

Rate Base the Charge Space: The Law of Utility EV Infrastructure Investment

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To fight climate change and support the transition to a zero-emissions transportation sector, the United States is setting out to build a huge fleet of electric vehicle (EV) charging stations. But EV charging infrastructure—often called EV supply equipment (EVSE)—is expensive, and how to pay for it is not straightforward. This Article explores the emerging law and policy of using the bill payments of millions of electric utility customers to solve the problem. State utility regulators, in obscure technical proceedings, have begun directing billions of ratepayer dollars toward EVSE. Is this an unfair and risky social spending experiment, as its opponents argue? Or is it a sensible economic investment that will save ratepayers money, even while responding strategically to shifting market conditions, supporting domestic manufacturing, and achieving environmental goals, as its proponents contend? State regulators, one by one, have been reaching the same conclusion: The environmental, energy, and economic policy considerations are aligned, and the ratepayer funding approach makes sense, provided appropriate ratepayer protections are in place. To shine a light on these developments, this Article presents the findings of a fifty-state (plus D.C. and Puerto Rico) review of regulatory proceedings, revealing the full extent of authorized utility spending, the wide variety of EVSE investment program elements, the broad range of reasoning that regulators have found persuasive, and the protections that regulators have put in place to ensure ratepayer benefit. The Article demonstrates that support for utility EV infrastructure spending is not the sole province of states with progressive climate politics; that new federal funding is augmenting, but not displacing, utility investment; and that public utilities commissions have concluded that

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utility EV infrastructure investment can provide benefits that may not be provided by the private or public sectors.

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I. INTRODUCTION

Should we socialize the costs of building electric vehicle (EV)¹ charging infrastructure? If so, should we do it with public funds? Or what if, instead, we could convince state regulators to fold the costs into everyone's electric bills, almost invisibly? Might that be a small price to pay for the benefits of clean vehicles? Or might it mostly benefit wealthy EV drivers at the expense of everyone else, including those least able to afford it? Wouldn't that be unfair? Or could it, counterintuitively, actually save everyone money on their electric bills in the long run?

For the last ten years, ratepayer advocates, environmental groups, electric utilities, and emerging EV industry stakeholders have debated these questions before state public utility regulatory commissions across the country. Recently, more and more of the regulators have concluded that, if structured correctly, the benefits of ratepayer investment² in "electric vehicle supply equipment" (EVSE)³ will

1. Unless otherwise noted, when this Article uses the term "EV," it means "plug-in electric vehicle" (PEV), meaning vehicles that use electricity from the electric grid as fuel. N.B.: The terminology can be a little confusing. Any vehicle that runs on electricity can be called an "electric vehicle" (EV), but not all EVs are alike. "Hybrid electric vehicles" (HEVs) (for example, the Toyota Prius) "run on" electricity but do not use it as fuel—rather, HEVs burn fossil fuels but then store that energy in batteries, using the batteries, combined with other technologies like regenerative braking, to achieve higher fuel efficiencies. HEVs are distinguished from PEVs, which do use electricity as fuel. But PEVs include both "plug-in hybrid electric vehicles" (PHEVs) and "battery-electric vehicles" (BEVs). PHEVs (for example, the Chevy Volt) work like HEVs but can also charge their batteries with a plug and use all-electric drive for shorter trips, meaning much of their day-to-day driving can be fueled by electricity. On the other hand, BEVs (for example, the Nissan Leaf or Tesla 3) rely entirely on electricity to charge themselves and move. *See generally About Hybrid and Electric Cars*, U.S. DEP'T. OF ENERGY, <https://fueleconomy.gov/feg/evsplash.shtml> [<https://perma.cc/F6MV-7Z25>] (last visited Nov. 15, 2022). But the terminology is not uniform. *See, e.g.*, 26 U.S.C. § 30D (tax credit for "plug-in electric drive motor vehicles"); 42 U.S.C. § 17011(a)(3) (defining "electric transportation technology" to include "battery electric, hybrid electric, [and] plug-in hybrid electric" vehicles).

2. There are many ways to refer to the phenomenon of electric utilities spending money on EV charging infrastructure, and then getting paid for having spent that money in the form of slightly higher electricity bill payments from their customers. This is what is meant by "utility investment in EVSE," "utility cost recovery for EV chargers," "ratepayer spending on EV infrastructure," and so on. For the sake of brevity, the term "utility EVSE investment" is used the most in this Article, but it is important to remember that this phrasing is still intended to encompass utility investment and cost recovery through rates, not utilities investing their own money at their own risk.

3. In this Article, the term "charger" means the physical electrical equipment with the plug coming out of it that connects to the EV, and the term "EVSE" means the charger, plus any wires and other equipment connecting it to the electric grid. "EV charging infrastructure" means the same thing as EVSE. N.B.: This terminology is very common but not technically accurate. Although the distinction is often ignored, technically the "charger" is a piece of equipment that governs the rate of flow of electricity into the battery. Today, that equipment is usually in the

outweigh the costs, for everyone. But others have been less certain, and a few have disagreed. Incorporating this kind of spending into utility rates is a significant departure from traditional utility regulatory practice,⁴ and regulators with very different policy objectives and regulatory priorities have had to contend with the question of what role electric utilities should play in the ongoing transformation of the transportation energy sector. From these many state-level regulatory examinations, a law of ratepayer-funded utility EV infrastructure investment is beginning to emerge.

To fully explore the topic, this Article is divided into four parts. Part I (this Part) introduces the debate over utility investment in EV charging infrastructure and provides essential grounding in the law of utility finance and ratemaking. Part II identifies and examines the state regulatory proceedings that have considered utility EVSE investment proposals, explaining the spectrum of outcomes that has developed, and the reasoning behind the approvals that have been made. Part III considers how these regulatory approvals fit together within wider developments in public and private EV charging finance to give a fuller picture of how much money is being spent on charging infrastructure across the country, allowing for clearer comparisons between states. Part IV, finally, identifies trends and addresses issues that regulators, utilities, and other stakeholders will grapple with in this area going forward.

It is increasingly clear that climate change will require the transportation future to be electric, and that this transition will

EV itself, and the equipment outside the EV—including sensors to detect when the equipment is plugged in correctly, telecommunications equipment to handle billing, a switch to allow the flow of electricity from the grid to the car, a plastic safety cover, etc.—functions only to get electricity safely to the onboard charger. This external equipment can be called the “charging station,” but in technical proceedings it is usually called “electric vehicle supply equipment” (EVSE). To confuse matters further, when it is necessary to discuss distinct EVSE components, sometimes the equipment that plugs into the car is simply called “the charger,” to distinguish it from the other electrical equipment leading up to “the charger.” This terminology is fundamentally ambiguous, but is not likely to change any time soon. See Joe Goreham, *EV Terms: EVSE vs. Charger - What Does Each Term Mean?*, TORQUE NEWS (May 17, 2021), <https://www.torquenews.com/1083/electric-vehicle-terms-evse-vs-charger-what-does-each-term-mean> [https://perma.cc/2YTF-A22Z]. See also *What is EVSE?*, EVCONNECT (Feb. 14, 2022), <https://www.evconnect.com/blog/what-is-evse> [https://perma.cc/A4ZV-RTVW].

4. See generally William Boyd & Ann E. Carlson, *Accidents of Federalism: Ratemaking and Policy Innovation in Public Utility Law*, 63 UCLA L. REV. 810 (2016) (describing creative use of utility regulation to promote environmental policy goals); Alexandra B. Klass, *Public Utilities and Transportation Electrification*, 104 IOWA L. REV. 545 (2018) (reviewing early development of utility EVSE investment policy); Kate Kahlert, *Transportation Electrification: An Examination of the Utility's Role*, 46 MITCHELL HAMLINE L. REV. 91 (2019).

require significant investment in EV charging infrastructure.⁵ The question must then be asked: Who should pay to make that happen?

A. Who Should Pay for EV Chargers?

Current analyses project that there will be millions more EVs on U.S. roads in the next twenty years.⁶ To support this transition, many thousands more EV chargers will need to be built, in homes, in parking lots, at truck stops, on street corners, and everywhere else that cars can go, which will cost many billions of dollars.⁷ One might fairly ask:

5. Decarbonization through electrification is the primary predicted mitigation pathway to achieve globally agreed-upon greenhouse gas reduction targets in the transportation sector. See Keywan Riahi et al., *Chapter 3: Mitigation Pathways Compatible with Long-Term Goals*, in INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2022: MITIGATION OF CLIMATE CHANGE 3-6, 3-61–3-62 (2022); see generally Paulina Jaramillo et al., *Chapter 10: Transport*, *id.*

6. Between 2015 and 2021, EV market share in the United States—meaning the percentage of new cars sold that are powered by electricity—has increased sixfold, from less than 0.75% to almost 5.0%. *EV & Hybrid Sales by State, 2011–2021*, EVADOPTION, <https://evadoption.com/reports/ev-hybrid-sales-by-state-2011-2021/> [<https://perma.cc/3A5Z-GHK7>] (last visited Nov. 15, 2022). Market experts believe that this upward trend will continue and that EV market share of new car sales will reach and perhaps exceed 30% worldwide by 2030. Michael Woodward et al., *Electric Vehicles: Setting a Course for 2030*, DELOITTE INSIGHTS (July 28, 2020), <https://www2.deloitte.com/us/en/insights/focus/future-of-mobility/electric-vehicle-trends-2030.html> [<https://perma.cc/QUH5-DTZN>]. Many automakers have expressed their commitment to this kind of growth in the EV market. See, e.g., *Our Path to an All-Electric Future*, GM, <https://www.gm.com/electric-vehicles> [<https://perma.cc/XY2Y-ABAK>] (last visited Nov. 15, 2022); *Volkswagen Group Set to Unleash Value in Battery-Electric Autonomous Mobility World*, VOLKSWAGEN (July 13, 2021), <https://www.volkswagenag.com/en/news/2021/07/new-auto-volkswagen-group-set-to-unleash-value-in-battery-elect.html> [<https://perma.cc/8BYK-ULWP>]; Caleb Miller, *Six Major Automakers Agree to End Gas Car Sales Globally by 2040*, CAR & DRIVER (Nov. 10, 2021), <https://www.caranddriver.com/news/a38213848/automakers-pledge-end-gas-sales-2040/> [<https://perma.cc/A37C-MUMA>]. Environmental advocates hope that the shift will happen even more rapidly—to 60% worldwide by 2030, and 100% by 2035. See, e.g., INT'L ENERGY AGENCY, *Net Zero by 2050: A Roadmap for the Global Energy Sector* 26 (Oct. 2021), https://iea.blob.core.windows.net/assets/deebef5d-0c34-4539-9d0c-10b13d840027/NetZeroBy2050-ARoadmapfortheGlobalEnergySector_CORR.pdf [<https://perma.cc/S4T2-4YUF>] (key milestones include 60% global EV market share by 2030 and no new internal combustion engine car sales after 2035).

7. A robust national EV charging network for passenger vehicles will include groups of high-speed charging stations every 25–50 miles on all major highways in the country, plus widespread installation of lower-speed public chargers at parking lots everywhere, plus millions of small charging systems in homes. See MICHAEL NICHOLAS ET AL., QUANTIFYING THE ELECTRIC VEHICLE CHARGING INFRASTRUCTURE GAP ACROSS U.S. MARKETS 16 (2019) (estimating “82,000 workplace charging stations, 103,000 public Level 2 stations, and 10,000 DC fast stations” will be needed by 2025, based on current market trends); 19-AB-2127, 2019–20 Leg. (Cal. 2019), at 7 (concluding 1.3 million public and shared chargers will be needed in California by 2030 to achieve state goals); *U.S. Passenger Vehicle Electrification Infrastructure Assessment*, ATLAS PUB. POL'Y (Apr. 2021), <https://atlaspolicy.com/u-s-passenger-vehicle-electrification-infrastructure-assessment/> [<https://perma.cc/E2HF-5Q4H>] (to achieve 100% electrification by

Who should pay to build these chargers? To some, the obvious answer is those who would use them. That is, EV drivers should be willing to pay enough for their electricity to make it profitable to run a charging station business. That is how it works for gas stations; why should it be any different for EVs?⁸

The problem is that EV charging stations—especially charging stations out in public places—are expensive to build, while electricity sales do not typically generate sufficient profits to cover the costs—the electricity has to be so expensive that nobody will pay for it, or the station has to be used at a higher percentage of the time than is possible with the current number of EVs on the road—and so no private enterprise has yet worked out how to run a successful charging station business.⁹ Tesla, the only private company that has come close, has funded its charging network primarily through premium car sales, rather than as a standalone business.¹⁰ And yet, to get EVs on the road and pay for electricity in sufficient quantity to turn a profit, there need to be chargers available for the cars to use. Thus, there is a chicken-and-egg problem: Charging stations are necessary for EVs to come to the mass market, but also require a mass market of EVs to be profitable for the private sector to build.

2035, “\$87 billion in investments in charging infrastructure will be needed over the next decade, including \$39 billion for public charging”).

8. See, e.g., Richard McDonald, *Letter: Taxpayers Shouldn't Subsidize Electric Vehicle Charging*, GREENVILLE SUN (Nov. 15, 2021), https://www.greenevillesun.com/opinion/letters_to_editor/letter-taxpayers-shouldn-t-subsidize-electric-vehicle-charging/article_8c949db4-2585-5915-8405-9a99ab33b5f5.html [<https://perma.cc/N88J-H5KY>].

9. Brad Templeton, *Can Electric Car Charging Be a Business?*, FORBES (Jan. 25, 2021), <https://www.forbes.com/sites/bradtempleton/2021/01/25/can-electric-car-charging-be-a-business/?sh=169b10e571e9> [<https://perma.cc/7HUZ-53XP>] (challenges of competing with other charging locations); Samantha Oller, *The Perplexing Profit Potential of EV Charging*, CSP DAILY NEWS (Feb. 26, 2020), <https://www.cspdailynews.com/fuels/perplexing-profit-potential-ev-charging> [<https://perma.cc/85FL-PN2L>] (challenges for service stations); Rekha Khandelwal, *Should You Buy Electric Vehicle Charging Stocks Right Now?*, MOTLEY FOOL (Aug. 2, 2021), <https://www.fool.com/investing/2021/08/02/should-you-buy-electric-vehicle-charging-stocks-ri/> [<https://perma.cc/6AL3-UFBR>] (significant uncertainty in sector profitability). Typical charging station costs are discussed in Part II.B *infra* (about \$10,000 for a public Level 2 charging station, and over \$100,000 for a DC fast charging station).

10. *A Closer Look at Tesla's Supercharger Network and Expansion Plans*, FORBES (Nov. 26, 2021), <https://www.forbes.com/sites/greatspeculations/2021/11/26/a-closer-look-at-tesla-supercharging-network-and-expansion-plans/?sh=1b1bdd7a1469> [<https://perma.cc/NJW4-NHHK>]; but see Fred Lambert, *Tesla Is Preparing to Open Up Superchargers to Non-Tesla EVs in the US Later This Year*, ELECTREK (July 7, 2022), <https://electrek.co/2022/07/07/tesla-preparing-open-superchargers-non-tesla-evs-us-year/> [<https://perma.cc/MBN7-LV46>]. As discussed in Part III, *infra*, Tesla has also received substantial public funding.

One possible response to this situation is to conclude that, if EVs and EV charging do not make financial sense, then that is a great reason to keep driving gasoline-powered cars, or to develop some different alternative to gasoline. But there are significant public policy reasons to want people to drive EVs—from climate change mitigation to domestic manufacturing promotion to energy security, the benefits of transportation electrification may justify public efforts to get the industry started.¹¹ If, at this time, the private sector cannot alone build charging stations profitably, the answer could be to turn to the public sector. This was the thinking behind the \$7.5 billion appropriated to EV charging stations in the Infrastructure Investment and Jobs Act of 2021 (IIJA), which will be used to build out an EV charging network along the interstates in every state.¹² But, of course, tax money is finite, unpredictable, politically fraught, and subject to any number of public sector inefficiencies. Spending it to support EVs, therefore, is controversial.¹³ And it is important to remember that it is not enough to build the stations—they need to be maintained, repaired, upgraded, and kept in service, forever.

Are there other options? In fact, there is at least one. There is already a specialized industry that builds and operates infrastructure, by law, at a very high level of reliability and reasonable cost, often for a profit: the regulated electric power sector. This industry, furthermore, has expertise in electricity infrastructure, which is what EV charging stations *are*. And, although electric utilities do not yet know how to make an EV charging station-only business profitable any better than anyone else, money works a little differently in the utility space. Within the larger context of the electric power system, it might be possible to make EV charging infrastructure profitable for everyone, just like utilities already do with the grid itself.

11. *Benefits of Transportation Electrification in a Post Pandemic World*, ATLAS PUB. POL'Y (Apr. 2021), <https://atlaspolicy.com/wp-content/uploads/2021/06/Benefits-of-Transportation-Electrification-in-a-Post-Pandemic-World.pdf> [<https://perma.cc/NQ5Z-ZB2E>]; DAVID FARNSWORTH ET AL., REGUL. ASSISTANCE PROJECT, BENEFICIAL ELECTRIFICATION OF TRANSPORTATION (Jan. 2019), [<https://perma.cc/M75L-8X42>].

12. Also known as the Bipartisan Infrastructure Law (BIL), Pub. L. 117-58, 135 Stat. 429 (2021); *President Biden, USDOT and USDOE Announce \$5 Billion over Five Years for National EV Charging Network, Made Possible by Bipartisan Infrastructure Law*, U.S. DEP'T OF TRANSP. (Feb. 10, 2022), <https://highways.dot.gov/newsroom/president-biden-usdot-and-usdoe-announce-5-billion-over-five-years-national-ev-charging> [<https://perma.cc/P39K-V7WC>].

13. See, e.g., *Editorial: The Electric Vehicle Welfare State*, WALL STREET J. (Aug. 5, 2021), https://www.wsj.com/articles/the-electric-vehicle-welfare-state-joe-biden-auto-makers-gm-volkswagen-stellantis-11628201680?mod=article_inline [<https://perma.cc/KS9A-DB2U>].

At the same time, there are real risks to allowing for-profit electric utilities to step into the EV charging business: risks that utility ratepayers will be forced to pay for unnecessary, or unnecessarily costly, equipment; risks that the private sector will face unfair competition from monopoly utilities; risks that these burdens will fall hardest on those least able to bear the costs; and risks that public utility commissions will favor utility interests over non-utility concerns. These possibilities, which the utilities commissions are keenly aware of, have led to arguments over the appropriate “utility role” in EVSE deployment. But to fully understand the stakes of that debate it is first necessary to review how utility finance works.

B. How Utilities Pay (and Are Paid) to Build Things

To understand the concerns that arise when considering whether electric utilities should pay (and be paid) to build EV infrastructure, it is first necessary to understand a bit about the utility business model and the comprehensive economic regulation that governs the operation of for-profit electric utilities, including how their spending is regulated, how their accounting is monitored, and how state regulators resolve conflicts over and grant permission for their activities. For-profit, investor-owned electric utilities (IOUs) are not allowed to spend money on whatever they want. If they wish to profit from infrastructure investment, they must demonstrate to regulators that their spending serves the electric grid and the people who ultimately pay for it: their ratepayers.¹⁴

Utility spending is regulated to protect customers from monopoly pricing power.¹⁵ Private enterprises are typically allowed to spend

14. Utility regulation and ratemaking are complex subjects typically introduced as part of an energy law course. A full understanding requires a good grasp of the underlying economic principles and a great deal of exposure to regulatory proceedings before public utilities commissions. Introductions can be found in study materials on energy law (e.g., LINCOLN L. DAVIES ET AL., *ENERGY LAW AND POLICY* 257–500 (3d ed. 2018) (casebook materials on electricity regulation)), but the classic of the field, still in use today, is JAMES C. BONBRIGHT ET AL., *PRINCIPLES OF PUBLIC UTILITY RATES* (2d ed. 1988). See also CHARLES F. PHILIPS, JR., *THE REGULATION OF PUBLIC UTILITIES: THEORY AND PRACTICE* (3d ed. 1993).

15. This discussion is applicable to for-profit utilities only. In the United States, there are two other types of electric utilities that do not operate with the same profit motive and so are not regulated in the same fashion. The first is public power, meaning an electric utility run by a government—possibly a city government, or possibly the federal government. See *About APPA*, AM. PUB. POWER ASS’N, <https://publicpower.org/about> [<https://perma.cc/Q45E-CXQH>] (last visited Nov. 15, 2022). The second is the electric cooperative, meaning a customer-owned endeavor operated as a nonprofit. See *Our Mission*, NAT’L RURAL ELEC. COOP. ASS’N, <https://www.electric.coop/our-mission> [<https://perma.cc/VGX9-BEGJ>] (last visited Nov. 15,

money on whatever they want, subject only to corporate law and the approval of their directors and shareholders. But utility spending on infrastructure is constrained by what is often called “the regulatory compact.”¹⁶ On the theory that multiple grids are unnecessarily duplicative, and that one business can operate an electric power system more cost-efficiently than many, states have traditionally granted electric utilities monopoly service territories, meaning exclusive rights to sell electricity to all customers in a particular geographic area.¹⁷ This monopoly power poses risks to the public, however, because companies with no competition and a profit motive have every incentive to charge as much as they can for their product, and this is particularly problematic when the thing they are selling is as essential to modern daily life as is electricity.¹⁸ So, in return for their monopoly powers, for-profit IOUs submit themselves to very strict economic regulation, including government price controls.

In the United States, these controls are developed by state-level “public utilities commissions” (PUCs), sometimes called “public service commissions” (PSCs), which specialize in utility regulation.¹⁹ These commissions are typically created in state constitutions as independent agencies, and are generally composed of three to seven voting members—state officials who may be elected or appointed per

2022). The third type of utility is the “investor-owned utility” (IOU), meaning a for-profit corporate business. In the United States, most electric customers are served by IOUs, and IOUs tend to serve much more populous service territories than do public utilities or cooperatives. Anodyne Lindstrom et al., *Today in Energy: Investor-Owned Utilities Served 72% of U.S. Electricity Customers in 2017*, U.S. ENERGY INFO. ADMIN. (Aug. 15, 2019), <https://www.eia.gov/todayinenergy/detail.php?id=40913#> [<https://perma.cc/AJQ3-WF6M>].

16. See RICHARD F. HIRSH, *POWER LOSS: THE ORIGINS OF DEREGULATION AND RESTRUCTURING IN THE AMERICAN ELECTRIC UTILITY SYSTEM* (1999) (discussing the history of the development of the regulatory compact).

17. Things become considerably more complex under “deregulated” utility structures, where different elements of the electric grid are held by different entities—most often with electricity generating stations held by many private for-profit companies that compete to sell electricity onto the grid; nonprofit transmission grid operators who manage fair access to the transmission system; and traditional utilities operating the distribution system that connects the transmission system to customers. See generally Hirsh, *supra* note 16; H. LEE WILLIS & LORRIN PHILIPSON, *UNDERSTANDING ELECTRIC UTILITIES AND DE-REGULATION* (2d ed. 2006). These developments are less impactful in the proceedings discussed in this Article because EVSE is part of the distribution grid, and therefore generally attached to equipment owned in the traditional fashion by monopoly retail electric utilities.

18. BONBRIGHT ET AL., *supra* note 14, at 5–25.

19. See generally NAT’L ASS’N OF REGUL. UTILS. COMM’RS (NARUC), <https://www.naruc.org> (last visited Nov. 15, 2022). Although these regulators oversee many other types of public utilities (telecommunications, water, transportation, etc.), this Article is focused only on electric utility regulation.

state law.²⁰ Most state PUCs are structured with some thought toward limiting political influence both from industry and from other parts of government, and are supported by staff who conduct administrative proceedings, provide technical analysis and recommendations, and advise the commissioners. Many PUCs, furthermore, house specialized offices for consumer or ratepayer advocacy, which are intended to counterbalance the inherent advantage of regulated industries in the regulatory administrative setting.²¹ In general, the legal and self-perceived institutional role of a PUC is to resolve conflicts between the competing goals of the many stakeholders in the electric power system: That is, to provide reliable, low cost, and nondiscriminatory electric service for all customers in the utility's service territory, while permitting the utility to turn a reasonable (but not excessive) profit on its business.²²

Commission scrutiny of utility spending operates through what is called "ratemaking," meaning the "rate" that is charged to a utility's

20. See, e.g., CAL. CONST. art. XII, § 1 (five-member commission appointed by the governor, approved by Senate); GA. CONST. art. IV, § 1 (five-member commission "elected by the people"). There is a rich debate over whether it is better for PUCs to be composed of elected or appointed members, with evidence pointing toward elections resulting in more pro-consumer commissioners, all else being equal. See, e.g., Timothy Besley & Stephen Coate, *Elected Versus Appointed Regulators: Theory and Evidence*, 1 J. EUR. ECON. ASS'N 1176 (2003); Srinivas Parinandi & Matthew P. Hitt, *How Politics Influences the Energy Pricing Decisions of Elected Public Utilities Commissioners*, 118 ENERGY POL'Y 77 (2018). This is one facet of the larger debate over regulatory capture, about which see the following notes.

21. E.g., CAL. PUB. UTIL. CODE § 309.5 (West 2018) (creation and duties of Public Advocates Offices); KAN. STAT. ANN. §§ 66-1222-66-1223 (creation and duties of Citizens' Utility Ratepayer Board and Consumer Counsel). Consumer advocates have been understood as ensuring that pro-consumer policies will be institutionalized and insulated even when political circumstances change, and that they result in reductions in utility profits, all else equal. Guy L.F. Holburn & Richard G. Vanden Bergh, *Consumer Capture of Regulatory Institutions: The Creation of Public Utility Consumer Advocates in the United States*, 126 PUB. CHOICE 45 (2006) (identifying economic and political drivers of the creation of utility consumer advocacy offices); Adam R. Fremeth et al., *The Impact of Consumer Advocates on Regulatory Policy in the Electric Utility Sector*, 161 PUB. CHOICE 157 (2014) (notwithstanding strategic utility responses, states with ratepayer advocates saw a 0.45% reduction in utility rate of return from 1980-2007).

22. Janice A. Beecher, *Economic Regulation of Utility Infrastructure*, in INFRASTRUCTURE AND LAND POLICIES 87, 101-02 (Gregory K. Ingram & Karin L. Brandt eds., 2013) ("Regulation seeks a balance between the interests of utility investors, who devote their capital to utility infrastructure, and core or captive ratepayers . . . The utility also accepts an obligation to provide all paying customers with safe, adequate, reliable, and nondiscriminatory service on just and reasonable terms, while assuming certain business risks and subjecting itself to regulatory oversight."). For a critical view of this framing, see Scott Hempling, *"Regulatory Capture": Sources and Solutions*, 1 EMORY CORP. GOVERNANCE & ACCOUNTABILITY REV. 23, 29-32 (2014) (acknowledging that the "understanding of regulation as private interest balancing [is] deeply embedded in regulatory conversation, practice, and psyche," criticizing this framing, and advocating for PUCs to shift their focus to the public interest).

customers, or “ratepayers.”²³ In the simplest terms, state regulators attempt to set electricity prices at the point that allows utilities to collect their “cost of service,” meaning the amount of money that the utilities must spend to provide electricity to all their customers. This equals the amount of money the utility spends, divided by the amount of electricity the utility sells, measured as dollars per kilowatt-hour (\$/kWh). Not coincidentally, this is also how electric utility bills are structured—customers pay a certain number of cents per kWh of electricity they consume, according to a predefined rate schedule. In other words, when you pay an electric bill, you are paying your share of the bill that the utility has submitted to the public to build the grid and keep the lights on.

Things become more complicated, however, because the electric grid is not static: It requires some level of ongoing construction to meet increasing demand, serve new customers, and upgrade or replace aging facilities, and infrastructure construction requires capital investment.²⁴ On the theory that private enterprises always have a choice about where to invest their capital, publicly-set electric rates must therefore also factor in a reasonable rate of return (as defined by the PUC) on all IOU capital investments, to induce them to do business as utilities at all.²⁵ The primary problems with this system are that it is very difficult to determine a “fair” or “reasonable” rate of return on equity,²⁶ and the utilities’ rate of return, once set, is guaranteed, which incentivizes for-profit utilities to invest as much money as possible in building up the grid’s infrastructure, and then earn guaranteed investment income on everything they have built, whether or not it was actually necessary, a well-documented kind of overbuilding called “gold plating.”²⁷ To protect against this, utility infrastructure investments are only supposed to be permitted in the ratemaking equation if they are determined by the governing PUC to

23. BONBRIGHT ET AL., *supra* note 14, at 85–123.

24. *Id.* at 193–372.

25. See DARRYL TIETJEN, PUB. UTIL. COMM’N OF TEX., BRIEFING FOR THE NARUC/INE PARTNERSHIP (Feb. 1, 2008), <https://pubs.naruc.org/pub.cfm?id=538E730E-2354-D714-51A6-5B621A9534CB> [<https://perma.cc/QB4E-QV2V>].

26. See BONBRIGHT ET AL., *supra* note 14, at 198 (“[T]hat the sought-for return shall be fair carries with it no instructions as to the criteria of fairness. The history of American rate regulation is in large measure a history of attempts by courts, legislatures, commissions, ratepayers, utilities, and scholars to supply these criteria. But even today the subject remains highly controversial.”). This statement is as true today as when it was written.

27. This is a colloquialism for the “Averch-Johnson” effect. See Harvey Averch & Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AM. ECON. REV. 1052 (1962) (tendency of regulated utilities to accumulate excessive capital in order to increase profits).

have been necessary for the grid and appropriately priced—an inquiry that is often fiercely contested by utility regulatory stakeholders.²⁸

There is extensive literature on the question of whether state PUCs perform their functions as intended and with maximum public benefit, with particular concern toward whether PUCs intentionally or unintentionally favor utility interests over public or ratepayer interests, with the weight of evidence indicating that state PUCs have allowed higher-than-necessary rates of return on utility capital investments.²⁹ These analyses demonstrate that utilities act strategically in regulatory proceedings to maximize their financial benefit, and that public utilities commissions are both aware of this behavior and not entirely successful in mitigating it. For the purposes of this Article, however, the question of fair utility returns is held distinct from the question of whether to allow utility investment in the first instance—even as these inquiries are difficult to disaggregate in practice.

In the context of these complexities, utility capital investments found by regulators to qualify as reasonable, prudent, and otherwise necessary to run the grid are called the “rate base,” and the amount of money determined to be needed by a utility to recover its costs and earn a fair return on its investments is called the “revenue requirement,” which equals the rate base multiplied by a reasonable rate of return on the rate base, plus recuperation of all qualifying operating expenses. Thus:

28. Precise wording and requirements for the inclusion standard vary from state to state and are typically set by the regulatory commissions. *See, e.g., Application of Ind. Mich. Power Co. to Increase Rates*, 329 Mich. App. 397, 415 (2019) (“The statute does not specify how the PSC is to determine a utility’s costs, or what is reasonable and prudent, and so this Court has generally deferred to the PSC’s decisions concerning such methodology.”). In general, ratepayer advocates argue against proposed utility spending, utilities argue for it, and environmental groups take positions based on the perceived environmental implications of the project.

