Comparing Connecticut's Electric Vehicle Charging Program with others from around the United States

March 2023 – White Paper

Applied Economics Clinic

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March 2023

[AEC-2023-03-WP-01]

Executive Summary

To support Connecticut's goal to deploy 125,000-150,000 electric vehicles (EVs) by 2025,[1] the Connecticut Public Utilities Regulatory Authority (PURA) established a nine-year statewide EV charging program—administered by Eversource Energy and The United Illuminating Company—that aims to install nearly 65,000 EV charging ports by 2030.[2] On behalf of the Connecticut Office of Consumer Counsel,[3] this Applied Economics Clinic (AEC) white paper reviews EV charging programs in Connecticut and fourteen other states (California, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New Mexico, New York, Oregon, Rhode Island, Texas, and Vermont) and compares those programs' ability to provide net benefits to consumers based on their key characteristics, including:

- EV and EV charging **deployment targets**;
- **Upfront incentives** like rebates and **ongoing incentives** like monthly payments to EV charger owners;
- **Alternate rate structures** including demand charge modifications, special EV charging or off-peak rates, or EV charging electric bill discounts;
- **Make-ready programs** that offer incentives to cover some or all of the upfront costs to install and/or maintain EV charging station infrastructure;
- **Managed charging** incentives to discourage EV charging from occurring during periods of peak electric demand;
- **Program design** including program administration and ownership of EV charging stations; and
- The ways in which EV charging programs **target underserved communities**.

AEC finds, among those reviewed in this white paper, Connecticut's EV charging program is one of the most robust and is well-positioned to provide net benefits to consumers and meet the state's EV and electric vehicle supply equipment deployment goals. Connecticut stands out as a leader due to the detailed nature of its EV and EV charging deployment goals, the inclusion of alternative rate structures to incentivize public EV charging stations, the availability of incentives to cover up to 100 percent of EV charging "make-ready" costs, and enhanced incentives for underserved communities (inclusive of low-income populations). AEC also finds, however, that Connecticut's EV charging program could be

[1] PURA Docket 17-12-03RE04, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles.* Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/eb6c28c81c508b208525875200799494/$FILE/171203RE04-071421.pdf. Page 4.

[2] Ibid. Table 3.

[3] This white paper was prepared for the Office of Consumer Counsel ("OCC") pursuant to OCC's retention of AEC as a consultant to provide technical assistance to OCC's participation in Docket Number 22-08-06 before the Connecticut Public Utilities Regulatory Authority ("PURA"). See PURA Docket No. 22-08-06, Annual Review of the Electric Vehicle Charging Program – Year 2, Mot. No. 10 (Aug. 17, 2022); Conn. Gen. Stat. § 16-18a.

strengthened by adopting best practices from other states' programs, such as by setting more ambitious EV and EV charging deployment goals, working to target EV charging in as equitable a fashion as possible, and by offering ongoing incentives for EV charging.

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I. Introduction

To support electric vehicle (EV) deployment over the next decade, Connecticut's Public Utilities Regulatory Authority (PURA) established a nine-year statewide electric vehicle program (known as the "EV Charging Program") in Docket No. 17-12-03RE04, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles*.[4] Through this proceeding, PURA seeks to further investigate the deployment of EV charging infrastructure in Connecticut with the goal of enabling the State to work towards its joint and individual commitments related to transportation electrification, including:

- The commitment to deploy 3.3 million zero-emission vehicles (ZEVs) by 2025 among the ten participating states (California, Connecticut, Maryland, Massachusetts, New York, Oregon, Rhode Island, Vermont, New Jersey and Maine) in the *State Zero-Emission Vehicle Programs Memorandum of Understanding* (ZEV MOU),[5]
- The commitment to achieve 100 percent zero emission new medium- and heavy-duty vehicle sales by 2030 among the 17 participating states plus the District of Columbia (California, Colorado, Connecticut, Hawaii, Maine, Maryland, Massachusetts, Nevada, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia and Washington) in the *Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding*,[6] and
- Connecticut's greenhouse gas emission reduction targets pursuant to its Global Warming Solutions Act,[7] including a 45 percent reduction (from 2001 levels) by 2030 and 80 percent by 2050.

On behalf of the Connecticut Office of Consumer Counsel, this Applied Economics Clinic (AEC) white paper reviews the potential for EV charging programs to provide net benefits to consumers in Connecticut and fourteen other states (California, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New Mexico, New York, Oregon, Rhode Island, Texas, and Vermont—see Figure 1). AEC finds that Connecticut's EV charging programs are well-positioned to provide net benefits to consumers and meet the state's EV and electric vehicle supply equipment deployment goals, share many commonalities with EV charging programs across fourteen other states, contain many best practices as compared to programs from other jurisdictions, and could be strengthened by adopting best practices from other EV charging programs. An important way to ensure that EV and EV charging programs provide net benefits to

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[4] PURA Docket 17-12-03RE04, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles.* Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/eb6c28c81c508b208525875200799494/$FILE/171203RE04-071421.pdf.

[5] *State Zero-Emission Vehicle Programs Memorandum of Understanding*. Available at: https://www.nescaum.org/documents/zev-mou-10-governors-signed-20191120.pdf/

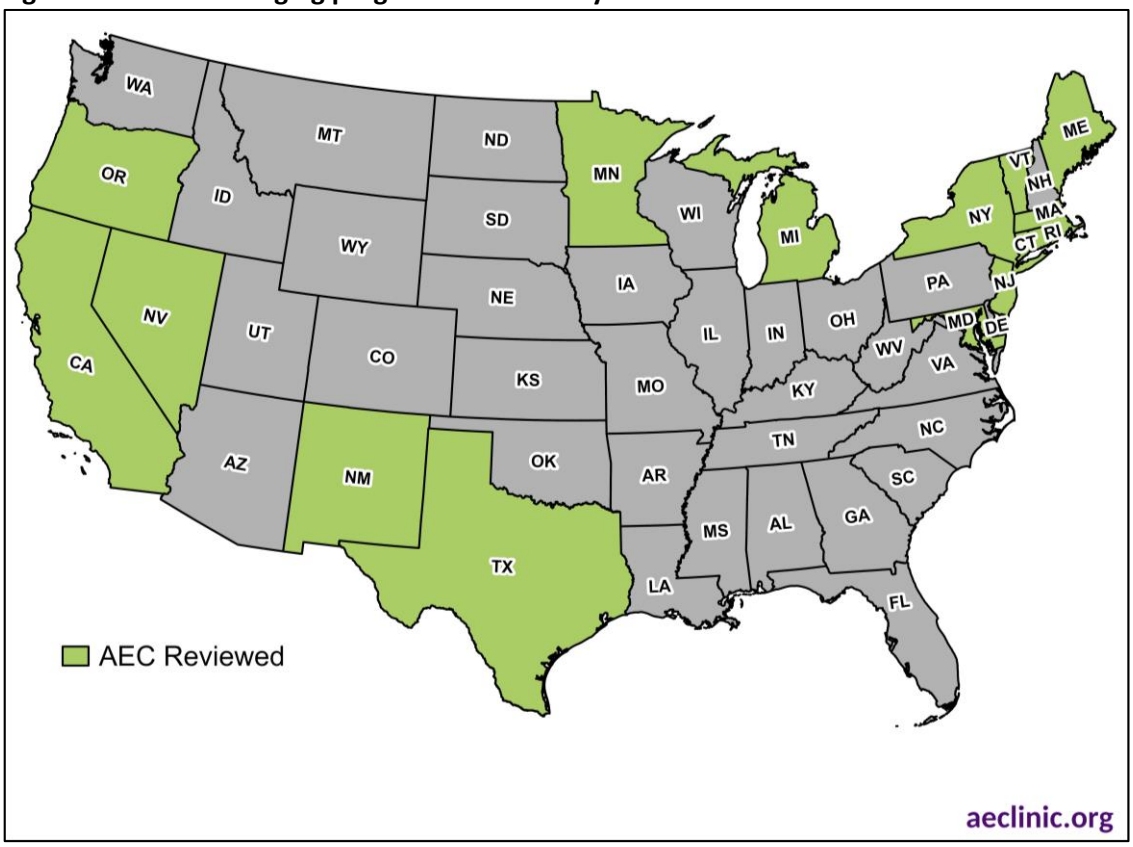
[6] *Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding*. Available at: https://www.nescaum.org/documents/mhdv-zev-mou-20220329.pdf.

