



# **Electric Vehicle Supply Equipment and Considerations for a Reasonable Rate of Return**

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*Except for the statutes and regulations cited, the contents of this document do not have the force and effect of law and are not meant to be binding in any way. This document is intended only to provide information regarding existing requirements under the law or agency policies.*

## List of Acronyms

DCFC	direct current fast charging
EV	electric vehicle
EV-ChART	Electric Vehicle Charging Analytics and Reporting Tool
EVSE	electric vehicle supply equipment
FHWA	Federal Highway Administration
kW	kilowatt
kWh	kilowatt-hour
NASEO	National Association of State Energy Officials
NEVI	National Electric Vehicle Infrastructure (program)
NREL	National Renewable Energy Laboratory
RFA	request for applications
RFP	request for proposals

## Executive Summary

This white paper identifies the following recommendations for states as they consider issues related to electric vehicle supply equipment program income under the National Electric Vehicle Infrastructure program and other programs covered by National Electric Vehicle Infrastructure Standards and Requirements in the U.S. Code of Federal Regulations (23 CFR 680):

1. Conduct value analysis for better outcomes
2. Promote pricing transparency

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# Background

## 1.1 Document Purpose

This white paper identifies potential considerations for states as they determine how to address program income generated by projects that are subject to 23 CFR 680. This document highlights benefits and trade-offs and is not intended to identify any approaches as “right” or “wrong.” It does not set policy or establish or replace any standards under state or federal law applicable to income or revenue earned from the operation of an electric vehicle (EV) charging station.

## 1.2 Relevant Excerpt From 23 CFR 680

### “§ 680.106 (m) Use of program income.

- (1) *Any net income from revenue from the sale, use, lease, or lease renewal of real property acquired shall be used for Title 23, United States Code, eligible projects.*
- (2) *For purposes of program income or revenue earned from the operation of an EV charging station, the State or other direct recipient should ensure that all revenues received from operation of the EV charging facility are used only for:*
  - (i) *Debt service with respect to the EV charging station project, including funding of reasonable reserves and debt service on refinancing;*
  - (ii) *A reasonable return on investment of any private person financing the EV charging station project, as determined by the State or other direct recipient;*
  - (iii) *Any costs necessary for the improvement and proper operation and maintenance of the EV charging station, including reconstruction, resurfacing, restoration, and rehabilitation;*
  - (iv) *If the EV charging station is subject to a public-private partnership agreement, payments that the party holding the right to the revenues owes to the other party under the public-private partnership agreement; and*
  - (v) *Any other purpose for which Federal funds may be obligated under Title 23, United States Code.”*

## 2 Recommendations for States

### 2.1 Establish a Context for Considering EVSE Costs and Revenue

Capital costs, operating costs, and revenues associated with the operation of electric vehicle supply equipment (EVSE) vary significantly across the country, a state, and even on opposite sides of the same street. This complexity will increase over time as the market develops and regulations evolve at the local, state, and regional level. For additional background on variation in EV charging capital and operating costs, see the appendix.

States have options for whether and how to consider EV charging costs and revenues across locations, using data points in their relevant context. For example, though initially it may appear unreasonable for a bidder to set different prices for EV charging services

at two locations, the proposal may appear more reasonable when considering operating costs might be significantly higher at one of the locations. Understanding the local context within the state can help direct more appropriate project evaluation and policy considerations related to reasonable revenues.

## 2.2 Consider How Value Analysis Can Lead to Better Outcomes

The Federal Highway Administration (FHWA) specifies “*the EV charging infrastructure deployed under ... [the National Electric Vehicle Infrastructure, or NEVI] program must provide a seamless customer experience for all users through a convenient, affordable, reliable, and equitable national EV charging network.*”<sup>1</sup> As states consider how to address program income, regardless of which contracting mechanism is pursued, one approach would be to focus on receiving the “best value” from a contract, which prioritizes the customer experience at an EV charging station, and on supporting a robust and competitive process. This is because of the relationship between the value of the customer experience and how a state addresses a “reasonable rate of return on investment.”

### 2.2.1 Relationship Between Customer Experience and Rate of Return

When the FHWA published its final rule in 23 CFR 680, it provided significant leeway for the identification of reasonable returns:

*“This final rule inherently includes flexibility to consider market forces and the other issues raised by commenters by using the term ‘reasonable return on investment.’ However, FHWA would draw to the attention of States and other designated recipients the comments that identify that reasonable return is identified by the industry over multiple years and across multiple charging stations.”<sup>2</sup>*

A reasonable rate of return on investment in EVSE may not be known for several years after the initial NEVI stations are in place. In addition, a variety of factors can influence whether any given station will be economically viable in the long term. Further complications arise when considering a portfolio of stations that may be operating under different marketwide and state-specific conditions and regulatory requirements. Issues that may impact rates of return include the following:

- Capital market conditions
- Interest rates
- Expectations about medium- and long-term inflation
- Projected vs. actual EVSE utilization rates (i.e., revenue risk, performance risk); for example, a private partner’s failure to satisfy the 97% uptime requirements could impact its government grant subsidy

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<sup>1</sup> Turner, Derrell. U.S. Department of Transportation, Federal Highway Administration. 2023. “National Electric Vehicle Infrastructure Formula Program Guidance (Update).” June 2, 2023. p. 8. [https://www.fhwa.dot.gov/environment/nevi/formula\\_prog\\_guid/90d\\_nevi\\_formula\\_program\\_guidance.pdf](https://www.fhwa.dot.gov/environment/nevi/formula_prog_guid/90d_nevi_formula_program_guidance.pdf).

<sup>2</sup> U.S. Federal Highway Administration. 2023. Federal Register Vol. 88, No. 39 (Tuesday, February 28, 2023. p. 12744. <https://www.govinfo.gov/content/pkg/FR-2023-02-28/pdf/2023-03500.pdf>.