29. *See generally* Ernesto Dal Bó, *Regulatory Capture: A Review*, 22 OXFORD REV. ECON. POL’Y 203 (2006). An excellent recent analysis of these issues has just been released: Karl Dunkle Werner & Stephen Jarvis, *Rate of Return Regulation Revisited* (Energy Inst. at Haas, Working Paper No. 329, 2022), <https://www.haas.berkeley.edu/wp-content/uploads/WP329.pdf> [<https://perma.cc/PXA3-XV7G>] (estimating 0.5–5.5% premium for utility return on equity over riskless investment and providing policy recommendations, *id.* at 3). *See also* David C. Rode & Paul S. Fischbeck, *Regulated Equity Returns: A Puzzle*, 133 ENERGY POL’Y 110891 (2019) (analyzing forty years of rate cases, demonstrating growing premium in regulatory approvals of rate of return over study period, and seeking explanations); Heather Payne, *Game Over: Regulatory Capture, Negotiation, and Utility Rate Cases in an Age of Disruption*, 52 U. S.F. L. REV. 75 (2018) (analyzing 106 recent rate cases, arguing that PUC oversight of utility spending requests is not sufficient and that utilities game the regulatory environment to secure inflated returns on equity).

utility revenue requirement = (rate base * reasonable rate of return) + operating expenses

If a utility spends \$1 million on maintenance, it will need to be paid \$1 million this year to cover those operating expenses. If the same utility spends \$1 million on a power line, it will need to be paid back \$1 million plus interest over the asset's lifetime. "To rate base" something is to include it in the "rate base" part of this equation, essentially passing costs on to consumers and eliminating investment risk to the utility. Things can become considerably more complicated, but this is the general idea. The upshot is that, when asking whether utilities should invest in EV charging infrastructure, the real question is: *Can the utility's spending on EV charging infrastructure be included in the rate base (or in operating expenses), and thus be included in the utility's revenue requirement and recovered in rates?* This is the question that has required review by PUCs.

To facilitate such reviews, regulated utilities must periodically submit applications to PUCs that include extensive testimony to explain the utility's financial situation and justify any proposed rate changes, meaning any changes to the utility's revenue requirement. These filings initiate what is called a "rate case," a quasi-judicial administrative proceeding that allows all interested parties to request information about the utility's filings, submit protests or comments on what the utility has claimed, present witnesses of their own, and file briefs and comments on their position about how the commission should respond.³⁰ Often, this body of evidence is subject to cross-examination at an administrative hearing, and then is presented to an Administrative Law Judge (ALJ) in post-hearing briefing. The participating parties may negotiate a settlement that resolves all contested issues and seek approval of that settlement, or a regulatory commission may be asked to adjudicate contested issues. An ALJ may draft a proposed order, and the commissioners may then review and approve or modify the ALJ's findings and conclusions. This process ultimately results in new rates for electricity throughout the utility's service territory. Understanding what a utility has been allowed to do often requires review of the initial rate case testimony, settlement agreement, proposed and final orders, and, sometimes, subsequent explanations of what was done in compliance filings and reports. The information in Tables 1 and 2, *infra*, was gathered in just this way, from state utility regulatory commission dockets.

30. *E.g.*, N.M. CODE R. 1.2.2 (LexisNexis 2022).

There are many other kinds of public utility proceedings as well. Rate cases happen only every few years, while utility business is subject to near-constant scrutiny through numerous ancillary proceedings, typically initiated by the utilities or on a commission's own motion, that may ultimately be resolved in a future rate case but, for years prior, may be handled separately. These kinds of proceedings are too numerous to count but may include policy, investigation, or rulemaking dockets where utility commissions contemplate new utility regulations, and proceedings to review novel, experimental, or contested utility activities that occur outside the general business of procuring electricity and transmitting it to customers. Often, though not always, these ancillary proceedings are litigated in a similar manner to rate cases, with interested party comment, a hearing, and a commission ruling on relevant issues, though typically under very different standards than under those that apply to ratemaking decisions.

To keep track of all this, utilities are required to maintain their finances in a complex series of accounts, and PUCs often make choices about the kind of accounting that is to be used for particular utility spending,³¹ which could have ramifications later for utility cost recovery. Arguments over whether particular spending is a "regulatory asset" or other such terminology trace back to this accounting system, and impacts whether the utility will be certain to be able to recover the accounted costs in the future. In practice, this debate manifests as distinct strategic choices by the utility, which might only seek to notify the commission of its activities and be silent about whether it will, in the future, seek to recover its costs; or may seek permission from the commission to undertake certain activities but not costs; or may propose to track its costs in any one of several kinds of financial accounts and request permission to seek to recover these costs at a later date, without any predetermination that they will be able to do so; or may request that the commission predetermine that a certain expense is reasonable and prudent or otherwise presumptively recoverable in a future rate case—or any combination of these things for different elements of each proposal.

31. For the federal system, see *Accounting Matters*, FERC, <https://www.ferc.gov/enforcement-legal/enforcement/accounting-matters> [<https://perma.cc/3YGJ-MUX9>] (last visited Nov. 4, 2022); 18 C.F.R. pt. 101 (Uniform System of Accounts Prescribed for Public Utilities and Licensees Subject to the Provisions of the Federal Power Act). States often have their own accounting systems and terminology, which function in a similar fashion.

In summary, then, there are many ways for utilities to propose that ratepayers pay them to build things, with both the proposed activity, and the proposed cost recovery, subject to the procedural safeguard of obligatory review by a state's public utility regulatory commission. And this is true for EVSE spending too. Just as there are risks that utilities may seek confiscatory rates of return on other investment, the economic concern for consumers is that regulators will be too lax in their oversight of utility EVSE spending. These concerns animate all of the other debates regarding utility EVSE investment.

C. Debates Over the “Utility Role” and Ratepayer Benefit

The prior Section explained that state utility regulators are required to consider whether to allow ratepayer-funded utility EVSE investment. In early proceedings on this question, the inquiry was often framed as the question of the proper “utility role” in the EV charging sector.³² That is: Should electric utilities, which traditionally are regulated toward the goals of providing reliable, cheap, and safe electricity to retail customers with a reasonable rate of return to the utility, be allowed to incorporate transport fueling infrastructure into their regulated businesses and revenue requirements? This question has often led directly to arguments over whether allowing utilities to do this will benefit or harm anyone else, including particularly ratepayers, and this has been fiercely debated.

To get a sense for these arguments, it is useful to review an especially illustrative example in some detail. The example presented here is from the organization that has been thinking about this problem the longest: the California Public Utilities Commission (CPUC), which since 1990 has adopted three different approaches to the question, each of which has been influential in other states thereafter. These considerations began in 1990, when the State of California passed a law mandating that a certain percentage of the cars sold there be zero-emissions vehicles (ZEVs—meaning, in practice, electric vehicles).³³ California's “ZEV mandate” required the

32. See, e.g., Energy Division Staff Issues Paper: The Utility Role in Supporting Plug-In Electric Vehicle Charging, Cal. P.U.C. No. R.09-08-009 (Aug. 20, 2009) (Attachment A); Decision C19-0397 at 9, Colo. P.U.C. No. 17I-0692E (Apr. 10, 2019) (“[O]ur particular interest is the utility's role. It is anticipated that the utility's role, or roles, will unfold through future proceedings . . .”).

33. Gustavo Collantes & Daniel Sperling, *The Origin of California's Zero Emission Vehicle Mandate*, 42 TRANSP. RES. PART A: POL'Y PRACT. 1302 (2008) (drafters assumed EVs would fulfill ZEV mandate).

CPUC to consider how the state was going to meet demand for a future fleet of electric cars, using the electric grid run by the electric utilities that the CPUC was responsible for regulating. Should the CPUC encourage electric utilities to compete with gas stations? Would ratepayers be required to pay for such activities? Shouldn't the private sector handle it? Or the public sector? How could electric utility participation in the EVSE industry be reconciled with traditional consumer protection and antimonopoly regulatory policies?

In 1991, the CPUC initiated proceedings to consider these questions for the first time.³⁴ In 1993, against the arguments of clean transportation advocates and utilities, the CPUC ruled that utilities seeking to have ratepayers pay for EV fueling infrastructure would be required to demonstrate that any proposed expenditures also advanced traditional electric utility regulatory goals. This decision meant that utilities would be required to demonstrate that any EVSE investments would provide more reliable, safer, or less expensive electricity to customers, and would not provide the utility with an unfair competitive advantage over nonutility enterprises.³⁵ Thus, the 1990s-era CPUC was not going to make a regulatory exception for EV charging just because it might be in the overall public interest. Furthermore, in its first application of this standard, the CPUC found that the utilities proposing EVSE investment had failed to demonstrate any ratepayer benefit from their proposals, and declared that EV chargers should be paid for by the electric utility customers wishing to have them.³⁶ This ruling remained the law in California for the next two decades.

During the interim, however, the role of public utility regulatory commissions began to evolve. As the environmental impacts of the

34. Order Instituting Investigation to Develop a Policy Governing Utility Involvement in the Market for Low-Emission Vehicles and Order Instituting Rulemaking to Establish Rules and Procedures Governing Utility Involvement in the Market for Low Emission Vehicles, Cal. P.U.C. No. I.91-10-029/R.91-10-028 (Oct. 23, 1991) ("1991 EV Rulemaking").

35. Opinion: Phase I (Decision 93-07-054) (July 21, 1993), 1991 EV Rulemaking. The CPUC also set out a series of "principles" that would guide its future decisions over utility fueling initiatives, including that captive customers would not be required to pay for EVSE that did not directly benefit them, unless the utilities were required by state or federal law to undertake the expenses, and further ruled that any public utility that wished to participate in charging would be encouraged to do so, but only in the competitive market like any other company. Opinion: Phase II at 14-14d (Decision 95-11-035) (Nov. 28, 1995). For contemporary criticism of this conclusion, see DANIEL SPERLING, *FUTURE DRIVE: ELECTRIC VEHICLES AND SUSTAINABLE TRANSPORTATION* 123-24 (1995).

36. Opinion: Phase II at 23-35 (Decision 95-11-035) (Nov. 28, 1995), 1991 EV Rulemaking, [<https://perma.cc/WTP8-UKE7>] (barring utility EVSE investment and cost recovery).

electric power system began to become a matter of wider concern, the question of how to incorporate these new policy considerations into traditional regulatory decision-making began to arise.³⁷ Regulatory commissions would need to add another criterion to their considerations: Utility infrastructure investments should provide cheaper, safer, more reliable, and *less environmentally harmful* electricity service. This environmental factor became even more pressing in 2006, when California passed A.B. 32, a landmark law mandating statewide greenhouse gas emissions reductions in all sectors of the economy, including the electric sector.³⁸ With electricity policy central to climate policy, this law and several following it required the CPUC to more fully consider whether its prior decisions and rules were consistent with the state's new climate goals.³⁹ In response, the CPUC initiated another regulatory proceeding in 2009⁴⁰ and, at the urging of the participating parties, decided to re-examine its prior rulings on whether utilities could build EV charging stations.⁴¹

Nonetheless, by the end of its review in 2011, the CPUC was ready to conclude again that all alleged rate payer benefits of utility EVSE investment were speculative, outweighed by concerns over stifling the development of a free-market charging industry, and unnecessary given the amount of public investment in charging that was happening. The ALJ leading the investigation therefore proposed to maintain the existing rule: No utility EVSE spending would be allowed to be included in rates.⁴² One utility, however, had more to lose from this proposed decision than the rest: San Diego Gas & Electric (SDG&E) had recently sought authority to spend (and to recover in rates) about \$5 million on public EV chargers throughout its service territory.⁴³ This request was filed and pending at the CPUC when the ALJ's proposed policy decision was issued in 2011, leading SDG&E to

37. See, e.g., Michael Dworkin et al., *The Environmental Duties of Public Utilities Commissions Symposium: Electricity Restructuring at a Crossroads: Consumer and Environmental Implications: Symposium Articles*, 18 PACE ENV'T L. REV. 325 (2001); Todd S. Aagaard, *Energy-Environment Policy Alignments*, 90 WASH. L. REV. 1517 (2015).

38. California Global Warming Solutions Act, 2006 CAL. STAT. 3419.

39. 2009 Cal. Laws ch. 355 (adding CAL. PUB. UTIL. CODE § 740.2).

40. Order Instituting Rulemaking to Consider Alternative-Fueled Vehicle Tariffs, Infrastructure and Policies to Support California's GHG Reductions Goals, Cal. P.U.C. No. R.09-08-009 (Aug. 20, 2009) ("2009 EV Rulemaking").

41. Assigned Commissioner's Scoping Memo, 2009 EV Rulemaking (Jan. 12, 2010).

42. Proposed Phase II Decision at 36–37, 65, 68, 2009 EV Rulemaking (Mar. 15, 2011). Contemporary public investment in California and nationally is discussed in Part III, *infra*.

43. SDG&E General Rate Case Application, Cal. P.U.C. No. A.10-12-005 (Dec. 15, 2010).

argue as a last resort that such a blanket rule was premature. Rather, SDG&E contended that there could be certain cases—such as, for example, at apartment buildings or in low-income neighborhoods—where the free market was very unlikely to build charging stations, but where the utilities would be able to do so easily and efficiently.⁴⁴ SDG&E's arguments persuaded the full commission to amend the ALJ's proposed rule to add one important exception: Electric utilities would be barred from building EVSE *unless* they could demonstrate that doing so would address a market failure or result in service to otherwise underserved markets.⁴⁵ The CPUC's "market failure" exception to the formerly universal rule against EVSE investment opened the door to utility spending on a case-specific basis. Ultimately, however, SDG&E's 2010 proposal was still denied in 2013 when the CPUC concluded that the utility had not demonstrated that its spending was needed to respond to market failure at that time, particularly in light of then-ongoing charger installations funded from other sources.⁴⁶

This, however, did not end the debate. In 2012, California Governor Jerry Brown set a statewide EV registration goal of 1.5 million vehicles by 2025, and ordered state agencies to coordinate around that goal.⁴⁷ In response, in late 2013, after denying SDG&E's proposal, the CPUC initiated a *third* investigation to consider its EV regulatory policy.⁴⁸ Several months later, SDG&E complicated this process by filing *another* EVSE investment proposal.⁴⁹ At the urging of many of the involved parties, the CPUC decided to consolidate its policy docket with the SDG&E proposal and to tackle the question of the "utility role" in EVSE investment once and for all.⁵⁰ The CPUC asked for

44. SDG&E Comments on Proposed Phase II Decision at 2–9, 2009 EV Rulemaking (Apr. 5, 2011); SDG&E Reply Comments on Proposed Phase II Decision at 1–5, 2009 EV Rulemaking (Apr. 11, 2011).

45. Phase II Decision at 49–50, 2009 EV Rulemaking (July 25, 2011).

46. Decision at 230–31, SDG&E General Rate Case Application, Cal. P.U.C. No. A.10-12-005 (May 9, 2013). The decision relies heavily on the briefing of the Utility Consumers' Action Network (UCAN), which argued that ongoing public- and settlement-funded charger installation was happening at the time to obviate the need for utility efforts. Opening Brief on SDG&E's Phase I General Rate Case Applications at 151–52, *id.* (Apr. 12, 2012). For a discussion of those other sources, *see* Part III, *infra*.

47. Cal. Exec. Order No. B-16-2012 (Mar. 23, 2016); GOVERNOR'S INTERAGENCY WORKING GRP. ON ZERO-EMISSION VEHICLES, CAL. ZEV ACTION PLAN (2013).

48. Order Instituting Rulemaking to Consider Alternative-Fueled Vehicle Programs, Tariffs, and Policies, Cal. P.U.C. No. R.13-11-007 ("2013 EV Rulemaking") (Nov. 14, 2013).

49. SDG&E Application for Approval of EV-Grid Integration Pilot Program, Cal. P.U.C. No. A.14-04-014 (Apr. 11, 2014).

50. Scoping Memo and Consolidation Ruling, Cal. P.U.C. No. A.14-04-014 (Sept. 29, 2014).

comments on whether it should “consider an increased role for the utilities in [EV] infrastructure deployment and, if so, what should that role be?”⁵¹ This question was the subject of extensive comments from utility, ratepayer, industry, and public interest parties to the proceeding, which, together, provided the first very detailed adversarial examination of the question—and raised fundamental arguments that have shaped the debate across the country ever since.

The argument in favor of utility EVSE investment and cost recovery was led by the electric utilities themselves, who took the position that the CPUC should abandon its “market failure” rule as unworkable and evaluate specific utility investment proposals on a case-by-case basis—although the industry offered no clear recommendations on criteria the commission should use to evaluate any given proposal.⁵² The utilities also argued that, in addition to the environmental policy benefits of EV adoption, their investments in EV infrastructure could be structured to provide financial benefits, not only to utilities and EV owners, but to all ratepayers. These benefits would manifest as the money paid by EV owners to charge their vehicles eventually exceeds the costs to construct and operate the EVSE, ultimately creating an overall downward pressure on rates. This would happen, in theory, if the EV owners could be encouraged to charge when the grid was not fully utilized, meaning that their increased load would not require expensive grid upgrades.⁵³ In other words, the utilities argued that EV drivers were going to spend so much money on electricity that they would, in essence, be subsidizing other ratepayers. As discussed in Part II.C, *infra*, substantial evidence supports this position, although there is still much room for debate in the details.

51. *Id.* at 5–6.

52. S. Cal. Edison (SCE) Comments at 4–18, 2013 EV Rulemaking (Aug. 29, 2014) (advocating that “underserved markets” be defined as everything other than single-family homes) & SCE Reply Comments at 3–6, 2013 EV Rulemaking (Sept. 12, 2014) (advocating for a move away from the market failure rule); Pac. Gas & Elec. (PG&E) Opening Comments 4–7, 2013 EV Rulemaking (Aug. 29, 2014) & PG&E Reply Comments at 3–8, 2013 EV Rulemaking (Sept. 12, 2014); SDG&E Comments at 6–11, 2013 EV Rulemaking (Aug. 29, 2014) & SDG&E Reply Comments 2–7, 2013 EV Rulemaking (Sept. 12, 2014).

53. SCE Comments at 14–15, 2013 EV Rulemaking (Aug. 29, 2014); PG&E Reply Comments at 6–7, 2013 EV Rulemaking (Sept. 12, 2014); SDG&E Comments at 10–11, 2013 EV Rulemaking (Aug. 29, 2014). Electric transmission and distribution systems have capacity limits and must be designed to be capable of meeting peak demand. However, most of the time, the lines are not operating at full capacity. Increases in peak demand require larger power lines to handle—thus, shifting charging “off-peak,” toward times of lower demand, can avoid or defer grid expansion costs. There are still costs associated with the increased fuel used to supply the off-peak demand, but rates tend to be higher than fuel costs, and off-peak charging, resulting in more efficient use of the grid, can save money. For further discussion, see Part II.C, *infra*.

Although the utilities received support from other parties with a financial stake in EVSE construction,⁵⁴ this coalition's credibility was bolstered by support from unlikely allies: all of the participating environmental and renewable energy advocacy groups, who argued essentially the same points and supported the industry position.⁵⁵ Their logic was that climate change mitigation required transport decarbonization, which required renewable energy development and EV market share increase, which required a massive charger buildout—a goal to be accomplished by any means necessary. The utilities were proposing an immediate solution, and the green groups therefore supported it fully. Still today, environmental nonprofits often support utility EV charging infrastructure expenditures in regulatory proceedings.⁵⁶

These arguments, however, were all coming from stakeholders who would benefit in one way or another from utility EVSE investment. What about the ratepayers being asked to pay for it all? Did they see the alleged benefit? The Utility Reform Network (TURN), a California ratepayer advocacy group, forcefully opposed utility investment in EV infrastructure in the 2013 proceedings, as did the CPUC's Office of Ratepayer Advocates (ORA), a public agency responsible for protecting ratepayer interests, and representatives of low-income communities disproportionately impacted by high utility bills.⁵⁷ TURN argued that the benefits of utility-owned charging infrastructure would go primarily to the utilities and wealthy, tax-subsidized EV owners using the chargers.⁵⁸ To the proposition that ratepayers nonetheless should pay for these benefits for the public

54. *See, e.g.*, Proterra Comments at 2–3, 2013 EV Rulemaking (Aug. 29, 2014); Recargo Reply Comments, 2013 EV Rulemaking (Sept. 12, 2014); All. of Auto. Mfrs., Ass'n of Glob. Automakers, and Gen. Motors Joint Opening Comments at 6–7, 2013 EV Rulemaking (Aug. 29, 2014) & Joint Reply Comments at 5–6, 2013 EV Rulemaking (Sept. 12, 2014). *See also* NAT'L RENEWABLE ENERGY LAB'Y, CALIFORNIA STATEWIDE PLUG-IN ELECTRIC VEHICLE INFRASTRUCTURE ASSESSMENT (May 2014).

55. NRDC Comments at 4–5, 10–11, 2013 EV Rulemaking (Aug. 29, 2014) & NRDC Reply Comments at 1–2, 2013 EV Rulemaking (Sept. 12, 2013); GPI Comments at 4–7, 2013 EV Rulemaking (Aug. 29, 2014); EDF Comments at 4–5, 2013 EV Rulemaking (Aug. 29, 2014) & Reply Comments at 2–3, 2013 EV Rulemaking (Sept. 12, 2014).

56. *E.g.*, *Electric Vehicles: About Our Program*, SIERRA CLUB, <https://www.sierraclub.org/ev/about-our-program> [<https://perma.cc/42SL-2NHY>] (last accessed Nov. 4, 2022) (“Our work includes advocacy for federal, state, and local policies that will make EVs more accessible; a push for the utility sector to invest in EV programs,” etc.).

57. *Id.* Joint Minority Parties Reply Comments at 1–2, 2013 EV Rulemaking (arguing that low-income ratepayers would be particularly burdened because utilities consume a larger portion of low-income ratepayer finances).

58. TURN Comments at 4–16, 2013 EV Rulemaking (Aug. 29, 2014).

good, TURN had a simple response: That is what taxes are for, not electricity rates. In their words:

As is often the case when considering ratepayer subsidies to reduce private costs of investments that yield economic benefits to private individuals, but also societal environmental benefits, a key public policy question is whether those societal benefits should be achieved through the legislative process and progressive taxation, or through the . . . administrative process and regressive utility bill taxation. In this case . . . there is little justification for having electric ratepayers subsidize private charging stations.⁵⁹

TURN, then, had identified the core governance tension in the EVSE investment debate. Regulatory commissioners were being asked to use their utility oversight authority to achieve policy goals arguably beyond the stable operation of the electric grid, at the expense of potentially increased utility bills. As articulated by TURN and others, this social spending model was also regressive, because it forces the poorest citizens, who spend more of their total incomes on essential utilities, to pay a proportionally larger share of their incomes for these social programs than is asked of wealthier ratepayers. In response to the utilities' contentions of ratepayer financial benefit, furthermore, TURN and ORA both argued that EVSE investment had not been demonstrated to provide financial benefits when accounting for all costs, particularly where EV adoption was very uncertain—in other words, the utilities' rosy financial projections relied on assumptions about future EV market share that were inherently uncertain. These arguments were bolstered by a consortium of community groups who argued that EV ownership in California (as elsewhere) was largely predictable by race, class, and wealth—and thus any request for regressive rate increases to support EV adoption would be, especially initially, a transfer of wealth from the most vulnerable to the most privileged in society. These concerns over ratepayer impact, regressive spending, cross-subsidization, and fairness continue to be raised by ratepayer advocates, public utilities commission staffs, and industry competitors seeking to persuade public utility commissions against entertaining utility proposals for EVSE spending.⁶⁰

59. *Id.*

60. *E.g.*, Order Approving Proposals with Modifications at 5, Petition for Approval of Minn. Power's Portfolio of Elec. Vehicle Programs, Minn. P.U.C. No. E-015/M-20-638 (Apr. 21, 2021) ("The OAG opposed the rebate program, arguing that it would be a direct subsidy to relatively wealthy customers who could afford EVs at the expense of all customers."); Ariz. Propane Gas Ass'n Comments at 2, Tucson Elec. Power EV Infrastructure Plan, Ariz. Corp. Comm'n No. E-00000A-21-0104 (June 16, 2022) ("In addition to burdening utility customers, these types of

In the California proceedings, the other major critics of utility EVSE investment were stakeholders, especially private charging companies, concerned with the development of a robust competitive market for EV charging infrastructure and therefore wary of monopoly utility market power.⁶¹ These parties did not have a problem with utilities spending money on electrical infrastructure to prepare the grid for EV chargers, but they did not want the utilities to *own* the chargers, because the structure of utility finance would provide utilities with guaranteed profit from that ownership and preferential early access to the most profitable locations, meaning that they would quickly be able to undercut all private competitors in the already-difficult EV charging business sector. In California, these entities proposed a solution they called “make-ready” investment, where the utilities would be allowed to build and own (and rate base) the electrical equipment ancillary to charging stations, do everything necessary to make a site ready for the chargers, and even subsidize the purchase of the charging stations, but could not own the charging stations themselves. The utilities’ primary objection at the time was that this structure would benefit the charger industry at the expense of ratepayers, but without guaranteeing benefits that utilities argued only utility ownership could bring.⁶²

On consideration of these arguments, in 2014 the CPUC decided to abandon its prior “market failure” approach.⁶³ The regulators concluded that they had been premature in requiring utilities to

financial subsidies are also anticompetitive and distort the marketplace for other clean transportation fuels.”).

61. Elec. Vehicle Serv. Provider Coal. Comments on Assigned Comm’r Scoping Memo and Ruling Phase IV, 2009 EV Rulemaking (Apr. 9, 2013); Elec. Vehicle Serv. Provider Coal. Comments on Proposed Decision Authorizing Short-Term Extension of Ltd. Provisions Regarding Elec. Tariff Rules 15 and 16, 2009 EV Rulemaking (June 17, 2013); Elec. Vehicle Serv. Provider Coal. Reply Comments on Proposed Decision Authorizing Short-Term Extension of Ltd. Provisions Regarding Elec. Tariff Rules 15 and 16, 2009 EV Rulemaking (June 24, 2013); ChargePoint Comments on Proposed Decision Modifying Requirements for Dev. of Plug-In Elec. Vehicle Submetering Protocol, 2009 EV Rulemaking (Oct. 21, 2013); ChargePoint Reply Comments on Proposed Decision Modifying Requirements for Dev. of Plug-In Elec. Vehicle Submetering Protocol, 2009 EV Rulemaking (Oct. 28, 2013).

62. SDG&E Reply Comments on Proposed Decision at 2–4, 2009 EV Rulemaking (Aug. 20, 2009). The utilities argued that these benefits included the development of technologies that could turn EVs into an energy storage or demand response resource, maximizing their value to the electric grid; however, these benefits have not yet materialized and it is not clear that utility ownership would be necessary for them to be attained. *See* Part II.B.5, *infra*, regarding the utility ownership model.

63. Phase I Decision Establishing Policy to Expand Utilities’ Role in Dev. of Elec. Vehicle Infrastructure, SDG&E Application for Approval of EV-Grid Integration Pilot Program, Cal. P.U.C. No. 14-04-014 (Dec. 18, 2014).

attempt to define market failures or underserved markets in EVSE deployment, where the market was still very much emerging and changing.⁶⁴ They cautioned, instead, that the “concerns over utility entrance into competitive market sectors [were] well taken, and lifting the broad prohibition on utility ownership of charging infrastructure in particular is not without limitation.”⁶⁵ Rather than a bright-line rule, the CPUC said it would assess on a case-by-case basis any proposal for utilities to invest in EVSE, accounting for: 1) the nature of the proposed program, 2) “the degree to which the market into which the utility program would enter is competitive, and in what level of concentration,” 3) the existence of “potential unfair utility advantages, if any” from utility ownership of chargers, and 4) whether any “rules, conditions or regulatory protections are needed to effectively mitigate the anticompetitive impacts or unfair advantages held by the utility.”⁶⁶ In other words, the CPUC adopted a new “balance of factors” approach, while leaving it to future regulatory proceedings to decide exactly how to balance the factors it had identified.

The California example is a useful microcosm of the larger debate over utility EVSE investment, which has repeated itself in many of the same ways in many other states. Across the country, public utilities commissions have been confronted with proposals for ratepayer funding of utility EVSE investment, prompting similar debates over the appropriate utility role and the appropriate regulatory standards for considering proposals. As parties jockey to emphasize the costs and benefits of competing proposals, utility regulatory commissions are increasingly forced to consider these claims of cost and benefit within the context of their regulatory missions.

II. REGULATORY DECISIONS ON UTILITY EVSE INVESTMENT

This Part presents a review of utility EVSE investment proceedings in the fifty states (and D.C. and Puerto Rico), encompassing relevant laws and executive actions, utility spending proposals, and regulatory commission determinations on whether proposed utility EVSE expenditures have been reasonable and prudent. Section A (Pathways to Regulatory Review) collects and organizes the available information on policy investigations and utility proposals for EVSE

64. *Id.* at 6.

65. *Id.* at 8.

66. *Id.* at 9.

investment filed in each jurisdiction, ultimately identifying activity in over forty jurisdictions through July 2022. Section B (How Much, On What) presents the outcomes of the dozens of regulatory reviews identified in Section A, calculates the amounts of EVSE spending approved by regulators as reasonable and prudent, and builds a taxonomy of EVSE spending approvals based on the equipment that the utilities are allowed to spend money on. Section C (Calculating Benefit) examines the rules regulators have used to determine whether utility EVSE investment would benefit ratepayers, to the extent they are discernible. Section D (Takeaways) attempts to draw conclusions from these materials, which, taken together, reveal an emerging law of utility EVSE investment that fundamentally shifts utility operation and the transportation energy services economy.

A. Pathways to Regulatory Review

For reference, Table 1 (*see* Appendix, *c.f.* page 140) compiles the regulatory proceedings and other key statements of policy on utility EVSE investment, together with each of the spending proposals that utilities have submitted to regulatory commissions through July 2022. Table 1 excludes proceedings that mention EV charging policy generally but do not address utility EVSE investment specifically, and includes only utility proposals that involve direct spending on EVSE (i.e., excluding rate design).

A review of these materials reveals that each jurisdiction to consider the question has had a unique, and often quite complex, path to utility EVSE spending. Although by no means the only way to organize the information, it is possible to begin to make sense of these proceedings by examining the predominance of various actors in the legislative, policymaking, and regulatory milieu.

1. Early Movers

As discussed in Part I.C, *supra*, California's 2013 decision to review utility spending proposals on a case-by-case basis, and, as discussed in Part II.B, *infra*, its 2016 decision to begin approving very large utility investment programs, reverberated across the regulatory landscape. The great majority of proposals in other states came after California's in 2016. A few other states, however, merit similar attention as early movers.

Hawaii. Hawaii provides several very early examples of legislative initiative. The state passed a law that shifted state transportation

policy towards support for EVs in 2009, and then in 2013 approved its first utility EV investment pilot—which included authorization to sell electricity from utility-owned chargers.⁶⁷ Even so, the state’s utilities did not broach the topic of cost recovery for the infrastructure they had built until ordered to do so by the Hawaii PUC in 2017.⁶⁸

Indiana. As an early example of utility and regulatory initiative, the first regulatory approval for EVSE cost recovery occurred in a program proposed before and approved (over dissent) by the Indiana Utility Regulatory Commission (IURC) in 2011. However, this program remained relatively narrow until the state received more extensive utility proposals in 2014, 2019, and 2021.⁶⁹

Massachusetts. A similar example arose in Massachusetts, which approved an EVSE investment pilot in 2014, although more significant program requests did not come until several years later.⁷⁰

Georgia. As an example of early utility initiative, in 2014 the Georgia PSC received notification that its major regulated utility, Georgia

67. HAW. REV. STAT. ANN. § 291-71 (West 2021); Decision & Order No. 31338 at 3–4, 18–19, Application of Haw. Elec. Co. et al., Haw. P.U.C. Nos. 13-07 & 13-08 (July 1, 2013).