[7] Connecticut Public Act No. 08-98. Approved June 2, 2008. *An Act Concerning Connecticut Global Warming Solutions*. Available at: https://www.cga.ct.gov/2008/ACT/Pa/pdf/2008PA-00098-R00HB-05600-PA.pdf.

consumers is to conduct a thorough, robust, and inclusive benefit-cost analysis (BCA) that fully accounts for and fairly values the benefits and costs of EVs and their associated infrastructure. BCA can help prioritize policies and decisions that will provide the greatest ratepayer benefits for the least cost while reaching EV and EV charging goals, and can also inform the rates and structure of incentive programs that may be developed to advance the adoption of EVs and expand EV charging infrastructure.

The remainder of this white paper is organized as follows: Section II presents an overview of Connecticut's EV charging program. Section III presents the results of AEC's review of EV charging programs across fifteen states in terms of EV and EV charging deployment targets, upfront and ongoing incentives offered for EV charging, alternate rate structures offered for EV charging, make-ready programs, managed EV charging including demand response and time-of-use rates, EV charging program design and specific provisions to target underserved communities and enhance equity. Finally, Section IV presents conclusions and makes recommendations for Connecticut.

Figure 1. State EV charging programs reviewed by AEC



II. Overview of Connecticut's EV Charging Program

Per Docket No. 17-12-03RE04 Connecticut's EV Charging Program was established to create a statewide approach to providing the same program offerings to all electric customers across the service territories of Connecticut's electric distribution companies—Eversource Energy and The United Illuminating Company

(UI)—who are the administrators of the program.

To support the state's goal to deploy 125,000-150,000 electric vehicles by 2025 as part of Connecticut's ZEV MOU target[8]—Connecticut's EV Charging Program sets electric vehicle supply equipment (EVSE) deployment targets (i.e., number of ports) across five key program areas, or market segments.

1. **Residential Single-Family Level 2 Charging:** 50,000 by 2030;
2. **Residential Multi-Unit Dwellings (MUDs) Level 2 Charging:** 1,213 by 2025 (2030 goal to be revisited);
3. **Direct Current Fast Charging (DCFC):** 550 by 2030;
4. **Destination Level 2 Charging:** 4,868 by 2030; and
5. **Workplace & Light-Duty Fleet Level 2 Charging:** 7,356 by 2030.[9]

To optimize the deployment of EVSEs and associated infrastructure, Connecticut's EV Charging Program also includes a combination of incentives and rate design offerings across the five key program areas (see the *Key Characteristics of Electric Vehicle Charging Programs* section below for more information regarding Connecticut's electric vehicle charging incentives).

Connecticut's EV Charging Program is broken down into three-year program review cycles (i.e., 2022-2024, 2025-2027, 2028-2030). PURA will conduct a full evaluation of the existing program design at the end of each cycle to ensure that the Program is delivering the expected value to ratepayers as well as meeting its objectives. After each evaluation (in 2024, 2027, and 2030), PURA will adjust the Program's design and deployment targets to help the program best support Connecticut's transportation electrification goals and adapt to evolving EV charging needs and technological advancements as needed.

In the years in which full evaluations are not conducted (in 2021, 2022, 2023, 2025, 2026, 2028, and 2029) of each program review cycle, PURA will conduct annual reviews to evaluate "key Program metrics and to make strategic adjustments to ensure: (1) continued alignment with the program objectives established in the Final Decision; and (2) that the Program is on track to meet its deployment targets."[10] Each annual review proceeding will focus on a specific set of issues identified by PURA (and other stakeholders) related

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[8] PURA Docket 17-12-03RE04, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles.* Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/eb6c28c81c508b208525875200799494/$FILE/171203RE04-071421.pdf. Page 4.

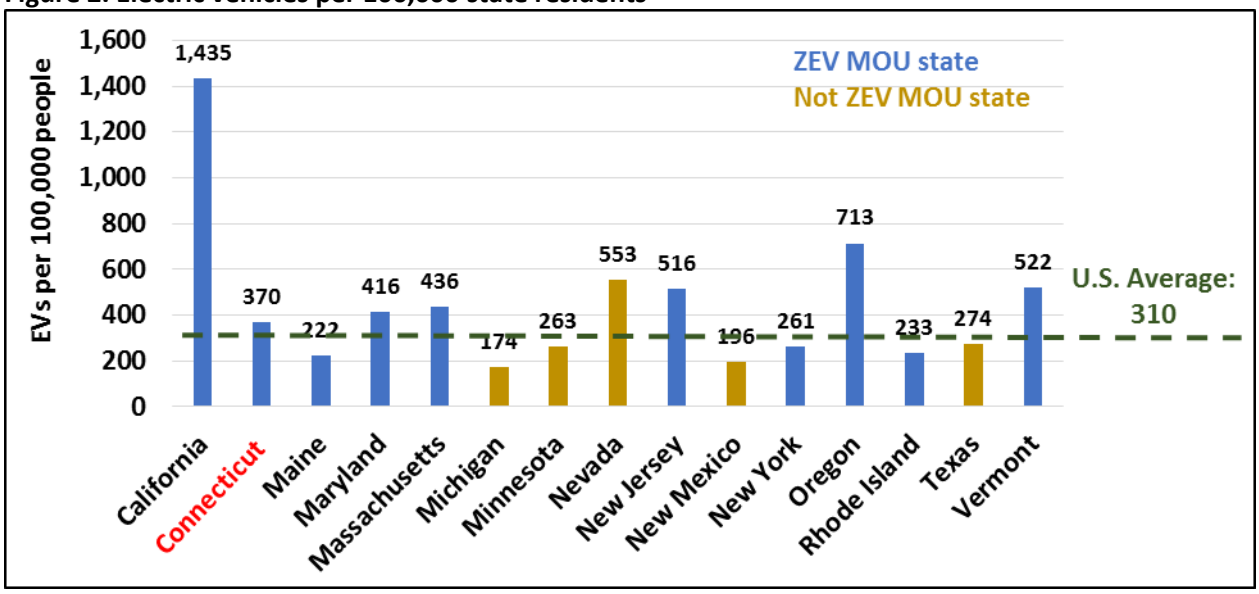
[9] PURA Docket 17-12-03RE04, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles.* Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/eb6c28c81c508b208525875200799494/$FILE/171203RE04-071421.pdf. Table 3.

[10] PURA Docket No. 21-08-06, Annual Review of Electric Charging Program – Year 1. "Request to Establish a New Docket on PURA's Own Motion." Available at: https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/b220fa78ad4c6bcb8525872800458a4f/$FILE/21-08-06%20Docket%20Initiation.pdf.

to the EV Charging Program. Thus far, PURA has issued final decisions in 2021 and 2022 annual review proceedings: Docket Nos. 21-08-06 and 22-08-06.[11]

