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State Investment Strategies to Speed EVSE Deployment

Harvard-MIT DCFC Stakeholder Working Group

THE SALATA INSTITUTE
FOR CLIMATE AND SUSTAINABILITY
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Center for Energy and
Environmental Policy Research

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The mission of the Salata Institute for Climate and Sustainability at Harvard University is to develop and promote durable, effective, and equitable solutions to the climate change challenges confronting humanity. The institute serves as a fulcrum for collaboration across Harvard's many areas of expertise. Together, we pursue practical, real-world solutions that address all aspects of the climate crisis and engage directly with governments, businesses, NGOs, and communities to collaboratively implement them.

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Since 1977, the Center for Energy and Environmental Policy Research (CEEPR) has been a focal point for research on energy and environmental policy at MIT. CEEPR promotes rigorous, objective research for improved decision making in government and the private sector, and secures the relevance of its work through close cooperation with industry partners from around the globe.

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States contracting for DC fast chargers (DCFC) want to get chargers in the ground and electrified promptly, ensure they are wisely placed, and design contracts that work well for both the state and its partners through the installation and operational phases. Contracting for chargers is new territory for most states, although some have done more than others. Indeed, some states have adjusted their program designs over time. Building on experience from past procurements under both the National Electric Vehicle Infrastructure (NEVI) and state programs, this document shares best practices for program design developed jointly by stakeholders from state government and industry.[1]

I. Attracting Interest: Standard Offer vs. Competitive Programs

States and utilities can choose two kinds of program structures to offset the costs of private investments in EV charging infrastructure: standard offer programs with ongoing open enrollment or competitive programs. Some programs may incorporate elements of both—for example, first-come, first-served open funding programs should require successful applicants to meet threshold requirements of readiness. Federally-funded programs may require competitive bidding.

Standard-offer/open-enrollment programs

- Standard offer programs are ones that are consistently open (no set due date) and offer a pre-established incentive for any projects that meet the minimum qualifications. These programs are generally first-come, first-served and remain open until a deadline or until funding is exhausted.
- Incentives can be set as a percentage of eligible costs up to a certain cap (with eligible costs being defined in the program rules) or as a flat incentive for a particular activity (e.g., $50,000 per port for 150 kW DCFC).[2] Some of these programs may include bonuses or adders for different technologies, geographic areas, or applicants. To establish appropriate funding levels and per-project caps, program administrators have to have a reasonably good sense of typical project costs to base their program rules on.
- There may be geographic boundaries or target areas for these types of programs that establish eligibility (e.g., utility service territories or specific exits along particular highways), or possibly specific site types (e.g., gas stations/convenience stores or workplaces).
- These programs can be run by state agencies or utilities.
- Eligible costs may vary based on funding sources and the intent of the program:
    - Make-Ready programs (which are usually run by utilities) tend to fund equipment on the utility side of the electric meter and some equipment on the customer side of the electric meter, as well as installation costs, but *not* the EVSE itself.

[1] Applegreen, Better Fleet, Electrify America, and NYSERDA contributed to the development of these recommendations. Alpitronic, bp pulse, the Colorado Department of Energy, the Colorado Department of Transportation, Paren, and Samantha Silverberg provided valuable comments on earlier drafts.
[2] Port refers to a charging slot capable of charging one vehicle, equivalent to one gasoline nozzle. Ports are often also referred to as plugs or stalls. A port may have two connectors, such as NACS and CCS connectors, but only one may be used at a time. Some chargers may have two ports capable of simultaneously charging vehicles.

  - Other programs tend to cover the EVSE and some or all customer-side equipment and installation, but not utility-side equipment.
  - Some programs may also include some or all operating costs, including maintenance and networking expenses.

- These programs tend to have technical requirements for EVSE, including requirements around power levels, plug types, interoperability, data collection, etc. As discussed below, following the NEVI technical standards can help create a national standard for applicants and for user experience.
- Programs are usually open to EVSE owners and network operators, but sometimes may allow installers to apply on behalf of the EVSE owner. Applications typically occur before EVSE are installed.
- Programs typically reserve funding for approved applications but should set time limits for completing a project must be completed after application approval. If not completed, the award will be reallocated to prevent developers from tying up too much funding on projects that are not yet ripe. Limited extensions should apply for utility or other delays beyond applicant control; extensions should have firm expiration dates to ensure applicants solve problems or free the funds for reuse.
- Program administrators should consider project maturity, seeking a well-thought-out project. Applicants should demonstrate that they have an appropriate level of agreement with the site host and have begun coordination with the relevant utility. States and other funders should be aware that some utilities have recently experienced long delays for both equipment and design.
- These programs typically have standard terms and conditions that all program participants agree to. These are not typically negotiable.
- While open enrollment programs are fastest to contract, the next fastest option would be to maintain consistent terms with regular, scheduled deadlines, e.g., quarterly deadlines. Of course, smaller funding opportunities may only be conducive to one-off procurements. States that are new to the market may want to first do an RFI and/or talk to federal partners (e.g., NREL) or experienced states in order to develop terms.