68. Decision & Order No. 34592 at 56, Transmittal of Haw. Elec. Co. et al., Haw. P.U.C. No. 2016-0168 (June 2, 2017); Strategic Roadmap at 80–89, Haw. Elec. Cos., Haw. P.U.C. No. 2018-0135 (June 18, 2018); Order No. 37373, Haw. P.U.C. No. 2018-0088 (Oct. 16, 2020) (transferring to No. 2018-0088).

69. Petition in Demand Side Mgmt. Proc., Ind. Power & Light, Ind. Util. Regul. Comm’n No. 43960 (Oct. 13, 2010); Petition for Approval of an Economic Development Program, N. Ind. P.S.C. Ind. Util. Regul. Comm’n No. 44016 (Apr. 8, 2011); Order, N. Ind. P.S.C., Ind. Util. Regul. Comm’n No. 44016 (Feb. 1, 2012); Petition for Approval of Alt. Regul. Plan for Extension of Distrib. and Serv. Lines, Indianapolis Power & Light Co., Ind. Util. Regul. Comm’n No. 44478 (Apr. 9, 2014); Petition for General Rate Increase, Ind. Mich. Power Co., Ind. Util. Regul. Comm’n No. 45235 (May 14, 2019); Petition for Approval of Elec. Vehicle Pilot Program, Duke Energy Ind., Ind. Util. Regul. Comm’n No. 45253 S2 (Dec. 5, 2019); Amended Petition Seeking Approval of a Proposed Elec. Transportation Program, Duke Energy Ind., Ind. Util. Regul. Comm’n No. 45616 (Sept. 23, 2021).

70. Vote & Order Opening Investigation into EVs and EV Charging, Mass. D.P.U. No. 13-182 (Dec. 23, 2013); Order on Dep’t Jurisdiction Over EVs, Mass. D.P.U. No. 13-182-A (Aug. 4, 2014); Order, Eversource Pilot Approval, Mass. D.P.U. No. 12-95 (June 23, 2014); Eversource Rate Case, Mass. D.P.U. No. 17-05 (Jan. 17, 2017); Petition for Pre-Approval of EV Market Dev. Program, Mass. Elec. Co. & Nantucket Elec. Co., Mass. D.P.U. No. 17-13 (Jan. 20, 2017) (National Grid pilot); National Grid Rate Case, Mass. D.P.U. No. 18-150 (Nov. 15, 2018); 2021 Grid Modernization Program Extension and Funding Report, NSTAR Elec. Co., Mass. D.P.U. No. 20-74 (July 1, 2020); EV Program Factor Filing, Mass. Elec. Co. & Nantucket Elec. Co., Mass. D.P.U., Docket No. 20-64 (May 15, 2020); EV Program Factor Filing, Mass. Elec. Co. & Nantucket Elec. Co., Mass. D.P.U. No. 21-67 (May 14, 2020); EV Program Factor Filing, Mass. Elec. Co. & Nantucket Elec. Co., Mass. D.P.U. No. 22-63 (May 13, 2022); 2020 Mass. Legis. Serv. ch. 383 (West); Vote & Order Opening Investigation into Modernization of Elec. Grid—Phase II, Mass. D.P.U. No. 20-69 (July 2, 2020); NSTAR Elec. Co., Petition for Approval of Phase II EV Infrastructure Program, Mass. D.P.U. No. 21-90 (July 14, 2021); Petition for Approval of Phase III EV Market Dev. Program, Mass. Elec. Co. & Nantucket Elec. Co., Mass. D.P.U. No. 21-91 (July 14, 2021); EV Rate and Infrastructure Programs Submission, Fitchburg Gas & Elec. Light Co., Mass. D.P.U. No. 21-92 (July 14, 2021).

Power, had begun a utility EVSE investment pilot that involved shareholder-funded utility-owned charging stations, although the utility did not seek cost recovery for these activities before the PSC until 2019.⁷¹

In other words, there were early experiments and sporadic legislative, regulatory, and utility action across the country prior to 2016. Nonetheless, 2016 was a watershed year, as the pace of utility and commission activity accelerated dramatically around that time. Although not a perfect taxonomy, these developments can be usefully sorted according to which actor took the first significant step leading down the path toward regulatory review.

2. Legislative Initiative

As utility EVSE investment has become more commonplace, some states have enacted enabling legislation that has encouraged, and sometimes required, the development of utility EVSE investment pilots and programs. In chronological order beginning with the earliest legislation:

Washington. After the Washington Utilities and Transportation Commission (WUTC) approved an early pilot,⁷² in 2015 the Washington State Legislature provided utility financial incentives for “capital expenditures for [EVSE] that is deployed for the benefit of ratepayers,” and in 2019 encouraged utilities to file “an electrification of transportation plan that deploys [EVSE] or provides other electric transportation programs, services, or incentives,” leading the state’s utilities to file EVSE investment proposals with WUTC in 2018, 2020, 2021 and 2022.⁷³

71. Ga. Power Co. EV Pilot, Ga. P.S.C. No. 41373 (Oct. 8, 2017); Ga. Power Co. Rate Case, Ga. P.S.C. No. 42516 (June 28, 2019).

72. Petition for Accounting Order, Puget Sound Energy, Wash. U.T.C. No. UE-131585 (Mar. 17, 2014) (reassigned to No. 140626); Order 01 Approving Petition Conditions, Puget Sound Energy, Wash. U.T.C. No. UE-140626 (Apr. 30, 2014); PUGET SOUND ENERGY, EV CHARGER INCENTIVE PROGRAM REPORT: FINAL (Apr. 2018) (end of pilot report).

73. S.H.B. 1853, 64th Leg., Reg. Sess. (Wash. 2015); Policy & Interpretive Statement Concerning Comm’n Regul. of EV Charging Servs., Wash. U.T.C. No. UE-160799 (June 4, 2017); Proposed Tariff Revisions for EV Supply Equip. Pilot Program, Avista Corp., Wash. U.T.C. No. UE-160082 (Jan. 14, 2016); Order 01 Approving Tariff Revisions, Avista Corp., Wash. U.T.C. No. UE-160082 (Apr. 28, 2016); S.H.B. 1512, 66th Leg., Reg. Sess. (Wash. 2019); E.S.S.H.B. 2042, 66th Leg., Reg. Sess. (Wash. 2019); Advice No. 2018-44 Electric Tariff Filing, Puget Sound Energy, Wash. U.T.C. No. UE-180877 (Oct. 26, 2018); Transp. and Elec. Plan, Avista, Wash. U.T.C. No. UE-200607 (July 1, 2020); Transp. Elec. Plan, Puget Sound Energy, Wash. U.T.C. No. UE-210191 (Mar. 15, 2021); Wash. State Transp. Elec. Plan, PacifiCorp, Wash. U.T.C. No. UE-220359 (May 20, 2022).

California. Following the CPUC developments discussed above, in 2015 the California legislature enacted a law requiring expansions of existing EVSE pilot programs into statewide transportation electrification (TE) initiatives, which resulted in major utility proposal expansions submitted to the CPUC in 2017, 2018, and 2019.⁷⁴

Oregon. In 2016, Oregon passed a law requiring the state's electric utilities to begin developing transportation electrification programs that included "prudent investments in or customer rebates for electric vehicle charging and related infrastructure." Increasingly large utility filings were submitted to the Oregon PUC between 2016 and 2021.⁷⁵ In 2021, the state passed a second law assessing a blanket surcharge on electric bills for ten years, to be used by utilities for expanded transportation electrification programs. The Oregon PUC also initiated a policy docket to develop a statewide utility investment framework to spend these funds.⁷⁶

Utah. In 2016, the Utah legislature passed a law that pre-authorized "utility sustainable transportation plans," including utility EVSE investment and cost recovery, leading to a large proposal from Utah's largest regulated electric utility, Rocky Mountain Power.⁷⁷ In 2019 and 2020, the state revised its law to facilitate further utility investment, resulting in a second, larger proposal in 2020.⁷⁸

74. S.B. 350, 2015–2016 Leg., Reg. Sess. (Cal. 2015); Transp. Elec. Proposals, SDG&E, Cal. P.U.C. No. A.17-01-020 (Jan. 20, 2017); Transp. Elec. Proposals, SCE, Cal. P.U.C. No. A.17-01-021 (Jan. 20, 2017); Transp. Elec. Proposals, PG&E, Cal. P.U.C. No. A.17-01-022 (Jan. 20, 2017); Transp. Elec. Proposals, Small Utils., Cal. P.U.C. Nos. A. 17-06-031, -033, and -034 (June 30, 2017); Cal. P.U.C. No. R.18-06-015 (new EV policy docket); Application for Expansion, SCE, Cal. P.U.C. No. A.18-06-015 (June 26, 2018); Application for Expansion, PG&E, Cal. P.U.C. No. A.18-07-021 (July 30, 2018); Application for Expansion, SDG&E, Cal. P.U.C. No. A.19-10-012 (Oct. 28, 2019).

75. 2016 Or. Laws ch. 028, § 20(3); Order, Rulemaking to Prescribe Application Requirements for Transp. Elec. Programs, Or. P.U.C. No. AR-599 (Nov. 23, 2016) (adopting OAR 860-087); Transp. Elec. Outreach and Educ. Pilot, PacifiCorp, Or. P.U.C. No. UM 1810 (Dec. 27, 2016); Application for Transp. Elec. Programs, Portland Gen. Elec., Or. P.U.C. No. UM 1811 (Dec. 27, 2016); Application for EV Awareness and Educ. Programs, Idaho Power, Or. P.U.C. No. UM 1815 (Dec. 30, 2016); Transp. Elec. Plan, Portland Gen. Elec., Or. P.U.C. No. UM 2033 (Sept. 30, 2019); Application for Transp. Elec. Program, Idaho Power, Or. P.U.C. No. UM 2035 (Nov. 1, 2019); Transp. Elec. Plan, PacifiCorp, Or. P.U.C. No. UM 2056 (Feb. 3, 2020).

76. 2021 Or. Laws ch. 95; Investigation of Transp. Elec. Investment Framework, Or. P.U.C. No. UM 2165 (Apr. 23, 2021).

77. 2016 Utah Laws ch. 393; Application to Implement Programs Authorized by Sustainable Trans. & Energy Plan Act, Rocky Mountain Power, Utah P.S.C. No. 16-035-36 (Aug. 18, 2016).

78. 2019 Utah Laws ch. 460; 2020 Utah Laws ch. 104; 2020 Utah Laws ch. 2017; Application for Approval of EV Infrastructure Program, Rocky Mountain Power, Utah P.S.C. No. 20-035-34 (Aug. 23, 2020).

Nevada. In 2017, Nevada required its regulated utilities to submit “measure[s] to promote or incentivize the deployment of electric vehicle infrastructure,” and authorized cost recovery for those measures.⁷⁹ The Nevada PUC then initiated a proceeding to implement the law and required transportation electrification plans to be filed in 2018.⁸⁰ In 2021, the state ordered further filings, including proposals for “[i]nvestments or incentives to facilitate the deployment of charging infrastructure,” resulting in a large utility proposal later that year.⁸¹

New Hampshire. In 2018, New Hampshire passed a law creating a special EV Charging Station Commission tasked with making recommendations on, among other things, “[c]hanges needed to state laws, rules, and practices, including . . . public utilities commission rules, to further the development of [EV] technology and infrastructure.”⁸² In the resulting report, the Commission concluded that “New Hampshire should consider authorizing public utilities to include EVSE ‘make ready’ programs and other EVSE initiatives . . .”⁸³ Around the same time, a utility filed a make-ready investment proposal.⁸⁴

Virginia. In 2018, Virginia took action to require utilities to propose “electric grid distribution transformation projects,” including EVSE projects, and the Virginia State Corporation Commission (VSCC) received a utility pilot proposal the following year.⁸⁵ In 2022, in a report mandated by the legislature, the VSCC indicated its intention to

79. 2017 Nev. Stat. ch. 239 § 1.4, (enacting N.R.S. 701B.670). In the same year, Nevada joined the Regional EV Plan for the West (together with Wyoming, Arizona, Colorado, Idaho, Montana, New Mexico, and Utah) to commit to supporting interstate charging networks in the Mountain West. Memorandum of Understanding Between Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah & Wyoming, Regional EV Plan for the West (Oct. 12, 2017).

80. Order, Rulemaking to Implement S.B. 145 (2017), Nev. P.U.C. No. 17-08021 (May 11, 2018); EV Infrastructure Demonstration Program Annual Filings, NV Energy, Nev. P.U.C. Nos. 18-02002, 19-02001, 20-01040, 21-02004, 22-02002.

81. 2021 Nev. Stat. ch. 552 §§ 14, 39; Application for Approval of Econ. Recovery Transp. Elec. Plan 2022–2024, NV Energy, Nev. P.U.C. No. 21-09004 (Sept. 1, 2021).

82. 2018 N.H. Laws ch. 154 (enacting N.H. RSA Tit. 4-G).

83. N.H. EV CHARGING STATION COMM’N, FINAL REPORT 6 (2020). In 2016, the New Hampshire PUC found it premature to authorize the EVSE initiatives. Staff Recommendation at 6, Investigation into Resale of Elec. By EV Charging Stations, N.H. P.U.C. No. IR 15-510 (Mar. 18, 2016).

84. Order No. 26,433 at 16–17, Eversource Rate Case, N.H. P.U.C. No. DE 19-057 (Mar. 25, 2019) (separating EV program into separate docket); Petition for EV Make-Ready & Demand Charge Alt. Proposals, Eversource, N.H. P.U.C. No. DE 19-157 (Apr. 15, 2021).

85. 2018 Va. Acts ch. 296; Application for Approval of Plan for Elec. Distrib. Grid Transformation Projects, Va. Elec. & Power Co., Va. Corp. Comm’n No. PUR-2019-00154 (Sept. 30, 2019).

order utilities to file transportation electrification plans later that year.⁸⁶

Illinois. In 2018, the Illinois Commerce Commission (ICC) began investigating utility EVSE policy.⁸⁷ Then, in 2020, the state enacted an EV infrastructure law that ordered the ICC to “initiate a workshop process . . . for the purpose of soliciting input on the design of beneficial electrification programs” by utilities, and required the utilities to file “Beneficial Electrification Plans” that include make-ready infrastructure investment.⁸⁸

Vermont. In 2018 and 2019, the Vermont legislature ordered the state’s PUC to investigate and report on issues related to EV charging, including summaries of contemporary arguments about utility investments, which it subsequently did—although it has not yet received any proposals from utilities.⁸⁹

Maine. In 2019, Maine passed a law directing the Maine PUC to issue a request for proposals for EV infrastructure pilot projects, which the PUC then did, receiving several responses.⁹⁰

New Mexico. In 2019, New Mexico required regulated utilities to submit plans “to expand transportation electrification,” including “investments or incentives to facilitate the deployment of charging infrastructure and associated electrical equipment.”⁹¹ These plans were subsequently filed at the New Mexico Public Regulation Commission for review.⁹²

86. 2021 Va. Acts ch. 268; VA. STATE CORP. COMM’N, REPORT: POLICY PROPOSALS GOVERNING PUBLIC ELECTRIC UTILITY PROGRAMS TO ACCELERATE WIDESPREAD TRANSPORTATION ELECTRIFICATION IN THE COMMONWEALTH (2022); Order Directing Filing of Transp. Elec. Plans, Ex Parte: Elec. of Motor Vehicles, Va. Corp. Comm’n No. PUR-2020-00051 (June 15, 2022).

87. Report to Comm’n at 154–65, 198–200, Notice of Inquiry Regarding Elec. Vehicles, Ill. Comm. Comm’n No. 18-NOI-01 (Jan. 9, 2019).

88. Ill. Pub. Act 102-0662 (2021) (enacting 20 ILCS 627/45). The beneficial electrification plans are Ill. Comm. Comm’n Nos. 22-0431 (June 30, 2022) & 22-0432 (July 1, 2022). The Ameren program is built on a previously-approved tariff, Ill. Comm. Comm’n No. 20-07-01 (Sept. 3, 2020).

89. 2018 Vt. Acts & Resolves Act 158 § 25; 2019 Vt. Acts & Resolves Act 59 § 35; EV Investigation, Vt. P.U.C. No. 18-2660-INV (July 9, 2018); EV Investigation Pursuant to Act 59, Vt. P.U.C. No. 19-3009-INV (July 16, 2019).

90. 2019 Me. Laws ch. 365 § 5; Request for Proposals for Pilot Programs to Support Beneficial Elec. of Transp. Sector, Me. P.U.C. No. 2019-00217 (Aug. 28, 2019); Cent. Me. Power Co. EV Charging Station Make Ready Pilot Program Interim Update, Request for Proposals, Me. P.U.C. No. 2021-00177 (June 30, 2021).

91. H.B. No. 521, 54th Leg. Sess. (N.M. 2019).

92. Southwestern Pub. Serv. Co., N.M. Pub. Regul. Comm’n No. 20-00150-UT (July 21, 2020); Pub. Serv. Co. of N.M., N.M. Pub. Regul. Comm’n No. 20-00237-UT (Dec. 18, 2020); El Paso Elec. Co., N.M. Pub. Regul. Comm’n No. 20-00241-UT (Dec. 30, 2020); Comm’n Rulemaking, N.M. Pub. Regul. Comm’n No. 22-00085-UT (Apr. 13, 2022).

D.C. In 2019, the District of Columbia passed a law permitting utility applications “to promote transportation electrification through utility infrastructure ownership and other programs and incentives,” addressing proposals that had already been filed before the D.C. PSC.⁹³

Many of these laws provide insight into the policy considerations motivating them and political considerations necessary to get them passed. Notably, climate change has not always been the primary stated policy purpose. Virginia, for example, found that “transportation electrification will reduce dependence on petroleum, improve air quality and public health, reduce vehicle fueling costs, and reduce emissions of greenhouse gases from the transportation sector.”⁹⁴ Nevada did not even provide a policy rationale—although its laws were enacted shortly after it became clear that the state would host a major battery manufacturing facility—simply declaring that “it is the policy of this State to expand and accelerate the deployment of electric vehicles and supporting infrastructure.”⁹⁵ Particularly in states that have not adopted robust climate policies, climate has not been highlighted as an important motivation for legislative action—even as the laws provide obvious climate benefits by reducing petroleum use and simultaneously shifting toward increasingly low-carbon electric generating resources for transport fuel.

As these brief summaries illustrate, legislative action is often intertwined with activity at the state regulatory commission and by the state’s regulated utilities, and legislation itself may be the result of proposals put forth by one or more of these actors and may influence or even define the parameters of subsequent utility proposals. It is not clear that legislation is even strictly necessary for utility programs to begin—utilities have broad discretion to propose new activities and regulatory commissions have broad authority to adopt them on their own. With that caveat in mind, legislative direction does provide articulated intent, political legitimacy, and, possibly, legal justification to utility EVSE spending programs. In states with legislative action, it can clearly be said that utility EVSE investment has been addressed as a matter of law. But this is not the only way.

93. CleanEnergy DC Omnibus Amendment Act of 2018, 2019 D.C. Laws 22-257 § 502; Application for Approval of Transp. Elec. Program, Potomac Elec. Power Co., D.C. Pub. Serv. Comm’n No. FC1130/FC1155 (Sept. 6, 2018).

94. 2021 Va. Acts ch. 268 § 1.

95. 2017 Nev. Stat. ch. 239 § 1.4.

3. Regulatory Commission Initiative

In other states, regulatory review of utility EVSE investments have been initiated by the public utility regulatory commissions themselves, often as part of larger regulatory policy reviews, or in response to perceived new pressures on the grid from widespread EV adoption, with and without significant later participation from the state's legislature or prodding by utilities or other stakeholders. In chronological order of the first significant regulatory actions:

Maryland. In 2016, the Maryland PSC initiated workshops to begin investigating its utility EVSE policy, leading to a joint proposal from workshop participants for a statewide EV investment portfolio filed before the commission in 2018.⁹⁶

Rhode Island. In 2017, the Rhode Island PUC initiated proceedings to investigate a wide range of grid modernization topics, resulting in a multi-agency report to the state's governor that set out policy recommendations for utilities and EVSE.⁹⁷ Subsequently, in 2018, the PUC received two independent filings from utilities that included EVSE investment proposals consistent with these policy findings.⁹⁸

Minnesota. In 2017, the Minnesota PUC initiated an investigatory proceeding into EV infrastructure policy that ultimately supported the development of utility-led EVSE investment, and required the utilities to file transportation electrification plans with spending proposals in 2020.⁹⁹

New York. In 2018, a consortium of nonprofits, interested businesses, and state agencies participating in grid modernization proceedings petitioned the New York State Department of Public

96. Notice of Public Conference, Exploration of Deployment of EVs, Md. P.S.C. No. 43 (June 7, 2016); Notice of Public Conference, Transforming Md. Elec. Distrib. Systems, Md. P.S.C. No. 44 (Nov. 3, 2016); Petition for Implementation of Statewide EV Portfolio, PC44 EV Work Group, Md. P.S.C. No. 9478 (Jan. 19, 2018).

97. R.I. DIV. PUB. UTILS. & CARRIERS ET AL., RHODE ISLAND POWER SECTOR TRANSFORMATION: PHASE ONE REPORT TO GOVERNOR GINA M. RAIMONDO 56-61 (2017).

98. National Grid Rate Case, R.I. P.U.C. No. 4770 (Nov. 27, 2017); National Grid Proposed Power Sector Transformation Vision & Implementation Plan, R.I. P.U.C. No. 4780 (Nov. 28, 2018).

99. Order, Comm'n Inquiry into EV Charging & Infrastructure, Minn. P.U.C. No. E999/CI-17-879 (Feb. 1, 2019); Xcel Energy Petition for Approval of EV Pilot Programs, Minn. P.U.C. No. E002/M-18-643 (Oct. 12, 2018); Otter Tail Power Co. Request for Approval of EV Charging & Infrastructure Programs, Minn. P.U.C. No. E017/M-20-181 (Jan. 31, 2020); Minn. Power Portfolio of EV Programs, Minn. P.U.C. No. E015/M-20-638 (July 31, 2020); Xcel Energy Petition for Approval of Multi-Dwelling Unit EV Pilot Program, Minn. P.U.C. No. E002/M-20-711 (Sept. 10, 2020); Xcel Energy Econ. Recovery Proposals, Minn. P.U.C. No. E002/M-20-745 (Sept. 15, 2020); Minn. Power DCF Pilot, Minn. P.U.C. No. E015/M-21-257 (Apr. 8, 2021).

Services (NYSDPS) to expand New York's state-run EV infrastructure investment programs into a new, statewide, ratepayer-funded program—a project that NYSDPS immediately ordered its staff to coordinate, resulting in stakeholder-developed program recommendations submitted to NYSDPS in 2020.¹⁰⁰ Also in 2018, the New York Power Authority (NYPA), a publicly owned organization funded primarily through electric rates of the utilities it sells electricity to, committed to begin investing heavily in DCFC installations across the state.¹⁰¹ In 2019, one utility proposed to invest separately in public charging infrastructure.¹⁰²

Arizona. In 2018, the Arizona Corporation Commission (AZCC) began considering EVSE policy on its own as part of a broader review of grid modernization policies. In 2019, it ordered statewide utility transportation electrification planning, while rejecting calls by one dissenting Commissioner to forbid cost recovery for such activities.¹⁰³

100. Sierra Club et al. Petition for Order Establishing Separate Proceeding to Advance N.Y. EV Market, Reforming the Energy Vision, N.Y. Dep't Pub. Serv. No. 14-M-0101 (Feb. 22, 2018); NYPA et al. Joint Petition for Immediate and Long-Term Relief to Encourage Statewide Deployment of DCFC Facilities for EVs, N.Y. Dep't Pub. Serv. No. 14-M-0101 (Apr. 13, 2018); Staff Whitepaper (Jan. 13, 2020), Order Instituting Proceeding re: EV Supply Equip. & Infrastructure, N.Y. Dep't Pub. Serv. No. 18-E-0138 (Apr. 24, 2018). Prior to 2018, there had been very limited interest expressed by New York utilities in ratepayer-funded charger buildouts. In 2018, National Grid requested \$2 million to make capital upgrades to support commercial charging. Joint National Grid Proposal at 106–07, N.Y. Dep't Pub. Serv. No. 17-E-0238 (Jan. 19, 2018). The proposal was criticized by TE advocates for being too small but was approved as “a good first step.” *Id.*, Order 64–65 (Mar. 15, 2018). Previously, NYSDPS had approved a ConEd proposal to provide new rates and some associated equipment for off-peak EV charging, but not funding for infrastructure. N.Y. Dep't Pub. Serv. No. 16-E-0060.

101. Regular Meeting Minutes at 39–40, N.Y. Power Auth. (May 22, 2018), <https://nypa.gov/-/media/nypa/documents/document-library/meeting-minutes/trusteesminutes052218.ashx> [<https://perma.cc/7HGP-AZ3T>]; Press Release, N.Y. Power Auth., Governor Cuomo Announces \$250 Million Initiative to Expand Electric Vehicle Infrastructure Across New York State (May 31, 2018), <https://www.nypa.gov/-/media/nypa/documents/document-library/news/023-governor-cuomo-announces-250-million-initiative-expand-electric-vehicle-infrastructure-across.pdf> [<https://perma.cc/8Nj8-V3SU>].

102. Consol. Edison Co. Rate Case, N.Y. Dep't Pub. Serv. No. 19-E-0065 (Jan. 31, 2019).

103. Proposed Rulemaking on Energy Rules, Ariz. Corp. Comm'n No. RU-00000A-18-0284 (Aug. 17, 2018); Decision 77044, Proposed Rulemaking on Energy Rules, Ariz. Corp. Comm'n No. RU-00000A-18-0284 (Jan. 16, 2019); Decision 77289, Proposed Rulemaking on Energy Rules, Ariz. Corp. Comm'n No. RU-00000A-18-0284 (July 19, 2019) (declining to incorporate amendments to forbid cost recovery); ENERGY & ENV'T ECON., INC., ARIZONA STATEWIDE TRANSPORTATION ELECTRIFICATION PLAN (2019); ENERGY & ENV'T ECON., INC., ARIZONA STATEWIDE TRANSPORTATION ELECTRIFICATION PLAN: PHASE II (2021).

The commission began considering utility-filed investment proposals thereafter.¹⁰⁴

Alabama. In 2018, in a docket primarily focused on questions of regulatory jurisdiction over EV charging stations, the Alabama PSC responded to calls to set policy for utility EVSE ownership by concluding that it would wait for utility proposals to be filed before it took up the issue¹⁰⁵—although no utility EVSE investment proposal has yet been filed.

Connecticut. In 2019, following participation in the state’s comprehensive energy planning process, the Connecticut Public Utilities Regulatory Authority (CPURA) split EV issues off from an ongoing proceeding intended to consider grid modernization issues, thereby initiating stakeholder meetings that developed statewide EVSE investment.¹⁰⁶

Puerto Rico. In 2021, the Public Service Regulatory Board (PSRB) of the Puerto Rico Energy Bureau issued a resolution permitting utility EVSE investment and ordering submission of a transportation electrification plan.¹⁰⁷

These summaries demonstrate that regulatory action does not happen in a vacuum. Utility EVSE investment has been a topic of discussion in more general regulatory policy investigations prior to specific proposals being filed. Utility regulators have recognized that EV charging will place new demands on grid resources, and have initiated cases to better prepare the electric power system for what is coming. Investment proposals and policy have grown out of those technical proceedings.

104. EVs, EV Infrastructure, and Elec. of Transp. Sector in Arizona, Ariz. Corp. Comm’n No. E-00000A-21-0104 (Apr. 30, 2021). The AZCC was also asked to approve the cost recovery of a utility pilot in 2019. Ariz. Pub. Serv. Co. Rate Case, Ariz. Corp. Comm’n No. E-01345A-19-0236 (Oct. 1, 2019).

105. Order, Generic Proceeding to Determine Comm’n Jurisdiction Over EV Charging Stations, Ala. P.S.C. No. 32694 (June 22, 2018).

106. CONN. DEP’T ENERGY & ENV’T PROT., COMPREHENSIVE ENERGY STRATEGY 48–54 (2018); PURA Investigation into Distrib. System Planning of Elec. Distrib. Cos.—Zero Emission Vehicles at 14-16, Conn. Pub. Util. Reg. Auth. No. 17-12-03RE04, (Oct. 2, 2019) (initiating ZEV proceeding); Equitable Modern Grid: Release of Final Requests for Program Design and Proposals, Conn. Pub. Util. Reg. Auth. No. 17-12-03RE04 (May 6, 2020).

107. Deployment of Elec. Vehicle Charging Infrastructure, P.R. Pub. Serv. Reg. Bd. No. NEPR-MI-2021-0013 (Aug. 26, 2021) (resolution).

4. State Executive Initiative

In a few states, clean transportation policy has been driven by the state executive, sometimes with significant political dimensions. Matters such as state adoption of the California ZEV mandate, state participation in litigation over the California Clean Air Act waiver, and, in general, state support for EV adoption, are to some degree already politically polarized, and often (though not always) legislative, regulatory, and executive action on EV policy is promoted first by the Democratic Party. In states with mixed party control, executives have occasionally pushed forward without support from other parts of the state government. For example:

Pennsylvania. In 2016, shortly after the Democratic Party took the governor's office, Pennsylvania initiated inquiries into utility EVSE policy via the executive creation of the Drive Electric PA Coalition, a public-private partnership run by the Pennsylvania Department of Environmental Protection Energy Office.¹⁰⁸ The workgroup included the state's utility regulators, and the group's 2019 statewide strategy discussed growing interest in utility-led EVSE programs.¹⁰⁹ With the Republican Party-controlled state legislature declining to enact significant clean transportation legislation in 2018, the Pennsylvania PUC issued only a limited policy statement, and the state's utilities submitted small EVSE spending proposals in 2021.¹¹⁰

Colorado. In 2017, as part of a broader initiative to elevate clean transportation in the state leading up to a presidential run, Colorado's governor issued an executive order to develop a statewide EV plan, and the resulting plan identified utility investment as a key strategy.¹¹¹ In 2019, after the Democratic Party retook the state legislature, the state passed a law requiring utilities to submit TE plans, including EVSE investment programs, in a year's time.¹¹² The

108. *Drive Electric Pennsylvania Coalition*, PENN. DEP'T ENV'T PROT., <https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/State-Energy-Plan/Pages/Drive-Electric-PA-Coalition.aspx> [<https://perma.cc/2NN2-L4GD>] (last visited Nov. 9, 2022).

109. PENNSYLVANIA ELECTRIC VEHICLE ROADMAP, PENN. DEP'T ENV'T PROT. 26, 30–31 (Feb. 2019).

110. Policy Statement on Third Party EV Charging—Resale/Redistrib. of Util. Serv. Tariff Provisions, Penn. P.U.C. No. M-2017-2604382 (Nov. 8, 2018); Duquesne Light Co. Rate Case, Penn. P.U.C. No. R-2021-3024750 (Apr. 16, 2021); PECO Energy Co. Rate Case, Penn. P.U.C. No. R-2021-3024601 (Mar. 30, 2021).