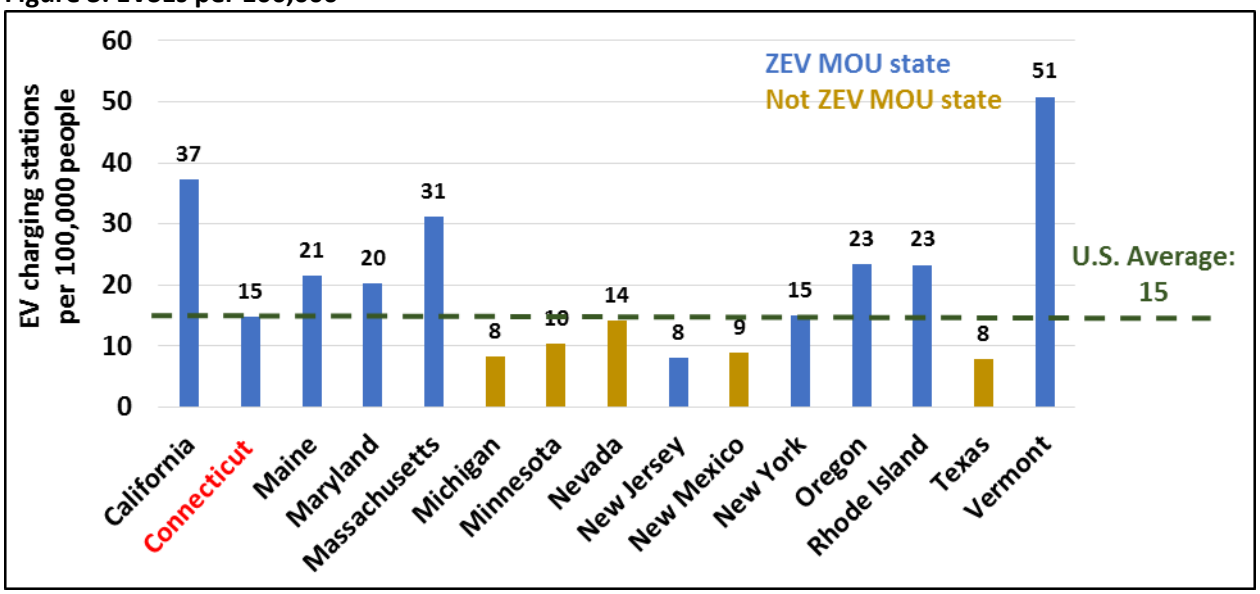
In this white paper, AEC presents the results of our review of EVSE deployment programs across Connecticut and the other nine state signatories to the ZEV MOU (California, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island and Vermont) as well as five other U.S. states with substantial EVSE policy initiatives (Michigan, Minnesota, Nevada, New Mexico and Texas). Together, these fifteen states represent a wide range of EV and EV charging station deployments per 100,000 people (see Figure 2 and Figure 3 below). For both EVs and EV charging stations per 100,000 people, Connecticut ranks eighth among the fifteen states and is on par with the U.S. average: Connecticut has 370 EVs per 100,000 people—the U.S. average is 310—and 15 EV charging stations per 100,000 people—which is the same as the U.S. average.

Figure 2. Electric vehicles per 100,000 state residents



[11] (1) PURA Docket No. 21-08-06, Annual Review of Electric Charging Program – Year 1.; (2) PURA Docket No. 22-08-06, Annual Review of Electric Charging Program – Year 2.

Figure 3. EVSEs per 100,000



Sources: 1) U.S. DOE January 11, 2023. "Alternative Fueling Station Counts by State". Available at: https://afdc.energy.gov/stations/states; 2) Alternative Fuel Data Center. June 30, 2022. "Vehicle registration counts derived by the National Renewable Energy Laboratory with data from Experian Information Solutions". U.S. Department of Energy (DOE). Available at: https://afdc.energy.gov/data/; 3) U.S. Census Bureau. 2021. "TOTAL POPULATION". American Community Survey. B01003. Available at: https://data.census.gov/table?q=B01003:+TOTAL+POPULATION&g=0100000US,$0400000.

III. Key Characteristics of Electric Vehicle Charging Programs

AEC's review of EV charging programs across fifteen states found that most programs include some of the beneficial characteristics listed below in Table 1, but not all. California emerges as a clear leader—that is, its EV charging programs cover all of the key characteristics reviewed—while Connecticut, New York, and Massachusetts are runners up with their EV charging programs covering most of the key characteristics reviewed.

The remainder of this section reviews electric vehicle and electric vehicle deployment targets and associated electric vehicle charging programs across Connecticut and fourteen other U.S. states and compares those programs based on their key characteristics, including: deployment targets, upfront and ongoing incentives, alternate rate structures, make-ready programs, managed charging, program design, and targeting underserved communities (see Table 1).

Table 1. EV charging program review categories

Review categories	Description
Deployment Targets	EV and EVSE deployment targets
Upfront and Ongoing Incentives	Upfront EVSE incentives like rebates and ongoing EVSE incentives like monthly payments to EV charger owners
Alternate Rate Structures	Including demand charge modifications, special EV charging or off-peak rates, EV charging bill discounts
Make-Ready Programs	Incentives to cover some or all of the upfront costs to install and/or maintain electrical infrastructure for EV charging stations
Managed Charging	Mechanisms to discourage EV charging from occuring during periods of peak electric demand
Program Design	Who administers EV charging programs and who is permitted to own EV charging stations
Targeting Underserved Communities	EV charging program provisions that target underserved, disadvantaged and/or environmental justice communities

Deployment Targets

Connecticut is not the only state with EV and EVSE deployment targets: Table 2 below summarizes EV and EVSE goals across Connecticut and the fourteen other U.S. states reviewed (note that the commitment to achieve 100 percent zero emission new medium- and heavy-duty vehicle sales by 2030 among the 17 MOU participating states[12] is not included in Table 2). All states reviewed have some form of EV deployment target, usually aiming to deploy a specific number or share of electric vehicles (sometimes broken down by EV type) by 2025, 2030, and/or 2035. More variation exists regarding the EVSE targets among the states reviewed—for example, some states have no specific targets, some states broadly aim to deploy infrastructure consistent with their EV deployment goals, and some have specific EVSE targets, with two—Connecticut and New Jersey—broken down by charging station type and by year. Some examples of EV and EVSE targets include:

- California and New York aim to attain 100 percent passenger electric vehicle sales by 2035.[13]

[12] *Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding*. Available at: https://www.nescaum.org/documents/mhdv-zev-mou-20220329.pdf.

[13] 1) Newsom, G. August 25, 2022. "California Enacts World-Leading Plan to Achieve 100 Percent Zero-Emission Vehicles by 2035, Cut Pollution". Office of Governor. Available at: https://www.gov.ca.gov/2022/08/25/california-enacts-world-leading-plan-to-achieve-100-percent-zero-emission-vehicles-by-2035-cut-pollution/#:~:text=%E2%80%9CThis%20plan's%20yearly%20targets%20%E2%80%93%2035,won't%20pollute%20our

- Nevada aims to install EV charging stations every 50 miles along interstate highways by 2023,[14] and Rhode Island aims to install DCFC charging stations less than 50 miles apart, within 1 mile of a federally designated alternative fuel corridor (AFC), by 2030.[15]
- New Jersey aims to install 400 DCFC and 1,000 Level 2 charging stations in at least 200 locations and also mandates that 15 percent of multi-family residential properties be equipped with EV charging stations, all by 2025.[16]

%20communities; 2) New York State. November 22, 2022. "Governor Hochul Signs Legislation to Advance New York's Transition to Clean Transportation". Available at: https://www.governor.ny.gov/news/governor-hochul-signs-legislation-advance-new-yorks-transition-clean-transportation#:~:text=By%20making%20it%20easier%20for,be%20zero%2Demission%20by%202035.

[14] NDOT. July 2022. Nevada State Plan for Electric Vehicle Infrastructure. Available at: https://www.dot.nv.gov/home/showdocument?id=20723&t=637947099699793521.

[15] RI DOT. July 29, 2022. Rhode Island Electric Vehicle Infrastructure Deployment State Plan. Available at: https://www.dot.ri.gov/projects/EVCharging/docs/Rhode%20Island%20Electric%20Vehicle%20Infrastructure%20Deployment%20State%20Plan_FINAL.pdf.

[16] U.S. Department of Energy. No date. “Electricity Laws and Incentives in New Jersey”. Alternative Fuels Data Center. Available at: https://afdc.energy.gov/fuels/laws/ELEC?state=nj.