- Electricity tariffs, which the U.S. Energy Information Administration defines as “A published volume of rate schedules and general terms and conditions under which a product or service will be supplied.”<sup>3</sup>

If a state does not consider rates of return in the context of delivering a positive customer experience for EV drivers, it may not be able to recognize a bid with a seemingly attractive (i.e., low) rate of return might provide the **least** value (e.g., a bidder’s low rate of return could be driven by unrealistic expectations about capital and operating costs, which could delay project completion). By extension, if a state were to exclude bidders that would otherwise require seemingly unattractive (i.e., high) rates of return, that state could risk losing out on bids that could, in fact, deliver a better overall customer experience (e.g., developers that may be better positioned to ensure consistently high EVSE uptime or provide drivers with valuable on-site amenities may be unwilling to bid if the state sets too low a rate of return given on-site conditions and projected utilization).

Other contracting methods are equally viable under NEVI and other Title 23 programs. These could be developed to also recognize the challenges outlined previously related to setting specific rates of return. Some states have considered rates of return in the context of best overall value delivered for the investment on EVSE, which is allowed under Special Experimental Project No. 14 (SEP-14). The memo explaining SEP-14 applicability to EV charging infrastructure procurement methods notes states can request from their FHWA division administrator to “deviate from the allowable methods of construction (such as low-bid, design-build, construction manager/general contractor and indefinite delivery/indefinite quantity contracting)” under relevant 23 CFR sections and instead use the state’s own competitive policies and procedures, if certain requirements are met.<sup>4</sup> States that have SEP-14 approval for NEVI procurement include New Jersey, Rhode Island, Oklahoma, Oregon, and Vermont.

### **2.2.2 Risk of Selecting the “Wrong” Rate of Return**

States that elect to establish a specific rate of return may want to consider whether and how to mitigate the following risks of identifying a rate of return that is misaligned with a market-based reasonable rate of return that would deliver an overall positive customer experience:

- **Financial Viability:** A rate of return that is too low may discourage private investors or companies from participating in the program, potentially resulting in suppressed competition and inadequate funding for infrastructure deployment. Conversely, if the rate is set too high, it could result in the government needing to provide too much unwarranted subsidy at taxpayer expense.
- **Equity Issues:** Misjudging rate of return may favor certain types of projects and could lead to deployment disparities, with some communities benefitting more

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<sup>3</sup> U.S. Energy Information Administration. n.d. “Glossary.” <https://www.eia.gov/tools/glossary>.

<sup>4</sup> Kalla, Hari. U.S. Department of Transportation, Federal Highway Administration. 2023. “Electric Vehicle Charging Infrastructure Procurement Methods under Special Experimental Project No. 14 (SEP-14). July 3, 2023. <https://www.fhwa.dot.gov/construction/cqit/sep14EVcharging/230703.cfm>.



than others. Locations where demand is highly uncertain will not attract investment unless a higher rate of return is allowable to compensate for the extra revenue risk.

- **Project Delays:** Misaligned projections can cause project delays or cancellations because of difficulties in securing necessary financing.
- **Compliance Issues:** The degree of scrutiny necessary to verify specific rates of return could be administratively burdensome for states and, if rates are set too low, could inadvertently limit the number of interested bidders, which would reduce competition in the program.

## 2.3 Understand How Pricing Is Set

States can enhance competition and improve the overall customer experience by ensuring transparency to the public and understanding the variety of ways EVSE operators can set pricing for EV charging services throughout all stages of a program. The appendix provides greater detail on establishing costs and price transparency.

### 2.3.1 Background on Driver Pricing Schedules

EV charging operators can set driver pricing schedules in many ways. The difference between pricing at EV charging stations and traditional liquid fuel stations reflects the fact that EV charging can be a combination of vehicle refueling and parking.

States could expect to see driver pricing schedules that include the following:<sup>5</sup>

1. Energy rates, for which drivers pay for the energy consumed on a per kilowatt-hour (kWh) basis
2. Fixed session rates, for which the driver pays a set fee for the entire session
3. Time-based rates, for which the driver pays per unit of time
4. Time-of-day pricing, where prices vary depending on established time segments, often reflecting utility electricity tariffs with time-varying components
5. A combination of Items 1–4 (e.g., an energy rate combined with a time-based rate; an energy rate with a fixed rate for drivers that remain plugged in for more than an hour; an initial period of free charging followed by an energy rate)
6. In addition to the generally available public price for charging, supplemental price schedules may be offered (e.g., customer loyalty programs offering a discount; subscriptions offering “all-you-can-charge” for a monthly fee; prices subsidized in part or wholly by a third party).<sup>6</sup>

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<sup>5</sup> 23 CFR 680.116(a) requires “the price for charging must be...based on the price for electricity to charge in \$/kWh” and any other fees, such as parking, “in addition to the price for electricity to charge must be clearly displayed and explained.” States should also be aware of pricing at EV charging stations that are not supported by Title 23 funds (e.g., sites that are fully funded by the private sector; supported with state, local, or utility incentives; or supported with federal funds under different authorizations).

<sup>6</sup> See the appendix for examples of state statutes related to pricing for EV charging services at publicly available EV charging stations.

These potential driving pricing schedules could be implemented in compliance with 23 CFR part 680.106(f), which stipulates “*Unless charging is permanently provided free of charge to customers, charging stations must:*

1. *Provide for secure payment methods, accessible to persons with disabilities, which at a minimum shall include a contactless payment method that accepts major debit and credit cards, and either an automated toll-free phone number or a short message/messaging system (SMS) that provides the EV charging customer with the option to initiate a charging session and submit payment;*
2. *Not require a membership for use;*
3. *Not delay, limit, or curtail power flow to vehicles on the basis of payment method or membership; and*
4. *Provide access for users that are limited English proficient and accessibility for people with disabilities. Automated toll-free phone numbers and SMS payment options must clearly identify payment access for these populations.”*

### **2.3.2 Pricing Transparency Improves the Customer Experience**

Understanding how pricing for EV charging services will be set can help states enhance the bidding process; align interests between drivers, contractors, and states; and improve the customer experience at infrastructure deployed through Title 23 programs. Further, price transparency at the charger is covered in 23 CFR part 680.116(a), including that the displayed price is “based on the price for electricity to charge in \$/kWh,” and “any other fees in addition to the price for electricity to charge must be clearly displayed and explained.” Transparency can be incorporated in every stage of a program (e.g., requests for proposals [RFPs], bid evaluation, contract language, ongoing program management) and is valuable for several reasons:

- **Enhanced Evaluation:** Requiring bidders to provide details on proposed driver pricing can provide states with another valuable point of comparison between bids. Evaluating pricing schedules will encourage competition among bidders, potentially leading to improved services, lower prices, and innovation.
- **Cost-Benefit Analysis:** Understanding the structure for driver pricing will put states in a better position to comprehend and evaluate proposals at the bidding stage and monitor operations on an ongoing basis.
- **Institutional Capacity Building:** Expanding awareness of driver pricing schedules and how that relates to operating costs will help states understand, evaluate, and engage on issues related to fuel pricing and electricity rates.
- **Revenue Generation:** States that intend to partner with private developers in a manner that shares revenue between the parties must understand proposed driver pricing schedules to evaluate the potential and account for shared revenue.
- **Consumer Protection:** Once operational, required transparency in driver pricing will help ensure EV drivers are not subject to hidden or unexpected fees, promoting trust and fairness in the charging process. States can lead by example by requiring successful bidders to disclose driver pricing schedules.

- **Data Collection:** Obtaining driver pricing data can augment other EV charging datasets such as those that states will report to the Electric Vehicle Charging Analytics and Reporting Tool (EV-ChART).<sup>7</sup>

### 2.3.3 Mechanisms To Support Pricing Transparency via Contracting

States can include provisions in contracts that increase transparency of user pricing for all stakeholders and facilitate dialogue and collaboration between developers and the state.

When entering contract negotiations with successful bidders, states may wish to consider including clear requirements that bidders provide the full range of pricing policies planned for inclusion at EVSE. States should allow bidders to respond to such questions confidentially to encourage responses that include business-sensitive information related to pricing strategy.

State agencies deploying EV charging infrastructure may find it valuable to engage with the agency that has oversight of statewide metrological issues, such as an Office of Weights and Measures, to ensure alignment with state consumer protection requirements.<sup>8</sup> Given the likelihood EV and EV charging market dynamics will continue to shift and evolve, states should prioritize flexibility as well as transparency. To foster both, states may wish to consider including a requirement that successful bidders meet with the state periodically to hold a retrospective and forward-looking dialogue about how pricing was and will be set for EV charging services.

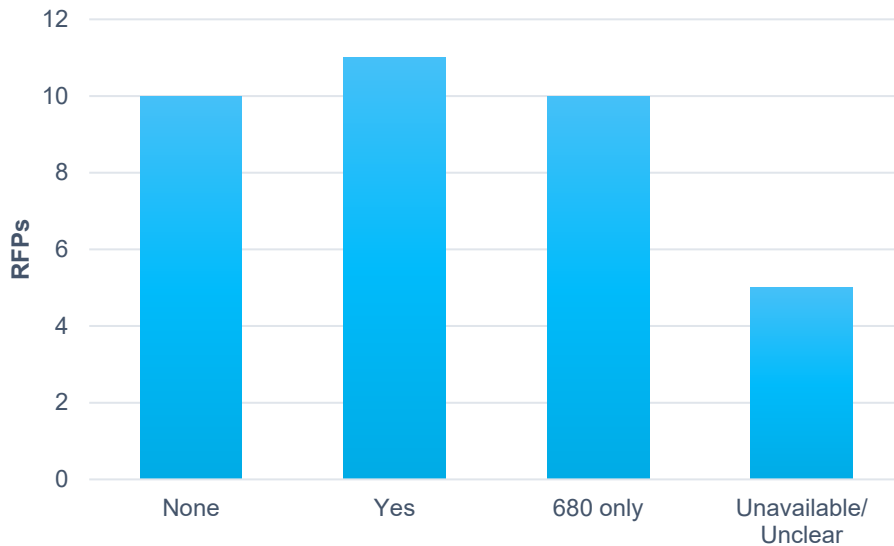
## 2.4 State Approaches to Reasonable Rate of Return

As of June 4, 2024, 36 states have released solicitations for NEVI stations along alternative fuel corridors. The states approached a reasonable rate of return within their solicitations in a few different ways. Ten solicitations did not mention of reasonable rate of return. Ten other solicitations referred only to the relevant 23 CFR 680 requirements, without further detail. Another five solicitations known to have been released were either no longer publicly available or at a stage in procurement that did not warrant discussion of the rate of return. Eleven solicitations discussed a reasonable rate of return with greater detail (see Figure 1).

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<sup>7</sup> Joint Office of Energy and Transportation. 2024. "Electric Vehicle Charging Analytics and Reporting Tool." <https://driveelectric.gov/evchart>.

<sup>8</sup> Collaborating with metrological officials can also ensure states understand whether and how the requirements in [NIST Handbook 44 Section 3.40 – Electric Vehicle Fueling Systems \(Tentative\)](#) apply.



**Figure 1. Discussion of reasonable rate of return in NEVI solicitations**

Five of the states that provided detail about the rate of return established a maximum percentage. The District of Columbia, Iowa, and Minnesota used a 15% threshold; Kentucky used 20%; and North Carolina used 25%. The remaining states described expectations for reasonable rate of return in more general terms, including the following:

- Asking who receives the financial revenue (Indiana)
- Requesting information on how revenue from the proposed project will be used (California)
- Stating forecasted zone revenue requested is informational and will not be part of the solicitation scoring (Arizona)
- Asking for explanation of how the contractor will ensure the station is viable during times of low use if charging is the only source of revenue (Colorado)
- Requesting contractors elaborate on the proposal’s financial sustainability, including pricing structures, utility rates, and other relevant items (Kansas)
- Establishing the state will determine the reasonable return on “investment of any private person financing the EV charging station project” (New Mexico).

Given the variety of approaches to determining a reasonable rate of return, it can be helpful for state NEVI program offices to confer with peer states on their approach. The NEVI program has a strong network of partners willing to share ideas and information across states.