Competitive programs

- Competitive programs are ones that have due dates for proposals to be submitted, after which all proposals are evaluated against a set of evaluation criteria and ranked to select the projects that will receive funding.
- Programs typically define the amount of available funding, per-proposal caps, and other eligibility criteria based on geographic boundaries and applicant types.
- Programs should define eligible costs and technical requirements.
- Programs should define the expected level of project maturity at the time of submission. If a high level of project maturity is required (e.g., signed site host agreements and completed utility

designs), then it is helpful to allow substantial time for applicants to compile their proposals (6-12 months). If a lower level of project maturity is required (e.g., sites identified but no further site planning completed), then proposals could be requested in less time (2-3 months), but there should be a higher expectation that sites may drop out in the future as they reach higher levels of project maturity.

- The contract negotiation process between administrator and awardee can make competitive programs take longer than open enrollment programs. Posting draft terms and conditions at the time of program announcement can help speed contracting after project selection. NYSERDA, for example, posts its terms and conditions and asks applicants to include in their application whether they accept the terms and conditions or have any specific points they would seek to negotiate.

- Defined timelines are valuable to applicants who are deciding where to allocate limited capital and may need to acquire land. Delays can impair the applicant's ability to deliver the contract, especially newer market entrants. Applicants could lose land that they planned to lease or incur substantial financial penalties if the timeline is protracted. Even if timelines slip, having announced timelines helps reduce slippage.

- Cases where competitive programs may be more appropriate include when the administrator knows less about the anticipated costs, has specific use cases or geographic areas it would like to target, or wants to choose one or two projects in a particular geographic area and have greater control over which potential applicant receives that funding. Competitive programs can sometimes enable administrators to enter into larger dollar- and/or longer-term contracts. Contracts resulting from competitive programs typically require a higher level of oversight by the administrator (recurring calls, progress reports, final reports, multiple deliverables).

II. Recommended Investment Strategies

A range of best practices for program design have emerged among the dozens of DC fast charging incentive programs across the nation. To spur private investment, states should consider incentive structures that address capital barriers, such as providing pre-construction or milestone-based rebates for DC fast charging station development. These incentives help to offset the upfront costs of DCFC deployment and promote installation of additional charging stations.

Payment timing and structures are important for aligning expectations and incentives. Most programs do not make any interim or partial payments before stations are complete to avoid making payments for projects that are cancelled before completion or that do not ultimately comply with program requirements. Holding funds until completion encourages applicants to complete the work more quickly and follow program requirements to get the funding.

States have generally adopted two models for providing DC fast charging incentives: programs directly administered through state agencies and utility-based programs offered by investor-owned utilities (IOUs). Both models have been effective in driving additional investment in DC fast charging.

Recommended funding levels: *Per-port incentives for DCFC deployment*

DC fast charging stations have relatively high up-front development costs. DC fast charging is a critical technology to support long-distance travel and convenient charging for those who cannot charge at home, but stations require expensive high-power charging equipment, electrical infrastructure, and utility interconnection to serve sites. Many states have sought to address the up-front costs of DC fast charging infrastructure and incentivize additional station deployment by providing per-port incentives either directly through state agencies or through utility incentive programs approved through a Public Service Commission or equivalent.

Station costs and associated utility requirements have increased alongside a trend towards larger and higher-power charging stations. As vehicle ranges and charging speeds have increased, more powerful chargers in the 150 kW per port and higher range have become necessary to meet driver expectations. The National Electric Vehicle Infrastructure program established a minimum of four ports per site, but in many urban areas substantially larger sites of 10 ports or more may be necessary to meet charging demand and prevent queuing.

The highest impact programs nationally provide incentives of $50,000 per port or more, recognizing the higher costs associated with deployment of larger and more powerful charging stations. Colorado provides substantially higher incentives, up to $125,000 per port, specifically for stations constructed in rural areas. Other considerations could also merit higher payments per port, such as high-cost, high-demand areas in cities. In addition, programs such as the California Electric Vehicle Infrastructure Project (CALeVIP) have allowed for reimbursements for up to 20 ports per site, recognizing the trend toward larger installations and greater numbers of ports needed to meet demand from the growing fleet of electric vehicles.

