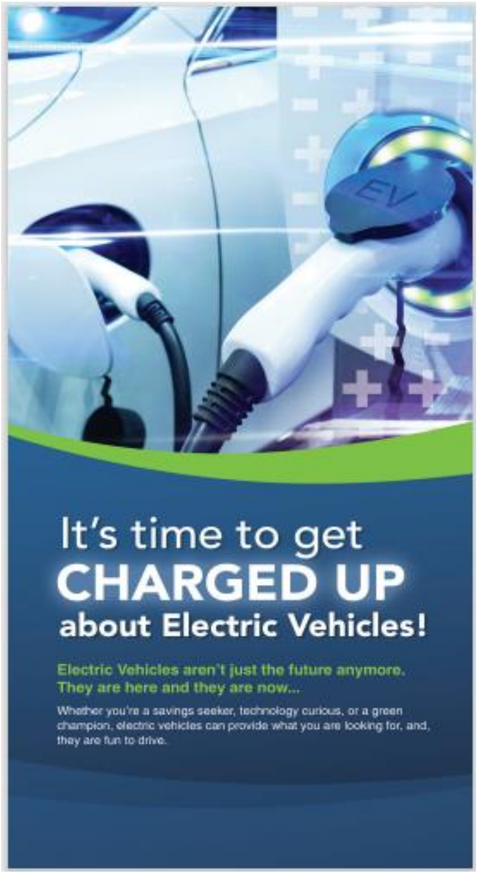
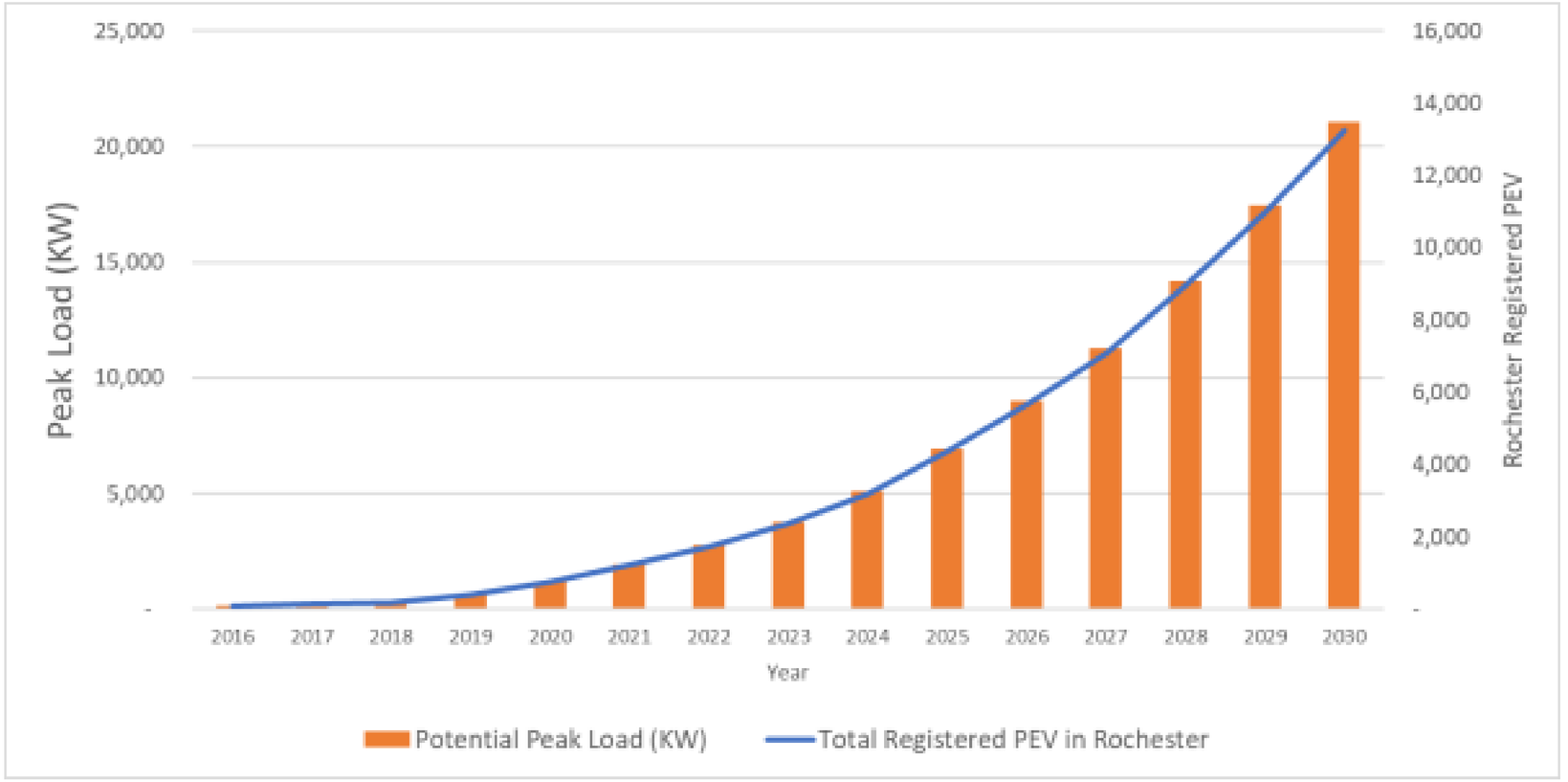