111. Colo. Exec. Order No. 2017-015 (July 11, 2017); COLORADO ELECTRIC VEHICLE PLAN, STATE OF COLO. (Apr. 2020).

112. S.B. 19-077, Reg. Sess. (Colo. 2019) (amending Colo. Rev. S. § 40-1-103.3, adding §§ 40-3-116, 40-5-107).

state's regulated utilities thus proposed investments in their 2020 rate cases.¹¹³

North Carolina. In 2018, North Carolina's newly elected Democratic governor issued statewide climate and ZEV goals by executive order.¹¹⁴ Around the same time, the Governor's Energy Policy Council recommended that the state begin to consider utility policies to support EV adoption.¹¹⁵ The utilities filed pilot proposals in response to these developments.¹¹⁶

As these examples demonstrate, political party differences in climate, energy, and environmental policy priorities cannot be ignored, and utility EVSE investment, while often approached as a technical matter, is related to many more contentious debates about economic development, support for fossil fuel industries, consumer choice, and quality of life. Just like legislatures and state executives, regulatory commissions are political actors, and state regulatory commissioners are generally affiliated with one of the two major U.S. political parties, and therefore utility EVSE investment policy is, to some degree, influenced by the politics of the regulators and, more generally, the politics of the states they serve.

5. Regulated Utility Initiative

Finally, many states have seen utility EVSE investment proceedings initiated by their utilities, which have filed a wide range of EVSE investment proposals without any other prior encouragement or discouragement from state government actors. In fact, this is the most common way for utility proposals to come before state regulators:

Kentucky. In 2015 and 2018, Kentucky utilities proposed tariffs to pay for utility-owned charging stations. The Kentucky PSC expressed concerns over the utilities' potential plans for expansion in 2020 and ordered its utilities to begin reporting on the EV charging stations it owned or was seeking to rate base.¹¹⁷

113. Black Hills Colo. Elec. Rate Case, Colo. P.U.C. No. 20A-0195E (May 8, 2020); Excel Rate Case, Colo. P.U.C. No. 20A-0204E (May 15, 2020).

114. N.C. Exec. Order No. 80 (Oct. 29, 2018).

115. ENERGY POL'Y COUNCIL: BIENNIAL REPORT, N.C. DEP'T OF ENV'T QUALITY 69-70 (May 2018).

116. Duke Energy Application for Approval of Proposed Elec. Transp. Pilot, N.C. Util. Comm'n Nos. E-2 Sub. 1197, E-7 Sub. 1195 (Mar. 29, 2019).

117. Kentucky Utilities Co. Application to Install & Operate Elec. Charging Stations, Ky. P.S.C. No. 2015-00355 (Nov. 13, 2015); Order App. B, Application of Kentucky Utilities Co. for Adjustment of Elec. Rates, Ky. P.S.C. No. 2018-00294/-00295 (Aug. 27, 2018); Order 16, Application of Kentucky Utilities Co. for Adjustment of Elec. Rates, Ky. P.S.C. No. 2020-00349/-00350 (June 30, 2021).

Michigan. In 2016, the Michigan PSC received a proposal from one of its regulated utilities that was ultimately withdrawn in favor of a policymaking conference.¹¹⁸ Following those proceedings, however, utilities filed several more pilot proposals for the PSC's review.¹¹⁹

Kansas and Missouri. In 2015, Missouri-based utility Kansas City Power & Light proposed to recover costs for a large public charging network in both states.¹²⁰ In 2019, Kansas passed a law requiring an investigation into utility EVSE programs, and KCP&L's successor filed a revised proposal in 2021.¹²¹ Missouri also received proposals from two other utilities.¹²²

Florida. In 2016 and 2017, the Florida PSC received its first utility EVSE pilot proposals in utility general rate case filings.¹²³ As Florida's legislature began ordering development of more coordinated statewide EV infrastructure planning, regulators began to consider larger utility proposals for EV charging infrastructure in 2021 and 2022.¹²⁴

118. Consumers Energy Co. Rate Case, Mich. P.S.C. No. U-17990 (Mar. 1, 2016); Order at 43–49 (Feb. 28, 2017), *id.* (initiating Mich. P.S.C. No. U-18368 (Apr. 28, 2017) (alternative fuels investigation); Order Following Second Collaborate Tech. Conf., Mich. P.S.C. No. U-18368 (Mar. 29, 2018).

119. Consumers Energy Co. Rate Case, Mich. P.S.C. No. U-20134 (May 15, 2018); DTE Electric Co. Rate Case, Mich. P.S.C. No. U-20162 (July 6, 2018); DTE Electric Co. Application for Approval to Implement Phase Two of EV Charging Forward Program, Mich. P.S.C. No. U-20935 (Dec. 3, 2020); Upper Peninsula Power Co. Application for Auth. to Amend Commercial Gen. Serv. Tariff to Provide Expanded Use of EV Charging Stations, Mich. P.S.C. No. U-21137 (Sept. 15, 2021); Alpena Power Co. Application for Authority to Amend Gen. Serv. Tariff to Provide Expanded Use of EV Charging Stations, Mich. P.S.C. No. U-21234 (Apr. 28, 2022).

120. Evergy Application for Approval of Transp. Elec. Portfolio, Kan. Corp. Comm'n No. 16-KCPE-160-MIS (Sept. 24, 2015); Evergy Rate Case, Mo. P.S.C. No. ER-2018-0145/-0146 (Jan. 30, 2018); Evergy Application for Approval of a Transp. Elec. Portfolio, Mo. P.S.C. No. ET-2021-0151 (Feb. 24, 2021).

121. K.S.A. § 66-1287 (Kan. 2022); Evergy Application for Approval of Transp. Elec. Portfolio, Kan. Corp. Comm'n No. 21-EMKE-320-TAR (Feb. 24, 2021).

122. Ameren Application for Approval of Efficient Elec. Program, Mo. P.S.C. No. ET-2018-0132 (Feb. 22, 2018); Liberty Application for Approval of Transp. Elec. Portfolio, Mo. P.S.C. No. ET-2020-0390 (Dec. 3, 2021).

123. Gulf Power Co. Pilot, Fla. P.S.C. No. 160186-EI (Aug. 12, 2016); Duke Energy Rate Case, Fla. P.S.C. No. 20170183-EI (Aug. 29, 2017).

124. Dep't of Transp., S.P.B. 7018 Legis. Sess. (Fla. 2020); FLA. DEP'T OF TRANSP., EV INFRASTRUCTURE MASTER PLAN (2021); Tampa Elec. Co. Pilot, Fla. P.S.C. No. 20200220-EI (May 18, 2020); Fla. Power & Light Co. Pilot, Fla. P.S.C. No. 20200170-EI (June 19, 2020); Fla. Power & Light Co. Rate Case, Fla. P.S.C. No. 20210015-EI (2021); Duke Energy Rate Case, Fla. P.S.C. No. 20210016-EI (Jan. 4, 2021); Duke Energy Cost Recovery Request, Fla. P.S.C. No. 20220029-EI (Feb. 4, 2022).

Ohio. In 2016 and 2018, the Public Utilities Commission of Ohio (PUCO) received utility EVSE pilot proposals from two utilities.¹²⁵

Delaware. In 2017, the Delaware PSC received an EVSE pilot proposal, and other state agencies are now in the process of developing an EV infrastructure plan.¹²⁶

New Jersey. From 2018 to 2020, New Jersey's public utilities filed EVSE investment proposals with the New Jersey Board of Public Utilities (BPU), prior to the state's development of its 2019 Energy Master Plan, legislature's passing a comprehensive EV law encouraging further filings and investments, and the BPU's investigations into other EV infrastructure incentive programs.¹²⁷

South Carolina. In 2018, the South Carolina PSC received utility EVSE pilot proposals for its review, and further extension proposals were received in 2022.¹²⁸

Iowa. An Iowa utility began funding EVSE with shareholder funds as early as 2016 and requested recovery in rates for these activities in its 2019 rate case.¹²⁹

Wisconsin. In 2019 and 2020, the Wisconsin PSC received pilot proposals from several of its regulated utilities,¹³⁰ and subsequently

125. Ohio Power Co. Pilot, Ohio P.U.C. No. 16-1852-EL-SSO (Sept. 7, 2016); Dayton Power & Light Co. Grid Modernization Request, Ohio P.U.C. No. 18-1875-EL-GRD (Dec. 21, 2018).

126. Delmarva Power & Light Co. Application for Approval of Plug-In Vehicle Charging Program, Del. P.S.C. No. 17-1094 (Oct. 19, 2017); *Delaware's Vehicle Electrification Future*, DEL. DEP'T OF TRANSP., <https://deldot.gov/Programs/NEVI/index.shtml> [<https://perma.cc/ZB5L-45HL>] (last visited Nov. 9, 2022).

127. Atlantic City Elec. Co. Program for Plug-In Vehicle Charging, N.J. Bd. Pub. Util. No. EO18020190 (Feb. 23, 2018); Pub. Serv. Elec. & Gas Co. Petition for Approval of Clean Energy Future—EV & Energy Storage ("CEF-EVES") Program, N.J. Bd. Pub. Util. No. EO18101111 (Sept. 4, 2020); S.B. 2252, 218 Gen. Legis. Sess. (N.J. 2020); N.J. Bd. Pub. Util., NEW JERSEY ENERGY MASTER PLAN: PATHWAY TO 2050 (2019); Minimum Filing Requirements for Light-Duty, Publicly-Accessible EV Charging, N.J. Bd. Pub. Util. No. QO20050357 (Oct. 20, 2020); Rockland Elec. Co. Petition for Approval of EV Program, N.J. Bd. Pub. Util. No. EO20110730 (Apr. 8, 2021); Jersey Cent. Power & Light Co. Petition for Approval of EV Program, N.J. Bd. Pub. Util. No. EO21030630 (Feb. 26, 2021); Establishment of Multi-Unit Dwelling EV Charging Program, N.J. Bd. Pub. Util. No. QO21101203 (Oct. 29, 2021); Statewide Destination Program Proposal, N.J. Bd. Pub. Util. No. QO21081070 (Aug. 16, 2021).

128. Duke Energy Carolinas Application for Approval of Proposed Elec. Transp. Pilot, S.C. P.S.C. No. 2018-321-E (Oct. 10, 2018); Duke Energy Progress Application for Approval of Proposed Elec. Transp. Pilot, S.C. P.S.C. No. 2018-322-E (Oct. 10, 2018); Duke Energy Carolinas & Duke Energy Progress Joint Application for Approval of EV Supply Equipment Program, S.C. P.S.C. No. 2022-158-E (Apr. 29, 2022). An early, very limited pilot was submitted in S.C. P.S.C. No. 2011-144-E.

129. Interstate Power & Light Co. Rate Case, Iowa Util. Bd. No. RPU-2019-0001 (Feb. 6, 2019).

130. Excel Pilot Application, Wis. P.S.C. No. 4220-TE-104 (Nov. 20, 2019); Wis. Elec. Power Co. EV Charging Pilot Approval Application, Wis. P.S.C. No. 6630-TE-106 (June 3, 2021); Wis. Pub. Serv. Corp. EV Charging Pilot Approval Application, Wis. P.S.C. No. 6690-TE-111 (Oct. 7,

issued an order on its own motion—over the dissent of one commissioner—to open an EV policy docket, expressing interest in exploring the utility role in EVSE construction and providing a positive view of pilot programs.¹³¹

Idaho. In 2021, the Idaho PUC received a pilot proposal from a utility that had begun TE initiatives in neighboring states, framed as a research pilot and energy efficiency project.¹³²

Mississippi. In 2021, the Mississippi PSC received a proposal for a utility to own DCFC for the first time, framed as a request for a new charging tariff.¹³³

As these examples demonstrate, even in states without significant legislative, executive, or regulatory policy in support of utility EVSE investment, utilities have begun pushing for opportunities to invest ratepayer money in such projects.

In summary, although there are many paths—whether executive, legislative, regulatory, or utility initiative, and whether complex or straightforward—all pathways lead to utility spending proposals before utility regulatory commissions for review. In total, more than forty states have now received and begun considering such proposals in some fashion—with only Alaska, Arkansas, Louisiana, Montana, North Dakota, Oklahoma, South Dakota, and Texas yet to begin. Although more could be said about the unique pathways that each state has followed, ultimately the outcome has been the same: The proposals must arrive before state regulators, who must review, debate, and decide them.

B. How Much, On What

This section surveys the outcomes of the regulatory reviews of utility EVSE investment proposals, identifying the types of EV infrastructure that ratepayers have been asked to pay for, how much they have been asked to pay, and the extent to which regulatory commissions have deemed such spending to be reasonable and prudent as part of their rate regulation activities. The review demonstrates that the many dozens of utility proposals fall within a

2020); *See also* Madison Gas & Elec. Co. EV Managed Charging Pilot Application, Wis. P.S.C. No. 3270-TE-115 (Mar. 15, 2022).

131. Order at 4, Investigation of EV Policy & Regul., Wis. P.S.C. No. 5-EI-156 (Dec. 23, 2020).

132. Avista Application for Order Authorizing Elec. Transp. Pilot Programs, Idaho P.U.C. No. AVU-E-21-13 (Sept. 9, 2021).

133. Entergy Miss. Notice of Intent to Change Rates by Offering Prepay Elec. Serv. Option, Miss. P.S.C. No. EC-123-0082-00 (Dec. 2, 2021).

relatively small and predictable range of stable categories: from residential rebates for a home charging box, to a utility-branded fast charging cluster at an interstate rest stop. It also identifies important patterns in approved spending that allow for classification of states according to approval amounts. The details discussed in this section are consolidated in Table 2 (*see* Appendix at 187).

To discuss these authorizations in detail, the first step is to summarize the basics of EV charging infrastructure and its associated costs. In the United States, EVSE are categorized according to their operating voltage, which translates into their charging power and, therefore, charging speed.¹³⁴ Accordingly, there are three “levels” of EV charging, with three distinct cost structures:

“Level 1” (L1) chargers draw power from a typical U.S. 120-volt household electric outlet, and provide about 1.3 to 2.4 kilowatts (kW) charging power, equivalent to about three to five miles of driving range per hour charged, or thirty to fifty miles per overnight charge—good for local trips and commuting, and requiring no special electrical equipment other than a standard wall outlet.

“Level 2” (L2) chargers, by comparison, operate at 240 volts, the same as a typical U.S. home laundry dryer. They require more robust electrical connections but can provide energy about five times faster than L1s, meaning 15–25 miles driving range per hour charged, or 200–300 miles overnight. High-voltage home chargers are L2, as are many chargers in public parking areas.

The DC Fast Charger (DCFC) chargers require a bit more explanation. The electric grid, L1, and L2 chargers provide alternating current (AC) electricity, while EV batteries require direct current (DC) electricity to charge, so EVs must have an onboard AC–DC converter for L1 and L2 charging. The third type of charging station—the DCFC—provides DC electricity directly, and at much higher voltages than L2 charging, limited only by what the local grid can provide and a car can accept. DCFCs allow for charging 200–300 miles in thirty to fifty minutes and often require large pieces of expensive electrical equipment to function. There are some developing distinctions

134. *See Charging Infrastructure: Summary for Decision Makers*, ELECTRIC VEHICLE DEPLOYMENT GUIDEBOOK, <https://greeningthegrid.org/electric-vehicle-toolkit/electric-vehicle-building-blocks-guidebook/charging-infrastructure> [<https://perma.cc/A5AS-T2GA>] (last visited Nov. 9, 2022); Tom Moloughney, *What Are The Different Levels Of Electric Vehicle Charging?*, FORBES WHEELS (Oct. 4, 2021), <https://www.forbes.com/wheels/advice/ev-charging-levels/> [<https://perma.cc/WTJ7-QKP7>]; Simon Sage, *EV Glossary: All Of The Electric Vehicle Jargon You Need To Know*, DIGITALTRENDS (May 17, 2022), <https://www.digitaltrends.com/cars/ev-glossary/> [<https://perma.cc/747X-S3L8>].

within DCFCs (e.g., 50 kW vs. 150 kW or more), but there is not yet any consistent terminology or standardization for these differences.

Today, it typically costs less than \$1,000 to install a home L2 charger on a wall in a home garage, including the charging box, wiring upgrades, and labor. But to install the same L2 plug in a public parking lot or parking garage requires a larger free-standing charging station, commercial wiring installation, networking equipment, and more labor—and can cost ten times more, on average about \$10,000, of which only about 15% is the charging station itself. To install a DCFC, meanwhile, costs ten to twenty times as much—from \$100,000 to \$250,000—the majority of which, again, is for the electrical equipment leading up to the station. Thus, \$250 rebates for one million home charging customers might cost about the same as installing 1,000 DCFC stations along freeways.

Many parties might be involved in a single charging station, especially in a public space. The site owner, or “site host,” may provide permission for the station to be built, while an EVSE owner provides and installs the equipment, an electric utility provides the electricity, and a separate billing service provider handles credit card payments. Multiple parties might perform any of these roles (for example, a utility could be both a site host and the owner of equipment, or the owner of equipment could also provide billing services), and these relationships will be spelled out in legal agreements tailored to each specific situation.

1. Spending Patterns

Table 2 documents that regulators in thirty-four states and D.C. have committed ratepayers to spend over \$3.1 billion on light-duty L2 and DCFC EVSE construction over the next decade—excluding medium- and heavy-duty infrastructure, and associated programs like education and marketing.¹³⁵

This total works out to about \$9 per person in the United States. The total number is misleading, however, as the funds are unevenly distributed. California and New York stand out, as they make up about half of the total approvals to date—or about \$27 per person in those two states, while the rest of the country averages about \$5.50 per

¹³⁵ The following analysis is based on the authorization data reported in Table 2, combined with census-level state population data available at U.S. Census Bureau, Quickfacts: Population Estimates, July 1 2021, [https://www.census.gov/quickfacts/geo/chart/\[https://perma.cc/D9E8-DJX9\]](https://www.census.gov/quickfacts/geo/chart/[https://perma.cc/D9E8-DJX9]). For further information on the method used for calculating state spending authorization totals, *see infra* note 247.

person. Although not a perfect metric (because not all states have the same percentage of their populations served by regulated IOUs), per-capita figures are even more revealing. Under that metric, Connecticut (\$69 per person) has approved more than twice as much as the next state, New York (\$33), followed by New Jersey (\$29), Nevada (\$28), California (\$25), Oregon (\$23), Washington (\$16), Utah (\$15), Colorado (\$14), and Massachusetts (\$11). These states, home to 103 million people, have committed \$2.64 billion, or \$25.60 per person—while the remaining states, home to about 228 million people, have committed about \$491 million, or about \$2.16 per person. Some of the differences between these “high tier” states can be attributed to differences in approval timeframes: Connecticut’s figures are higher because the state has approved a ten-year program, while many other state approvals only extend two to five years at this time. Other differences are attributable to participation caps and investment elements, as discussed in the next sections.

Of the remaining states, a “middle tier” has committed between \$2 and \$10 per person to EVSE—Florida (\$9.14), New Mexico (\$7.74), Maryland (\$7.53), Rhode Island (\$6.65), Minnesota (\$5.71), Missouri (\$4.31), Kansas (\$3.98), Hawaii (\$3.44), D.C. (\$3.34), Michigan (\$3.10), Virginia (\$2.65), Georgia (\$2.50), and Tennessee (\$2.15)—while a further ten states—North Carolina, Arizona, South Carolina, Ohio, Indiana, Delaware, Maine, Kentucky, and Pennsylvania make up a “low tier” that have committed between \$0.01 and \$2 per person. These approvals tend to be pilot spending programs and post-investment cost recovery, rather than forward-looking or market-driving investment authorizations.

Finally, states with 27% of the nation’s population have not yet approved any utility EVSE investment. Texas is by far the largest of these states, and the structure of Texas’s deregulated retail electricity sector may make such investments more unlikely there than elsewhere. Illinois is the next largest state, although it is actively considering large proposals mandated by state law and is almost certain to be approving them soon. Wisconsin has only approved revenue-neutral programs, and stated a strong preference for that structure, while the remaining states are predominantly more rural—among them, Idaho and Iowa have denied cost recovery for small pilots, while the rest have not yet received any proposals.

Table 3: Utility Spending Tiers, By State

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Tier	States
High	CA, CO, CT, MA, NY, NJ, OR, NV, UT, WA
Middle	DC, FL, GA, HI, KS, MD, MI, MN, MO, NM, RI, TN, VA
Low	AZ, DE, IN, KY, ME, OH, PA, NC, SC
None	AL, AK, AR, IA, ID, IL, LA, MS, MT, ND, NE, NH, OK, PR, SD, TX, VT, WI, WV, WY

Another useful way to consider these numbers is to imagine what these spending levels would mean if they were adopted across the whole country. If every state committed to utility EVSE investments at Connecticut's level (330 million people spending \$69 each), that would total about \$23 billion. While this is a significant amount of money (the cost of two modern aircraft carriers),¹³⁶ it is small in the context of the U.S. federal budget (over \$6 trillion per year). As discussed in Part I, furthermore, recent estimates for total needed EVSE investment over the next decade total \$87 billion,¹³⁷ and, as discussed in Part III, total federal, state, and private investment totals about \$13 billion to date, of which half is federal infrastructure spending on interstate corridors. In other words, there is still a great deal of potential for utility EVSE investment to fill the "investment gap" that analysts have identified as they prepare the roads for EV adoption.

In other words, there is little doubt that more spending is coming, and that utility spending proposals will be modeled on those that have come before. It is, therefore, useful to understand what these ratepayer funding approvals are being used to purchase—that is, what utility regulatory commissions have concluded are reasonable and prudent expenditures of ratepayer funds: from small home

136. J. Dana Stuster et. al., *What Can You Buy For \$24 Billion?*, FOREIGN POL'Y (Oct. 7, 2013), <https://foreignpolicy.com/2013/10/17/what-can-you-buy-for-24-billion/> [<https://perma.cc/FMU2-GY8X>].

137. ATLAS PUB. POL'Y, *supra* note 7.

charger rebates to the full costs of expensive commercial installations, and everything in between.

2. Charging Station Rebates Only

Many utility EVSE investments have come in the form of rebates for home L2 charging stations—a payment from a utility to a utility customer, to cover some or all of the cost of charging station equipment that the customer has purchased. However, it is not possible to determine exactly how much ratepayer funding has been dedicated to charger rebates specifically. First, such rebates are often parts of the customer-side incentive or make-ready rebate programs discussed below, but not disaggregated. Second, there are many rebate programs that have not received special authorization to include EVSE. Thus, even a utility in a state that has not directly approved ratepayer spending on EVSE might offer a \$250 energy efficiency rebate for a home charger.¹³⁸ Rebates are also increasingly popular among cooperatives and public utility districts that are not subject to regulatory oversight and therefore are not documented here.¹³⁹

That said, regulatory commissions have also weighed in on rebate-only programs. Particularly in states lacking strong transportation electrification policies, even these limited programs have sometimes fared poorly. In 2019, for example, Iowa utility Interstate Power and Light Company (IPL) attempted to recover costs for rebates it had issued, and to seek approval for more, but the Iowa Utilities Board rejected this on the grounds that the program was “not cost-effective for all customers,” meaning it did not benefit all IPL customers equally, and therefore “must be paid by shareholders” rather than ratepayers.¹⁴⁰ In 2020, Indiana rejected a proposal to create a

138. *E.g.*, *Electric Vehicles*, MISS. POWER, <https://www.mississippipower.com/residential/products-and-services/electric-vehicles.html> [https://perma.cc/8S4Q-ESTX] (last visited Nov. 10, 2022); *ELECTRIC VEHICLE RESIDENTIAL REBATE FORM*, MISS. POWER 1 <https://www.mississippipower.com/content/dam/mississippipower/pdfs/residential/ev-rebates/2022/8-22-MKT-RESIDENTIAL-EV-ebate-form.pdf> [https://perma.cc/KX4U-WDXP] (last visited Nov. 10, 2022).

139. *E.g.*, *Electric Vehicle Program*, CLARKE PUB. UTIL. DIST., <https://www.clarkpublicutilities.com/residential-customers/reduce-energy-waste-and-lower-your-bill/all-rebates-incentives-and-low-interest-loans/electric-vehicle-program/> [https://perma.cc/HN4G-QVG9] (last visited Nov. 10, 2022); *Electric Vehicle Program*, CENT. ELEC. COOP. <https://www.cec.coop/electric-vehicle-program/> [https://perma.cc/B7R7-ZSWY] (last visited Nov. 10, 2022).

140. Order at 34, Interstate Power & Light Co. Rate Case, Iowa Util. Bd. No. RPU-2019-0001 (Jan. 8, 2020).

program including residential and commercial rebates (plus other program elements), noting that Indiana had no statewide EV policy to justify such costs to ratepayers, and “[w]ithout such a policy, we decline to approve a customer-funded EV program on the scale proposed here, particularly when the evidence fails to demonstrate a reasonable, timely benefit to non-participating customers”—though the IURC did approve a smaller pilot later.¹⁴¹ The Washington, D.C. PSC has also been skeptical of rebates, deciding after two utility attempts to deny a rebate pilot on cost fairness grounds: “the Commission acknowledges that a select number of EV owners would benefit from the rebates, [but] not all District ratepayers will benefit.”¹⁴²

There is also one approach to rebates that requires further explanation: the rebate combined with a customer fee to recapture it over time, meaning that it is not really a rebate at all. This approach has become the norm in Wisconsin, where the state’s 2020 policy decision to consider allowing EVSE investment drew a strong dissent from a member of the state’s commission critiquing the entire process for “government overreach and intrusion in free market principles,”¹⁴³ and subsequent utility EVSE investment proposals have been quite careful, attempting to design customer financial incentives that are not attacked as cross-subsidies—by restructuring rebates as what are effectively loans. In 2019, Xcel proposed pilots structured this way,¹⁴⁴ and in 2020 and 2022, three other Wisconsin utilities proposed similar pilots, although in the process they also opened the door to future programs providing rebates for chargers in low-income areas without the customer fees to recapture costs,¹⁴⁵ reflecting the “market failure” logic discussed above.

141. Order at 15–18, Duke Energy Indiana Petition for Approval of Elec. Transp. Pilot, Ind. Util. Regul. Comm’n No. 45253 S2 (July 22, 2020); Approval Order, Duke Energy Indiana Amended Petition for Approval of Elec. Transp. Pilot, Ind. Util. Regul. Comm’n No. 45616 (June 1, 2022).

142. Order No. 21162 at 15, Potomac Elec. Power Co. Transp. Elec. Program Application & Investigation into Modernizing Energy Delivery System, D.C. P.S.C. Nos. 1130, 1155 (June 3, 2022).

143. Order at 10–11, Investigation of EV Policy & Regul., Wis. P.S.C. No. 5-EI-156 (Dec. 22, 2020) (Nowak dissent).

144. Final Decision, N. States Power Co. Application for Approval of EV Home Serv. Programs, Wis. P.S.C. No. 4220-TE-104 (July 16, 2020).

145. Final Decision at 32, Wis. Elec. Power Co. Application for Approval of EV Charging Pilots, Wis. P.S.C. No. 6630-TE-106 (Aug. 26, 2021); Final Decision at 32, Wis. Pub. Serv. Corp. Application for Approval of EV Charging Pilots, Wis. P.S.C. No. 6690-TE-111 (Aug. 26, 2021); Madison Gas & Elec. Co. EV Managed Charging Pilot Applications, Wis. P.S.C. No. 3270-TE-115 (Mar. 15, 2022).

Charger rebates, therefore, have emerged as a potential solution for utilities and regulatory commissions looking to support EVSE without comprehensive transportation electrification plans. A rebate's incentive power is limited, however, because the charger box itself is only a small fraction of a typical EVSE installation's costs, and therefore many utilities have combined rebates with other program elements to cover a larger proportion of the total costs of EVSE.

3. Customer-Side Installation Incentives

"Customer-side installation incentives" mean payments from a utility to a utility customer that cover charging station installation costs, including not only the charging box but also the costs of any necessary wiring and building upgrades, and any associated labor, but limited to upgrades to the customer's property (the fuse box, wiring in the house, etc.), and not including anything on the "utility side," meaning the electric system from the electric meter back. Examples of customer-side incentives might be as simple as the cost to pay an electrician to install a new 240-volt outlet in a home garage, or as complex as the cost of hiring a construction crew to lay electrical conduit through a trench in a public parking lot.

These programs can be difficult to distinguish because they are also sometimes called "rebates" and sometimes called customer-side make-ready infrastructure, but are distinct because they cover additional electrical equipment beyond what rebates provide, and less electrical equipment than what a full make-ready program provides. Thus, for example, NV Energy's 2018 EVSE pilot provided a "total incentive to support the deployment of Level 2 EV charging infrastructure at a cap of \$3,000 per charging port, with a total incentive cap of 75% of project cost," covering customer-side equipment.¹⁴⁶ Similar authorizations for "rebates" or "incentives" or "allowances" that cover installation costs beyond the charging station

146. Stipulation at 7, Nev. Power Co. & Sierra Pac. Power Co. Renewable Plan, Nev. P.U.C. No. 18-02002 (May 23, 2018).

itself, but only on the customer side, have been made in Florida,¹⁴⁷ Kansas,¹⁴⁸ New York,¹⁴⁹ and California.¹⁵⁰

Notably, utilities that have structured EVSE investment programs in this way have sometimes gone on to receive approval to expand them. For example, Utah's Rocky Mountain Power built its initial program around installation incentives for public L2 and DCFC chargers,¹⁵¹ but later received permission to expand its payments to other types of equipment. Early programs in California relied more heavily on customer-side incentive payments, prior to broader acceptance of the full make-ready format.¹⁵² In all cases, customer-side incentives have been combined with incentive caps or customer caps as cost control measures, the same kinds of participation conditions as rebate programs, and more often also require some level of cost sharing with the property owner.

Thus, while customer-side incentive programs remove many barriers to EVSE installation, they still expose individual customers to certain costs. And, even if costs are fully covered, these programs make the customer responsible for future repair and maintenance costs for the equipment they now own. These programs also do nothing to address costs incurred to upgrade utility distribution systems that may fall to individual customers, particularly in large DCFC situations that require significant upgrades to utility

147. Settlement at 10, 53, Duke Energy Fla. Petition, Fla. P.S.C. No. 20210016-EI (June 28, 2021) ("DEF is authorized to implement a rebate program for Commercial & Industrial ('C&I') customers. All C&I customers that install an eligible EV charging station are eligible for the rebate." *Id.* at 11).

148. TE Filing Report § 4.3, Evergy Kan. Metro & Evergy Kan. Cent. Application For Approval Of Trans. Elec. Portfolio, Kan. Corp. Comm'n No. 21-EKME-320-TAR (Feb. 24, 2021) ("Measure: Rebate support for installed customer infrastructure costs and qualified EVSE Incentive: Rebate of \$2500 per port for L2 and \$20,000 per unit for DCFC, capped at between \$25,000-\$65,000 per premise (depending on site type)"); Order at 6, Evergy Kan. Metro & Evergy Kan. Cent. Application for Approval of Transp. Elec. Portfolio, Kan. Corp. Comm'n No. 21-EKME-320-ACT (Dec. 6, 2021).