## 3 Appendix

### 3.1 Electric Vehicle Supply Equipment Capital and Operating Costs

#### 3.1.1 Capital Costs

Capital costs are largely straightforward, and states will obtain valuable insight on them through the bidding process. Resources such as EV-ChART will become increasingly valuable tools for comparative capital cost analysis as states begin to submit data. Until then, states can consult resources such as the National Renewable Energy Laboratory's (NREL's) 2030 National Charging Network EVSE cost assumptions.<sup>9</sup>

#### 3.1.2 Operating Costs

##### 3.1.2.1 How Electricity Prices Are Set

Electricity pricing is typically set for commercial customers through tariffs established by providers that include municipal utilities, rural electric cooperatives, and investor-owned utilities. Tariffs may be set directly by the utilities or reviewed and approved by external regulators (e.g., public utility commissions and public service commissions). Although the price for electricity offered to commercial customers varies widely across the approximately 3,200 electric utilities around the United States, there are common features across utility rates.

In a report to the Pennsylvania Department of Environmental Protection, Synapse Economics explained, despite their variations, utility rate schedules typically include one or more of the following rate elements:

- *“A fixed charge (\$/month), which is a flat fee per month. This is commonly referred to as a ‘customer charge.’*
- *A volumetric rate (\$/kWh), which charges customers based on the quantity, measured in kWh, of electricity consumed.*
- *A demand charge (\$/kW), assessed based on the customer’s maximum usage during the month, measured in kilowatts (kW). While demand charges are common for commercial and industrial customers, they are very rare for residential customers.”<sup>10</sup>*

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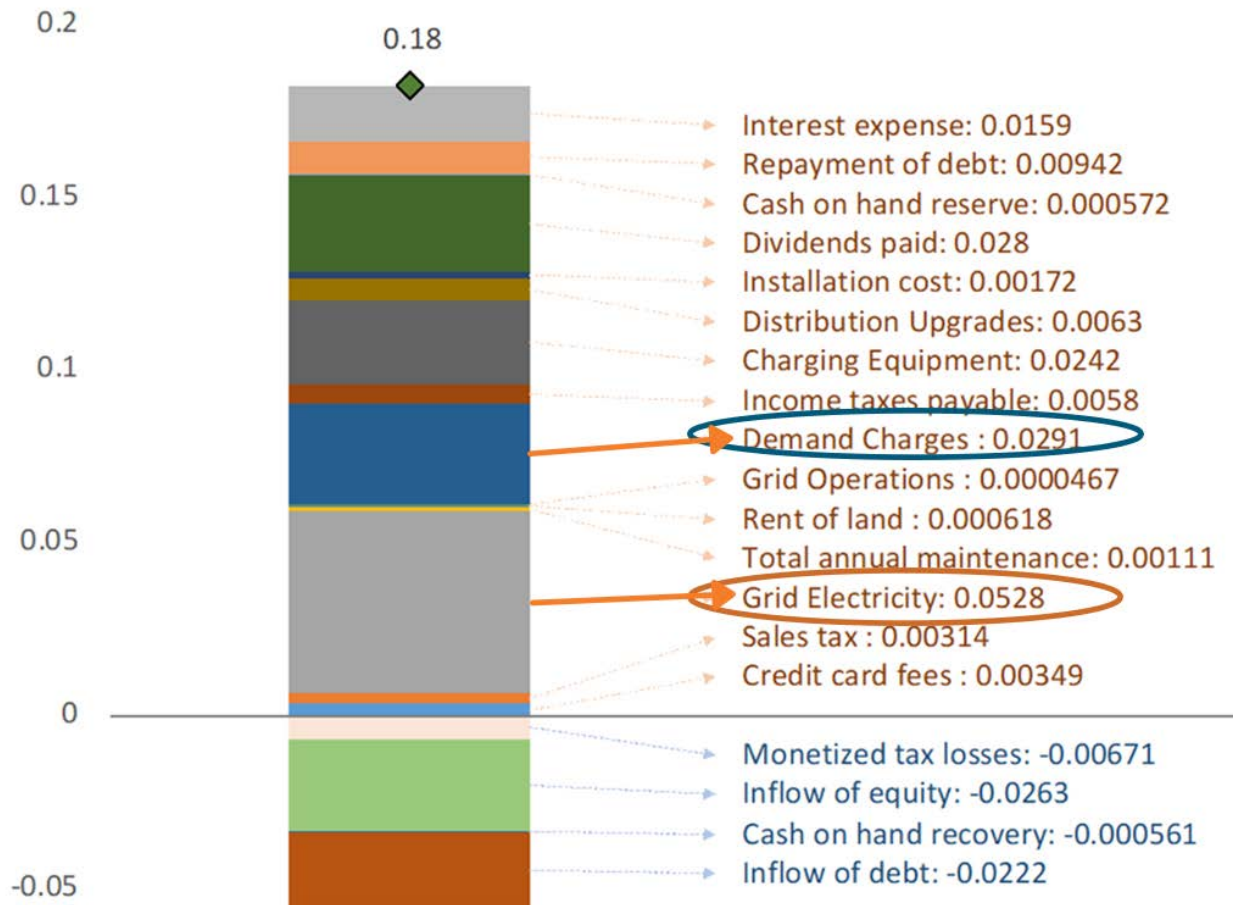
<sup>9</sup> Wood, Eric, Brennan Borlaug, Matt Moniot, Dong-Yeon (D-Y) Lee, Yanbo Ge, Fan Yang, and Zhaocai Liu. 2023. *The 2023 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5400-8565. <https://www.nrel.gov/docs/fy23osti/85654.pdf>.

<sup>10</sup> Whited, Melissa, Sarah Shenstone-Harris, Alex Lawton, Olivia Griot, and Jason Frost. 2023. *Maximizing the Benefits of Transportation Electrification in Pennsylvania: The Role of Rate Design*. Prepared for the Pennsylvania Department of Environmental Protection by Synapse Energy Economics, Inc. February 9, 2023. [https://www.puc.pa.gov/media/2338/synapse\\_energy\\_economics\\_study\\_report-maximizing\\_benefits\\_of\\_transportation\\_electrification\\_in\\_pa032423.pdf](https://www.puc.pa.gov/media/2338/synapse_energy_economics_study_report-maximizing_benefits_of_transportation_electrification_in_pa032423.pdf).