Table 4-1: Registered PEV Projection for Rochester

Year	New Vehicles Sold in MN	New Vehicle Sales Growth in MN	% PEV New Vehicle Sales	New PEV sold in MN	% New Vehicle Sales in Rochester	New PHEV and BEV Sold in Rochester	Projected Total Registered PEV in Rochester
2022	234967	0.5%	9%	21147	2.50%	529	**1774**
2023	236142	0.5%	11%	25976	2.50%	649	**2424**
2024	237323	0.5%	14%	33225	2.50%	831	**3254**
2025	238509	0.5%	20%	47702	2.50%	1193	**4447**
2026	239702	0.5%	22%	52734	2.50%	1318	**5765**
2027	240900	0.5%	24%	57816	2.50%	1445	**7211**
2028	242105	0.5%	31%	75052	2.50%	1876	**9087**
2029	243315	0.5%	34%	82727	2.50%	2068	**11155**
2030	**244532**	**0.5%**	**38%**	**92922**	**2.50%**	**2323**	**13478**
2031	245755	0.5%	40%	98302	2.50%	2458	**15936**
2032	246983	0.5%	42%	103733	2.50%	2593	**18529**
2033	248218	0.5%	45%	111698	2.50%	2792	**21322**
2034	249459	0.5%	47%	117246	2.50%	2931	**24253**
2035	250707	0.5%	48%	120339	2.50%	3008	**27261**
2036	251960	0.5%	49%	123460	2.50%	3087	**30348**
2037	253220	0.5%	51%	129142	2.50%	3229	**33576**
2038	254486	0.5%	52%	132333	2.50%	3308	**36885**
2039	255758	0.5%	53%	135552	2.50%	3389	**40273**
2040	257037	0.5%	54%	138800	2.50%	3470	**43743**

Burns & McDonnell, *Electrification Market and Technical Assessment* (Apr. 29, 2019)

Figure 4-2: Estimated Peak Load Growth vs. PEV Growth in Rochester, MN



*Assumes no peak load management from load control or time of use rates

Burns & McDonnell, *Electrification Market and Technical Assessment* (Apr. 29, 2019)

RPU Electric Vehicle Rate Incentives

Rochester Public Utilities 2023 Rate Schedule (effective Jan. 1, 2023)

	Summer (Jun-Sep)	Non-Summer (Oct-May)
Residential Service		
Customer Charge	$20.500	$20.500
Energy Charge	$0.134	$0.112
Residential - Time-of-Use Service		
Customer Charge	$20.500	$20.500
Super-Peak Energy (4:00 PM - 8:00 PM, M-F)	$0.301	$0.145
On-Peak Energy (8:00 AM - 4:00 PM, 8:00 PM - 10:00 PM, M-F)	$0.179	$0.145
Off-Peak Energy (all other hours)	$0.074	$0.074
Electric Vehicle Charging Time-of-Use Rate		
Additional Customer Charge (second meter)	$6.340	$6.340
On-Peak Energy (8:00 AM - 10:00 PM, M-F)	$0.252	$0.182
Off-Peak Energy (all other hours)	$0.074	$0.074

Charging Infrastructure in Rochester City Code

Rochester Community Development, *Unified Development Code* (Nov. 16, 2022)

Section 60.400.080J: Design and Location of Vehicle Parking

9. Electric Vehicle Charging

Parking areas with more than 50 parking spaces shall provide a minimum of one parking space dedicated to electric vehicles for every 25 parking spaces provided on site. The provision of three of fewer electric vehicle parking spaces shall not count toward the maximum allowed number of parking spaces. The provision of four or more electric vehicle parking spaces shall count toward the maximum allowed number of parking spaces. The electric vehicle parking space shall be:

a. Located on the same lot as the principal use;

b. Signed in a clear and conspicuous manner indicating exclusive availability to electric vehicles; and

c. Outfitted with a standard “Level 2” electric vehicle charging station.