149. Order Establishing Framework for Direct Current Fast Charging Infrastructure Program at 9-10, EV Supply Equipment & Infrastructure, N.Y. P.S.C. No. 18-E-013 (Feb. 7, 2019) (DCFC incentive requiring payment of utility-side costs, providing rebate on installation costs).

150. Decision at 24, SDG&E Application for Approval of Transp. Elec. Proposals, Cal. P.U.C. No. D.18-05-040 (May 31, 2018) ("Participants in SDG&E's RCP will receive an allowance toward both the equipment cost and installation of their EVSE").

151. Application at 9-15, Rocky Mountain Power Request to Implement Programs Authorized by Sustainable Transp. & Energy Plan Act, Utah P.S.C. No. 16-035-36 (Sept. 12, 2016); Approval Order, Rocky Mountain Power Application to Implement Programs Authorized by the Sustainable Transp. & Energy Plan Act, Utah P.S.C. No. 16-035-36 (Dec. 29, 2016).

152. Decision at 15-18, 27, S. Cal. Edison Co. Application for Approval of Charge Ready & Market Educ. Programs, Cal. P.U.C. No. 16-01-023 (Jan. 14, 2016).

distribution systems. This last limitation, especially, can be prohibitive because a customer willing to host a public EV charging station will quickly lose interest if asked to also purchase a new transformer that the new load makes necessary. To fully subsidize a charging station with ratepayer money, therefore, often requires spending on the utility side of the meter as well.

4. Make-Readies and Make-Ready/Rebates

There are methods to avoid customer payment of utility-side costs through rate design alone.¹⁵³ More commonly today, however, utilities have proposed “make-ready” programs that cover both customer- and utility-side costs. When combined with charging station rebates, these “make-ready/rebate” programs can cover the total price of a charger installation—the highest possible subsidy.

A “make-ready” program, in general, is one where the utility “makes the site ready” for a charging station. They function as a combination of customer-side installation incentives plus utility-side installation cost coverage, meaning ratepayers (not the individual customers) pay for everything associated with installing the charging stations, except the charging stations themselves—about 85–90% of the total charger installation costs. Although the terminology is not always consistent, three characteristics distinguish make-ready programs from other incentive programs: 1) they cover upgrade costs on the utility side of the meter; 2) they cover customer-side installation costs either through incentives or utility ownership of equipment beyond the meter; and 3) they do not allow utility ownership of the charging station. Preventing the utilities from owning the charger is intended to protect nonutility enterprises engaged in the sale of charging stations, while having utilities own equipment on the customer side of the meter is a departure from the traditional division of ownership and responsibility for electrical equipment on the grid.

Many of the largest utility EVSE investment approvals to date have been for make-ready and make-ready/rebate programs. Connecticut, for example, created a ten-year, \$250 million Statewide EV Charging Program funded by ratepayers, structured as a make-ready incentive with site host ownership behind the meter, and rebates for

153. Rate design is beyond the scope of this review. Generally, the issue is of “demand charges,” and rate design solutions involve waivers of or modifications to demand charge rate structures in order to facilitate EVSE deployment.

chargers.¹⁵⁴ New York, similarly, approved over \$500 million in recoverable utility spending for light-duty EVSE, allocated between six IOUs, structured as make-ready investments.¹⁵⁵ California utilities SCE and PG&E also now operate large make-ready/rebate programs.¹⁵⁶ From Michigan,¹⁵⁷ to Ohio,¹⁵⁸ to North Carolina,¹⁵⁹ to Hawaii,¹⁶⁰ to Maine,¹⁶¹ make-ready programs have received regulatory approval under reasonableness review. As with customer-side incentive programs, costs can be contained with spending caps, site host contribution requirements, port or site limits, or technology type limits. Thus, a make-ready program may still be quite small (in dollar terms) if it only covers fifty L2 sites, while it may be quite large if it covers every DCFC predicted to be needed in a utility's service territory over the next decade. Make-readies may also serve as an alternative to utility ownership, where a commission desires to use ratepayer funds to subsidize charging infrastructure as fully as

154. Decision at 12, 17–35, Pura Investigation into Distrib. System Planning of Elec. Distrib. Cos. – Zero Emission Vehicles, Conn. Pub. Util. Regul. Auth. No. 17-12-03RE04 (July 14, 2021).

155. Order Establishing EV Infrastructure Make-Ready Program & Other Programs, N.Y. Dep't Pub. Serv. No. 18-E-0138 at 74, App. B (July 16, 2020) (approving \$519 million L2/DCFC inventive program, plus futureproofing budget).

156. Decision 16-12-065 at 83–88, PG&E Application for Approval of EV Infrastructure & Educ. Program (U39E), Cal. P.U.C. No. A.15-02-009 (Dec. 15, 2016) (approving \$130 million charging pilot, limiting most spending to make-ready components); Decision 20-08-045 at 14–22, S. Cal. Edison Co. Application for Approval of Charge Ready Infrastructure & Market Educ. Programs, Cal. P.U.C. No. 18-06-015 (Aug. 27, 2020) (\$436 million make-ready program expansion) (*modified by* Decision 21-08-005, Cal. P.U.C. No. 18-06-015 (Aug. 5, 2021)).

157. Delaney Testimony at 13–28, Mich. P.S.C. No. U-20134 (May 18, 2018); Settlement Agreement Att. 3 (Dec. 18, 2018), *id.*; Order (Jan. 2, 2019), *id.* (\$10 million in rebates for chargers, behind the meter wiring, and needed service upgrades); Serna Testimony at 26–35, DTE Elec. Co. Application for Authority to Increase Rates, Mich. P.S.C. No. U-20162 (July 6, 2018); Order at 100–118, DTE Elec. Co. Application for Authority to Increase its Rates, Mich. P.S.C. No. U-20162 (May 2, 2019) (DTE \$13 million make-ready pilot).

158. Stipulation at 14–18, Ohio Power Co. Application for Authority to Establish Standard Service Offer, Ohio P.U.C. No. 16-1852-EL-SSO (Aug. 25, 2017); Order & Decision ¶¶ 61-76, Ohio Power Co., Ohio P.U.C. No. 16-1852-EL-SSO (Apr. 25, 2018) (AEP \$9.5 million make-ready/rebate); Stipulation at 13–18, Dayton Power & Light Co. Application for Approval of Plan to Modernize Distrib. Grid, Ohio P.U.C. No. 18-1875-EL-GRD (Oct. 23, 2020); Opinion & Order ¶ 41, Dayton Power & Light Co. Application for Approval of Plan to Modernize Distrib. Grid, Ohio P.U.C. No. 18-1875-EL-GRD (June 2, 2021) (AES Ohio \$5.1 million make-ready/rebate).

159. Application, Duke Energy Carolinas & Duke Energy Progress Request for Approval of Make Ready Credit Programs, N.C. U.C. No. E-2 Sub 1197/E-7 Sub 1195 (Apr. 30, 2021); Order Approving, *id.* (Feb. 18, 2022).

160. Application, Charge Ready Hawai'i Pilot Project Cost Recovery, Haw. P.U.C. No. 2020-0202 (Dec. 4, 2020); Decision & Order No. 38194, *id.* (Jan. 24, 2022) (commercial ready-make only).

161. Order, Request for Proposals for Pilot Programs to Support Beneficial Elec. of Transp. Sector, Me. P.U.C. No. 2019-00217 (Feb. 25, 2020) (experimental pilots comparing make-ready and rebate approach).

possible, but does not see the need for the utility to collect a rate of return on the charging station equipment, which can be provided by a third-party provider at lower cost—or where concerns about utility overbuilding or competition with non-utility enterprises predominate.

This last distinction, in particular, is important because many utilities have proposed to own the charging stations completely, the most controversial structure for these proposals.

5. Utility-Owned Charging Stations

Over the last ten years, many utilities have proposed complete ownership of EVSE from the grid to the charging station—meaning the utility purchases and maintains ownership of, and responsibility for, all charging equipment and associated infrastructure. Utility ownership has been controversial in many jurisdictions, but has also seen some surprising successes.

The California experience is an example of skepticism and hesitancy for this ownership model, as the state has allowed only one of its large utilities to experiment with complete ownership of charging stations, and is now moving away from that option after make-ready programs proved equally successful at lower cost to ratepayers.¹⁶² Many other regulatory commissions have received briefing from interested parties that supports station installation subsidies of various types, but opposes utility ownership of charging stations. These have ended in a variety of ways.

Florida, for example, has been remarkable as the most permissive and hands-off regulatory commission with respect to utility ownership of EVSE, allowing its regulated utilities to step directly into the public EV charging business with a great deal of financial support from ratepayers, and without a great deal of oversight. This began in 2016 when, as part of its rate case, Florida utility Gulf Power (now FPL Northwest) proposed a pilot to purchase, install, and own charging stations behind the meter “on a revenue neutral basis.” This pilot was approved for five years via a stipulated settlement with cost recovery left undecided.¹⁶³ Similarly, in 2017, as part of its rate case, Duke

162. Decision 21-04-014 at 44–45, SDG&E Application to Extend & Modify Power Your Drive Pilot, Cal. P.U.C. No. A.19-110-017 (Apr. 15, 2021).

163. Terry Testimony at 23, Gulf Power Co. Rate Case, Fla. P.S.C. No. 20160186-EI (filed Aug. 12, 2016) (“we are seeking a depreciation schedule for electric vehicle chargers to allow us to purchase, install and support these devices at customers’ locations, behind their electric service

Energy Florida (DEF) submitted a settlement stipulation containing a five-year pilot program to spend \$8 million to “purchase, install, own, and support” EVSE at customer locations, and recover program costs (offset by charging revenue), which was approved.¹⁶⁴ Then, in 2020, Florida utility TECO proposed to “purchase, install, own, and maintain” a limited number of EV chargers in its service territory over four years, and recover costs in rates—which was also approved.¹⁶⁵ In 2020, following the enactment of Florida’s transportation electrification law, FPL announced that it had voluntarily begun to build EV fast chargers and proposed a tariff to allow public charging at them, which was also approved.¹⁶⁶ At this point, the Florida PSC began receiving comments that the question of utility ownership of EVSE had not been deeply investigated in the state, but concluded, in a brief analysis, that given its past history of pilot approvals, the new policies set out in Florida law, and the fact that other states had approved utility-owned charging stations, it had no reason to revisit the question.¹⁶⁷ In its subsequent rate case, filed a month later, FPL sought recovery of the full projected costs of that program. In yet another rate case settlement, FPL added utility-owned residential L2 and public DCFC programs totaling \$130 million, which were approved with very little discussion.¹⁶⁸ Other states have been more cautious, but have ended up in the same place—particularly with DCFC stations on highways. In North Carolina, for example, Duke Energy proposed to own public L2 and DCFC stations, which was opposed so strenuously that Duke offered to withdraw the proposal—but the North Carolina Utilities Commission (NCUC) found the activities to be in the public interest, justified as an early boost to the

meter”); Hodnett Testimony at 16–17, *id.* (Oct. 12, 2016) (\$400,000 per year expenses); Order at 5, *id.* (May 16, 2017) (approving revenue-neutral pilot).

164. Duke Energy Rate Case, Fla. P.S.C. No. 20170183-EI (Nov. 20, 2017); 2017 Revised & Restated Settlement Agreement at 33–37, *id.* (Aug. 29, 2017); Order at 4, 5, *id.* (Nov. 20, 2017).

165. Order, Tampa Elec. Co. Petition for Approval of EV Charging Pilot, Fla. P.S.C. No. 20200220-EI (Apr. 21, 2021).

166. Order, Fla. Power & Light Co. Petition for Approval of Vehicle Public Charging Pilot, Fla. P.S.C. No. 20200170-EI (Dec. 21, 2020).

167. *Id.* at 3.

168. Order at 21, Fla. Power & Light Rate Case, Fla. P.S.C. No. 2021-0015-EI (Dec. 2, 2021).

market.¹⁶⁹ South Carolina, similarly, approved Duke Energy ownership of DCFC.¹⁷⁰

A risky approach to utility-owned chargers has been to “build first, ask later.” Several utilities have decided to invest in EV charging infrastructure without prior indication from regulators that they would be able to recover those costs in rates, and have subsequently sought cost recovery for those investments. The most well-known example was also the most unsuccessful: Kansas City Power & Light built its Clean Charge Network in Kansas and Missouri without prior regulatory approval. In 2016, the Kansas Corporation Commission denied the utility’s first attempt to recover its costs for the network, finding no evidence that it had been needed, and expressing skepticism over its alleged benefits, and concern over cross-subsidization by non-EV drivers.¹⁷¹ Yet the Missouri PSC eventually approved cost recovery for that state’s portion of the same network,¹⁷² and Kansas itself has recently provided guidance on how the utility might proceed with utility-owned infrastructure in the future.¹⁷³ Arizona utility APS also took this approach, with even more success. In 2010, APS proposed an experimental program to spend \$1 million on L2 and DCFC chargers owned by the company, paid for by charging fees but with unrecovered costs recovered in rates after three years. The proposal was denied as AZCC staff did not find a need for company-owned charging stations in light of the many other EVSE programs ongoing at the time.¹⁷⁴ In 2018, however, APS began a

169. Application at 9–10, 14–17, Duke Energy Carolinas & Duke Energy Progress Application for Approval of Proposed Elec. Transp. Pilot, N.C. U.C. Nos. E-2 Sub 1197/E-7 Sub 1195 (Mar. 29, 2019); Order at 18–20, *id.* (Nov. 24, 2020).

170. Order at 4–6, Duke Energy Carolinas Application for Approval of Proposed Elec. Transp. Pilot, S.C. P.S.C. No. 2018-321-E (Oct. 15, 2020); Order, Duke Energy Progress Application for Approval of Proposed Elec. Transp. Pilot, S.C. P.U.C. No. 2018-322-E (Oct. 15, 2020).

171. Order at 14–16, Kan. City Power & Light Application to Deploy & Operate Proposed Clean Charge Network, Kan. Corp. Comm’n No. 16-KCPE-160-MIS (Sept. 13 2016) (denying cost recovery).

172. Kan. City Power & Light Request for Authority to Implement Rate Increase, Mo. P.S.C. Nos. ER-2018-0145/ER-2018-0146 (Oct. 31, 2018); Evergy Metro et al. Application for Approval of Transp. Elec. Portfolio, Mo. P.S.C. No. ET-2021-0151 (Jan. 24, 2022) (authorizing network expansion but deferring cost review).

173. Order at 24–26, Evergy Kan. Metro & Evergy Kan. Cent. Application for Approval of Transp. Elec. Portfolio, Kan. C.C. No. 21-EMKE-320-TAR (Dec. 6, 2021) (favoring utility cost recovery where utility gives competitive market and federal funding “a meaningful opportunity to serve an identified need before building such infrastructure,” installed the infrastructure in an underserved area, and explored other funding sources).

174. Ariz. P.S.C. Application for Approval of Proposed EV Readiness Demo. Project, Ariz. C.C. No. E-01345A-10-0123 (Sept. 30, 2010); Order (Decision 72582) at ¶¶ 11-13, 19, 41, 44, 49, *id.* (Sept. 15, 2011) (denying cost recovery).

larger version of the same program on its own initiative, developed at the same time the AZCC was considering its policy position on utility EVSE investment.¹⁷⁵ The utility subsequently sought to include those costs in its rate case, which drew objections from parties that understood the Commission's policy to require preapproval.¹⁷⁶ The Commission rejected this contention and approved APS's activities as consistent with its policy direction and implementation orders.¹⁷⁷ Another Arizona utility, TEP, has been more cautious, notifying the AZCC of its investment intentions as part of its energy efficiency filings, structuring its primary spending program as customer-side installation incentives in its recently-filed TE plan, and only proposing utility ownership as an option in low-income areas.¹⁷⁸

This last approach—reserving utility ownership for market segments where the private sector may not invest—has echoes of California's 2012-era market failure rule for EVSE spending in general (*supra* Part I.C), and seems to be an attempt to strike a balance where utility investment is kept to the minimum necessary to see charging stations built. Another, similar technique has been to require utilities to offer the customer a choice between utility ownership and customer ownership of the station, where utilities can offer a “turn-key solution” in competition with other service providers, and the commission attempts to ensure that utilities are not provided with unfair advantages. For example, in Colorado, Xcel Energy received approval to run a make-ready program that includes charger rebates as well as a range of utility-owned charger options for customers who do not wish to own their equipment, plus a limited number of utility-owned DCFCs.¹⁷⁹ In yet another permutation, Georgia utility Georgia Power proposed rate recovery for utility-owned chargers, but also

175. Guldner Testimony at 10, Ariz. P.S.C., Application for Hearing, Ariz. C.C. No. E-01345A-19-0236 (Oct. 31, 2019) (direct testimony of Jeffrey B. Guldner on behalf of Ariz. Pub. Serv. Co.).

176. Lockwood Testimony, *id.* (direct testimony on behalf of Ariz. Pub. Serv. Co. stating that it seeks \$10.8 million for utility-owned DCFC and workplace, fleet, and multifamily L2); Initial Brief of ChargePoint Inc. at 2–3, *id.* (Apr. 6, 2021) (“The Commission should put APS on notice that, if APS incurs costs for any future EV-related programs or investments without seeking advance Commission approval, it will not be eligible to recover those costs from ratepayers.”).

177. Order at 417–418, *id.* (Nov. 9, 2021).

178. Supplement to Application, Tucson Elec. Power Co. Application for Approval of 2018 Energy Efficiency Implementation Plan, Ariz. C.C. No. E-01933A-17-0250 (Dec. 22, 2017) (Smart Home EV (rebate) and Smart City EV (public installation incentive) spending); Order at 26–31, 41–42, *id.* (Feb. 20, 2019) (approving ~\$1.1 million, noting TEP intention to seek recovery of \$8 million at a future time); Tucson Elec. Power Co. Comprehensive Transp. Elec. Implementation Plan & Budget, Ariz. C.C. No. E-00000A-21-0104 8–9 (June 1, 2022).

179. PUB. SERV. CO. OF COLO., 2021–2023 TRANSPORTATION ELECTRIFICATION PLAN 16–21, 23–39 (Apr. 1, 2021).

agreed to spend an additional \$6 million per year for three years “in support of wire and transformer upgrades for customer sited charging stations,” i.e., make-ready initiatives.¹⁸⁰

As these examples demonstrate, the categories above are useful for conceptualizing what utilities are doing, what regulatory commissions have deemed reasonable, and what ratepayers are paying for, but many utilities are pursuing unique mixes of many of the above program elements. In point of fact, no two utility proposals have been exactly the same. But whether the utilities are offering station rebates only, or incentives to cover customer-side costs, utility-side costs, or both, or are proposing to build and own the stations themselves, the regulatory commission responsible for reviewing the proposal must always consider the ultimate question of this analysis: *who benefits?*

C. Calculating Benefit

Traditional utility spending regulation is focused on procuring as much electricity as customers demand and distributing it as cheaply as possible. Under this regulatory model, the benefit of such spending can be assumed because it is meeting a service demand, and the costs can be reviewed for reasonableness and prudence without more complex cost-benefit analysis. But when utilities undertake spending outside of this paradigm, benefits are more difficult to calculate. For example, what is the value of a utility spending money on an energy efficiency program that results in the utility selling less electricity, generating fewer revenues to support the grid and profit the utility? The increased efficiency is valuable, but it is difficult to quantify the value, as it requires calculating factors other than satisfied demand, such as the cost of fuel that is not burned to generate the electricity that is not used, and the infrastructure upgrades that are not built. But it is only by accounting for these kinds of factors that ratepayers can determine whether they will be better off spending money on more efficient light bulbs, or on the grid necessary to power inefficient lightbulbs.

Ratepayer-funded utility EVSE investment must be evaluated in this more complex fashion, and public utilities commissions have adopted a wide range of approaches to doing so. However (and despite the

180. Direct Testimony of David P. Poroch et al. at 47–48, Ga. Power Co. 2009 Rate Case, Ga. P.S.C. No. 42516 (June 28, 2019); Settlement, *id.* (Dec. 11, 2019); Order at 18-19, *id.* (Dec. 17, 2019).

author's intention to avoid making this Article entirely about California's policies), all of these tests begin with, or are related to, the uniform cost-benefit tests described in the "California Standard Practice Manual,"¹⁸¹ which originally developed methodologies for determining costs and benefits from five regulatory "perspectives" to give a full sense of who does and does not benefit from any given ratepayer-funded utility spending, particularly for energy efficiency programs. Thus, while practice varies from state to state, it is possible to understand the range of approaches by understanding the California manual's tests, which are:

Participant Cost Test (PCT). The PCT asks whether a given program saves the program *participant* money overall. Using a charger rebate as an example, the participant is the customer who receives the rebate, and the PCT investigates whether the rebate saves that customer money, factoring in, for example, the other costs of installing the charger, savings from switching from gasoline to electricity as a transport fuel, the costs of additional electricity purchases, etc.

Ratepayer Impact Measure (RIM). The RIM investigates the impact that a program has on electric rates, and therefore on all ratepayers taken together. This is also a way of investigating whether *non-participants* of the program will save money. Again, using a customer charger rebate as an example, the question is whether the cost of the rebate to ratepayers (who have to pay the utility for it) will be balanced out by the additional revenues the utility will take in by selling additional electricity to EV driving customer (net the costs of producing and delivering that additional electricity). A "positive RIM" (a benefit-cost ratio of more than 1.0) means that electricity rates will go down even though the ratepayers are spending money up front to make that happen.

Utility Cost Test (UCT) or Program Administrator Cost Test (PACT). The UCT (or PACT) asks whether the program saves the *utility* money overall. Factoring in the revenues the utility will receive, and the additional costs to provide more electricity, and the costs of incentives paid, will the utility make or lose money? This test can be used to assess, for example, whether a rebate program will somehow generate additional utility profits that do not translate into rate savings for non-participants.

181. CAL. PUB. UTIL. COMM'N, CALIFORNIA STANDARD PRACTICE MANUAL: ECONOMIC ANALYSIS OF DEMAND-SIDE PROGRAMS AND PROJECTS (2001); See also ELIZABETH DAYKIN ET AL., CADMUS GRP., WHOSE PERSPECTIVE? THE IMPACT OF THE UTILITY COST TEST (2011).

Total Resource Cost (TRC). The TRC, which is one of the most common ways to evaluate non-traditional utility spending programs, asks whether the program will save money for *all utility stakeholders, taken together*. This test essentially combines the costs and benefits of participants, non-participants, and the utility together. Thus, it is possible for a program to have a positive TRC, but negative RIM, meaning that the benefits to the utility and program participants outweigh the cost of increased rates to everyone else. On the other hand, if TRC and RIM are both positive, then there are “no losers” for the program.

Society Cost Test (SCT). The SCT is similar to the TRC, but also incorporates costs and benefits to society as a whole, including people not using the electric system at issue, and so captures environmental costs and benefits as well. The benefits to everyone in the country, or the world, of avoiding climate change, potentially calculated through a social cost of carbon, would be considered in the SCT.

Although PCT, RIM, UCT, TRC, and SCT are the traditional tests, the National Energy Screening Project makes a compelling case for a sixth test: the “regulatory perspective” test, which incorporates policy goals that regulatory commissions and policymakers might be trying to achieve, as well as the financial costs and benefits faced by electric system participants.¹⁸² For EV infrastructure investment, such factors might appear when a commission considers state transportation electrification goals in addition to the financial costs. Although each state may apply these rules slightly differently than the California manual, the overall approach of determining costs and benefits from multiple perspectives is widely practiced.

Although rarely clearly explained, elements of these kinds of analyses can be found in most of the utility EVSE investment decisions identified above. In Virginia, for example, an ALJ’s recommended decision on an EVSE pilot styled as a demand-side management program analyzed utility evidence of positive PCT, UCT, TRC, and RIM when recommending approval of the pilot.¹⁸³ The VSCC has followed the “regulatory perspective” approach when, approving another utility EV pilot in 2020, it declined to adopt a specific cost-benefit test, and discussed the evidence of costs and benefits presented by the utility as an important element of a larger set of policy considerations,

182. NAT’L ENERGY SCREENING PROJECT, NATIONAL STANDARD PRACTICE MANUAL FOR BENEFIT-COST ANALYSIS OF DISTRIBUTED ENERGY RESOURCES (2020).

183. Report of Alexander F. Skirpan Jr. at 16, Va. Elec. & Power Co. Petition for Approval of 2019 DSM Update, Va. Corp. Comm’n No. 2019-00201 (June 16, 2020).

given that the Virginia legislature had found grid transformation projects to be in the public interest.¹⁸⁴ In other words, the Virginia proceedings show that public utilities commissions may take traditional evidence on costs and benefits under advisement, but also account for state policies and benefits that are less clearly defined. This appears easier where the cost-benefit tests show positive RIM. In Georgia, for example, the PSC declared that the revenue generated by charging stations was not the only benefit to consider:

EV charging stations provide public benefits above and beyond dollars and cents. For example, the overall grid benefits from EV drivers who routinely shift their load and place a positive benefit onto the grid. In addition, evidence presented by the Company indicates that residential and business/workplace rebate programs have positive rate impact measure (RIM) values, which help all customers by putting downward pressure on rates.¹⁸⁵

These benefits, furthermore, often are secured in RIM analysis by combining EV infrastructure spending with price incentives to charge at times that provide the most value to the grid.

In other states, these benefits have been acknowledged through more formal adoptions of the SCT. That is, some regulators have been persuaded that transportation electrification is good for ratepayers, EV drivers, and, especially, society in general. Indeed, something of a cottage industry has developed around this kind of analysis, with consultants M.J. Bradley & Associates (MJB&A) especially active in producing state-level analyses.¹⁸⁶ For example, New York's statewide EVSE program was supported by such an analysis.¹⁸⁷ In addition to concluding that EVs saved society money, and saved EV drivers money, the analysis found overall benefits for ratepayers, because increased revenues from electricity used for charging, combined with managed charging programs, would outweigh EVSE investment

184. Final order at 5–6, 13–15, Va. Elec. & Power Co. Petition of Approval of Plan for Elec. Distrib. Grid Transformation Projects, Va. C.C. No. PUR-2019-00154 (Mar. 26, 2020).

185. Ga. PSC Dkt. 42516, Order at 18 (Dec. 17, 2019).

186. *See, e.g.*, DANA LOWELL ET AL., M.J. BRADLEY & ASSOC., ELECTRIC VEHICLE COST-BENEFIT ANALYSIS: NEW YORK (Dec. 2016) (M.J. Bradley & Associates has been hired to present evidence in many of the proceedings discussed in this article); *See also* PAUL ALLEN ET AL., M.J. BRADLEY & ASSOCIATES, GEORGETOWN CLIMATE L. CTR., UTILITY INVESTMENT IN ELECTRIC VEHICLE CHARGING INFRASTRUCTURE: KEY REGULATORY CONSIDERATIONS (Nov. 2017) (collaborative report between MJB&A and Georgetown Climate Law Center).

187. BRIAN CONLON ET AL., N.Y. STATE ENERGY RSCH. & DEV. AUTH., BENEFIT-COST ANALYSIS OF EV DEPLOYMENT IN NEW YORK STATE (Feb. 2019) (prepared by Energy & Environmental Economics (E3), ICF, and M.J. Bradley & Associates) (cited in Staff Whitepaper Re: EVSE and Deployment, N.Y. Dep't of Pub. Serv. (Jan. 13, 2020); and Order at 19, N.Y. Dep't Pub. Serv. No. 18-E-0138 (July 16, 2020)).

costs.¹⁸⁸ Although the analysis was not specifically directed toward the proposal under review, NYSDPS specifically cited it while finding enough evidence to conclude that—provided the EV transition continues and utilities incentivize efficient charging patterns—the revenues from charging were likely to produce ratepayer benefits above and beyond the program’s costs.

Other states with pre-existing state EV goals and policies have simply been laxer in their requirements for cost-benefit demonstrations. For example, the Massachusetts programs were required to “[be] in the public interest; meet a need regarding the advancement of EVs . . . not likely to be met by the competitive EV charging market; and not hinder the development of the competitive EV charging market.”¹⁸⁹ But there was no explicit requirement to demonstrate ratepayer financial benefits, or improvements in grid safety or reliability, beyond the broader public interest demonstration, and given the state’s commitment to ZEV policy, this was a low bar. In approving the utility program proposals, Massachusetts regulators concluded that the programs would support state ZEV policy and were therefore in the public interest, and that the make-ready program structure protected the competitive charging market.¹⁹⁰ Regulators specifically declined to require the programs to be supported by strict cost-benefit analyses as required in grid modernization proposals, and found that ratepayers would benefit along with all others in the state.¹⁹¹

Still other states have been permissive of costs for limited pilots, which are designed to generate information and experience, on the understanding that any expansions to these pilots would be subject to stricter cost review. In North Carolina, for example, the NCUC permitted pilots but ruled that a “cost-benefit analysis must be conducted on each program before it can be scaled beyond its pilot program size. Any large-scale implementation of piloted programs

188. *Id.* at 77–79.

189. Order on Dep’t Jurisdiction over EVs at 13, Investigation by Dep’t of Pub. Util. into EVs & EV Charging, Mass. Dep’t Pub. Util. No. 13-182-A (Aug. 4, 2014).

190. Order at 474–503, Eversource Rate Case., Mass. Dept. Pub. Util. No. 17-05 (Nov. 30, 2017).

191. Order at 11, Mass. Elec. Co. et al. Petition for Approval of EV Market Dev. Program, Mass. D.P.U. No. 17-13 (Sept. 10, 2018).

must show the ability, when scaled, to yield an overall positive system benefit net of all costs.”¹⁹²

Another group of states has simply accepted that approvals will entail significant upfront costs to ratepayers. One early California approval predicted average rate increases of about \$2.75 per year.¹⁹³ Colorado’s transportation electrification law limited total TE plan costs to 0.5% of the utilities’ total annual revenue requirement, resulting in utilities developing detailed revenue estimates for incremental EV charging caused by the program, although these demonstrated an even or slightly positive RIM.¹⁹⁴ Washington, similarly, balanced a state goal to invest in EVSE against ratepayer interests by requiring that utility investments could not increase “costs to ratepayers” by more than 0.25%, which later amendments clarified to mean “the annual retail revenue requirement of the utility, after accounting for the benefits of transportation electrification.”¹⁹⁵ This has led Washington utilities to provide detailed cost-benefit studies for their programs, which were reviewed favorably by WUTC staff, and predicted stable to downward rate impacts from these programs.¹⁹⁶ Similarly, Oregon’s surcharge law allows utility cost recovery for prudent investments in EV infrastructure, provided that those investments support GHG reductions and benefit ratepayers by providing distribution management benefits, increased revenues, system efficiencies, or increased consumer choice by providing access to public and private charging (a very low bar).¹⁹⁷

Other states, however, have been unwilling to entertain such costs, even for pilots. In Michigan, the PSC ruled that it would consider pilot

192. Order at 20, Duke Energy Carolinas & Duke Energy Progress Application for Approval of Proposed Elec. Transp. Pilot, N.C. U.C. Nos. E-2 Sub 1197, E-7 Sub 1195 (Nov. 24, 2020) (approving pilot, in part).