Table 2. Electric vehicle and electric vehicle charging targets

State	EV deployment target	EV charging dock targets
California	By 2026: 35 percent sales By 2030: 68 percent sales By 2035: 100 percent sales	By 2025: 250,000
Connecticut	**By 2025: 125,000-150,000**	**By 2024: 1,213 multifamily** **By 2030: 50,000 single family, 4,868 public, 550 DCFC, 7,356 workplace**
Maine	By 2025: 50 percent of state fleet acquisitions By 2030: 220,000 registrations, 100 percent of state fleet acquisitions	By 2025: Infrastructure consistent with ZEV Action Plan
Maryland	By 2025: 300,000 By 2030: 600,000	By 2025: Infrastructure consistent with ZEV Action Plan
Massachusetts	By 2025: 200,000 By 2030: 900,000 By 2050: 100 percent of total state fleet	By 2025: 350 By 2030: 500
Michigan	By 2030: 2,000,000	By 2026: 127 DCFC
Minnesota	By 2030: 20 percent light-duty	No specific targets
Nevada	By 2032: 7.4 percent ownership	By FY2023: Chargers every 50 miles along interstate
New Jersey	By 2025: 330,000 light-duty By 2035: 2,000,000 light-duty	By 2025: 400 DCFC and 1,000 Level 2 in at least 200 locations, incl. 15 percent of multifamily properties and 20 percent of all franchised overnight lodging
New Mexico	By 2030: 70 percent LDV, 40 percent MDV/HDV By 2040: 100 percent MDV/HDV By 2045: 100 percent LDV	By 2024: National Electric Vehicle Infrastructure (NEVI)-compliant EV charging along Interstate corridors
New York	By 2025: 850,000 By 2035: All new passenger vehicles	By 2025: Infrastructure consistent with ZEV Action Plan
Oregon	By 2025: 250,000 By 2030: At least half of new vehicles sold By 2035: At least 90 percent of new vehicles	By 2025: Infrastructure consistent with ZEV Action Plan
Rhode Island	By 2025: 43,000 By 2035: 100 percent of new vehicles	By 2025: Infrastructure consistent with ZEV Action Plan By 2030: DCFC under 50 miles apart, within 1 mile of federally-designated AFC
Texas	By 2028, 1,000,000	No specific targets
Vermont	By 2025: 27,000 By 2030: 126,000	By 2025: Infrastructure consistent with ZEV Action Plan

Sources: See Appendix.

Upfront and Ongoing Incentives

Upfront EVSE incentives involve payments or credits at the time of charger purchase and/or installation, such as rebates or grants, while ongoing incentives entail monthly or annual payments to EV charger owners. All but one state reviewed (Maine) offers some type of upfront EVSE incentive as part of a state-run program or utility program—rebates are the most common type of upfront incentive, where rebates are offered as dollar amounts or percentage of costs (see Table 3). Nearly all upfront incentives for EV chargers differentiate by charger and customer type (i.e., different rebates for residential versus commercial customers for Level 2 or DCFC charging ports). Ongoing incentives for EV chargers are much less common across the states AEC reviewed (see Table 5). Some examples of upfront and ongoing EV charger incentives include:

- In Massachusetts, the Massachusetts Electric Vehicle Incentive Program (MassEVIP) offers the following incentives for Level 1 or Level 2 chargers: up to 60 percent of costs (up to a maximum of $50,000 per street address) for multi-unit dwellings and educational campuses,[17] up to 80 percent of costs (up to a maximum of $50,000 per street address) for property owners or managers with publicly accessible parking,[18] and up to 60 percent of costs (up to a maximum of $50,000 per street address) for workplaces.[19]
- In Maryland, various utilities offer customer rebates, including up to $300 for Level 2 chargers for residential customers and up to $20,000 for DCFC chargers at multifamily buildings from Potomac Edison.[20]
- In New York, Con Edison offers an annual incentive to owners of publicly accessible DCFC EVSE infrastructure with a minimum output of 50 kW.[21]
- In California, the Property Assessed Clean Energy (PACE) Loss Reserve Program financing allows residential or commercial property owners to finance the up-front cost to install EV charging stations.[22]

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[17] Massachusetts Department of Environmental Protection. No date. "Apply for MassEVIP Multi-Unit Dwelling & Educational Campus Charging Incentives." Commonwealth of Massachusetts. Available at: https://www.mass.gov/how-to/apply-for-massevip-multi-unit-dwelling-educational-campus-charging-incentives.

[18] Massachusetts Department of Environmental Protection. No date. "Apply for MassEVIP Public Access Charging Incentives." Commonwealth of Massachusetts. Available at: https://www.mass.gov/how-to/apply-for-massevip-public-access-charging-incentives.

[19] Massachusetts Department of Environmental Protection. No date. "Apply for MassEVIP Workplace & Fleet Charging Incentives." Commonwealth of Massachusetts. Available at: https://www.mass.gov/how-to/apply-for-massevip-workplace-fleet-charging-incentives.

[20] 1) Potomac Edison. No date. "EV Driven Program." Available at: https://www.evdrivenpe.com/evdriven/#about-program 2) Potomac Edison. No date. "EV Driven Program." Available at: https://www.evdrivenpe.com/multifamily/#about-program.

[21] Con Edison. May 1, 2022. "Electric Vehicle Fast Charging Per-Plug Incentive." Available at: https://www.coned.com/en/our-energy-future/technology-innovation/electric-vehicles/electric-vehicle-fast-charging-per-plug-incentive.

[22] U.S. Office of State and Community Energy Programs. No date. "Property Assessed Clean Energy Programs." U.S. Department of Energy. Available at: https://www.energy.gov/scep/slsc/property-assessed-clean-energy-programs.

Table 3. Upfront incentives for the purchase and installation of EV charging stations

State	Upfront incentives
California	-PG&E: customer incentives include rebates for qualifying customers (incl. school facilities and multifamily housing) and no-cost EVSE at public parks/beaches -Funding from CA EV Infrastructure Project is distributed as rebates for Level 2 and DCFC EVSE at new, replacement, or make-ready sites statewide -PACE Loss Reserve Program financing offers loans for EVSE installations for property owners -Santa Barbara County Air Pollution Control District, Sonoma Clean Power, and SDG&E offer customer grants covering up to 100 percent of project costs for EVSE -Various other grant opportunities exist mostly among municipal utilities (e.g., Pasadena Water and Power, Los Angeles Department of Water and Power, etc).
Connecticut	**-All utilities: residential rebate up to $500** **-All utilities: Multifamily/Public/Workplace/DCFC rebate up to 50 percent of costs** **-Eversource: residential rebate up to $1,000, commercial rebate up to 50 percent** **-Groton Utilities: $600 rebate** **-Norwich Public Utilities: $1,000 residential rebate, commercial rebate up to $4,000**
Maine	-[Ended August 2022] Efficiency Maine: $350 government and non-profit entities rebate
Maryland	-Potomac Edison: $300 residential rebate, multifamily DCFC rebate up to $20,000, multifamily Level 2 rebate up to 50 percent of purchase/lease cost -Baltimore Gas and Electric: Up to $5,000 rebate, commercial DCFC rebate up to $15,000 -Delmarva Power and Pepco: $300 residential rebate, multifamily rebate up to $15,000 -Multiple utilities: 50 percent residential rebate through Plug-in Vehicle Managed Charger program
Massachusetts	-MA EV Incentive Program: multifamily, educational campus, and workplace rebate up to $50,000 -Public Access Charging Program: non-residential rebate up to $50,000 -Braintree Electric Light Department: $250 rebate
Michigan	-MI Department of Environment, Great Lakes, and Energy: DCFC installation grants up to 33.3% of total project cost, max $70,000 -DTE Energy: $500 residential rebate for EV purchase/lease and enrollment in EV TOU rates -Consumers Energy: Commercial rebates up to $7,500 for Level 2 and $70,000 for public access DCFC -Cherryland Electric Cooperative: $1,000 commercial customer rebate
Minnesota	-MN Pollution Control Agency: $7,000 electric school bus EVSE rebate -Most utilities: EVSE installation rebate of $400-$2,000

Table 4 (cont.). Upfront incentives for the purchase and installation of EV charging stations