Support beyond installation: *Optionally cover ongoing operational costs*

Funders should be thoughtful in how they approach operational costs, keeping in mind the goal of developing sites that eventually become economically self-sustaining. In areas with low expected utilization, such as low-income (LI) and disadvantaged (DA) communities or regions with unfavorable utility rates, some level of operational subsidy may be helpful. However, to encourage projects to have a clear path to long-term viability, states should consider offering a declining operational subsidy over time or as utilization meets a viability threshold.

Technical Standards: *Maintain consistency with best practices established in the NEVI program for technical standards and reporting requirements.*

In 2023, the federal government established NEVI technical standards, which include key elements such as a minimum station configuration of four 150 kW chargers and a 97% uptime requirement. The accompanying 23 CFR 680 regulations also defined a standardized set of data reporting elements related to charger usage and reliability. Since the release of these standards, many states and utilities have aligned their program requirements and reporting frameworks accordingly.

This consistency benefits station developers, as uniform technical and reporting requirements can be more easily integrated into existing processes and systems. To avoid a fragmented landscape of

varying standards, states and utilities designing their own programs should align as closely as possible with NEVI technical requirements, particularly regarding station design and data reporting.

Demand charge mitigation: *Offset costs until site utilization improves*

With the rise of high-powered charging and larger station configurations, demand charges have become an increasingly critical issue for the long-term viability of EV charging infrastructure. In the early stages of deployment, when stations typically operated at 50 kW to 100 kW of total demand, demand charges were largely viewed as a temporary challenge associated with low utilization—expected to diminish as usage increased. However, modern charging sites are significantly larger, with the NEVI minimum configuration requiring 600 kW with mandated 'headroom' of 25%, and some sites demanding several megawatts of power.

While many EV charging providers are exploring battery energy storage systems (BESS) or dynamic power management to reduce site demand, these solutions do not currently qualify as NEVI compliant where the power supply is below 600 kW, and may not be sufficient in utility service areas with high demand charges. As a result, states must continue to review utility rate structures and explore alternatives to traditional demand-based pricing, particularly where existing tariffs undermine the long-term economic viability of high-speed charging. In this context, rate reform is a vital complementary policy alongside capital investment.

Data-driven siting: *Use utility and usage data to guide site selection.*

Flexibility in station siting is crucial to the success of EV charging programs. A wide range of factors influence a site's viability, including the presence of a willing site host, sufficient parking availability, attractive adjacent amenities and restrooms, supportive utility rates, access to adequate power, and various construction considerations. Programs that are overly prescriptive about where stations must be located risk overlooking the most effective and practical locations—those often identified by the private sector using real-world experience and data.

To ensure well-considered siting, states may consider asking applicants about their expectations for site usage and why they feel the site is a good one. These responses and the evaluation of the potential site value could be incorporated into the program's scoring criteria. Some states have structured programs to provide greater incentives in certain geographic regions, such as low-income, disadvantaged, and rural communities, to prioritize development in these areas. This approach allows states to accomplish geographic deployment goals without being overly prescriptive in dictating exact station locations.

III. Case Studies of Key Incentive Models – California and Colorado

The two states with the most substantial state-level funding programs for DC fast charging deployment are California and Colorado. In California, the California Electric Vehicle Infrastructure Project (CALeVIP) is offered by the California Energy Commission and implemented through the Center for Sustainable Energy, and provides per-port incentives for DC fast charging. In Colorado, the Colorado Energy Office (CEO) administers the DCFC Plazas program, which distributes both the state's NEVI funds and those from its Community Access Enterprise (CAE). While not all states

will have similar consistent funding streams, the California and Colorado programs offer valuable models. Where long-term state-level funding streams are unavailable, other states have approved programs through investor-owned utilities to provide incentives backed by ratepayer funds.

California model: *Higher payments for sites offering greater simultaneous kW availability*

Successes

The CALeVIP program provides per-port incentives based on simultaneous power delivery of chargers, with a minimum of 150 kW per port. Ports with simultaneous guaranteed output of at least 150 kW qualify for an incentive of $55,000 per port, while ports with guaranteed output of 275 kW or above qualify for $100,000 per port. Importantly, CALeVIP allows reimbursements for up to 20 ports per site, which is well aligned with the trend towards larger station designs to serve the growing number of electric vehicles and future-proof sites against queueing.