193. Order at 129, SDG&E Application for Approval of EV-Grid Integration Pilot, Cal. P.U.C. No. A.14-04-014 (Jan. 28, 2016) (decision regarding underlying vehicle grid integration application and motion to adopt settlement agreement).

194. Decision C21-0017 at 7–13, Pub. Serv. Co. of Colo. Application for Approval of 2021–2023 Transp. Elec. Plan, Colo. P.U.C. No. 20A-0204E (Dec. 23, 2020) (granting application with modifications) (discussing methodology); 2021-2023 TRANSPORTATION ELECTRIFICATION PLAN: SEMI-ANNUAL REPORT, XCELENERGY, 35 (Apr. 2022) (showing downward impact on rates).

195. S.S.H.B. 2042 Legis. Serv. Ch. 287 (Wash. 2019), amending RCW 80.28.360. *See also* Pol’y & Interpretive Statement Concerning Comm’n Regul. of EV Charging Services, Wash. U.T.C. No. UE-160799 at 22 (June 14, 2017) (adopting this approach).

196. Staff Memo at 7–9, Puget Sound Energy Transp. Elec. Plan 2021–2026, Wash. U.T.C. No. UE-210191 (Aug. 12, 2021) (recommending inclusion of SCT in later cost recovery); PSE Advice No. 2022-13 at 9-14, Puget Sound Energy Elec. Tariff Revision, Wash. U.T.C. No. UE-220294 (Apr. 26, 2022).

197. *See* Or. Rev. Stat. Ann. § 757.357 (West).

programs that involved utility EVSE investment but emphasized: “if ratepayer funding is proposed as a funding source, the Commission expects a detailed cost-benefit analysis to be included, with any benefits specifically concentrated on those to ratepayers as utility customers, not as a part of society in general.”¹⁹⁸ Some states have required showings of positive RIM. For example, Maine solicited EV infrastructure pilot projects that would “result in information and data that would meaningfully inform future efforts regarding beneficial electrification,” defining “beneficial electrification” to involve reduction in fossil fuel use, and provision of utility, ratepayer, or environmental benefit *without causing harm to any of the others*.¹⁹⁹ This standard appears to require that ratepayer EVSE investments at least break even, and the Maine PUC’s ultimate decision kept approvals small to avoid cost-shifting to non-EV drivers.

Underlying these varying approaches is a consistent theme: The major weakness of utility cost-benefit analysis evidence is that it is predictive. The models’ conclusions about future financial outcomes depend on the accuracy of their inputs and assumptions, and with respect to EV charging there are at least three major uncertainties. First, future EV charging revenues depend on increases in EV market share that, while likely, are not certain to occur. Second, particularly for public chargers, total revenues must be balanced against the number of available chargers and the total utilization rate of each charger—if there are so many chargers that they are only occupied five percent of the time, they are unlikely to produce enough revenue to pay for themselves before they must be replaced. And third, there is very little evidence about whether the investments in charging infrastructure are causing these predicted market increases. In other words, if charging revenues would come without utility spending, then EVSE investment is actually still losing ratepayers money.

Utility commission perceptions of these uncertainties are likely to be related to their policy outlook and regulatory philosophies. In states with legislative or executive EV adoption goals, or with increasingly large commitments to EV manufacturing, there may be a greater tendency to accept utility cost-benefit projections that assume that the state goals will be achieved. In states that are following market developments, on the other hand, there is a greater tendency

198. Order Adopting Guiding Principles & Commencing Second Collaborative Tech. Conf. at 35, EV Charging Facilities, Mich. P.S.C. No. U-18368 (Dec. 20, 2017); Order Following Second Collaborative Tech. Conf., *id.* (Mar. 29, 2018).

199. Me. Rev. Stat. tit. 3, § 163-A (emphasis added).

to scope approvals more carefully, and to set higher thresholds for benefits showings. Any commission, furthermore, that is disinclined to support utility EVSE investment on philosophical grounds may find rationales for this position, at least until EV market share increases a great deal nationwide, simply based on criticisms of cost-benefit evidence. Ultimately, therefore, benefit may be calculated, but it also must be perceived.

D. Takeaways

The above review highlights just a sampling of hundreds of orders from scores of regulatory proceedings, and at best is a beginning to the characterization of the many details that regulatory commissions have attended to as they consider utility EVSE investment proposals. Taken as a whole, these materials lead to many potential conclusions, including the following:

Utility involvement in EV infrastructure spending is now the norm, and the primary question in most jurisdictions is not if, but to what extent, utilities will be allowed to invest ratepayer funds in EVSE. Although each jurisdiction has had a unique pathway to review, each ultimately has arrived at an identical point: a PUC considering a utility EVSE investment proposal. In some cases, these proposals have been mandated by the state legislature in detail; in others they have been part of larger efforts toward clean transportation; in still others the PUC itself has been involved in encouraging or requesting the proposal as part of a technical proceeding; and in many others the utility itself has simply made a request on its own initiative. The above review has identified no discernible trends in outcome based on the pathway to the regulatory proposals—PUCs and utilities with permission from legislatures to impose significant ratepayer impact have not always sought spending up to the limits of their authority, and PUCs and utilities without specific mandates to consider EVSE investment have nonetheless felt free to do so—or not. The message for utility proponents for such investment seems clear: There is little risk and much potential upside to developing substantial transportation electrification plans and advocating for PUC approval of EVSE investment spending, particularly in advance of actual spending. For those concerned with utility overspending, the message seems equally clear: In most jurisdictions, the fight has shifted away from “if,” to “under what circumstances.”

Utility EVSE investment today is almost universally examined on a case-by-case, proposal-by-proposal, utility-by-utility basis, and without the expression of many clear rules regarding scope or rationale. As general trends, regulators in states with strong policy commitments to transportation electrification have been likely to refer to and rely on those state policies while making decisions; where spending is contested, regulators have often been happy to rely on rate case settlements to resolve conflict, as is usual in other circumstances as well; utilities have often proposed very large programs and counted on protesting parties and regulators to define a more limited scope, and regulators have tended to approach scope reduction by splitting the difference between parties or balancing competing claims rather than any clear quantitative analysis of what is needed. Many utilities have even taken significant spending risks that have paid off, as they have received retroactive approval for EVSE investment, sometimes over protest. Thus, proponents of EVSE spending would seem incentivized to keep up the pressure for approval, while opponents seem well served to insist on clearer rules for what is or is not necessary utility spending on EVSE infrastructure.

The primary essential mechanism by which public utility regulatory commissions have protected ratepayer interests is through proposal scope limitation—restricting the type, amount, or location of equipment that utilities are allowed to own and recover costs for. This has often been accomplished without direct acknowledgement that its purpose is to be responsive to ratepayer advocacy concerns over utility overspending, but this does seem to be the purpose—especially when combined with robust information-generating requirements for incremental pilot and expansion programs. Opponents of spending have had the most success where they have convinced regulatory commissions to limit proposals to small pilots that provide useful data, followed by incremental expansions with high evidentiary requirements for ratepayer benefit, and significant reporting elements. This has not prevented substantial regulatory approvals for EVSE investment, but it has at least slowed the approval process down and kept costs lower than they might otherwise be.

The secondary essential mechanism for cost control—but also justification for regulatory approval—has been the analysis of financial benefit, and particularly ratepayer benefit, for any given proposal. While legislatures have sometimes placed rate impact caps

on investment authorizations or mandates, many utilities commissions have been more restrictive, and have insisted on showings of downward pressures on rates from utility EVSE investment. However, commissions have not been at all consistent in what kinds of rate impact showings they have required, or how carefully they have scrutinized the information they have received, and thus opponents of utility spending have not had much success to date in contesting the often technical and expensive demonstrations of ratepayer impact that utilities or regulatory commission staffs have developed. The argument that properly managed EV charging will lead to fuller utilization of existing transmission and distribution capacity seems well established, and thus determinations of positive RIM are increasing, while the uncertainty in utility revenue predictions attendant to these analyses tended not to cut against regulatory approval, particularly in jurisdictions where transportation electrification is a statewide goal.

“Make-ready” spending appears to have prevailed as the best approach for jurisdictions wishing to promote maximum electrification while still protecting ratepayer interests. The best evidence of this comes from California, which has very strong investment mandates but was able to experiment with different approaches and draw direct comparisons between make-ready and utility ownership models, concluding that the utility ownership model resulted in higher ratepayer costs than make-ready programs, without additional benefit. This is still a departure from traditional utility regulatory spending approval, as it extends utility ownership behind the meter and socializes distribution-side upgrade costs that otherwise might be assigned to individual customers, but avoids some of the problems that total utility ownership might entail. It is still the case that these distinctions are less important to total costs than, for example, the total number of charging stations approved, and experiments are ongoing where utility ownership is provided as a consumer choice alternative.

Finally, it is clear from this review that the public utility regulatory approval process for EVSE investment has yet to develop anything close to a rational approach to review. In this regard, it is worthwhile to compare the proceedings discussed here with existing, highly developed planning processes for transmission construction. Current EVSE investment is occurring ad hoc and largely without reference to

coordinated planning or needs assessment. In jurisdictions where spending is approved, it is increasingly important to define what the goals are—how many charging stations does the state want or need, when, and where, which could guide considerations of what portions could justify or benefit ratepayer spending.

In summary, this analysis has identified the trends that are emerging around utility EVSE investment, and the rules that commissions are following as they have considered utility EVSE investment proposals. These trends and rules will continue to evolve and change as the EV charging market evolves and changes, and that will depend in part on the larger context of EVSE finance nationwide. Because as commissions confront utility EVSE spending proposals, they must also consider these proposals against alternative spending options, including private and public investment, and those environments are also changing.

III. COMPLETING THE PICTURE: TAXPAYER AND SHAREHOLDER FUNDING OF EVSE

ARRA	\$130,000,000
CA-NRG Settlement	\$102,500,000
VW Settlement – EA CA	\$800,000,000
VW Settlement – EA National	\$1,200,000,000
VW Settlement – State Elections	~\$335,000,000
California Public Spending (est.)	~\$1,000,000,000
Other State Public Spending (est.)	~\$65,000,000
Private Capital Estimate	\$1,275,000,000
IIJA NEVI Formula Program	\$5,000,000,000
IIJA Discretionary Grants	\$2,500,000,000
Total:	~\$12,400,000,000

Estimated Non-Ratepayer EVSE Investment	

Part II explored regulatory decisions to pay for EV charging infrastructure using electric bills. But to put those trends into context it is necessary to understand how much money is coming from other sources. This Part therefore reviews the sources of public investment into EV charging—a mixture of economic stimulus legislation directives, enforcement litigation settlement order requirements, federal and state tax expenditures, and state budgeting decisions—and the money that charging companies themselves have been investing. Although firm estimates are sometimes very difficult to make—and allocations among the states even more difficult to determine—this Article estimates that U.S. taxpayers and shareholders had committed about \$12.4 billion into EVSE construction through 2022, of which about half comes from the 2021 Bipartisan Infrastructure Law. This section explains the laws behind those numbers.

The most important early sources of EVSE funding were the American Recovery and Reinvestment Act of 2009 (ARRA)²⁰⁰ and California’s settlement with Dynegy Energy successor NRG Energy of claims arising from the 2001 California energy crisis.²⁰¹ ARRA provided matching grants totaling about \$130 million to expand the early national public charging network to about 20,000 stations.²⁰²

200. American Recovery and Reinvestment Act, Pub. L. No. 111-5, 123 Stat. 115 (2009); EXEC. [OFF.] OF THE PRESIDENT, A RETROSPECTIVE ASSESSMENT OF CLEAN ENERGY INVESTMENTS IN THE RECOVERY ACT 46 (Feb. 2016).

201. *CPUC/NRG Settlement Agreement*, CAL. PUB. UTIL. COMM’N, <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/transportation-electrification/nrg-settlement> [<https://perma.cc/LF28-BJ8Y>] (last visited Nov. 10, 2022).

202. EXEC. OFF. OF THE PRESIDENT, THE RECOVERY ACT: TRANSFORMING THE AMERICAN ECONOMY THROUGH INNOVATION 11 (Aug. 2010); U.S. DEP’T OF ENERGY OFF. AUDITS INSPECTIONS, AUDIT REPORT: THE DEP’T OF ENERGY VEHICLE TECHNOLOGIES PROGRAM’S \$135 MILLION IN FUNDING TO ECOTALITY, INC. (July 2015); ChargePoint, *ChargePoint Announces the Successful Completion of its ARRA-Funded ChargePoint America Program* (June 11, 2013), <https://www.chargepoint.com/about/news/chargepoint-announces-successful-completion-its-arra-funded-chargepoint-america-program> [<https://perma.cc/6FDY-H4QF>]; IDAHO NAT’L LAB’Y, PLUG IN ELECTRIC VEHICLE INFRASTRUCTURE ANALYSIS (Sept. 2015) (prepared for the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy). For charging station installation locations for these projects, see U.S. DEP’T OF ENERGY, EV PROJECT OVERVIEW REPORT: PROJECT TO DATE THROUGH DECEMBER 2013 (Feb. 2014).

California's NRG settlement funds went to private company EVgo to develop California's public L2 and DCFC networks.²⁰³ There were also numerous federal grant initiatives during this period meant to electrify fleets and demonstrate new technologies, some of which involved EVs and EVSE, but rarely with public charging components.²⁰⁴

In 2016, the public EVSE funding landscape changed dramatically when German automaker Volkswagen AG settled lawsuits arising from its sales of diesel vehicles that violated the Clean Air Act by committing \$2.3 billion for EVSE construction across the country.²⁰⁵ Of this, VW committed to spend \$2 billion through its for-profit subsidiary Electrify America, and another approximately \$350 million apportioned to the states for use on in-state EVSE projects. The Electrify America component of the settlement was in two parts, with \$800 million required to be spent in California, and the remaining \$1.2 billion to be spent in other states according to national investment plans, both over the course of ten years.²⁰⁶ The environmental mitigation fund was allocated to the states according to the number of non-compliant vehicles sold in each, and the states were given the option to allocate up to 15% of their mitigation funds to light-duty EVSE construction. Most of the states (except Arizona, Georgia, Oregon, and possibly Wisconsin)²⁰⁷ have elected to do so, although not all have begun spending their funds.

203. NRG ENERGY, SETTLEMENT YEAR 7: Q4 REPORT PROGRESS REPORT TO CALIFORNIA PUBLIC UTILITIES COMMISSION EV CHARGING STATION PROJECT (Jan. 6, 2020).

204. For example, ARRA also provided funding to the U.S. Department of Energy's Vehicle Technologies Office, the first of many rounds of funding for clean transportation pilots there. However, few if any of these projects created public EVSE. See U.S. DEP'T OF ENERGY, *Clean Cities Coalition Network: Partnerships and Projects*, <https://cleancities.energy.gov/partnerships/> [<https://perma.cc/38PH-3TVV>] (last visited Nov. 9, 2022).

205. U.S. EPA, *Volkswagen Clean Air Act Civil Settlement* (Aug. 31, 2022), <https://www.epa.gov/enforcement/volkswagen-clean-air-act-civil-settlement> [<https://perma.cc/49HE-JH75>].

206. ELECTRIFY AMERICA, 2021 ANNUAL REPORT TO CALIFORNIA AIR RESOURCES BOARD 32-36 (Apr. 30, 2022) (California investments excluding marketing). Although the state-by-state investment totals are not public, it is possible to allocate their funding generally based on the number of Electrify America Locations under the settlement in each state. See ScrapeHero Data Store, *Electrify America Locations in the US* (last updated Oct. 13, 2022), <https://www.scrapehero.com/store/product/electrify-america-locations-in-the-usa/> [<https://perma.cc/WS5X-XKQ5>].

207. Arizona, Georgia, and Oregon did not elect to use VW Settlement funds for EVSE. Wisconsin's efforts to implement its VW-funded EV charging program have been mired in political conflict: The Wisconsin state legislature refused to appropriate Volkswagen funds for EVSE purposes, and instead sent them to a school bus program, drawing a governor's veto that was later overturned by the Wisconsin Supreme Court. Gov. Tony Evers, *Governor's Veto*

To these totals must be added a multitude of state-level public investments, although it is difficult to determine exactly how much public money has been invested in each state. The first complexity is that many “state funded” EVSE rebate and investment programs have in fact been funded by the state’s VW Settlement funds. For example, Massachusetts used VW Settlement funds to create MassEVIP, which supports workplace, campus, MUD, and fleet charging projects.²⁰⁸ Maryland created the Maryland Charge Ahead and Electric Corridors Grant Programs the same way.²⁰⁹ Maine’s VW funds are the primary funding source of Efficiency Maine’s charger program.²¹⁰ Other states that have created grant programs for public charging using VW funds include Florida, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Missouri, Montana, Nebraska, New Hampshire, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, Tennessee, Texas, Virginia, Washington, and West Virginia.²¹¹

Message, Wis. Act 9 (July 3, 2019); Bartlett v. Evers, 2020 Wis. 2d 172, 393; *See also* Wis. Dep’t of Admin., *VW Mitigation Program: EV Charging Station Grant Program*, <https://doa.wi.gov/Pages/vwsettlementwisconsin.aspx> [<https://perma.cc/2M7S-QD8N>] (last visited Nov. 9, 2022).

208. MASS. DEP’T OF ENV’T PROT., FINAL MASS. VW SETTLEMENT BENEFICIARY MITIGATION PLAN (Dec. 7, 2018); MASS. DEP’T OF ENV’T PROT., DECEMBER 2019 AMENDMENT TO FINAL MASSACHUSETTS VW SETTLEMENT BENEFICIARY MITIGATION PLAN (Dec. 2019); Mass. Dep’t of Env. Prot., *Apply for MassEVIP Multi-Unit Dwelling & Educational Campus Charging Incentives*, <https://www.mass.gov/how-to/apply-for-massevip-multi-unit-dwelling-educational-campus-charging-incentives> [<https://perma.cc/2FX5-W9TE>] (last accessed Nov. 9, 2022); Mass. Dep’t of Env’t Prot., *Apply for MassEVIP Workplace & Fleet Charging Incentives*, <https://www.mass.gov/how-to/apply-for-massevip-workplace-fleet-charging-incentives> [<https://perma.cc/4MLW-GZCL>] (last accessed Nov. 9, 2022).

209. *See* Md. Dep’t of Env’t, *Maryland VW Mitigation Plan* (Dec. 22, 2021), <https://mde.maryland.gov/programs/Air/MobileSources/Pages/MarylandVolkswagenMitigationPlan.aspx> [<https://perma.cc/HQX3-JPB6>].

210. *See* State of Maine, *Advanced Funds Request, Maine Beneficiary Eligible Mitigation Action Certification app. D-4* (Jan. 25, 2018), <https://www.maine.gov/mdot/vw/docs/2019-Request-for-Funding-ZEVSE.pdf> [<https://perma.cc/8BLQ-L3EZ>] (memorandum of agreement between Efficiency Maine Trust and Maine Department of Transportation).

211. Florida: *VW Settlement and DERA*, FLA. DEP’T OF ENV’T PROT., [<https://perma.cc/L85F-483B>] (last visited Nov. 4, 2022); Idaho: *Volkswagen and Diesel Funding*, IDAHO DEP’T OF ENV’T QUALITY, [<https://perma.cc/PKF9-7TB6>] (last visited Nov. 4, 2022); Indiana: *VW Committee Awards \$5.5 Million for EV Charging Stations*, IND. DEP’T OF ENV’T MGMT. (May 26, 2021), [<https://perma.cc/7UE7-CSGA>]; Iowa: *Iowa DOT Awards Funding for VW Settlement Environmental Mitigation Trust Program*, IOWA DEP’T OF TRANSP. (July 9, 2021), [<https://perma.cc/LM98-9FGE>]; Kansas: *KDOT Awards \$2 Million for EV Charging Station Project*, KANS. DEP’T OF TRANSP. (Feb. 4, 2022), [<https://perma.cc/S2JY-2979>]; Kentucky: *Gov. Beshear Announces \$8.5 Million in Funding for Buses, Other Transportation Improvements*, OFF. OF GOVERNOR (Oct. 13, 2020), [<https://perma.cc/9RB4-2KD6>]; Louisiana: *Louisiana VW Settlement*, LA. CLEAN FUELS, [<https://perma.cc/L5MW-SFWB>] (last visited Nov. 4, 2022); Montana: Moira

Many states have also mixed VW settlement funds with funding from other sources to create larger EVSE grant programs. New York has sent about \$40 million to its Charge Ready NY program and earlier initiatives, including \$16 million from the state's \$19.2 million VW Settlement funds, about \$7 million in proceeds generated by the Regional Greenhouse Gas Initiative (RGGI), and about \$5 million from New York environmental bond act funds.²¹² New Jersey created a

Raven, *New Charging Stations Bring Expanded Travel for Electric Vehicles Across Montana*, MONT. DEP'T OF ENV'T QUALITY (Dec. 6, 2021), [https://perma.cc/A7Z6-M7YZ]; Michigan: *Gov. Whitmer Announces Grants for 88 EV Charging Sites to Expand Statewide Network*, OFF. OF GOVERNOR (May 7, 2021), [https://perma.cc/RS9B-UPGZ]; Missouri: *Electric Vehicle Charging Stations*, MO. DEP'T OF NAT. RES., [https://perma.cc/M28S-UP8W] (last visited Nov. 4, 2022); Nebraska: *VW Environmental Mitigation Trust Fund Nebraska Deisel Mitigation Program*, NEB. DEP'T OF ENV'T & ENERGY, [https://perma.cc/UUD7-BYBW] (last visited Nov. 4, 2022); New Hampshire: *Volkswagen Mitigation Trust*, N.H. DEP'T OF ENV'T SERVS., [https://perma.cc/YL3K-4DV8] (last visited Nov. 4, 2022); New Mexico: *VW Settlement*, N.M. ENV'T DEP'T, [https://perma.cc/5MQH-VXEC] (last visited Nov. 4, 2022) (awardees lists); North Carolina: Zaynab Nasif, *State Awards Rebates for EV Charging Infrastructure*, N.C. DEP'T OF ENV'T QUALITY (Feb. 25, 2021), [https://perma.cc/CK5Z-LTHA]; Shawn Taylor, *Applications Open Next Month for Level 2 EV Charging Infrastructure Rebates*, N.C. DEP'T OF ENV'T QUALITY (Mar. 21, 2022), [https://perma.cc/Y3HK-5DBJ]; North Dakota: Amy Sisk, *VW Settlement Money to Fund 17 EV 'Fast' Charging Stations*, BISMARCK TRIB. (Jan. 20, 2020), [https://perma.cc/9BFC-GEJ9]; Ohio: Dina Pierce, *Ohio EPA Awards Grants for EV Charging Stations*, OHIO ENV'T PROT. AGENCY (Mar. 8, 2021), [https://perma.cc/QBF9-HB5L]; Oklahoma: *ChargeOK - Oklahoma EV Charging Program*, OKLA. ENV'T QUALITY, [https://perma.cc/GJT9-C438] (last visited Nov. 4, 2022); Pennsylvania: *Driving PA Forward*, PA. DEP'T OF ENV'T PROT., https://storymaps.arcgis.com/stories/6f5db16b8399488a8ef2567e1affa1e2 (last visited Nov. 9, 2022); Rhode Island: *Electrify Rhode Island*, R.I. OFF. OF ENERGY RES., [https://perma.cc/6FWS-HMDY] (last visited Nov. 4, 2022); South Dakota: *EVCS Rebates*, S.D. DEP'T OF AGRIC. & NAT. RES., [https://perma.cc/42EQ-92BG] (last visited Nov. 4, 2022); Tennessee: *Light Duty Electric Vehicle Supply Equipment*, TENN. DEPT. OF ENV'T & CONSERVATION, [https://perma.cc/99AD-WXBU] (last visited Nov. 4, 2022); Texas: *Air Grants: Funding for Vehicles, Equipment, and Fuel Infrastructure*, TEX. COMM'N ON ENV'T QUALITY, [https://perma.cc/R98A-4KVT] (last visited Nov. 9, 2022); Virginia: *Volkswagen Settlement Agreement (Drive Electric Program)*, VA. DEP'T OF ENV'T QUALITY, [https://perma.cc/NA2X-4JVK] (last visited Nov. 9, 2022); Washington: *Volkswagen Enforcement Action Grants (Charging Programs)*, WASH. DEP'T OF ECOLOGY, [https://perma.cc/7DJX-E28Z] (last visited Nov. 4, 2022); West Virginia: W.V. DEP'T OF TRANSP., *VW MITIGATION PLAN, SEMI-ANNUAL REPORT* (Feb. 4, 2022), [https://perma.cc/AJG9-E8Q4].

212. *Charge NY (EV Goal Program)*, N.Y. State Energy Research & Development Authority (NYSERDA), https://www.nyserda.ny.gov/All-Programs/ChargeNY [https://perma.cc/2EES-S4WV] (last visited Nov. 9, 2022); *Charge Ready NY (EV Charger Funding)*, NYSEDA, https://www.nyserda.ny.gov/All-Programs/ChargeNY/Charge-Electric/Charging-Station-Programs/Charge-Ready-NY [https://perma.cc/X7M9-EEXA] (last accessed Nov. 9, 2022). See also Press Release, N.Y. Executive Chamber, Gov. Cuomo Announces Charge NY Program to Accelerate Use and Benefits of EVs in New York (Sept. 6, 2013); NYSEDA, *Public Authority Law Report Oct. 1, 2020 to Mar. 31, 2021* at 6 (June 1, 2021), https://www.nyserda.ny.gov/About/Publications/NYSERDA-Annual-Reports-and-Financial-Statements [https://perma.cc/9S43-Q8KW] (\$11 million to DCFC program; ~\$17 million to Charge Ready NY); NYSEDA, RGGI-FUNDED PROGRAMS SEMIANNUAL STATUS REPORT THROUGH JUNE

state-run EV infrastructure grant program seeded with a small state grant in 2016, but then augmented with \$10.8 million in VW Settlement funds in 2019 and 2020.²¹³ Vermont used a mixture of VW Settlement and tax funds to create an EVSE grant program.²¹⁴ The Charge Ahead Colorado and EV Fast-Charging Plazas programs have used a mixture of VW settlement funds, EV registration fees, and federal grant funds.²¹⁵ Nevada's Electric Highway project received \$500,000 in state funds in addition to VW funding.²¹⁶ Delaware has created a state-run EV charging program funded by RGGI proceeds, and has made grants for DCFC stations out of its VW Settlement funding.²¹⁷ Alabama used a mix of Volkswagen settlement and public funds (including a portion of their EV registration tax) to create a \$4 million fund for EVSE incentives.²¹⁸ Arkansas created a state funding

30, 2021 4 (Jan. 2022) (indicating some allocation to Charge Ready NY). Final allocations and totals confirmed via author's correspondence with NYSERDA (June 21, 2022).

213. Press Release, N.J. Dep't of Env't Prot., Christie Administration Announces Grant Program to Help Fund Installation of Charging Stations for EVs (June 15, 2016); N.J. DEP'T OF ENV'T PROT., VW MITIGATION CONSENT DECREE: NEW JERSEY DEP SEMI-ANNUAL REPORT (Dec. 2021); *Overview of Distribution of Mitigation Funds*, N.J. DEP'T OF ENV'T PROT. BUREAU OF MOBILE SOURCES, <https://dep.nj.gov/vw/spending-information/> [<https://perma.cc/YT4V-3LG8>] (last visited Nov. 9, 2022). The New Jersey Department of Environmental Protection committed in 2019 to investigate using federal grants, settlement penalties and supplement environmental projects, and RGGI funds to expand the programs. N.J. Interdep't Memo. of Understanding re: ZEV Goals (June 3, 2019), https://www.nj.gov/governor/news/news/562019/docs/MOU_6.3.19.pdf [<https://perma.cc/8Q9J-C4GG>].

214. *Electric Vehicle Supply Equipment (EVSE) Grant Program*, VT. AGENCY OF COMM. & CMTY. DEV., <https://accd.vermont.gov/community-development/funding-incentives/electric-vehicle-supply-equipment-evse-grant-program> [<https://perma.cc/RWT5-DCYB>] (last visited Nov. 9, 2022); PATRICK MURPHY, ELECTRIC VEHICLE CHARGING PLANNING & DEPLOYMENT: PRESENTATION FOR SENATE TRANSPORTATION COMMITTEE 6 (Jan. 12, 2022).

215. CO. DEP'T OF TRANSP., STATE OF COLORADO TRANSPORTATION ELECTRIFICATION UPDATE 6 (Nov. 2021); Misty Howell, *Charge Ahead Colorado*, CLEAN AIR FLEETS (Oct. 7, 2014), <http://cleanairfleets.org/programs/charge-ahead-colorado> [<https://perma.cc/R597-86N8>]; COLO. REV. STAT. § 24-38.5-103 (creating funding); *EV Fast-Charging Plazas*, CO. ENERGY OFF., <https://energyoffice.colorado.gov/zero-emissions-vehicles/ev-fast-charging-plazas> [<https://perma.cc/Q64G-9J9K>] (last visited Nov. 9, 2022) (funding sources reported in RFA for \$4 million).

216. NEV. GOVERNOR'S OFF. OF ENERGY, NEVADA ELECTRIC HIGHWAY: ELECTRIFYING NEVADA'S MAJOR CORRIDORS 28–29 (Mar. 2021).

217. THE REG'L GREENHOUSE GAS INITIATIVE, THE INVESTMENT OF RGGI PROCEEDS IN 2020 19–20 (May 2022); *Delaware Extends EV and Business Charging Station Rebates through June 2022*, DEL. BUS. NOW (June 29, 2022), <https://www.delawarepublic.org/science-health-tech/2021-11-18/dnrec-to-expand-electric-vehicle-charging-stations-in-delaware> [<https://perma.cc/Z5GN-SNU8>]; Joe Irizzary, *DNREC to Expand EV Charging Stations in Delaware*, DEL. PUB. MEDIA (Nov. 18, 2021), <https://www.delawarepublic.org/science-health-tech/2021-11-18/dnrec-to-expand-electric-vehicle-charging-stations-in-delaware> [<https://perma.cc/F8BV-3Z8Y>].

218. See ALA. DEP'T OF ECON. AND CMTY. AFFS., ALABAMA ELECTRIC VEHICLE INFRASTRUCTURE PLAN 6, 50–52 (Jan. 2022).

program using Volkswagen settlement funds, and then expanded the program in preparation for the receipt of federal funding.²¹⁹ Alaska added state funding to its Volkswagen grants,²²⁰ and Tennessee has pooled its funding with the Tennessee Valley Authority.²²¹

Finally, some states have created programs entirely funded by state appropriations. Maryland has used tax money to fund an EVSE rebate program administered by the Maryland Energy Administration, with aggregate annual budgets totaling \$10.8 million so far.²²² Oregon allocated all of its VW funds to electric buses, but has funded EVSE through its state-run Clean Fuels Program, which has supported rebate programs at municipal, cooperative, and privately owned utilities.²²³ Washington has sent at least \$16 million in public funding to an EVSE grant program using monies generated by its EV registration fee.²²⁴ The Hawaii legislature created a state-funded charger rebate program and has appropriated about \$2 million for it to date.²²⁵ After spending its VW funds, Utah appropriated \$4.9

219. ARK. DEP'T OF ENERGY & ENV'T, DC FAST CHARGE FUNDING ASSISTANCE PROGRAM (2022); *Level 2 EVSE Rebate Program*, ARK. DEP'T OF ENERGY & ENV'T (June 19, 2019), <https://www.adeq.state.ar.us/energy/opportunities/evse/> [<https://perma.cc/ZXF6-DKU9>]; see also Ark. Code R. §§ 15-10-101-15-5-1270 (enacted Ark. Leg., Act 781 (2021)).