State	Upfront incentives
Nevada	-All utilities: authorized to offer public school districts grants up to 75 percent of EVSE installation cost or purchase cost of all-electric school buses -Nevada Energy: residential rebates up to $500, commercial rebates of $3,000-$10,000 per port, up to 100 percent of project cost
New Jersey	-PSE&G: Residential rebates up to $1,500, commercial rebates $7,500-$30,000 per site, public DCFC rebates $25,000-$100,000 per site -Jersey Central Power & Light: Commercial rebates $5,000-$6,500 up to 50% of eligible costs, DCFC rebates up to $25,000 -Atlantic City Electric (ACE): $1,000-$5,000 Level 2 rebates, $60,000 DCFC -Jersey Central Power & Light: residential rebates up to $5,500 -NJ Department of Environmental Protection: rebates from $750-$4,000
New Mexico	-El Paso Electric (EPE): $500 residential rebates, commercial rebates up to $3,000 for public transit, DCFC rebates up to $104,000 -Xcel Energy: residential rebate up to $500
New York	-NYSERDA: public, workplace and multifamily rebate up to $4,000 -NYSDEC: municipal EVSE rebate up to $500,000 rebate -PSEG: $400 rebate -Central Hudson: public DCFC per plug incentive -NGrid: DCFC per plug incentive in upstate NY -NYSEG: DCFC per plug incentive
Oregon	-Eugene Water and Electric Board: residential rebate up to $500, commercial rebate up to $1,500, multifamily rebate up to $2,000 for multifamily, DCFC rebate up to $15,000 -Central Lincoln: $250 residential and commercial rebate -Portland General Electric: $500 residential rebate -Consumers Power: $200 rebate -Pacific Power: $500 residential rebate, $1,000 commercial rebate, $3,000 multifamily rebate, non-residential EVSE grants
Rhode Island	-Rhode Island Energy: commercial rebates up to 100 percent of installation costs at workplaces, businesses, multi-unit dwellings, universities, and medical campuses
Texas	-Austin Energy: commercial rebates for 50 percent of installation cost at workplaces and multi-unit dwellings up to $4,000 (up to $10,000 for DCFC), residential rebates for 50 percent of installation cost up to $1,200 -SWEPCO: $250 residential rebate -UCS: residential rebate for 50 percent of installation cost up to $500
Vermont	-GMP: free Level 2 EVSE for residential customers who purchase a plug-in EV and enroll in the Home Charging program

Sources: See Appendix.

Table 5. Ongoing incentives

State	Ongoing incentives
California	-Glendale Water and Power: EV Charging Rate offers monthly off-peak charging incentive of $8
Connecticut	**-None**
Maine	-None
Maryland	-Baltimore Gas and Electric: $50 annually for Level 2 charger for residential
Massachusetts	-Braintree Electric Light Department offers $8 per month for off-peak charging -Eversource offers residential customers who charge off-peak up to $50 rebate for enrolling in their program and $20 annually
Michigan	-Consumers Energy offers residential customers a $10 monthly incentive for charging EVs overnight with a Level 2 charger
Minnesota	-None
Nevada	-None
New Jersey	-None
New Mexico	-Xcel Energy: annual $50 credit for off-peak charging and provides residential customers with a Level 2 station for a flat monthly fee
New York	-ConEd: annual incentive for public DCFC
Oregon	-None
Rhode Island	-None
Texas	-None
Vermont	-None

Sources: See Appendix.

Alternate Rate Structures

The use of demand charges—charges on electric customers' bills based on the maximum power used by the customer during any 15-, 30-, or 60-minute interval in each billing period—in conventional rate structures creates formidable obstacles to EVSE deployment, due to the substantial power requirements of EV charging stations. Consequently, some state utility companies modify their rate structures to mitigate

or altogether eliminate demand charges for EVSE operators to facilitate increased EVSE installation. Alternate rate structures can take a variety of forms across jurisdictions, such as demand charge modifications, special EV charging rates, off-peak rates, or EV charging bill discounts. Nine of the fifteen states AEC reviewed do not offer any kind of alternate rate structures as part of their EV charging programs, but six—including Connecticut—do. For example:

- In Massachusetts, some utilities convert per-kW demand-based rates to per-kWh energy-based rates on a sliding scale based on customer load factor.[23]
- In Texas, CPS Energy charges a flat monthly rate of $15 for EV charging customers.[24]
- In Rhode Island, National Grid offers new or existing owners/operators of publicly available DCFC charging stations a discount on their electric bill.[25]
- In California, some utilities are piloting a specialized vehicle-to-grid rate plan for commercial EV charging customers that offers upfront incentives to offset EV fleet costs and pays EV fleet owners to export power back to the grid during peak energy times.[26]

[23] Massachusetts D.P.U. Order 20-69-A. Available at: https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/16827694.
[24] CPS Energy. No date. "Electric Vehicles." Available at: https://www.cpsenergy.com/content/corporate/en/about-us/programs-services/electric-vehicles.html.
[25] Rhode Island Office of Energy Resources. 2023. "Electric Vehicles." Available at: https://energy.ri.gov/transportation/electric-vehicles.
[26] Public Utilities Commission of the State of California. May 6, 2022. *Resolution E-5192.* Available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M474/K369/474369017.PDF.

Table 6. Alternate rate structures

State	Alternative rate structures for EVSE
California	-Utilities piloting a vehicle-to-grid rate plan for commercial EV charging customers with upfront incentives to offset EV fleet costs and pay EV fleet owners to export power back to the grid during peak demand -Electric Vehicle (EV) Charging Rate Incentive - Charging rate reduction of $0.05 per kWh offered by multiple utilities
Connecticut	**-Eversource: voluntary rate program for public, separately metered Level 2 or DCFC stations**
Maine	-None
Maryland	-Potomac Edison began an Off-Peak Rewards program in July 2022, offering EV owners 2 cents per kWh for net off-peak charging usage
Massachusetts	-Some utilities scale per-kW demand charges based on customer load and some utilize increased per-kWh rates instead of per-kW demand charges
Michigan	-None
Minnesota	-None
Nevada	-None
New Jersey	-None
New Mexico	-None
New York	-Central Hudson commercial customers may receive annual incentives to offset demand charge costs of hosting DCFC stations
Oregon	-None
Rhode Island	-National Grid offers new or existing owners/operators of DCFC stations a discount on their electric bill
Texas	-CPS Energy charges a flat monthly rate of $15 for EV charging customers -CPS offers residential customers that own a EV a flat electricity rate of $96 annually per EV
Vermont	-None

Sources: See Appendix.

Make-Ready Programs

With "make-ready" EVSE programs utility companies cover some or all of the upfront costs associated with installing and/or maintaining electrical infrastructure for EV charging stations. A make-ready EVSE program is designed with the goal of reducing upfront barriers to EVSE deployment, in order to facilitate expansion of charging networks.[27] Across the fifteen U.S. states AEC reviewed, six do not offer any make-ready programs for EV charging, while nine do. Of the nine states reviewed that do offer make-ready programs, the most common type of make-ready program is one that covers make-ready costs up to a certain percentage of total costs. For example:

- In Massachusetts, Eversource and National Grid cover up to 100 percent of the make-ready costs for Level 2 or DCFC installations at workplaces and multifamily dwellings.[28]
- In New York, PSEG Long Island offers a lease-to-buy model, with discounted leases on make-ready infrastructure (as opposed to upfront rebates to customers).[29]
- In Nevada, NV Energy customers must cover upfront customer-side project costs, with the utility offering a full reimbursement to the customer to be paid in installments over a specified term.[30]

[27] Joint Utilities of New York. No date. "EV Make-Ready Program." Available at: https://jointutilitiesofny.org/ev/make-ready.

[28] 1) National Grid. No date. "Electric Vehicle Charging Station Programs." Available at: https://www.nationalgridus.com/Upstate-NY-Business/Energy-Saving-Programs/Electric-Vehicle-Charging-Station-Program; 2) Eversource. No date. "Charging Stations." Available at: https://www.eversource.com/content/ema-c/residential/save-money-energy/clean-energy-options/electric-vehicles/charging-stations.