Table 1: CALeVIP Incentive Levels

Guaranteed Output per Charging Port	Incentive
150 kW - 274.99 kW	$55,000
275 kW+	$100,000

In its more recent round of funding, California made several important changes to improve the likelihood of successful EV charging project delivery. Notably, the state now requires applicants to complete a number of preconstruction steps—such as obtaining utility designs and building permit approvals—prior to applying for program incentives. These requirements help ensure that proposed sites are real, feasible, and that applicants have conducted proper due diligence before seeking funding.

Additionally, in the 2023 CALeVIP program removed geographic restrictions that previously limited incentives to specific areas within certain counties. By adopting more flexible siting criteria, the program now gives electric vehicle service providers (EVSPs) greater freedom to identify where charging infrastructure is most needed and most viable across the state.

Challenges

Despite these improvements, the CALeVIP program structure poses some challenges for station developers, in particular due to the irregular cadence of funding rounds and how the uncertain timing of application windows intersects with the program's stringent eligibility requirements. Obtaining site access, developing a site design, securing utility design approval, and applying for building and electrical permits can take many months or in some cases over a year. Because the CALeVIP program requires sites to be essentially construction-ready before program submission, with both final utility design and building/electrical permits in hand, developers face a months-long development process before sites are eligible to be submitted to the program.

Programs offered on a consistent basis, with predictable application windows, better enable site developers to align their internal processes to target having sites submission-ready at the time the program opens. In practice, station developers must begin preconstruction development of sites

without knowing when the program will re-open, and are unable to effectively time the completion of design and permitting tasks to align with application windows. In addition, while awaiting the next application window, developers may face ongoing costs, such as paying rent on construction-ready sites without knowing when funding will again be available. To mitigate these challenges, states should aim to provide as much advance notice and clarity as possible when implementing strict site-readiness requirements.

Colorado model: *Higher incentives for rural or low-utilization areas*

Successes

Colorado has consolidated its NEVI funding and Community Access Enterprise (CAE) funding into a single, unified DCFC Plazas program with consistent goals and standardized station design requirements. This high degree of coordination across funding sources provides meaningful benefits to companies planning charging station deployments in the state.

The DCFC Plazas program is structured as a competitive procurement, and Colorado maintains a regular cadence of application windows, with predictable submission periods each spring and fall. This consistency supports long-term planning and helps developers align project timelines to ensure readiness when funding windows open.

The state has established per-port funding levels that are lower than those offered by many other state NEVI programs but remain comparatively generous relative to most state and utility funding sources. The state varies the incentive level based on the geography of the station, with the lowest funding levels in the Denver Metro area, moderate funding levels along the urbanized front range, and the highest funding levels reserved for rural parts of the state. There are both dollar-value and maximum reimbursement percentages limits on funding.

Table 2: Colorado DCFC Plazas Per-Port Incentives

Location	Incentive per Port	Maximum Funding Percentage
Denver Metro Area	$75,000	50%
Front Range Urban	$100,000	65%
Rural	$125,000	80%
Minimum of four ports with minimum output of 150 kW		

Additionally, Colorado offers modest bonus incentives for stations located in disadvantaged communities and for incorporating ancillary site elements, such as battery storage.

Table 3: Colorado DCFC Plazas Enhanced Incentives

Enhanced Incentives	
Incentive	**Amount**
Disproportionately Impacted / Disadvantaged Community	$5,000/port
Battery integrated storage	$25,000/site
Standalone storage	$45,000/site
Sites must incorporate a 90 kWh or larger battery for storage incentives	

Challenges

One notable challenge with Colorado's program is the relatively low level of funding available for federally funded projects, particularly when compared to typical NEVI-supported initiatives. Federal funding brings additional costs—such as Davis-Bacon Act labor requirements, Buy America-compliant equipment, and increased administrative overhead—that significantly raise overall project expenses.

However, Colorado's per-port incentive amounts do not differentiate based on the funding source. As a result, federally funded projects in the state receive the same reimbursement levels as state-funded projects, despite their higher costs. This structure can lead to a lower cost-share for federally funded projects and may make it more difficult to develop financially viable charging stations along Alternative Fuel Corridors (AFCs), relative to projects funded solely with state resources in other areas.