New/Pending Electric Vehicle Charging Opportunities

1. **Volkswagen Environmental Mitigation Trust (**MPCA Phase 2 allocation **$23.5m)**
   $3.525 million to deploy 104 Level 2 chargers and 43 DC fast chargers

2. **Infrastructure Investment & Jobs Act (IIJA)** (Pub. L. 117-58, Sec. 11401)
   $5 billion for 500,000 electric vehicle charging stations
   MnDOT Statewide Electric Vehicle Infrastructure Plan (NEVI formula)
   US-52 is not nominated for NEVI funding in the 2023-2026 cycle

3. **Inflation Reduction Act (IRA) credits** (Pub. L. 117-169, Secs. 13401 – 13404)
   Qualifying clean vehicles: up to $7,500 (new) or $4,000 (used)
   Qualifying commercial clean vehicles: $7,500 - $40,000
   Alternative Fuel Refueling Property: 30% up to $100,000 per property

Staff Recommendation: Electric Vehicle Charging Programs

Due to the existence of:

1) **a 45-port EV charging infrastructure supported by federal, state, and local funding sources;**
2) **RPU incentives such as educational efforts, the EV Owners Club, and electrification rate incentives; and**
3) **substantial federal and state efforts to further build out EV charging infrastructure to keep pace with projected fleet growth,**

the RPU Board need not adopt an electric vehicle charging program standard.

Exhibits A – H

A. Infrastructure Investment & Jobs Act, Pub. L. 117-58 (Nov. 15, 2021), Secs. 40104 and 40431

B. Public Notice: Plugged In November/December 2022

C. Public Notice: Rochester Post-Bulletin (Dec. 3, 2022)

D. Burns & McDonnell, *Demand Side Management Study* (May 28, 2019)

E. Rochester Public Utilities, "Conservation"

F. 1898 & Co., *Rochester Public Utilities 2021 Power Supply Plan Roadmap* (Nov. 3, 2021)

G. Burns & McDonnell, *Electrification Market and Technical Assessment* (Apr. 29, 2019)

H. Rochester Public Utilities, "Electric Vehicles (EV)"

Exhibits I – O

I. Rochester Public Utilities 2023 Rate Schedule (effective Jan. 1, 2023)

J. Rochester Community Development, *Unified Development Code* (Nov. 16, 2022)

K. MPCA, *Minnesota's Volkswagen Settlement Beneficiary Plan Phase II (2020-2023)* (Feb. 2020)

L. MnDOT, *2021 Minnesota Electric Vehicle Assessment* (Sep. 2021)

M. MnDOT, *2022 Minnesota Electric Vehicle Infrastructure Plan* (July 2022)

N. Inflation Reduction Act, Pub. L. 117-169 (Aug. 16, 2022), Secs. 13401 – 13404

O. RPU, *2021 Engineering & Operations Report – Electric System* (Apr. 26, 2022)

Questions, Comments, and Discussion

City of Rochester Public Hearing Guidelines

1) Please provide your name for the hearing record.
2) Please limit comments to five (5) minutes.
3) Groups with similar comments are encouraged to designate a spokesperson, who will also be limited to five (5) minutes.
4) A speaker may yield unused time to the next speaker.
5) Once all attendees have been given an opportunity to speak, a person who has spoken may ask to be recognized for an additional five (5) minutes.
6) Speakers are encouraged to follow up with written comments.

5) Public Questions, Comments, and Discussion

Additional written comments may be submitted to:

rpuboard@rpu.org
(please include “PURPA Comments” in the subject line)

Rochester Public Utilities
Attn: PURPA Comments
4000 East River Road NE
Rochester, MN 55906

Comments will be accepted until 5:00 PM on Thursday, Jan. 19, 2023

6) Next Steps

PURPA § 111 (a – c), 16 U.S.C. § 2621 (a – c)

<u>Step 2</u>: Written Findings

a) Must be based upon evidence presented at the hearing

b) Must be made available to the public

<u>Step 3</u>: Board Makes Final Decision

a) May decide not to implement PURPA standard(s), with written findings; OR

b) May decide to adopt measures appropriate to carry out the PURPA standard(s)

c) Board's decision must be based on written findings made available to the public

d) Consideration process must conclude by **Nov. 15, 2023**

THANK YOU