### 3.1.2.2 Electricity as a Component of Direct Current Fast Charging Operating Costs

Operating costs for high-power direct current fast charging (DCFC) stations are driven by a variety of factors. One of the key cost drivers for DCFC operation is electricity.

An NREL presentation puts electricity into the context of net costs to acquire, install, and operate EV chargers.<sup>11</sup> Figure A1, which appeared in that presentation, identifies how much of the driver’s price—which is set by an EV charging operator—would go toward paying down the capital expenditures and operating expenses associated with a deployment of EV chargers. This analysis shows volumetric electricity costs (\$/kWh, green oval) and demand charge costs (\$/kW, blue oval) account for 45% of net capital and operating expenditures that must be recouped by station operators.



**Figure A1. Example cost-to-charge breakdown (\$/kWh)**

Source: NREL (2022)

<sup>11</sup> Borlaug, Brennan and Jesse Bennett. 2022. “EV Charging & the Impacts of Electricity Demand Charges.” Presented at LACI: Light-Duty & Goods Movement WG. April 26, 2022. National Renewable Energy Laboratory/PR-5400-82738. <https://www.nrel.gov/docs/fy22osti/82738.pdf>.

### 3.1.2.3 Utilization Risk and Electricity Rate Structures

Traditional commercial utility customers can often absorb demand charges by spreading them across predictable hours of operation. However, commercial customers deploying high-powered EV chargers do not always have such flexibility. As noted by the Alliance for Transportation Electrification:

*“The problem typically occurs when station utilization may be low during the initial deployment of public commercial charging stations. Because in this scenario these EV charging sites have sharp levels in demand relative to overall low utilization levels, they can incur relatively high demand charges, which then must be spread over few units of use (kWh) resulting in what can be high costs per kWh unit of usage to the electric vehicle service provider. If the [electric vehicle service provider] is unable to recoup those high costs or pass them on to EV drivers, the business model of commercial fast-charging stations becomes uneconomic.”<sup>12</sup>*

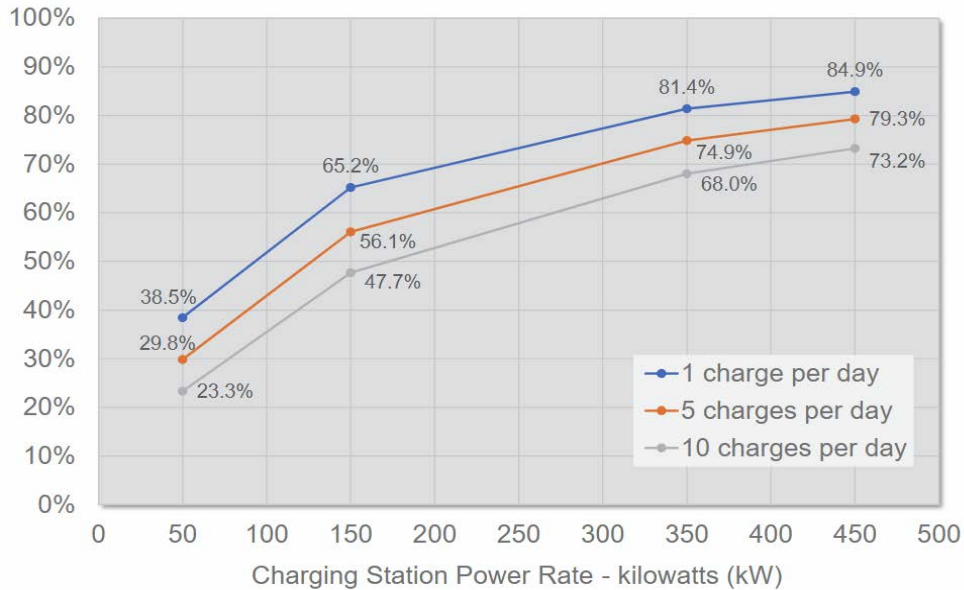
In other words, it can be challenging to spread out the cost of demand charges at DCFCs that experience low or unpredictable utilization patterns (or “load profiles”). Recognizing these operating costs are not trivial will help states better evaluate and understand the value of bids.

A study by the Great Plains Institute found demand charges can account for anywhere from 23% to 85% of operating costs, depending on the DCFC power level and number of charges delivered per day.<sup>13</sup> At each power level identified on the x-axis of Figure A2 (50 kW, 150 kW, 350 kW, 450 kW), the impact of the demand charge decreases as utilization increases.

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<sup>12</sup> Alliance for Transportation Electrification. 2022. “Rate Design For EV Fast Charging: Demand Charges.” May 27, 2022. [https://evtransportationalliance.org/wp-content/uploads/2022/06/Rate.Design.TF\\_.Demand-Charge-Paper-Final-5.25.22.pdf](https://evtransportationalliance.org/wp-content/uploads/2022/06/Rate.Design.TF_.Demand-Charge-Paper-Final-5.25.22.pdf).

<sup>13</sup> McFarlane, Dane, Matt Prorok, Brendan Jordan, and Tam Kemabonta. 2019. “Analytical White Paper: Overcoming Barriers to Expanding Fast Charging Infrastructure in the Midcontinent Region.” Great Plains Institute. July 2019. [https://betterenergy.org/wp-content/uploads/2019/08/GPI\\_DCFC-Analysis.pdf](https://betterenergy.org/wp-content/uploads/2019/08/GPI_DCFC-Analysis.pdf).