[29] PSEG Long Island. 2022. *EV Make-Ready Program Implementation Plan, revision for Phase 2*. Available at: https://www.psegliny.com/saveenergyandmoney/greenenergy/ev/-/media/33E840B825A94B45838B8E60C940592F.ashx.

[30] NV Energy. 2022. *Ownership Model Options: NV Energy Economic Recovery Transportation Electrification Plan*. Available at: https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/cleanenergy/ertep/ERTEP-Ownership-Model-Responsibility-Overview.pdf.

Table 7. Make-ready programs

State	Make ready incentives
California	-PG&E will cover the make ready costs for publicly available DCFC charging sites -Southern California Edison Company: Up to 50 percent for multifamily installations and up to 25 percent for non-residential -The California Electric Vehicle Infrastructure Project (CALeVIP) provides funding for make-ready rebates up to 75-80 percent of project costs
Connecticut	**-Across all utilities: Multifamily/Public/Workplace: Up to 100 percent of costs up to $20,000, up to $40,000 in underserved community** **-DCFC: Up to 100 percent of costs up to $150,000, up to $250,000 in underserved communities** **-Eversource: Up to 100 percent of make-ready installation costs for Level 2 or DCFC for commercial customers**
Maine	-None
Maryland	-Delmarva Power and Pepco and Southern Maryland: Install and operate Level 2 or DCFC station on government property -Maryland statutes require builders to provide buyers with make-ready options and information
Massachusetts	- Ngrid and Eversource: Up to 100 percent for Level 2 or DCFC for businesses, multifamily and workplaces
Michigan	-Upper Peninsula Power: Public funding for customers to reduce EV charging installation costs
Minnesota	-None
Nevada	-NV Energy: customers must cover upfront customer-side project costs, with the utility offering a full reimbursement to the customer to be paid in installments over a specified term
New Jersey	-New Jersey statutes mandate multifamily developments must designate 15 percent of off-street parking as EV make-ready parking, all non-residential developments must also meet make-ready EV parking requirements (scaled for number of total parking spaces) -Jersey Central Power & Light: offers make-ready incentives including rebates of up to $5,500 for Level 2 for residential customers and up to 50 percent of costs for commercial Level 2 or DCFC - Atlantic City Electric offers make-ready incentives for customers, ranging from 50 percent of total costs for residential Level 2 to 90 percent of costs for Public DCFC
New Mexico	-New Mexico statutes establish tax credits up to $1,500 for commercial buildings for the purchase and installation of make-ready infrastructure, or up to $3,000 for affordable housing buildings
New York	-State Make-Ready Program authorizes NY utilities to offer up to 90-100 percent for public charging stations, and up to 50 percent for non-public installations - Central Hudson: funding support for Level 2 or DCFC stations, up to 90 percent of costs -New York State Electric and Gas and Rochester Gas and Electric: funding support for Level 2 or DCFC stations for business and municipal customers, up to 100 percent of costs -PSEG Long Island offers a lease-to-buy model, with discounted leases on make-ready infrastructure
Oregon	-None
Rhode Island	-None
Texas	-None
Vermont	-None

Sources: See Appendix.

Managed Charging

Managed charging for EVs refers to mechanisms by which utility companies either nudge (passive managed charging) or override (active managed charging) EV customers' charging behavior in order to minimize burdens on the electric grid during peak use times. Passive managed charging (or behavioral load control) includes price signals such as time-of-use (TOU) rates or rebates for off-peak charging to influence customer behavior away from using charging infrastructure during peak times. Under a passive managed charging system, utilities rely on customers to choose to charge their EVs during the utility's designated off-peak hours and avoid charging during designated peak times.[31] In contrast, active managed charging—also called direct load control—grants utilities the ability to directly control when customers charge.[32] Utilities can exert direct load control either in a limited number of scheduled events over a given time period or on a continuous basis in response to grid conditions.[33] In exchange for their participation in active managed charging programs, customers receive direct incentive payments from utilities.

Most states AEC reviewed offer TOU rates, annual payments for off-peak charging, or discounted electric rates for off-peak charging. For example:

- In Massachusetts, Eversource offers residential customers a $20 annual rebate for charging their EVs during off-peak hours.[34]
- In Vermont, Green Mountain Power offers a separate managed charging rate to residential EV customers who agree to participate in the utility's direct load control program.[35]
- In Oregon, Portland General Electric offers a TOU rate for residential EV customers that includes rates for on-peak, off-peak, and mid-peak where "peak" times are defined for summer and winter seasons.[36]

[31] Blair, B., et al. 2021. *The State of Managed Charging in 2021*. Smart Electric Power Alliance (SEPA). Available at: https://sepapower.org/resource/the-state-of-managed-charging-in-2021/. p.13
[32] Ibid. p.12.
[33] Ibid. p.47.
[34] Eversource. No date. "EV Home Charger Demand Response." Available at: https://www.eversource.com/content/wma/residential/save-money-energy/clean-energy-options/electric-vehicles/ev-charger-demand-response.
[35] Green Mountain Power. 2022. "NEW! EV Charging Rates." Available at: https://greenmountainpower.com/rebates-programs/electric-vehicles/ev-charging-rates/.
[36] Portland General Electric. No date. "Time of Use Pricing." Available at: https://portlandgeneral.com/about/info/pricing-plans/time-of-use/time-of-use-pricing-home.

Table 8. Managed charging

State	Managed charging	TOU rates
California	-Southern California Edison, Alameda Municipal Power, Azusa Light & Water, Burbank Water and Power, Sacramento Municipal Utility District, Bear Valley Electric Service all offer discounted rates for residential customers for electricity used to charge EVs	-PG&E: TOU rate for residential customers -SDG&E: Three TOU rates for EV customers -Liberty Utilities: TOU rates for residential and commercial EV customers -MCE: TOU rates for residential, multi-unit dwelling, and workplace customers for charging EVs -Azusa Light & Water: TOU rate for residential customers - Bear Valley Electric Service: Three EV TOU rates to customers enrolled in the Transportation Electrification Pilot Program
Connecticut	**-Residential: Opt-in demand response program pays up to $200 per year per participant; direct load control incentive levels set by utilities (Eversource: $300 incentive first 2 years, $200 afterward; UI: $200 per year for 3 years)**	**-No, but open docket 17-12-03RE02 addresses potential uses for Advanced Metering Infrastructure, including TOU rates**
Maine	-None	-None
Maryland	-None	-Baltimore Gas and Electric ran a TOU pilot program that ended in April 2022
Massachusetts	-Eversource: $20 annual rebates for off-peak residential EV charging -Braintree Electric Light Department: $8 per month for off-peak EV charging	-No, but public utilities must submit EV TOU rate proposals by August 11, 2023 to the Massachusetts Department of Public Utilities (DPU)
Michigan	-None	-Indiana Michigan Power, Holland Board of Public Works and Lansing Board of Water and Light: TOU rate for residential customers with qualified EV -DTE: TOU rate to residential customers who charge overnight
Minnesota	-None	-Most utilities: TOU rate for residential customers with an EV
Nevada	-None	-NV Energy: TOU rate to residential and commercial customers who own or lease EVs
New Jersey	-None	-None

Table 9 (cont.). Managed charging

State	Managed charging	TOU rates
New Mexico	-None	-El Paso Electric: TOU rate for commercial and residential customers that own or lease EVs (eligible customers must be able to separately meter electricity used for EV charging)
New York	-ConEd: Up to $800 annually by charging EV during off-peak hours	-PSEG, ConEd, Orange and Rockland, Central Hudson: Residential TOU rate -Ngrid: TOU rate for upstate NY customers
Oregon	-None	-Portland General Electric: TOU rate for customers with an EV
Rhode Island	-None	-None
Texas	-CPS Energy offers a $250 bill credit to residential customers who own a Level 2 EV charging station and allow CPS Energy to make remote adjustments to their EV charging station when electricity demand is high	-None
Vermont	-Green Mountain Power offers a managed charging EV rate to residential customers	-Green Mountain Power offers a TOU EV rate (off-peak rate $0.13726/kWh vs. peak rate of $0.18305/kWh)

Sources: See Appendix.