220. *Volkswagen Diesel Settlement Grants*, ALASKA ENERGY AUTH., <https://www.akenergyauthority.org/What-We-Do/Grants-Loans/Volkswagen-Diesel-Settlement-Grants> [<https://perma.cc/MV4V-6KFF>] (last visited Nov. 1, 2022).

221. *Electric Vehicle Fast Charging Network Coming to Tennessee*, TENN. DEP'T OF ENV'T & CONSERVATION (Feb. 3, 2021), <https://www.tn.gov/environment/news/2021/2/3/electric-vehicle-fast-charging-network-coming-to-tennessee.html> [<https://perma.cc/HXZ6-B6X5>].

222. Md. State Gov't Code § 9-2009, amended by Md. Acts 2014, c. 359, § 1 (2015-2017 annual budget of \$0.6 million); 2017 Md. Acts, c. 362, § 1 (2018-2020 annual budget of \$1.2 million); 2017 Md. Acts, c. 363; 2021 Md. Acts, c. 670 (2021-2023 annual budget of \$1.8 million).

223. *Oregon Clean Fuels Program: Utility Programs*, OR. DEP'T OF ENV'T QUALITY, (2022), <https://www.oregon.gov/deq/ghgp/cfp/Pages/utility.aspx> [<https://perma.cc/R8N7-3U52>] (total spending not available); *The PGE Drive Change Fund Frequently Asked Questions*, PORTLAND GEN. ELEC., <https://portlandgeneral.com/about/who-we-are/community/drive-change-fund/drive-change-faq> [<https://perma.cc/4HDJ-UVZH>] (last visited Nov. 2, 2022) (\$2.3 million).

224. WASH. UTIL. & TRANSP. COMM'N, REPORT ON INVESTOR-OWNED UTILITIES' USE OF INCENTIVE RATE OF RETURN ON ELECTRIC VEHICLE SUPPLY EQUIPMENT 13 (Dec. 31, 2017); Wash. L. 2015, ch. 43, 203 (S.B. 5988), amended by Wash. L. 2016, ch. 14 § 214 (H.B. 2524) (\$1 million); Wash. L. 2017, ch. 313 § 214 (S.B. 5096), amended by Wash. L. 2018, ch. 297, 214 (S.B. 6106) (\$1 million); Wash. L. 2019, ch. 416, § 214 (H.B. 1160), amended by Wash. L. 2020, ch. 219 § 214 (H.B. 2322) (\$2 million); Wash. L. 2021, ch. 333 § 214 (S.B. 5165), amended by Wash. L. 2022, ch. 186 § 215 (S.B. 5689) (\$11.9 million); see *Zero-Emission Vehicle Infrastructure Partnerships Grant*, WASH. DEP'T OF TRANSP., <https://wsdot.wa.gov/business-wsdot/grants/zero-emission-vehicle-grants/zero-emission-vehicle-infrastructure-partnerships-grant> [<https://perma.cc/P6NX-R59P>] (last visited Nov. 2, 2022).

225. Haw. State Leg. Act 142 (June 26, 2019); Haw. State Leg. Act 202 (June 27, 2022). The program is administered by Hawaii Electric. See *Electric Vehicle Charging Stations*, HAW. ENERGY, <https://www.hawaiienergy.com/for-business/rebates/electric-vehicle-charging-stations> [<https://perma.cc/LZT9-D9RJ>] (last visited Nov. 2, 2022).

million in state funds for a charger program.²²⁶ Illinois has directed the creation of a state-funded EVSE rebate program, but the rules and funding amounts have not yet been set.²²⁷ Florida has considered a grant program using registration fees but has not yet enacted the proposal.²²⁸

Overall, state investments from the sources discussed above—excluding VW funds—total about \$65 million. But no state spending program comes close to California’s commitments. California recently estimated that it has authorized over \$1 billion in public funds on EVSE projects through the California Energy Commission’s many grants programs.²²⁹ These include \$750 million in block grants to create EVSE charger incentive programs beginning in 2017, funded through the Alternative and Renewable Fuel Vehicle Technology (or Clean Transportation) program.²³⁰ In addition, prior to the block grant program, CEC had awarded about \$90 million for EVSE

226. *Workplace Electric Vehicle Charging Funding Assistance Program*, UTAH DEP’T OF ENV’T QUALITY, <https://deq.utah.gov/air-quality/workplace-electric-vehicle-charging-funding-assistance-program> [<https://perma.cc/FP4D-QKGY>] (last visited Nov. 2, 2022); *Utah Puts \$4 Million Volkswagen Settlement Funds Towards Electric Vehicle Charging Projects*, ENERKNOL (Apr. 2, 2019), <https://enerknol.com/utah-puts-4-million-volkswagen-settlement-funds-towards-electric-vehicle-charging-projects/> [<https://perma.cc/47LF-7EN8>].

227. Climate & Equitable Jobs Act (CEJA), S. 2408, 102nd Gen. Assemb., Reg. Sess. (Ill. 2021); 20 ILCS § 627/55.

228. Robbie Gaffney, *Grant Program Proposal to Fund EV Charging Stations Advances in Florida Senate*, WFSU NEWS (Mar. 10, 2021), <https://news.wfsu.org/state-news/2021-03-10/grant-program-proposal-to-fund-electric-vehicle-charging-stations-advances-in-florida-senate> [<https://perma.cc/NG2P-Z8DM>].

229. CAL. ENERGY COMM’N, CALIFORNIA’S DEPLOYMENT PLAN FOR THE NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE PROGRAM: DRAFT 2022-26 FOR CEC AND CALTRANS 15 (June 10, 2022).

230. CAL. ENERGY COMM’N, GFO-16-603 BLOCK GRANT FOR LIGHT-DUTY EV CHARGER INCENTIVE PROJECTS (2016), <https://www.energy.ca.gov/proceedings/energy-commission-proceedings/block-grant-electric-vehicle-charger-incentive-projects> [<https://perma.cc/RGY5-G5SH>] (\$200 million awarded); CAL. ENERGY COMM’N, GFO-20-607, SECOND BLOCK GRANT FOR LIGHT-DUTY ELECTRIC VEHICLE CHARGER INCENTIVE PROJECTS (2021), <https://www.energy.ca.gov/solicitations/2021-04/gfo-20-607-second-block-grant-light-duty-electric-vehicle-charger-incentive> [<https://perma.cc/NCB3-9Y5V>] (\$500 million awarded to program administrators who will seek match funding); CAL. ENERGY COMM’N, GFO-21-603, RELIABLE, EQUITABLE, AND ACCESSIBLE CHARGING FOR MULTI-FAMILY HOUSING (2021), <https://www.energy.ca.gov/solicitations/2021-11/gfo-21-603-reliable-equitable-and-accessible-charging-multi-family-housing> [<https://perma.cc/P8L6-5GRB>] (\$26.6 million awarded, \$7 million match); CAL. ENERGY COMM’N, GFO-21-604, CLEAN TRANSPORTATION PROGRAM RURAL ELECTRIC VEHICLE (REV) CHARGING (2021), <https://www.energy.ca.gov/solicitations/2021-12/gfo-21-604-clean-transportation-program-rural-electric-vehicle-rev-charging> [<https://perma.cc/9822-KQZT>] (\$20 million awarded, \$22 million match).

projects.²³¹ Therefore, even without tracking down every other dollar spent, California's \$1 billion estimate appears credible.

The sum total of the above public spending is about \$3.5 billion, of which about half has been earmarked for California. In 2021, the U.S. Congress more than tripled the total amount, as it committed another \$7.5 billion via the Infrastructure Investment and Jobs Act of 2021 (IIJA), also known as the Bipartisan Infrastructure Law,²³² and earmarked it for the entire country. The IIJA created two EVSE funding programs. The first, a \$5 billion appropriation to the Federal Highway Administration (FHWA), created the National Electric Vehicle Investment (NEVI) Formula Program "to strategically deploy . . . operate and maintain" EVSE. The NEVI funds are distributed to the states according to a formula based on their share of federal highway spending, are subject to a 20% public or private match requirement, and must primarily focus on construction near the Interstate Highways and other major transportation corridors.²³³ The second program, a discretionary grant program, creates a \$2.5 billion fund for electric and non-electric alternative fuel vehicle fueling projects, prioritizing rural and other underserved areas.²³⁴ Thus, as of 2022, public commitments for EVSE investment in the United States have totaled approximately \$11 billion.

Although not totaled here, a final important type of public finance for EVSE has been through tax expenditure, meaning funding that has been provided indirectly in the form of taxes not collected, for example in the form of tax credits. In addition to a handful of state tax

231. CAL. ENERGY COMM'N, INVESTMENT PLAN FOR THE ALTERNATIVE AND RENEWABLE FUEL AND VEHICLE TECHNOLOGY PROGRAM (INVESTMENT PLAN) 21 (Apr. 2009), <https://www.energy.ca.gov/sites/default/files/2021-07/CEC-600-2009-008-CMF.pdf> [<https://perma.cc/JBT5-BBNL>] (\$12 million); CAL. ENERGY COMM'N, 2011-2012 INVESTMENT PLAN (Sept. 2011), <https://www.energy.ca.gov/sites/default/files/2021-07/CEC-600-2011-006-CMF.pdf> [<https://perma.cc/4C4M-EVYF>] (\$7.5 million); CAL. ENERGY COMM'N, 2012-2013 INVESTMENT PLAN (May 2012), <https://www.energy.ca.gov/sites/default/files/2021-07/CEC-600-2012-001-CMF.pdf> [<https://perma.cc/6RXV-5W5Y>] (\$6.75 million); CAL. ENERGY COMM'N, 2013-2014 INVESTMENT PLAN (May 2013), <https://www.energy.ca.gov/sites/default/files/2021-07/CEC-600-2012-008-CMF.pdf> [<https://perma.cc/6WSW-ATF8>] (\$7 million); CAL. ENERGY COMM'N, 2014-2015 INVESTMENT PLAN (Apr. 2014), <https://www.energy.ca.gov/sites/default/files/2021-07/CEC-600-2013-003-CMF.pdf> [<https://perma.cc/9R7N-LLNV>] (\$15 million); CAL. ENERGY COMM'N, 2016-2017 INVESTMENT PLAN (May 2016), <https://www.energy.ca.gov/sites/default/files/2021-04/CEC-600-2015-014-CMF.pdf> [<https://perma.cc/5972-6GEE>] (\$17 million).

232. Infrastructure, Investment, and Jobs Act, Pub. L. No. 117-58.

233. Infrastructure, Investment, and Jobs Act, Pub. L. No. 117-58 § 11404 (grant program).

234. Infrastructure, Investment, and Jobs Act, Pub. L. No. 117-58 div. J. tit. VIII, ¶ 2; Memorandum, U.S. Dep't of Transp., Fed. Highway Admin., The National EV Infrastructure (NEVI) Formula Program Guidance (Feb. 10, 2022).

credits,²³⁵ since 2005 the federal tax code has provided tax credits for a variety of alternative fueled vehicle fueling infrastructure costs,²³⁶ which have been repeatedly revised—including most recently in the Inflation Reduction Act of 2022.²³⁷ Unfortunately, federal tax credit expenditure reporting aggregates EVSE credits with others, and it is not possible to determine the total amount of the tax credit expense attributable specifically to EVSE.²³⁸

Finally, there is also private spending, although accounting for it is much more difficult, as typically these figures are not publicly available and available estimates vary wildly. However, there is an important distinction between charging station companies that have expanded using their own capital exclusively (meaning Tesla), and charging station companies that have relied more heavily on public funds (meaning most others). Tesla's DCFC Supercharger network, and L2 Destination Charger network, are currently usable only by Tesla vehicles, although the company has recently announced that it intends to open the stations to the public for charging. To date, Tesla has not received significant public grant funding for its chargers, and therefore it is assumed that all stations to date are privately funded. Tesla has not publicized its spending on these facilities for many years, and it is only possible to make rough estimates. With approximately 1,400 Supercharger locations in the U.S, at roughly \$125,000 per station, Tesla would have spent about \$175 million. Tesla also operates about 4,000 destination charging locations. At roughly \$25,000 each, these would have cost another \$100 million. Therefore, a very rough estimate is \$275 million spent to date—with much more coming. Private investments in other major charging networks—ChargePoint, ChargePro, EV Connect, Blink, Volta, Greenlots (Shell), and EVgo—are even more difficult to assess, because these companies often have relied on government grants to build stations. Together, private charging network companies other than Tesla have installed approximately 65,000 L2, and 5,000 DCFC ports. Very roughly, these would have cost about \$1.5 billion (\$10,000 per L2 port, \$150,000 per DCFC port). Of this, perhaps one third was public grant funding, leaving another \$1 billion invested by the companies. But this is an extremely rough estimate.

235. *E.g.*, G.A. Code § 48-7-40.16(2)(d) (2020).

236. 26 U.S.C. § 30C.

237. Pub. L. No. 117-169, tit. I, § 13404, 136 Stat. 1818, 1966(2022).

238. *See Tax Expenditures*, U.S. DEP'T OF TREASURY, <https://home.treasury.gov/policy-issues/tax-policy/tax-expenditures>.

These figures fill out the story told by the spending patterns in utility EVSE. First, California's public spending more than doubles its per capita investments, to \$50 per person, and its VW settlement funds increase that total to \$70 per person. Stated another way, Connecticut is the only state to have made commitments similar to California's, although California has been spending money for many years, while Connecticut is just beginning. Vermont stands out as a state that has committed more state public funds than ratepayer funds, while states with significant public programs also tend to have been approving large utility investment programs now that that model is available. The magnitude of the federal funding, however, is the major story. The NEVI Formula program works out to about \$15 per person, while the new grant program brings that total up to about \$22—meaning that almost all states now have access to what was identified in the previous section as “high tier” funding. Nonetheless, with credible estimates in total EVSE investment needs exceeding \$80 billion, and with public programs subject to location limits and cost share requirements, there is sure to remain a great deal of pressure for funding from utilities in the future.

IV. THE FUTURE OF EV INFRASTRUCTURE FINANCE

In a two-car garage in the suburbs, a new EV owner pays an electrician to install an L2 charger near her service panel, and submits the bill to her utility, which pays for most of it. In an airport parking garage, the port authority does the same thing for twelve new L2 stations, and covers the remainder through a grant from a state settlement fund. At an interstate rest stop, a utility builds two DC fast charging ports in a joint venture with a car company, using federal grant funds. At a city library, administrators receive monies from a state fund to install four public charging ports in the parking lot, and receive credits from their utility for necessary distribution upgrade costs. At gas stations and malls and movie theaters, charging stations pop up, in twos and threes, and tens and twelves—some funded privately, some funded federally, and some funded by utility ratepayers. This Article has described the complex web of authorities that are, slowly, rendering this profound shift on the American driving landscape. It is clear that the electric utility will play some part in this transition, but many questions remain about the utilities' ultimate role.

In addition to the fundamental questions of ratepayer benefit and reasonableness of utility spending, the greatest question for utilities

must be how new sources of finance—both public and private—will impact prior arguments that utility ratepayer funding is needed to support the EV transition. In states that have not yet even spent Volkswagen settlement funds, and that have just received tens or hundreds of millions in federal NEVI program dollars, the question may become: What purpose does utility funding serve? In the same spirit, how will Tesla's recent decision to open its charging networks to the public, or GM's announcement that it intends to invest millions in its own network,²³⁹ impact the landscape? Utilities will need to convince regulators and ratepayers that there is still some purpose to their spending; while opponents will want to demonstrate, as they first argued successfully in the SDG&E case in 2010, that public funding is currently sufficient to support EVSE buildouts. As of this writing, there are already indications that these arguments are happening. The NCUC, for example, ordered Duke to incorporate consideration of the IIJA into its public infrastructure proposals before its next filing, and Michigan recently approved a utility proposal that accounted for the IIJA funding—adopting a program that allows one-third contributions from IIJA, the state, and utilities.²⁴⁰ As the charging market develops, utilities and utility regulators may increasingly turn to the older paradigm of market failure investment—building stations in areas that the private sector does not find profitable, or that are not funded by public sources—to justify proposals, and may also be well positioned to apply for and manage federal funding for EVSE, while using ratepayer funding as a match for federal grants.

Whatever happens, utilities might also be well served to increase the standardization and clarity of their programs. The complexity of the regulatory environment described in this Article is a classic problem of state-by-state regulation, made even worse as policies differ from utility to utility, and over time. It is almost impossible for a typical consumer to know what options are available, let alone how these options compare to opportunities elsewhere. Some states have begun tackling this problem by requiring the development of statewide investment plans, but even these plans often leave program

239. Aria Alamalhodaie, *GM Is Upping Its Investment in Charging Infrastructure to Increase Confidence in EVs*, TECHCRUNCH (Oct. 6, 2021), <https://techcrunch.com/2021/10/06/gm-is-upping-its-investment-in-charging-infrastructure-to-increase-confidence-in-evs> [<https://perma.cc/5L4E-E4E6>].

240. Order, Upper Peninsula Power Co. Application for Authority to Amend Commercial Gen. Serv. Tariff to Provide Expanded Use of EV Charging Stations, Mich. P.S.C. No. U-21137 (Apr. 14, 2022).

details up to utilities. The chaos and fragmentation of the utility approach may, ultimately, be hard-pressed to compete against more uniform federal investment programs—or may continue to generate imaginative and well-tailored solutions to local problems.

As the national charging network matures and ages, utilities might also demonstrate their value. Today, in some places, new chargers are abundant and well maintained. But in others, older chargers are scarce and half-functional. Utilities may offer significant advantages when it comes to operating and maintaining electrical equipment on a permanent basis, something that for-profit businesses and government agencies are already struggling to do successfully with EVSE.²⁴¹ Utilities, with responsibilities for reliable service, and utilities commissions, which can develop performance-based rates to reward reliability, may ultimately prove more capable of providing a stable and successful charging network than others. Even as the charging station provider changes, and the billing network provider comes and goes, the electrical equipment underlying the system might be most reliable with electric utilities responsible for keeping them that way. But whether this justifies any particular utility expenditure, let alone charger ownership, will remain a matter of debate.

Another key question is whether the experiences of the regulated IOUs can be translated into more rural areas, which tend to be served by nonprofit electric cooperatives,²⁴² a legacy dating back to the Rural Electrification Act of 1936.²⁴³ While a few cooperatives offer charger rebates,²⁴⁴ that is the extent of their investment in EVSE at this time, and it does not seem likely that they will be able to afford to create extensive ratepayer-funded EV infrastructure. With rural America accounting for 20% of the nation's population but 70% of the nation's road miles, the federal government has already begun to step in to provide support and funding for transportation electrification, just as

241. Jonathan Gitlin, *Electric Cars Are Doomed If Fast Charger Reliability Doesn't Get Better*, ARS TECHNICA (July 13, 2022), <https://arstechnica.com/cars/2022/07/electric-cars-are-doomed-if-fast-charger-reliability-doesnt-get-better/> [https://perma.cc/4BYR-VPTR].

242. *Electric Co-Op Facts & Figures*, NAT'L RURAL ELEC. COOP. ASS'N (NRECA) (Apr. 28, 2022), <https://www.electric.coop/electric-cooperative-fact-sheet> [https://perma.cc/EQ8S-S2ES].

243. JOHN NEUFELD, *SELLING POWER: ECONOMICS, POLICY, AND ELECTRIC UTILITIES BEFORE 1940* 223–29 (2016).

244. For example, Energy United (a cooperative in South Carolina) offers a charger rebate among their appliance rebate offerings. See *Energy Efficiency Rebates*, ENERGY UNITED, <https://www.energyunited.com/rebates/> [https://perma.cc/6GXE-QZQ8] (last visited Nov. 9, 2022).

it did for household electrification in the past.²⁴⁵ But whether rural cooperatives can, or have the desire to, take advantage of this funding remains to be seen.

Without attention, this urban-rural divide risks developing into a “charging network divide,” where jurisdictions with robust utility spending are saturated with chargers in residences, buildings, and parking lots, while rural areas are charged only to the extent necessary to drive past them. This, in turn, risks intensifying the already entrenched cultural and political polarization around electric vehicles and EV charging. Energy policy is a politically polarized policy space, and EVSE finance is not immune from those pressures. The policies discussed in this Article began developing in, and are still largely associated with, coastal, liberal state governments, while many of the states that have not seen much EV adoption or utility EVSE investment are also more rural and conservative. There is, therefore, risk that the issue will become more polarized than it already is, making EV construction more difficult. On the other hand, federal spending on infrastructure, and the economic benefits of domestic manufacturing of EVs and EV components, are broadly popular. States like Tennessee, Georgia, Nevada, and North Carolina have supported utility EVSE investment in part because they are now home to domestic EV industries. A robust manufacturing landscape is likely to contribute to support in areas that might otherwise tend toward opposition.

In that case, the last holdouts are likely to be the states most heavily invested in fossil fuels. North Dakota and Louisiana may be little inclined to spend heavily on industries that compete with local incumbents, and this may impact—or rather, continue to impact—their policies on transportation electrification and utility EVSE investment. Yet economic dislocations are not limited to these places. Gas stations are set to be the biggest losers of the EV transition and would benefit most from developing EV infrastructure solutions, but are heavily invested in the internal combustion engine and have found it very difficult to adapt their businesses to EV charging, even as the convenience store model seems well adapted to vehicles that require long-distance drivers to stay put at a charger for thirty to sixty minutes at a time. Will utilities and service stations develop successful cooperative business models? Will the oil majors become

245. *Electric Vehicle & Rural Transportation*, U.S. Dep’t of Transp., <https://www.transportation.gov/rural/ev> [<https://perma.cc/5W3P-ML4N>] (last visited Nov. 9, 2022).

involved in charging? It is still too early to tell, although there appears to be interest in this transition.²⁴⁶

Over the past decade, a law of ratepayer-funded utility EV infrastructure investment has emerged. Public utilities commissions tasked with regulating utility spending have opened the door to utility investment, and decided to review every utility proposal on a case-by-case basis, weighing the costs and benefits of each. Often, they have concluded that the properly structured investments will provide financial benefits to everyone on the grid, although just as often they have reached these conclusions on the assumption that the EV transition that is just beginning will continue and accelerate—and on state policies that encourage this to happen. Within the broader context of the effort to respond to climate change by transforming the energy and transportation sectors simultaneously, electric utility ratepayer funding—if structured correctly—may be the best hope for the long-term, stable, reliable, and cost-effective construction and operation of a national EV charging network.

APPENDIX: STATE REGULATORY DOCKETS AND APPROVALS

Table 1. Utility EVSE Investment Policy Statements and Proposal Dockets, By State

Alabama	Policy: Ala. P.S.C. No. 32964. Proposals: n/a
Alaska	Policy: n/a Proposals: n/a
Arizona	Policy: Ariz. Corp. Comm'n No. RU-00000A-18-0284; Ariz. Corp. Comm'n No. E-00000A-21-0104. Proposals: Ariz. Corp. Comm'n No. E-01345A-10-0123; Ariz. Corp. Comm'n No. E-01933A-17-0250; Ariz. Corp. Comm'n No. E-01345A-19-0236; Ariz.

246. *E.g.*, Shell's purchase of charging network GreenLots, and forays by station franchises into the charging market. *RaceTrac Moves Closer to Electric Vehicle Charging Station*, CONVENIENCE STORE NEWS (Nov. 28, 2011) <https://csnews.com/racetrac-moves-closer-electric-vehicle-charging-station> [<https://perma.cc/2QLG-JNGV>].

	Corp. Comm'n No. E-00000A-21-0104.
Arkansas	Policy: n/a Proposals: n/a
California	Policy: Cal. P.U.C. No. I.91-10-029/R.91-10-028; 2006 CAL. STAT. 3419, 2009 CAL. STAT. ch. 355 (S.B. 626); Cal. P.U.C. No. R.09-08-009; Cal. Exec. Order No. B-16-2012; Cal. P.U.C. No. R.1311007; GOVERNOR'S INTERAGENCY WORKING GRP. ON ZERO-EMISSION VEHICLES, CAL. ZEV ACTION PLAN (2013); 2015 CAL. STAT. ch. 547 (S.B. 350); Cal. Exec. Order No. B-48-18 (Jan. 26, 2018); Cal. P.U.C. No. R.1812-006. Proposals: Cal. P.U.C. No. A.10-12-005; Cal. P.U.C. No. A.14-04-014; Cal. P.U.C. No. A.14-10-014; Cal. P.U.C. No. A.1502009; Cal. P.U.C. No. A.1701020; Cal. P.U.C. No. A.1701-021; Cal. P.U.C. No. A.17-01-022; Cal. P.U.C. No. A.1706031; Cal. P.U.C. No. A.1706033; Cal. P.U.C. No. A.17-06-034; Cal. P.U.C. No. A.1806015; Cal. P.U.C. No. A.18-07-020; Cal. P.U.C. No. A.18-07-022; Cal. P.U.C. No. A.18-07-023; Cal. P.U.C. No. A.18-07-025; Cal. P.U.C. No. A.1910012; Cal. P.U.C. No. A.1701022.
Colorado	Policy: Colo. P.U.C. No. 171-0692E; Colo. Exec. Order No. 2017-015 (July 11, 2017); COLORADO ELECTRIC VEHICLE PLAN, STATE OF COLO. (Jan. 2018); 2019 Colo. Sess. Laws 3434.

	Proposals: Colo. P.U.C. No. 20A-0195E; Colo. P.U.C. No. 20A-0204E.
Connecticut	Policy: Conn. Pub. Util. Reg. Auth. No. 17-12-03; Conn. Pub. Util. Reg. Auth. No. 17-12-03RE04; CONN. DEP'T ENERGY & ENV'T PROT., COMPREHENSIVE ENERGY STRATEGY 48-54 (2018). Proposals: Conn. Pub. Util. Reg. Auth. No. 17-12-03RE04; Conn. Pub. Util. Regul. Auth. No. 21-08-06.
D.C.	Policy: 2019 D.C. Laws 22-257 § 502. Proposals: D.C. Pub. Serv. Comm'n No. FC1130/FC1155.
Delaware	Policy: n/a Proposals: Del. P.S.C. No. 17-1094.
Florida	Policy: Dep't of Transp., S.P.B. 7018 Legis. Sess. (Fla. 2020); FLA. DEP'T OF TRANSP., EV INFRASTRUCTURE MASTER PLAN (2021). Proposals: Fla. P.S.C. No. 160186-EI; Fla. P.S.C. No. 20170183-EI; Fla. P.S.C. No. 20200220-EI; Fla. P.S.C. No. 20210015-EI; Fla. P.S.C. No. 20210016-EI; Fla. P.S.C. No. 20220029-EI.
Georgia	Policy: n/a Proposals: Ga. P.S.C. No. 41373; Ga. P.S.C. No. 42516; Ga. P.S.C. No. 44280.
Hawaii	Policy: Haw. State Leg. Act 156 (2009); Haw. P.U.C. No. 2016-0168; Haw. P.U.C. No. 2018-0135.

	Proposals: Haw. P.U.C. No. 13-07; Haw. P.U.C. No. 13-08; Haw. P.U.C. No. 2016-0168; Haw. P.U.C. No. 2020-0098; Haw. P.U.C. No. 2020-0202; Haw. P.U.C. No. 2021-0173.
Idaho	Policy: n/a Proposals: Idaho P.U.C. No. AVU-E-21-13.
Illinois	Policy: Ill. Comm. Comm'n No. 18-NOI-01; Ill. Pub. Act 102-0662 (2021) (enacting 20 ILCS 627/45); Ill. Comm. Comm'n No. 20-NOI-03. Proposals: Ill. Comm. Comm'n No. 20-0701; Ill. Comm. Comm'n No. 22-0431; Ill. Comm. Comm'n 22-0432.
Indiana	Policy: n/a Proposals: Ind. Util. Regul. Comm'n No. 43960; Util. Regul. Comm'n No. 44016; Ind. Util. Regul. Comm'n No. 44478; Ind. Util. Regul. Comm'n No. 45235; Ind. Util. Regul. Comm'n No. 45253 S2; Ind. Util. Regul. Comm'n No. 45616.
Iowa	Policy: n/a Proposals: Iowa Util. Bd. No. RPU-2019-0001.
Kansas	Policy: KAN. STAT. ANN. §66-1287 (2019). Proposals: Kan. Corp. Comm'n No. 16-KCPE-160-MIS; Kan. Corp. Comm'n No. 21-EMKE-320-TAR.
Kentucky	Policy: Ky. P.S.C. No. 2020-00349/-00350. Proposals: Ky. P.S.C. No. 2015-00355; Ky. P.S.C. No. 2018-00294/-00295.

Louisiana	Policy: n/a Proposals: n/a
Maine	Policy: 2019 Me. Laws ch. 365 § 5. Proposals: Me. P.U.C. No. 2019-00217; Me. P.U.C. No. 2021-00177.
Maryland	Policy: Notice of Public Conference, Exploration of Deployment of EVs, Md. P.S.C. No. 43 (June 7, 2016); Notice of Public Conference, Transforming Md. Elec. Distrib. Systems, Md. P.S.C. No. 44 (Nov. 3, 2016). Proposals: Md. P.S.C. No. 9478.
Massachusetts	Policy: Mass. D.P.U. No. 13-182; Mass. D.P.U. No. 13-182-A; Mass. D.P.U. No. 20-69; Mass. D.P.U. No. 20-69-A; 2020 Mass. Legis. Serv. ch. 383 (West). Proposals: Mass. D.P.U. No. 12-95; Mass. D.P.U. No. 17-05; Mass. D.P.U. No. 17-13; Mass. D.P.U. No. 18-150; Mass. D.P.U. No. 20-64, Mass. D.P.U. No. 20-74; Mass. D.P.U. No. 21-67; Mass. D.P.U. No. 21-90; Mass. D.P.U. No. 21-91; Mass. D.P.U. No. 21-92; Mass. D.P.U. No. 22-63.
Michigan	Policy: Mich. P.S.C. No. U-18368. Proposals: Mich. P.S.C. No. U-17990; Mich. P.S.C. No. U-20134; Mich. P.S.C. No. U-20162; Mich. P.S.C. No. U-20359, Mich. P.S.C. No. U-20935; Mich. P.S.C. No. U-21137; Mich. P.S.C. No. U-21234.
Minnesota	Policy: Minn. P.U.C. No. E999/CI-17-879.