**Figure A2. Demand charge share of DCFC station costs across kW power levels**

Source: Great Plains Institute

A report by the National Association of State Energy Officials (NASEO) further explored the impacts of demand charges on DCFC operations in Mountain West states. NASEO modeled sample bills in Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. In all sample bills, “the average demand charge accounted for 73.7 percent of the monthly bill and had an average value of around \$10 per kW across all scenarios.”<sup>14,15</sup>

NASEO’s analysis clearly identifies how it can become increasingly feasible to spread out demand charge costs as utilization increases. The average “cost per charge” at a 150-kW DCFC drops from \$399.06 (Low Use) to \$41.52 (Medium Use) to \$5.73 (High Use) as utilization increases (see Tables A1 and A2).

<sup>14</sup> National Association of State Energy Officials. 2021. *Demand Charges & Electric Vehicle Fast-Charging: An Intermountain West Assessment*. October 2021. <https://naseo.org/data/sites/1/documents/publications/Demand%20Charges%20and%20EV%20Charging%20-%20Final.pdf>.

<sup>15</sup> Distributed energy resources such as battery storage systems can help mitigate demand charges though must be considered in the context of their net impact on both capital and operating project costs.



**Table A1. Estimated Average Monthly Costs per Charge at 150 kW by State and Electric Service Provider Type: Low-, Medium-, and High-Use Scenarios\***

State	Low Use	Medium Use	High Use
Arizona	\$314.72	\$33.40	\$5.27
Colorado	\$567.83	\$57.94	\$6.93
Idaho	\$344.36	\$35.72	\$4.79
Montana	\$353.82	\$36.55	\$4.82
Nevada	\$208.86	\$23.07	\$4.10
New Mexico	\$556.09	\$57.19	\$7.29
Utah	\$427.38	\$44.04	\$5.82
Wyoming	\$403.86	\$41.70	\$5.49
<b>Type of Energy Service Provider</b>			
Investor-owned utility	\$382.75	\$39.78	\$5.48
Co-op	\$446.06	\$46.20	\$6.13
Muni	\$306.80	\$32.62	\$5.25
<b>Demand Fee %</b>	<b>86.4%</b>	<b>84.5%</b>	<b>63.1%</b>
<b>Average</b>	<b>\$399.06</b>	<b>\$41.52</b>	<b>\$5.73</b>

Source: NASEO

\* Scenarios based on four charges/month (low), 40 charges/month (medium), and 400 charges/month (high).

**Table A1. Estimated Average Monthly Costs per kWh at 150 kW by State and Electric Service Provider Type: Low-, Medium-, and High-Use Scenarios\***

State	Low Use	Medium Use	High Use
Arizona	\$11.66	\$1.24	\$0.20
Colorado	\$21.03	\$2.15	\$0.26
Idaho	\$12.75	\$1.32	\$0.18
Montana	\$13.10	\$1.35	\$0.18
Nevada	\$7.74	\$0.85	\$0.15
New Mexico	\$20.60	\$2.12	\$0.27
Utah	\$15.83	\$1.63	\$0.22
Wyoming	\$14.96	\$1.54	\$0.20
<b>Type of Energy Service Provider</b>			
Investor-owned utility	\$14.18	\$1.47	\$0.20
Co-op	\$16.52	\$1.71	\$0.23
Muni	\$11.36	\$1.21	\$0.19
<b>Demand Fee %</b>	<b>86.4%</b>	<b>84.5%</b>	<b>63.1%</b>

Source: NASEO

\* Scenarios based on four charges/month (low), 40 charges/month (medium), and 400 charges/month (high).

### 3.1.2.4 How States Treat Nonutility Providers of Electric Vehicle Charging Services

States have all clarified through regulation or statute that EV charging is a competitive service and not merely the resale of electricity. In practice, this means the customer-facing activities of, or the prices set by, EV charging service providers are not regulated by a public utility commission.

## 3.2 Price Transparency in State Statutes and Programs

Though price transparency at the charger is covered in 23 CFR part 680.116(a), some states have chosen to further define price transparency for stations in their jurisdiction. The intent is to provide EV drivers with appropriate information on what they are paying for when charging.

### 3.2.1 State Statutes

Some states have adopted statutory requirements for public EVSE to disclose pricing schedules (see Table A3).<sup>16</sup>

**Table A3. State Statutes for EVSE Pricing Schedule Disclosures**

State	Citation	Excerpt
CA	SB 454	<b>V. 44268.2.</b> (a) (1) Persons desiring to use an electric vehicle charging station that requires payment of a fee shall not be required to pay a subscription fee in order to use the station, and shall not be required to obtain membership in any club, association, or organization as a condition of using the station. The total actual charges for the use of an electric vehicle charging station, including any additional network roaming charges for nonmembers, shall be disclosed to the public at the point of sale. An electric vehicle charging station that requires payment of a fee shall allow a person desiring to use the station to pay via credit card or mobile technology, or both. (2) Notwithstanding paragraph (1), an electric vehicle charging station may offer services on a subscription- or membership-only basis provided those electric vehicle charging stations allow nonsubscribers or nonmembers the ability to use the electric vehicle charging station through the payment options detailed in paragraph (1). (b) The service provider of electric vehicle service equipment at an electric vehicle charging station or its designee shall disclose to the National Renewable Energy Laboratory the electric vehicle charging station's geographic location, a schedule of fees, accepted methods of payment, and the amount of network roaming charges for nonmembers, if any.
CT	Public Act No. 16-135	Sec. 7. (a) The owner or operator of a public electric vehicle charging station, as defined in section 16-19f of the general statutes, as amended by this act, that requires payment of a fee shall provide multiple payment options that allow access by the public. (b) The owner or operator of a public electric vehicle charging station shall disclose the location and characteristics of each such public electric vehicle charging station, including, but not limited to, the address, voltage and timing

<sup>16</sup> See, e.g., California [SB 454](#), Connecticut [Public Act No. 16-135](#), Massachusetts [Ch. 448 of the Acts of 2016](#), New Hampshire [SB 575](#), Vermont [Act No. 59 of 2019](#)