Program Design

EV charging program designs vary: Some programs are administered by state agencies and some by utilities; some EV chargers are owned by customers or the site host and some by the program administrator (usually, a utility). Across the fifteen U.S. states AEC reviewed, utilities administer the majority of EV charging programs and customer ownership of EV chargers is most common, but many states have programs for both customer and utility-owned EV charging. For example:

- In Maine, EV chargers are owned by customers and EV charging programs are administered by a quasi-state agency, the Efficiency Maine Trust.[37]
- The Michigan Department of Environment, Great Lakes, and Energy (EGLE) provides funding to support customer-owned installation of DCFC charging stations, including make-ready costs, for public or private organizations that can host publicly available charging stations.[38]

[37] 1) U.S. Department of Energy. No date. "Electricity Laws and Incentives in Maine". Alternative Fuels Data Center. Available at: https://afdc.energy.gov/fuels/laws/ELEC?state=me; 2) State of Maine Governor's Energy Office. 2020. "Energy Efficiency." Available at: https://www.maine.gov/energy/initiatives/energy-efficiency.

[38] Michigan Department of Environment, Great Lakes, and Energy. 2023. "Charge Up Michigan Program." Available at: https://www.michigan.gov/egle/about/organization/Materials-Management/energy/rfps-loans/charge-up-michigan-program.

- In Minnesota, Xcel Energy is running a pilot program to install EV charging in existing or new multifamily buildings. The EV chargers can be owned by the customer or be provided and owned by Xcel Energy. Services offered under the pilot include "design, construction, and ongoing maintenance of infrastructure (transformer upgrade, new meter, necessary wiring), advisory services, and the option to pay a low monthly fee for Xcel Energy-provided charging equipment."[39]

[39] Xcel Energy. December 2021. "Xcel Energy launches electric vehicle charging pilot for multifamily buildings." Available at: https://mn.my.xcelenergy.com/s/about/newsroom/press-release/xcel-energy-launches-electric-vehicle-charging-pilot-for-multifamily-buildings-MCEUEAQGPBYNECZBH5OTYI6I4BP4.

Table 10. Program design

State	Who owns chargers	Program administrator
California	-PG&E and SDG&E: Utility-owned, with customer-ownership options -Otherwise, mostly customer-owned	-Utilities and state
Connecticut	**-All: Customer-owned** **-Multifamily: Leasing model option available (5-year lease term)**	**-Utilities only**
Maine	-Customer-owned	-State only
Maryland	-Customer-owned for residential and commercial, utility-owned for government properties	-Utilities only
Massachusetts	-Customer-owned	-Mostly state, some utilities
Michigan	-Customer-owned, with leasing options available	-Utilities and state
Minnesota	-Customer-owned, with leasing options available	-Utilities and state
Nevada	-Customer-owned	-Utilities only
New Jersey	-JCP&L: Customer-owned	-Utilities and state
New Mexico	-Customer-owned, with leasing options available	-Utilities and state
New York	-Customer-owned	-Utilities and state
Oregon	-Customer-owned	-Utilities only
Rhode Island	-Customer-owned	-Utilities and state
Texas	-Customer-owned	-Utilities and state
Vermont	-Utility-owned	-Utilities only

Source: U.S. Department of Energy. No date. "Electricity Laws and Incentives". Alternative Fuels Data Center. Available at: https://afdc.energy.gov/fuels/laws/ELEC.

Targeting Underserved Communities

Many of the EV charging programs in the fifteen states AEC reviewed make explicit mention of the importance of an equitable distribution of EVSE deployment and include specific provisions that aim to achieve equity goals by targeting underserved, disadvantaged and/or environmental justice communities. Although a majority of the programs AEC reviewed include specific provisions for underserved communities, none offered any provisions targeted toward renter populations; approximately one-fifth included income eligibility provisions. (California law stipulates the right of renters to install EV charging stations at their own cost[40] and Portland City Council in Oregon is considering a proposal to require new multi-family housing to include EV-ready charging infrastructure.[41]) The absence of incentives and assistance geared specifically toward renters has the potential to expand and cement existing disparities in EV uptake between renting populations and property owners.

Examples of program provisions specific to underserved and/or low-income populations include:

- In New Mexico, pursuant to Statute 62-8-12, public utilities must file an application to the Public Regulation Commission to expand transportation electrification, including increasing access to electric vehicles and infrastructure in underserved communities.[42] In addition, El Paso Energy offers a $2,300 rebate for low-income customers to buy and install a qualified Level 2 EV charger.[43]
- In New Jersey, the Electric School Bus grant program for electric school buses and charging infrastructure mandates that at least half of program participants and grant funding must be located in "low-income, urban, or environmental justice" communities.[44]
- In Oregon, Portland General Electric offers income-eligible EV charging rebates.[45]

[40] California Legislative Information. 2019. Civil Code § 1947.6. Available at: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=1947.6.&lawCode=CIV.
[41] City of Portland, Oregon. 2023. "About the Electric Vehicle (EV) Ready Code Project." Available at: https://www.portland.gov/bps/planning/ev-ready/about.
[42] New Mexico Statutes 62-8-12. "Applications to expand transportation electrification." https://nmonesource.com/nmos/nmsa/en/item/4407/index.do#!fragment/zoupio-_Toc123460304/BQCwhgziBcwMYgK4DsDWszIQewE4BUBTADwBdoAvbRABwEtsBaAfX2zgEYAmAZgBYAbAAYeQvgEoANMmylCEAIqJCuAJ7QA5BskRCYXAiUr1WnXoMgAynlIAhdQCUAogBknANQCCAOQDCTyVIwACNoUnZxcSA.
[43] NM DOT. July 13, 2022. New Mexico EV Infrastructure Deployment Plan. Available at: https://www.nmlegis.gov/handouts/TIRS%20100322%20Item%201%20DOT%20NM%20EV%20Infrastructure%20Deployment%20Plan%20220713.pdf.
[44] New Jersey Office of Legislative Services. May 12, 2022. Bill A1282. Available at: https://www.njleg.state.nj.us/bill-search/2022/A1282/bill-text?f=A1500&n=1282_S1.
[45] Portland General. No date. "Charging Your Electric Vehicle at Home." Available at: https://portlandgeneral.com/energy-choices/electric-vehicles-charging/charging-your-ev/charging-your-ev-at-home.

Table 11. Equity provisions

State	Renter-focused provisions	Income eligibility requirements	Underserved community provisions
California	-None	-PG&E: Up to $2,500 for income-eligible households to cover panel upgrades and/or Level 2 charger - Low-income communities are given priority for the Santa Barbara County Air Pollution Control District charging station grants	-PG&E: Rebates are larger when EVSE's are operated in disadvantaged communities. PG&E allocates shares of rebates that must go to disadvantaged communities. PG&E's make-ready program includes rebates for charging stations to be located in disadvantaged communities -SDG&E: 50 percent of multifamily EVSE installation sites will be in underserved communities - Southern California Edison Company: Up to 100 percent for make ready costs in disadvantaged communities (includes Level 1, 2, and DCFC) -Many utilities offer higher rebates in disadvantaged communities
Connecticut	**-None**	**-"Underserved community" defined as a Census block group with at least 30 percent of population below 200 percent federal poverty level**	**-Across all utilities: -Multifamily/Public/Workplace: Maximum make-ready incentive increases to $40,000 -DCFC: Maximum make-ready incentive increases to $250,000**
Maine	-None	-None	-None
Maryland	-None	-None	-None
Massachusetts	-None	-None	-MassDOT's (EV) Infrastructure Deployment Plan identified and prioritized environmental justice (EJ) communities to recommend them for new DCFC infrastructure
Michigan	-None	-None	-None
Minnesota	-None	-None	-None
Nevada	-None	-None	-Low-income multifamily customers are eligible for increased rebates