IV. Merits of contracting with the charging equipment owner

States may ask whether they should contract with the charging equipment (EVSE) owner, the site owner, the networks operator, or the installer. Experience indicates that contracting with the equipment owner has strong advantages. Equipment owners could be developers like Electrify America, bp pulse, or EVgo, site owners like a travel plaza or gas station retailer or office building owner, or tenants that lease office or retail space from a site owner.

- The government entity has a contractual relationship with the owner of the equipment that includes requirements about the installation process and continued operation of EVSE equipment for a period ranging from 5-10 years (in the case of NEVI-type program operational requirements) or 20-40 years (in the case of DOT concession/P3 type contracts for Interstate service operations).
- If the equipment owner is not the site owner, there is usually some requirement to demonstrate agreement from the site owner to build the stations on the site.
- The equipment owner is well positioned to be able to follow through on this as the owner of the hardware. They usually enter into agreements with network operators and maintenance providers to ensure continued operation of the equipment.
- Contracts may specify an installer, hardware, network provider, maintenance provider, etc. If they do not specify, they usually lay out the process by which those entities would be selected

(e.g., competitive process, choose from a list of pre-qualified vendors, etc.). The administrator should have a defined process for changing subcontractors after the contract is completed. For things like hardware and network services, contracts may specify the technical standards the product must meet without specifying a specific product, or could specify the proposed option but also write in flexibility without requiring a contract modification. Once NEVI standards and performance requirements have been met, minimizing specifications that the government entity needs to approve if changed avoids unnecessary delays.

- Contracts often include go/no-go provisions that require early deliverables (site plans, permits, environmental review, etc.) before construction can begin.
- Contracts should include a payment schedule and deliverables/milestones at which times payments may be made. Most funds are typically paid out upon installation/activation, with some funds often held back to be paid out over the course of the in-service requirements.
- Contracts should include penalties for failure to remain in service to prevent abandonment of funded stations.
- Data reporting requirements should cover both reporting to the government entity and providing information to EV drivers and the general public about the operation of the stations. The contract should clearly specify the government entity's rights to the data, including the right to analyze the data and to share it with third parties such as researchers, while protecting confidential business information and personally identifiable information (PII). Data reporting requirements should have a clear start date in relation to station opening.

V. Further Recommendations for State DCFC Planning

Capital expenses and installation

- Allow investments that future-proof charging stations to be eligible expenses under the contract, such as additional ports, faster charging speeds, and longer-term commitments to the site.
- States should consider contract structures that encourage rapid deployment of infrastructure, including through program structures that allow for use of existing inventory for chargers and supporting electrical equipment. Post-construction rebates that are agnostic to the timing of equipment purchase, or programs that explicitly designate use of existing inventory as eligible costs, can help to avoid long deployment timeframes due to long equipment lead times on site elements such as transformer and switchgear.
- Fragmented state and local requirements can create compliance challenges for the EV charging industry. To lessen the impact of regulations on EV charger deployment, states should balance consumer protection and EV charger deployment goals such that rules are clear, achievable, and consistent with national best practices. Regulations that rely on access to testing devices, certified and trained testers, or other stringent mechanisms should ensure that the regulations can be met in a timely and cost-effective manner.
- State agencies should work with local jurisdictions to streamline the permitting process for DCFC installation, such as exempting DCFC installation from building permit requirements or

treating them as accessory uses. DCFC projects are sometimes delayed due to external forces, with two of the largest sources of delay typically being local permitting and utility interconnection and energization. NESCAUM and NYSERDA have issued EV charger permitting best practices that serve as a useful guide. California's Office of Business and Economic Development similarly shares its recommendations for streamlining permitting.

- On ADA compliance, programs should clarify that, at minimum, one port must be ADA accessible (not reserved) and the route to an amenity building must be ADA accessible. Expenses to achieve accessibility should be defined as eligible costs. The U.S. Access Board recommendations serve as a useful guide.

- States should seek to clarify with FHWA regional offices that using federal funds to deploy DCFC on a highway does not federalize the highway. Doing so will allow state level DOTs and other public bodies to use federal funds to develop DCFC infrastructure on high traffic transport corridors that do not receive federal funds.

Operational expenses

- Allow demand charges as eligible costs at sites with low utilization or challenging utility tariffs. Such allowances may be time-limited or designed to phase out over time.

- Define state program uptime requirements on a site level, vs. port level, such as a 97% average port-level uptime across all ports at the site. As an incentive for compliance, add a provision clawing back funds in the event of shortfalls or holding back a moderate percentage of contract value (e.g., 10-25%) to be disbursed over time upon meeting the uptime requirements. Holdbacks will be more difficult for smaller providers and may deter their applications.