State	Citation	Excerpt
		<p>restrictions, to the federal database operated by the United States Department of Energy Alternative Fuels Data Center.</p> <p>(c) No person shall park in a space equipped with a public electric vehicle charging station, unless such person is operating a plug-in hybrid electric vehicle or battery electric vehicle, as defined in section 1 of this act.</p> <p>(d) The owner or operator of a public electric vehicle charging station may impose restrictions on the amount of time that an electric vehicle may be charged at the charging station.</p> <p>(e) (1) Owners or operators of public electric vehicle charging stations that require payment of a fee shall not require persons desiring to use such public electric vehicle charging station to pay a subscription fee or otherwise obtain a membership in any club, association or organization as a condition of using such public electric vehicle charging station.</p> <p>(2) Notwithstanding subdivision (1) of this subsection, owners or operators of public electric vehicle charging stations that require payment of a fee may have different price schedules that are conditioned on a subscription or membership in a club, association or organization.</p>
MA	Ch. 448 of the Acts of 2016	<p>Sec. 17...</p> <p>(b) A person shall not be required to pay a subscription fee to use a public electric vehicle charging station or be required to obtain a membership in a club, association or organization as a condition of using the station; provided, however, that owners and operators of public electric vehicle charging stations may have separate price schedules conditional on a subscription or membership.</p> <p>(c) The owner or lessee of a publicly available parking space, whose primary business is not electric vehicle charging services, may restrict the use of that parking space, including by limiting use to customers and visitors of the business.</p> <p>(d) The owner or operator of a public electric vehicle charging station shall provide payment options that allow access by the general public.</p> <p>(e) The owner or operator of a public electric vehicle charging station or a designee shall disclose on an ongoing basis to the United States Department of Energy National Renewable Energy Laboratory, or other publicly available database designated by the Department of Energy resources, the station's geographic location, hours of operation, charging level, hardware compatibility, schedule of fees, accepted methods of payment and the amount of network roaming charges for nonmembers, if any.</p>
NH	SB 575	<p>236:134 Prohibitions and Restrictions.</p> <p>I. No person shall park in a space equipped with a public electric vehicle charging station, unless such person is operating a plug-in hybrid electric vehicle or battery electric vehicle.</p> <p>II. The owner or operator of a public electric vehicle charging station may impose restrictions on the amount of time that an electric vehicle may be charged at the charging station.</p> <p>III. Owners or operators of public electric vehicle charging stations that require payment of a fee shall not require persons desiring to use such public electric vehicle charging station to pay a subscription fee or otherwise obtain a membership in any club, association, or organization as a condition of using such public electric vehicle charging station, but</p>

State	Citation	Excerpt
		may have different price schedules that are conditioned on a subscription or membership in a club, association, or organization.
VT	Act No. 59 of 2019	<p>“Electric vehicle supply equipment available to the public” shall:</p> <p>(A) be located at a publicly available parking space, which does not include a parking space that is part of or associated with a private residence or a parking space that is reserved for the exclusive use of an individual driver, vehicle, or group of drivers or vehicles including employees, tenants, visitors, residents of a common interest development, residents of an adjacent building, or customers of a business whose primary business is not electric vehicle charging;</p> <p>(B) disclose all charges for the use of the electric vehicle supply equipment at the point of sale; and</p> <p>(C) provide multiple payment options that allow access by the public, if a fee is required, and shall not require persons desiring to use such public electric vehicle supply equipment to pay a subscription fee or otherwise obtain a membership in any club, association, or organization as a condition of using such electric vehicle supply equipment, but may have different price schedules that are conditioned on a subscription or membership in a club, association, or organization.</p>

**3.2.2 Pricing Transparency and Program Income in State National Electric Vehicle Infrastructure Programs**

The following examples illustrate how states are starting to consider pricing transparency and program income issues programmatically for NEVI programs.

**3.2.2.1 Kentucky: Second Request for Proposals<sup>17</sup>**

- Technical proposal contains narrative description of how the project will ensure a quality experience including “affordable rates.”
  - Evaluation guidelines include affordability for customers and assurances there will be no significant price increases in the future.
- Technical proposal contains a description of the “proposed rate structure and methodology (e.g., additional cost at peak times, discounts, etc.) that the Proposer will employ for charging customers for use of EVSE at a Candidate Site, as well as the methods of accepted customer payment, billing practices, and service fees.”

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<sup>17</sup> Kentucky Transportation Cabinet. 2024. “Request For Proposal #2: Kentucky’s Electric Vehicle Charging Program – Addendum #2.” February 19, 2024. p. 26.  
[https://kyevcharging.com/application/files/3417/1396/6806/ATTACHMENT\\_A\\_KY\\_EV\\_Charging\\_Program\\_RFP\\_2\\_v3\\_4.10.24.pdf](https://kyevcharging.com/application/files/3417/1396/6806/ATTACHMENT_A_KY_EV_Charging_Program_RFP_2_v3_4.10.24.pdf)

### 3.2.2.2 Utah: Request for Applications<sup>18</sup>

- Request for applications (RFA) includes use of program income guidelines according to § 680.106(m), stating revenue or program income from the operation of the station can be used for the following:
  - “Debt service with respect to the EV charging station project, including funding of reasonable reserves and debt service on refinancing;
  - A reasonable return on investment of any private person financing the EV charging station project, as determined by the State or other direct recipient;
  - Any costs necessary for the improvement and proper operation and maintenance of the EV charging station, including reconstruction, resurfacing, restoration, and rehabilitation;
  - If the EV charging station is subject to a public-private partnership agreement, payments that the party holding the right to the revenues owes to the other party under the public-private partnership agreement; and
  - Any other purpose for which Federal funds may be obligated under Title 23, United States Code.”
- RFA states applicants will need to include sufficient information in the annual reporting for the Utah Department of Transportation to evaluate and confirm program income is being used appropriately.
- The Utah Department of Transportation intends to share in net profits at a rate of 20% until the 5-year period is complete, once the site has made enough net revenue to recover initial private match amount.
- Includes a [link to calculator](#) to aid with economic analysis of chargers.