Table 12 (cont.). Equity provisions

State	Renter-focused provisions	Income eligibility requirements	Underserved community provisions
New Jersey	-None	-At least half of program participants and grant funding must be located in low-income communities	-Multifamily customers in overburdened communities are eligible for an increased rebate
New Mexico	-None	-EPE offers a $2,300 rebate for low-income customers to purchase and install a qualified Level 2 EV charging station	-El Paso Electric: $2,300 rebate for low-income customers to for Level 2 -Xcel Energy: Income-eligible applicants may receive a rebate of up to $2,500 for Level 2
New York	-None	-None	-Utilities cover up to 100 percent for public charging stations in disadvantaged communities and up to 90 percent outside of disadvantaged communities -Central Hudson, New York State Electric and Gas, and Rochester Gas and Electric: additional make-ready funding is available for projects located within disadvantaged communities
Oregon	-None	-None	-Portland General Electric: Customers that earn up to 80% of median income for their household are eligible for a $1,000 rebate. -Eugene Water and Electric Board: MultiFamily affordable housing: Up to $2,000 per Level 2
Rhode Island	-None	-None	-None
Texas	-None	-None	-None
Vermont	-None	-None	-None

Sources: See Appendix.

IV. Conclusions and Recommendations

In keeping with the EV and EVSE deployment goals established by the ten-state ZEV MOU, Connecticut's utility-run EV charging programs present a diverse suite of customer offerings including upfront incentives, make-ready programs, and opt-in demand charging programs tailored toward residential single- and multi-family, commercial, and public site owners, creating a multi-pronged approach to the facilitation of EV expansion across customer categories. Furthermore, as in other jurisdictions, Connecticut's incentive adders for customers in underserved communities offer an opportunity to enhance the equity benefits of EV deployment in the State.

Connecticut's EV charging programs share many aspects in common with EV charging programs across fourteen other states:

- Connecticut has specific, detailed EV[46] and EVSE deployment[47] targets;
- Connecticut utilities offer upfront rebate incentives for Level 2 and DCFC EV chargers for residential, commercial, multifamily and workplace customers;[48]
- Connecticut is currently in the process of developing time-of-use rates to incentivize EV charging during off-peak periods; and[49]
- EV charging programs are administered by utilities and allow for customer or utility-owned charging stations (including leasing options).[50]

Across the fifteen states AEC reviewed, Connecticut's EV charging programs stand out as a leader in terms of:

- Connecticut has specific, detailed EVSE deployment targets that are broken down by charging station type and by year;[51]
- In Connecticut, Eversource offers alternative rate structures to incentivize public EV charging stations;[52]
- Connecticut utilities offer make-ready incentives up to 100 percent of total costs;[53] and

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[46] PURA Docket 17-12-03RE04, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles.* Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/eb6c28c81c508b208525875200799494/$FILE/171203RE04-071421.pdf. Page 4.

[47] PURA Docket 17-12-03RE04, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles.* Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/eb6c28c81c508b208525875200799494/$FILE/171203RE04-071421.pdf. Table 3.

[48] U.S. Department of Energy. No date. "Electricity Laws and Incentives in Connecticut". Alternative Fuels Data Center. Available at: https://afdc.energy.gov/fuels/laws/ELEC?state=ct.

[49] Connecticut Department of Energy and Environmental Protection. Public Utilities Regulatory Authority. Docket 17-12-03RE02. Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/(Web+Main+View/All+Dockets)?OpenView&StartKey=17-12-03RE02.

[50] Connecticut Public Utilities Regulatory Authority. July 14, 2021. Docket No. 17-12-03RE04. PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles. Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/eb6c28c81c508b208525875200799494/$FILE/171203RE04-071421.pdf.

[51] PURA Docket 17-12-03RE04, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Zero Emission Vehicles.* Available at: https://www.dpuc.state.ct.us/2nddockcurr.nsf/8e6fc37a54110e3e852576190052b64d/eb6c28c81c508b208525875200799494/$FILE/171203RE04-071421.pdf. Table 3.

[52] Eversource. 2021. "Electric Vehicle Rate Program." Available at: https://www.eversource.com/content/ct-c/business/account-billing/billing-payments/about-your-bill/rates-tariffs/electric-vehicle-rate-program.

[53] U.S. Department of Energy. No date. "Electricity Laws and Incentives in Connecticut". Alternative Fuels Data Center. Available at: https://afdc.energy.gov/fuels/laws/ELEC?state=ct.

- Connecticut utilities offer enhanced incentives for underserved communities, where the definition of "underserved community" includes low-income populations.[54]

While Connecticut's EV charging programs offer a reasonably comprehensive set of incentives across all sectors of the EV market, the programs could be further improved with greater equity-focused provisions to expand the scope and accessibility of vehicle electrification in the State. Currently, Connecticut's EV charging program does not specifically target renter populations, lacks concrete numerical or location-specific goals for the deployment of EVs themselves, and fails to consider the possibilities and benefits of public transit electrification. Another key limitation in Connecticut's EV charging program is the program administration structure, which relies entirely on utility companies to administer their own programs. State government funding could be utilized to support an equitable EV deployment process. Accordingly, Connecticut could strengthen its EV charging programs by adopting best practices from other states and trailblazing new practices, including:

- Setting a goal for all or nearly all of new vehicle sales to be zero emission vehicles, as in California, New York and Oregon;
- Establishing goals to deploy EVSE infrastructure (that includes universal EV charging plugs) in specific locations[55] so as to ensure their broad distribution and availability, as in Nevada[56] and New Jersey;[57]
- Offering ongoing incentives for EV charging like annual and/or monthly payments for EV charging as in California, Maryland, Massachusetts, Michigan and New York;[58]
- Including grants, loans, and other equity provisions provided and administered directly by the state government as in various other jurisdictions including California, New York, and Massachusetts;
- Including an increased and explicit focus on public transportation electrification in addition to personal vehicle electrification; and
- Going above any beyond any other state reviewed by being the first to offer renter-focused provisions in its EV charging programs.

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[54] 1) Connecticut DOE. April 22, 2022. 2020 EV Roadmap for Connecticut. Available at: https://portal.ct.gov/-/media/DEEP/air/mobile/EVConnecticut/2020-04-22---EV-Roadmap-for-Connecticut---FINAL.pdf; 2) State of Connecticut. July 14, 2021. Pura Investigation Into Distribution System Planning Of The Electric Distribution Companies – Zero Emission Vehicles. Docket No. 17-12-03RE04. Available at: https://portal.ct.gov/-/media/PURA/electric/Final-Decision-Docket-No-17-12-03RE04.pdf.

[55] Note: In her direct testimony in Docket No. 22-08-08, AEC's Dr. Elizabeth A. Stanton addresses The United Illumating Company's Charging Hub Initiative and the types of chargers being deployed in Connecticut and elsewhere in the United States (including Tesla and universal plugs).

[56] RI DOT. July 29, 2022. Rhode Island Electric Vehicle Infrastructure Deployment State Plan. Available at: https://www.dot.ri.gov/projects/EVCharging/docs/Rhode%20Island%20Electric%20Vehicle%20Infrastructure%20Deployment%20State%20Plan_FINAL.pdf.

[57] U.S. Department of Energy. No date. "Electricity Laws and Incentives in New Jersey". Alternative Fuels Data Center. Available at: https://afdc.energy.gov/fuels/laws/ELEC?state=nj.

[58] U.S. Department of Energy. No date. "Electricity Laws and Incentives". Alternative Fuels Data Center. Available at: https://afdc.energy.gov/fuels/laws/ELEC.

Connecticut has one of the most robust EV charging programs among those reviewed in this white paper and is well-positioned to provide net benefits to consumers and meet the state's EV and EVSE deployment goals. Connecticut could learn from other EV charging programs by setting more ambitious EV and EV charging deployment goals, working to target EV charging in an equitable a fashion as possible, and by offering ongoing incentives that amplify the impact of upfront incentives to facilitate EV charging deployment.

Appendix: Table Sources

Sources for Table 2

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