	Proposals: Minn. P.U.C. No. E002/M-18-643; Minn. P.U.C. No. E017/M-20-181; Minn. P.U.C. No. E002/M-20-711; Minn. P.U.C. No. E002/M-20-745; Minn. P.U.C. No. E015/M-21-257.
Mississippi	Policy: n/a Proposals: Miss. P.S.C. No. EC-123-0082-00.
Missouri	Policy: n/a Proposals: Mo. P.S.C. No. ER-2018-0145/-0146; Mo. P.S.C. No. ET-2018-0132; Mo. P.S.C. No. ET-2020-0390; Mo. P.S.C. No. ET-2021-0151.
Montana	Policy: n/a Proposals: n/a
Nebraska	Nebraska is served entirely by cooperatives.
Nevada	Policy: 2017 Nev. Stat. ch. 239 § 1.4; Nev. P.U.C. No. 17-08021; 2021 Nev. Stat. ch. 552 §§ 14, 39. Proposals: Nev. P.U.C. No. 18-02002; Nev. P.U.C. No. 19-02001; Nev. P.U.C. No. 20-01040; Nev. P.U.C. No. 21-02004; Nev. P.U.C. No. 22-02002.
New Hampshire	Policy: N.H. P.U.C. No. IR 15-510; 2018 N.H. Laws ch. 154 (enacting N.H. RSA Tit. 4-G); N.H. EV CHARGING STATION COMM'N, FINAL REPORT 6 (2020). Proposals: N.H. P.U.C. No. DE 19-057; N.H. P.U.C. No. DE 21-078.
New Jersey	Policy: NEW JERSEY ENERGY MASTER PLAN: PATHWAY TO 2050 (2019); 2019 N.J. Laws. ch. 362

	(S-2252); N.J. Bd. Pub. Util. No. QO20050357; N.J. Bd. Pub. Util. No. QO21060946. Proposals: N.J. Bd. Pub. Util. No. EO18020190; N.J. Bd. Pub. Util. No. EO18101111; N.J. Bd. Pub. Util. No. EO20110730; N.J. Bd. Pub. Util. No. EO21030630; N.J. Bd. Pub. Util. No. QO21081070; N.J. Bd. Pub. Util. No. QO21101203.
New Mexico	Policy: H.B. No. 521, 54th Leg. Sess. (N.M. 2019); N.M. Pub. Regul. Comm'n No. 22-00085-UT. Proposals: N.M. Pub. Regul. Comm'n No. 20-00150-UT; N.M. Pub. Regul. Comm'n No. 20-00237-UT; N.M. Pub. Regul. Comm'n No. 20-00241-UT.
New York	Policy: N.Y. Dep't Pub. Serv. No. 14-M-0101; N.Y. Dep't Pub. Serv. No. 18-E-0138. Proposals: N.Y. Dep't Pub. Serv. No. 17-E-0238; N.Y. Dep't Pub. Serv. No. 18-E-0138; N.Y. Dep't Pub. Serv. No. 19-E-0065.
North Carolina	Policy: N.C. Exec. Order No. 80 (Oct. 29, 2018); ENERGY POL'Y COUNCIL: BIENNIAL REPORT, N.C. DEP'T OF ENV'T QUALITY 69-70 (May 2018). Proposals: N.C. Util. Comm'n No. E-7 Sub 969; N.C. Util. Comm'n No. E-2 Sub. 1197; N.C. Util. Comm'n No. E-7 Sub. 1195.
North Dakota	Policy: n/a Proposals: n/a
Ohio	Policy: n/a Proposals: Ohio P.U.C. No. 16-1852-EL-SSO; Ohio P.U.C. No. 18-1875-EL-GRD.

Oklahoma	Policy: n/a Proposals: n/a
Oregon	Policy: 2016 Or. Laws ch. 028, § 20(3); Or. P.U.C. No. AR-599 (Nov. 23, 2016); 2021 Or. Laws ch. 95; Or. P.U.C. No. UM 2165. Proposals: Or. P.U.C. No. UM 1811; Or. P.U.C. No. ADV 1151; Or. P.U.C. No. ADV 1155; Or. P.U.C. No. UM 1810; Or. P.U.C. No. UM 1811; Or. P.U.C. No. UM 1815; Or. P.U.C. No. UM 2033; Or. P.U.C. No. UM 2035; Or. P.U.C. No. UM 2056.
Pennsylvania	Policy: Penn. P.U.C. No. M-2017-2604382; PENNSYLVANIA ELECTRIC VEHICLE ROADMAP, PENN. DEP'T ENV'T PROT. 26, 30-31 (Feb. 2019). Proposals: Penn. P.U.C. No. R-2021-3024601; Penn. P.U.C. No. R-2021-3024750.
Puerto Rico	Policy: P.R. Pub. Serv. Reg. Bd. No. NEPR-MI-2021-0013. Proposals: n/a
Rhode Island	Policy: R.I. P.U.C. No. 4770; R.I. P.U.C. No. 4780. Proposals: R.I. P.U.C. No. 4770; R.I. P.U.C. No. 4780.
South Carolina	Policy: n/a Proposals: S.C. P.S.C. 2011-114-E; S.C. P.S.C. No. 2018-321-E; S.C. P.S.C. No. 2018-322-E; S.C. P.S.C. No. 2022-158-E; S.C. P.S.C. 2022-159-E.
South Dakota	Policy: n/a Proposals: n/a
Tennessee	Policy: n/a Proposals: <i>Electric Vehicle Fast Charging Network Coming to Tennessee</i> , TENN. DEP'T OF ENV'T & CONSERVATION (Feb. 3, 2021).
Texas	Policy: n/a Proposals: n/a
Utah	Policy: 2016 Utah Laws ch. 393; 2019 Utah Laws ch. 460; 2020

	Utah Laws ch. 104; 2020 Utah Laws ch. 2017. Proposals: Utah P.S.C. No. 16-035-36; Utah P.S.C. No. 20-035-34.
Vermont	Policy: Vt. P.U.C. No. 18-2660-INV; Vt. P.U.C. No. 19-3009-INV. Proposals: n/a
Virginia	Policy: 2018 Va. Acts, ch. 296 (S.B. 966); 2021 Va. Acts (Special Session I), ch. 268 (H.B. 2282), VA. STATE CORP. COMM'N, REPORT: POLICY PROPOSALS GOVERNING PUBLIC ELECTRIC UTILITY PROGRAMS TO ACCELERATE WIDESPREAD TRANSPORTATION ELECTRIFICATION IN THE COMMONWEALTH (2022); Va. Corp. Comm'n No. PUR-2020-00051. Proposals: Va. Corp. Comm'n No. PUR-2019-00154; Va. Corp. Comm'n No. 2019-00201.
Washington	Policy: S.H.B. 1853, 64th Leg., Reg. Sess. (Wash. 2015); S.H.B. 1512, 66th Leg., Reg. Sess. (Wash. 2019); E.S.S.H.B. 2042, 66th Leg., Reg. Sess. (Wash. 2019); Wash. U.T.C. No. UE-160799. Proposals: Wash. U.T.C. No. UE-131585; Wash. U.T.C. No. UE-160082; Wash. U.T.C. No. UE-180877; Wash. U.T.C. No. UE-200607; Wash. U.T.C. No. UE-210191; Wash. U.T.C. No. UE-220359; Wash. U.T.C. No. UE-220294.
West Virginia	Policy: n/a Proposals: n/a
Wisconsin	Policy: Wis. P.S.C. No. 5-EI-156. Proposals: Wis. P.S.C. No. 4220-TE-104; Wis. P.S.C. No. 6630-TE-106; Wis. P.S.C. No. 6690-TE-111; Wis. P.S.C. No. 3270-TE-115.
Wyoming	Policy: n/a

	Proposals: n/a
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Table 2. Utility EVSE Investment Proposal Status (through July 2022)²⁴⁷

* CSI = customer-side incentive; MR = make-ready; MRR = make-ready/rebate; UO = utility-owned

Alabama	n/a
Alaska	n/a
Arizona ~\$12M	<p>Arizona Public Service (APS): Ariz. Corp. Comm'n No. E-01345A-10-0123, Decision 72582 (Sept. 15, 2011) (denial); No. E-01345A-19-0236, Lockwood Testimony Att. BDL-2DR (Oct. 31, 2019), Decision 78317 at 417-418 (Nov. 9, 2021) (\$10.8M UO DCFC and L2); <i>and see</i> No. E-00000A-21-0104 (expansion proposal forthcoming).</p> <p>Tucson Electric Power (TEP): Ariz. Corp. Comm'n No. E-01933A-17-0250, Supplement to Application 3 (Dec. 22, 2017), Decision 77085 at 26-31, 41-42 (Feb. 20, 2019) (\$0.65M residential CSI, \$0.45M UO DCFC); <i>and see</i> No. E-00000A-21-0104 (expansion proposal under review).</p> <p>Salt River Project (SRP): public power authority</p>

247. Where utility cost recovery was approved, the approved budget is noted, and total approved utility spending amounts are aggregated for each state. All dollar amounts are total cost recovery approvals (not actual expenditures) in nominal dollars and exclude all spending other than light-duty vehicle EV charging station installation, operation, and maintenance. Therefore, consumer marketing and education programs, and transit, medium-, and heavy-duty EVSE programs are excluded; but light duty fleet and administrative costs associated with light duty programs (to the extent determinable) are included.

	operating multiple rebate programs, no regulatory docket to review, total costs not public.
Arkansas	n/a
California ~\$943M	<p>San Diego Gas & Electric (SDG&E): Cal. P.U.C. No. A.14-04-014, D.16-01-045 (Jan. 28, 2016) (\$45M UO); No. A.17-01-020, D.18-01-024 at 20-23 (Jan. 11, 2018) (\$4M UO), D.18-05-040 at 23-53, 118 (May 31, 2018) (\$142M CSI); No. A.18-07-023, D.19-11-017 at 64 (Nov. 7, 2019) (\$18.7M UO); No. A.19-10-012, D.21-04-014 (Apr. 15, 2021) (accepting \$25M prior cost overrun, approving \$43.5M budget but limiting UO to 50% and requiring CSI option).</p> <p>Southern California Edison (SCE): Cal. P.U.C. No. A.14-10-014, D.16-01-023 at 15-18, 27 (Jan. 14, 2016) (\$22M CSI), D.18-12-006 (Dec. 13, 2018) (\$22M extension, CSI); No. A.17-01-021, D.18-01-024 at 45-50, 54-57 (Jan. 11, 2018) (\$4M CSI and \$4M UO DCFC); No. A.18-06-015, D.20-08-045 (Aug. 27, 2020), as modified D.21-08-005 (Aug. 05, 2021) (\$436.5M MRR); No. A.18-07-022, Decision 19-11-017 at 64 (Nov. 7, 2019) (\$19.8M MRR or UO).</p> <p>Pacific Gas & Electric (PG&E): Cal. P.U.C. No. A.15-02-009; D.16-12-065 at 2, 53-55 (Dec. 15, 2016) (\$130M, max 35% UO, otherwise MRR); No. A.17-01-022, D.18-05-040 at 62-76 (May 31, 2018) (\$22.4M DCFC make-</p>

	<p>ready); No. A.18-07-020, D.19-11-017 at 64 (Nov. 7, 2019) (\$11.3M MRR or UO); No. A.18-07-021, D. 19-09-006 (Sept. 12, 2019) (\$4.1M CSI).</p> <p>Liberty Utilities (CalPECO), Bear Valley, & Pacific Power (PacifiCorp): Cal. P.U.C. No. A.17-06-031/-033/-034, D.18-09-034 at 32, 44-49, 66-67, 70-71 (Oct. 5, 2018) (Bear Valley: \$0.6M MR, Liberty: \$1.9M CSI, \$4M UO/MR DCFC); No. A.18-07-025, D.19-11-017 at 65 (Nov. 7, 2019) (Liberty: \$4.7M UO).</p>
<p>Colorado ~\$78M</p>	<p>Public Service Co. of Colorado (Xcel): Colo. P.U.C. No. 20A-0204E, Decision C21-0017 (Dec. 23, 2020), Decision C21-0117 (Feb. 24, 2021) (approving), Revised TE Plan 13 (Apr. 1, 2021) (\$77.5M MRR).</p> <p>Black Hills: Colo. P.U.C. No. 20A-0204E, Decision C21-0651 (Oct. 6, 2021) and Decision C21-0823 (Dec.22, 2021) (approving), Revised TE Plan 9, 18 (Feb. 4, 2022) (\$0.2M CSI).</p>
<p>Connecticut ~\$250M</p>	<p>Eversource & United Illuminating (UI/Avangrid): Conn. Pub. Util. Reg. Auth. No. 17-12-03RE04, Decision 17-18 (July 14, 2021) (~\$250M MRR, statewide program).²⁴⁸</p>

248. This figure is derived by the multiple the program's deployment targets (50,000 residential L2, 4,097 destination L2, 7,356 workplace L2, and 481 DCFC installations, plus over 1,200 MUD L2 installations in the first several years with future numbers to be determined) by the cost caps, and multiplying that number by 1.5 to capture program administration, outreach, and evaluation budgets. This is roughly consistent with the \$90 million budgets the utilities submitted for their 2022-2024 programs. See Decision at 30-33, Annual Review of EV Charging Programs, Conn. Pub. Util. Regul. Auth. No. 21-08-06 (Dec. 15, 2021) and utility revised budget submissions (Jan. 7, 2022).

D.C. ~\$2.3M	Potomac Electric Power Co. (PEPCO): P.S.C. No. FC1130/FC1155, Order 19898 at 21–26 (Apr. 12, 2019), Implementation Plan 4 (Oct. 30, 2019) (\$2.3M MR), Order 21162 at 15 (June 3, 2022) (denying rebates).
Delaware ~\$0.5M	Delmarva Power & Light: Del. P.S.C. No. 17-1094, Settlement 4 (Jan. 25, 2019), Order 9357 (June 4, 2019) (\$0.5M UO DCFC/L2).
Florida ~\$204M	Duke Energy Florida (DEF): Fla. P.S.C. No. 20170183-EI, Settlement 33–37, Ex. 7 (Aug. 29, 2017), Order 4, 5 (Nov. 20, 2017) (\$8M UO DCFC/L2); No. 20210016-EI, Settlement 10–12, 53 (Jan. 14, 2021), Order (June 4, 2021) (\$32.4M CSI and \$30.5M OU DCFC); No. 20220029-EI (cost recovery). Tampa Electric Co. (TECO): Fla. P.S.C. No. 20200220-EI, Order (Apr. 21, 2021) (\$2M UO). Florida Power & Light (FPL): Fla. P.S.C. No. 20160186-EI, Terry Testimony 23 (Oct. 12, 2016); Hodnett Testimony 16–17 (Oct. 12, 2016) (~\$1.2M UO); Order 5 (May 16, 2017); Fla. P.S.C. No. 20200170, Order 3 (Dec. 21, 2020) (approving but deferring cost recovery); No. 20210015-EI, Settlement 26–28 (Aug. 10, 2021), Order 21 (Dec. 2, 2021) (~\$130M UO).
Georgia ~\$27M	Georgia Power: Ga. P.S.C. No. 42516, Paroch et al. Testimony 47–48 (June 28, 2019), Settlement ¶ 30 (Dec. 10, 2019),

	Order 18–19 (Dec. 17, 2019) (~\$27M UO).
Hawaii ~\$5M	Hawaiian Electric Industries: Haw. P.U.C. No. 2020-0202, Order 38194 at 15–16 (Jan. 24, 2022) (\$5M UO).
Idaho \$0	Avista: Idaho P.U.C. No. AVU-E-21-13, Order (Mar. 31, 2022) (denying).
Illinois ~\$0	Ameren: Ill. Comm. Comm’n Nos. 20-0701 (approving RIDER EVCP), 22-0431 (June 30, 2022). Commonwealth Edison (ComEd): Ill. Comm. Comm’n No. 22-0432 (July 1, 2022).
Indiana ~\$5.4M	Indianapolis Power & Light (IPL): Ind. U.R.C. No. 43960, Order 33, 43–44 (Nov. 22, 2011) (deferring review); No. 44016, Order 5 (Feb. 1, 2012) (\$0.5M CSI and \$0.2M UO L2); No. 44478, Order 19 (Feb. 11, 2015) (\$3.7M line extension costs for BlueIndy project). Indiana Michigan Power (I&M): Ind. U.R.C. No. 45235, Lehman Testimony 3 (Oct. 10, 2019), Order 55-58 (Mar. 11, 2020) (\$2.1M rebates). Duke Energy Indiana: Ind. U.R.C. No. 45253 S2 (rebates and utility-owned DCFC), Order 15–18 (July 22, 2020) (denying \$8M proposal); No. 45616, Gordon Testimony 31 (Sept. 23, 2021) (\$1M rebates), Order (June 1, 2022) (approving).
Iowa \$0	IPL: Iowa Util. Bd. RPU-2019-0001, Order 32–34 (Jan. 8, 2020) (denying rebate recovery).

<p>Kansas ~\$12M</p>	<p>KCP&L/Evergy: Kan. Corp. Comm'n No. 16-KCPE-160-MIS, Order (Sept. 13, 2016) (denying UO recovery); No. 21-EKME-320-TAR, TE Filing Report 9 (Feb. 24, 2021), Order 10 (Dec. 6, 2021) (\$10M CSI and \$1.7M rebates approved; declining CCN prudence determination).</p>
<p>Kentucky ~\$0.5M</p>	<p>Louisville Gas & Electric & Kentucky Utilities (KU-PPL): Ky. P.S.C. No. 2015-00355, Order 4 (Apr. 11, 2016) (\$0.5M UO).</p>
<p>Louisiana</p>	<p>n/a</p>
<p>Maine ~\$0.5M</p>	<p>Central Maine Power (CMP) & Efficiency Maine Trust: Me. P.U.C. No. 2019-00217, Order (Feb. 25, 2020) (\$0.25M MR, \$0.25M rebate).</p>
<p>Maryland ~\$47M</p>	<p>Baltimore Gas & Electric (BGE), Potomac Edison, Potomac Electric (PEPCO), Delmarva, SMECO: Md. P.S.C. No. 9478, Order 88997 at 45-66 (Jan. 14, 2019); Order 90036 (Jan. 11, 2022); Letter Order (July 31, 2019), BGE Progress Report App. B (Feb. 1, 2022) (\$3.5 rebates, \$16M UO); Potomac Edison Progress Report 16 (Feb. 1, 2022) (\$0.6M rebates, ~\$4.5M OU); PEPCO & Delmarva Progress Report App. A (Feb. 1, 2022) (\$3.3M rebates, ~\$15.5M OU); SMECO Progress Report App. A (Feb. 1, 2022) (~\$3M OU).</p>
<p>Massachusetts ~\$75M</p>	<p>Eversource: Mass. D.P.U. No. 17-05, Hallstrom Testimony 90-122 (Jan. 17, 2017), Order 471-474 (Nov. 30, 2017) (\$45M MR);</p>

	<p>No. 20-74, Order 36-40 (Feb. 4, 2021) (\$10M MR); No. 21-90, Boughan Testimony 24-32 (July 14, 2021) (expansion proposal – under review).</p> <p>National Grid: Mass. D.P.U. No. 17-13, Barde & Cronin Testimony 26-42 (Jan. 20, 2017), Order 11 (Sept. 10, 2018) (~\$20M MMR); Nos. 20-64, 21-67, and 22-63 (subsequent cost recovery); No. 18-150, Order 335-397 (Sept. 30, 2019) (denying expansion); No. 21-90, Sondhi et al. Testimony 26-39 (July 14, 2021) (expansion proposal under review).</p> <p>Unitil: Mass. D.P.U. No. 21-92 (July 14, 2021) (proposal under review).</p>
Michigan ~\$31M	<p>Consumers: Mich. P.S.C. No. U-20134, Delaney Testimony 13-28 (May 18, 2018), Settlement Att. 3 (Dec. 18, 2018), Order (Jan. 9, 2019) (\$10M MRR); No. U-20697, Order 233-240 (Dec. 17, 2020) (\$7.5M MRR).</p> <p>DTE: Mich. P.S.C. No. U-20162, Serna Testimony 26-35 (June 6, 2018), Order 100-113 (May 2, 2019) (\$13M MRR).</p> <p>Indiana Michigan Power (I&M): Mich. P.S.C. No. U-20359, Order 4 (Jan. 23, 2020) (\$0.7M CSI).</p>
Minnesota ~\$33M	<p>Northern States Power Co. (Xcel): Minn. P.U.C. No. E-002/M-17-817, Order (May 9, 2018) (revenue-neutral installation incentive); No. E-002/M-18-643, Order 5-6 (July 17, 2019);</p>

	<p>(\$14.3M UO (estimate 50% light duty), \$9.2M MR); No. E-002/M-20-711, Order 3 (July 2, 2021) (\$4.4M MR); No. E-002/M-20-745, Petition 14-20 (Sept. 15, 2020), Order (Apr. 27, 2022) (\$5M UO).</p> <p>Otter Tail Power (OTP): Minn. P.U.C. No. E-017/M-20-181, Order 3-4 (Oct. 27, 2020) (\$2M UO).</p> <p>Minnesota Power: Minn. P.U.C. No. E-015/M-21-257, Order 2-3 (Oct. 22, 2021) (\$4.9M UO).</p>
Mississippi	n/a
Missouri ~\$27M	<p>Evergy: Mo. P.S.C. No. ER-2018-0145 and -0146, Klote Testimony 8, Sched. RAK-2 (Jan. 2018) (indicating costs as part of rate base, not disclosing amounts); Caisley Testimony 4 (indicating costs include 913 L2 and 16 DCFC stations), Settlements (Nov. 9, 2018), Orders (Oct. 31, 2018) (~\$10M UO);²⁴⁹ No. ET-2021-0151 (Jan. 24, 2022) (authorizing network expansion but deferring cost review).</p> <p>Ameren: Mo. P.S.C. No. ET-2018-0132, Report and Order 12, 46 (Feb. 6, 2019) (\$4.4M UO); Settlement 3 (Aug. 8, 2019), Order (Oct. 17, 2019) (approving \$8.6M MR).</p> <p>Liberty: Mo. P.S.C. No. ET-2020-0390, Settlement 3 (Dec. 3,</p>

249. At \$12,000 per L2, and \$250,000 per DCFC, estimate of total network is \$15M, with two thirds in Missouri and one third in Kansas.

	2021), Order 2-3 (Jan. 19, 2022) (\$6.75M UO).
Montana	n/a
Nebraska	n/a
Nevada ~\$88M	NV Energy: Nev. P.U.C. No. 17-08021, Order 10-11 (May 11, 2018), adopting NAC ch. 701B §24 (\$15M CSI); <i>see also</i> Nos. 18-02002, Order (June 27, 2018); 19-02001, Order (June 26, 2019); 20-01040, Order (June 10, 2020); 21-02004, Order (June 15, 2021); 22-02002, Order (May 10, 2022) (no change to budget); 21-09004, Order 98-101 (\$72.9M MRR/UO site choice).
New Hampshire	n/a
New Jersey ~\$266M	PSE&G: N.J. Bd. Pub. Util. No. E018101111, Petition 11-27 (Oct. 11, 2018), Decision (Jan. 27, 2021) and Minutes of NJBPU Regular Meeting 17-19 (Jan. 27, 2021) (\$205.2M MRR). Atlantic City Electric (ACE): N.J. Bd. Pub. Util. No. E018020190, Settlement Att. A (Feb. 2, 2021), Order (Feb. 17, 2021), Minutes of N.J. Bd. Pub. Util. Regular Meeting 20-22 (Feb. 17, 2021) (\$20.7M MR). Jersey City Power & Light (JCP&L): N.J. Bd. Pub. Util. No. E021030630, Decision 4-9 (June 8, 2022) (\$40M MR). Rockland Electric (RECO): Proposal pending: N.J. Bd. Pub. Util. No. E020110730.
New Mexico ~\$16M	Southwestern Public Service (SPS-Xcel): N.M. Pub. Regul. Comm'n No. 20-00150-UT,

	<p>Recommended Decision 54–59 (Aug. 2021), Final Order (Sept. 22, 2021) (\$3.7M MR).</p> <p>Public Service Co. of NM (PNM): N.M. Pub. Regul. Comm’n No. 20-00237-UT, Final Order (Nov. 12, 2021), Quarterly Information Filing 2 (Apr. 29, 2022) (\$11.45M MRR).</p> <p>El Paso Electric (EPE): N.M. Pub. Regul. Comm’n No. 20-00241-UT, Certification of Stipulation 5 (Oct. 16, 2021), Order (Nov. 12, 2021) (\$1.2M CSI).</p>
<p>New York ~\$650M</p>	<p>National Grid: N.Y. Dep’t Pub. Serv. No. 17-E-0238, Proposal 106–107 (Jan. 19, 2018), Order 64–65 (Mar. 15, 2018) (\$2M MR).</p> <p>Consolidated Edison (ConEd): N.Y. Dep’t Pub. Serv. No. 19-E-0065, Joint Proposal 83 (Oct. 16, 2019), Order (Jan. 16, 2020) (\$39M MR).</p> <p>ConEd, Central Hudson, NYSEG, Rochester Gas & Electric (RG&E), National Grid, Orange & Rockland: N.Y. Dep’t Pub. Serv. No. 18-E-0138, Order App. A (Feb. 7, 2019) (\$31.6M CSI), Order 32, 74 (July 16, 2020) (\$480.5M MRR).</p> <p>NYPA: 2020-21 Financial Report 9, 71 (\$25M spent, \$97M future spending on EV chargers).</p>
<p>North Carolina ~\$18M</p>	<p>Duke Energy Carolinas (DEC): N.C. U.C. Nos. E-2 Sub 1197 and E-7 Sub 1195, Order 6, 18–19 (Nov. 24, 2020) (\$17.5M UO); Order 2 (Feb. 18, 2021) (CSI</p>

	credits, no budget total provided).
North Dakota	n/a
Ohio ~\$15M	AEP: Ohio P.U.C. No. 16-1852-EL-SSO, Stipulation 14–18 (Aug. 25, 2017), Order 26–30 (Apr. 25, 2018) (\$9.5M CSI). AES Ohio: Ohio P.U.C. No. 18-1875-EL-GRD, Stipulation 13–18 (Oct. 23, 2020), Order 41 (June 2, 2021) (\$5.1M CSI).
Oklahoma	n/a
Oregon ~\$100M	Portland General Electric (PGE): Or. P.U.C. No. UM 1811 (pilot), Order 19–385 (Nov. 8, 2019), Annual Update (Oct. 7, 2021) (\$2.8M UO); No. ADV 1151, Letter re Adv. 20–18, (Oct. 20, 2020) (\$17M rebate); Letter re Adv. 20–19 (Dec. 15, 2020) (\$1M UO); plus annual revenue from 2021 Or. Laws ch. 95 (HB 2165) surcharge (estimated \$46M). Pacific Power (PacifiCorp): 2021 Or. Laws ch. 95 (HB 2165) surcharge revenue (est. \$32M). ²⁵⁰
Pennsylvania ~\$3.5M	Duquesne Light: Penn. P.U.C. No. R-2021-3024750 (rate case), Recommended Decision 17 (Oct. 5, 2021), Order 26, 47 (Dec. 16, 2021) (\$~3M MR). PECO: Penn. P.U.C. No. R-2021-3024601 (rate case), Golden

250. Surcharge revenue estimates: OR. PUB. UTIL. COMM'N, PUBLIC WORKSHOP 7: STAFF GUIDANCE AND IMPLEMENTATION PATHWAYS HOUSE BILL 2165 (Oct. 20, 2021) <https://edocs.puc.state.or.us/efdocus/HAH/um2165hah82957.pdf> [<https://perma.cc/T5DG-742F>].

	Testimony 8–11, Recommended Decision 26–28, 61–66 (Oct. 6, 2021), Order (Nov. 18, 2021) (\$0.5M CSI).
Puerto Rico	LUMA: n/a
Rhode Island ~\$7M	National Grid: R.I. P.U.C. Nos. 4770 and 4780, Order 24–27 and App. A 55–61 (Aug. 2018). <i>See also</i> National Grid, Annual Reports (Oct.31, 2019 and Oct. 30, 2020) (\$7.3M MR).
South Carolina ~\$8M	Duke Energy: S.C. P.S.C. No. 2018-321-E (DE Carolinas), Order 4–6 (Oct. 15, 2020) (\$0.4M rebates, \$5.2M UO); No. 2018-322-E (DE Progress), Order (Oct. 15, 2020) (\$2.6M UO).
South Dakota	n/a
Tennessee ~\$15M	Tennessee Valley Authority (TVA): TDEC-TVA project (announced Feb. 23, 2021). ²⁵¹
Texas	n/a
Utah ~\$50M	Rocky Mountain Power (RMP): Utah P.S.C. No. 16-035-36 (STEP Act plan), Application 9–15 (Sept.12, 2016), Order (Dec. 29, 2016) (\$7.5M CSI); No. 20-035-34, Settlement 5–8 (Nov. 17, 2021), Order (Dec. 20, 2021) (\$~22M UO, ~\$22M MR).
Vermont	n/a
Virginia ~\$23M	Dominion: Va. Corp. Comm’n No. PUR-2019-00154, Order 13–

251. Tennessee Valley Authority (TVA), like NYPA, is a public power authority funded almost entirely by revenues from electricity sales. Therefore, its spending is funded by ratepayers. *See Electric Vehicle Fast Charging Network Coming to Tennessee*, TVA (Feb. 3, 2021), <https://www.tva.com/newsroom/press-releases/electric-vehicle-fast-charging-network-coming-to-tennessee> [<https://perma.cc/2L3X-WXVE>]. Technically, TVA’s service territory extends into small parts of Alabama, Georgia, Mississippi, and Kentucky. However, the great majority of TVA’s service area and customers are in Tennessee.

	15 (Mar. 26, 2020) (approving program); Annual Report, Sched. 1 (Mar. 31, 2022) (\$19M MRR & ~\$1 UO); No. PUR-2019-00201, Report 45 (June 16, 2020) (\$2.9M rebates), Order 14-15 (July 30, 2020) (approving).
Washington ~\$121M	<p>Puget Sound Energy (PSE): Wash. U.T.C. No. UE-131585, UE-140330, UE-140626, Staff Memos (Apr. 24, 2014) (\$1.3M recovered on rebate pilot); No. UE-180877, Staff Memo Att 1 (Dec. 13, 2018) (\$11.6M CSI, deferring cost recovery); No. UE-210191, Staff Memo 8 (Aug. 12, 2021) (\$78M high-side budgets, mixed CSI/UO).</p> <p>Avista: Wash. U.T.C. No. UE-160082, Order 01 (Apr. 28, 2016); Order 02 at 3 (Feb. 8, 2018) (total approved program budget estimate \$4.2M) (NB: expenditures for the program were \$3.8M. Wash. U.T.C. No. UE-160082, Avista EVSE Pilot Final Report 100 (Oct. 28, 2019)); No. UE-200607 (TE Plan), Commission Staff Comments 2, 5 (Sept. 18, 2020) (EVSE installation program budget goal of ~\$23M).</p> <p>Pacific Power (PacifiCorp): Wash. U.T.C. No. UE-220359, Draft TE Plan 52 (May 20, 2022) (\$3M preliminary budget).</p>
West Virginia	n/a
Wisconsin \$0	<p>Northern States Power Co. Wisconsin (NSPW – Xcel): Wis. P.S.C. No. 4220-TE-104, Order (July 16, 2020) (revenue-neutral</p>

	<p>charger rebate and extension credit).</p> <p>Wisconsin Electric Power Co. (WEPCO): Wisc. P.S.C. No. 6630-TE-106, Order 8 (Aug. 26, 2021) (revenue-neutral program).</p> <p>Wisconsin Public Service Corp. (WPSC): Wisc. P.S.C. No. 6690-TE-111, Order 8 (Aug. 26, 2021) (revenue-neutral program).</p> <p>Madison Gas & Electric (MGE): Wisc. P.S.C. No. 3270-TE-115 (Mar. 15, 2022) (under review).</p>
Wyoming	n/a