### 3.2.2.3 Colorado: RFA<sup>19</sup>

- Equipment shall allow pricing by kWh, Colorado Energy Office’s preference for pricing structure
  - Additional fees (e.g., session, time limit) are allowable but will be evaluated unfavorably
- *“Price to charge for drivers should be fair and reasonable, and the pricing model should be clearly described including the approach used to develop rates. Pricing structures conducive to utilization will be evaluated more favorably.”*

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<sup>18</sup> Utah Department of Transportation. 2023. “Request for Application: National Electric Vehicle Infrastructure Program.” August 15, 2023. pp. 19–20.

<https://drive.google.com/file/d/1FJfOpPG8Tezz2mfdL9I0LWtXGjYKEOBW/view>.

<sup>19</sup> Colorado Energy Office. n.d. “Grant Application Guide.” pp. 11–12. <https://drive.google.com/file/d/1-7nvsZb13xIGS5F6sD169U3XFleqZTA/view>.

#### 3.2.2.4 Alaska: RFA<sup>20</sup>

- “The narrative should describe the proposed fees that are to be assessed to charging vehicles. [Alaska Energy Authority] requires that the fees be assessed on a per kilowatt-hour basis and shall not be time-based.”
- Addendum #3 discusses challenges with return on investment because of predicted low usage in the state, stating operations and maintenance are allowable expenditures, minimizing losses in early years of project.<sup>21</sup>

#### 3.2.2.5 Delaware: RFP<sup>22</sup>

- Rate structure is mentioned as a factor in proposal scoring but not discussed.

### 3.2.3 State Use of Volkswagen Settlement Appendix D Eligible Mitigation Actions and Mitigation Action Expenditures Programs<sup>23</sup>

#### 3.2.3.1 New Hampshire: RFP<sup>24</sup>

Page 19: “The Applicant must ensure that charging stations are accessible by all drivers regardless of network memberships or subscriptions, and that consumers are not required to pay a subscription fee or otherwise obtain a membership in any network, club, association, or organization as a condition of using such charging stations. However, owners/operators of charging stations may have separate price schedules conditional on a subscription or membership.”

#### 3.2.3.2 Ohio: RFA<sup>25</sup>

“10. Please list and describe how this site meets each of the project implementation and charging station operating requirements of Section 4.3 of the RFA document. Also

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<sup>20</sup> Alaska Energy Authority. 2023. “National Electric Vehicle Infrastructure (NEVI) Program: Requests for Grant Applications.” March 1, 2023. p. 12.

[https://www.akenergyauthority.org/Portals/0/Electric%20Vehicles/2023.03.01%20Alaska%20NEVI%20RFA%20\(Final\).pdf?ver=C2kq9tt7lLyr6x6lmAGF7w%3d%3d](https://www.akenergyauthority.org/Portals/0/Electric%20Vehicles/2023.03.01%20Alaska%20NEVI%20RFA%20(Final).pdf?ver=C2kq9tt7lLyr6x6lmAGF7w%3d%3d).

<sup>21</sup> Alaska Energy Authority. 2023. “Addendum #3 to Request for Applications (RFA) Package, RFA 23091 National Electric Vehicle Infrastructure (NEVI) Program.” April 4, 2023.

<https://www.akenergyauthority.org/Portals/0/Electric%20Vehicles/2023.04.04%20RFA%2023091%20Addendum%203.pdf?ver=tpkRHVcT-7NEB4psDWV6Sw%3d%3d>.

<sup>22</sup> Delaware Department of Transportation. 2023. “Request for Proposal: National Electric Vehicle Infrastructure (NEVI).” September 14, 2023. <https://bidcondocs.delaware.gov/DOT/DOT2317-NEVI-rfp.pdf>.

<sup>23</sup> Volkswagen/Audi/Porsche Diesel Emissions Settlement Program. 2016. “Appendix D-2: Eligible Mitigation Actions and Mitigation Action Expenditures.” October 25, 2016.

<https://www.vwcourtsettlement.com/en/docs/DOJ/Approved%20Appendix%20D-2.pdf>.

<sup>24</sup> New Hampshire Electric Vehicle Supply Equipment Grant Program. 2021. “New Hampshire VW Environmental Mitigation Trust Direct Current Fast Charging Infrastructure Request for Proposals RFP # NH-VW-2021-01.” September 17, 2021. p. 19.

<https://www.das.nh.gov/purchasing/docs/bids/RFP%20DES%202022-06.pdf>.

<sup>25</sup> Ohio Environmental Protection Agency. 2021. “Diesel Mitigation Trust Fund (DMTF) DC Fast Charging Grant Program Request for Applications.” November 1, 2021, last revised January 14, 2022. p. 59.

<https://dam.assets.ohio.gov/image/upload/epa.ohio.gov/Portals/42/documents/DMTF/DMTF-EVSE-DCFC-RFA.pdf>.

*describe the proposed fee/rate structure to use the EV chargers if any? If no fees will be charged, please explain how site host will ensure that users don't occupy a charger longer than is needed to charge."*

### **3.3 Tools To Support Financial Analysis**

The following is a nonexhaustive list of tools states can use to support their planning, analysis, and procurement.

#### **3.3.1 Electric Vehicle Infrastructure–Financial Analysis Scenario Tool (EVI-FAST)**

The EVI-FAST model from NREL accommodates basic and advanced user interface modes for modeling side-by-side scenarios of charging equipment. The basic interface lets users specify infrastructure characteristics, such as charger power rating, usage, cost, and incentives. Users can alter values for parameters such as the price of electricity and demand charges. This interface provides basic articulation of financial performance such as investor payback period, net present value, and break-even first-year charging cost. The model uses Generally Accepted Accounting Principles (GAAP) analysis and provides full financial articulation as well as simple graphical and numerical outputs.

#### **3.3.2 P3 Toolkit**

FHWA's P3 Toolkit includes analytical tools and guidance documents to assist in educating public sector policymakers, legislative and executive staff, and transportation professionals in implementing P3 projects. The P3 Toolkit forms the base of a broader P3 capacity-building program that includes a curriculum of courses and webinars. The P3 Toolkit addresses federal requirements and four key areas of P3 implementation: legislation and policy, planning and evaluation, procurement, and monitoring and oversight.