The demand for electric vehicles is booming. In 2018, there were over one million EVs on U.S. roads. By 2027, there will likely be 7.25 million EVs. To power those EVs, it’s projected that we’ll need 77,000 fast chargers in operation in 2027. As of June 2021, the United States had 18,035 fast chargers. In order to meet market needs and reach climate goals, the U.S. needs to pick up the pace of rolling out EV charging infrastructure. The Biden Administration’s infrastructure proposal will support the build-out of a nationwide network of 500,000 L1, L2, and fast charging stations. To build and energize those thousands of fast charging stations, all stakeholders will have to work together to streamline the process of site identification, design, permitting, installation, and utility interconnection. Actual construction of a charging station takes just 4-8 weeks, but the entire process to bring a fast charger online—from host engagement through utility engagement, and permitting to utility interconnection—currently takes an average of approximately 18 months. With proper planning, engagement and alignment of all parties involved, and process streamlining through adoption of best practices, this average timeline can be reduced to just 6 months.

Growing consumer demand and policy support behind EVs make it necessary to roll out EV charging infrastructure in the U.S. faster than ever before. To succeed in this endeavor, we need to accelerate the process of putting a fast charger in the ground.

America’s network of public gas stations made it possible for broad ownership and operation of gas-powered vehicles. Now, to prevent emissions and combat climate change, among other benefits, the U.S. is turning to electric vehicles (EVs). A vast, public infrastructure of EV fast chargers is needed to support the demand for EVs and the drivers who will depend on it.

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26 Interwoven Steps to Bring an EV Fast Charging Station to Life
Why EVgo Is Positioned to Lead

With over ten years of experience deploying charging stations across the county, we understand this process and the associated challenges and opportunities. As such, EVgo is uniquely positioned to lead this effort to encourage and enable our fellow charging infrastructure stakeholders to generate and share important insights that will streamline and speed up charger deployment, and to share our expertise on EV charging processes to that end.

EVgo is the nation’s largest public fast charging network for electric vehicles, and is the first to be powered by 100% renewable energy. With more than 800 fast charging locations, EVgo's owned and operated charging network serves over 68 metropolitan areas across 35 states and more than 275,000 customer accounts. Founded in 2010, EVgo leads the way on transportation electrification, partnering with automakers; fleet and rideshare operators; retail hosts such as grocery stores, shopping centers, gas stations, hotels, and parking lot operators; and other stakeholders to deploy advanced charging technology and make it easier for everyone to enjoy the benefits of driving an EV. As a charging technology first mover, EVgo works closely with business and government leaders to accelerate the ubiquitous adoption of EVs by providing a reliable and convenient charging experience close to where drivers live, work and play, whether for a daily commute or a commercial fleet.

Connect the Watts™: Working Together to Accelerate Charger Deployment

When the people and organizations involved in the charger deployment process understand and internalize each other’s challenges, we can more easily and efficiently work together to adopt smart solutions in our respective lanes. For this reason, EVgo started Connect the Watts, an initiative aimed at bringing the electric vehicle charging infrastructure community together to identify and break down the barriers to faster charger deployment. The community includes:

+ Automakers producing electric vehicles
+ Equipment suppliers designing, manufacturing, and shipping chargers and equipment
+ Public funders financing charger projects
+ Property and retail organizations hosting chargers in their parking lots
+ Utilities supplying power to the chargers
+ Local governments approving permits to build chargers

Connect the Watts collects data about current practices and obstacles in each stage of deployment, illuminates best practices, creates a space to share those lessons learned, and generates new best practices for dissemination and adoption. It also includes quarterly meetings for the entire ecosystem, during which EVgo and attendees generate and share tools and examples, plus additional birds of a feather discussions for specific topics.
In the coming years, more than $8 billion will be invested in EV infrastructure from programs administered by government agencies through various sources. These programs will support deployment of public chargers across the landscape in easily accessible locations in both metropolitan and rural areas, and on transit corridors. Public funding may be awarded via competitive application programs, on first-come, first-served grant programs, or even via the tax code. This briefing outlines best practices for applying this funding to accelerate infrastructure investments by fostering electric vehicle service providers (EVSPs) like EVgo to deploy chargers nationwide.

Deploy Funding Quickly with Multiple Rounds

**Best Practices:**
- Have multiple program windows per year for continuous development and the opportunity to adjust programmatic details based on learnings.
- Allow administrators time to reevaluate through several, small solicitations per year instead of one large lump sum.
- Issue a small amount of funding first to jumpstart the market and adapt later based on learnings.
- Charge Ahead Colorado has three solicitations per year, which always take place in the same three months, allowing for predictable development cycles. Pennsylvania and the Maryland Energy Administration have taken a similar approach.

**Practices to Improve:**
- A large one and done solicitation does not allow program administrators to adjust based on learnings from previous rounds or market developments.
- Delays in activating Appendix D “Dieselgate” funding nearly five years after states received the funding lead to delays in DCFC development.

Value Charger Locations with a Transparent Scoring Rubric

**Best Practices:**
- Provide an explicit, points-based score card to evaluate applications. This guidance tells EVSPs what program administrators are seeking for an ideal DCFC location so EVSPs may tailor projects accordingly. Specify criteria, not locations.
- North Carolina has a balanced rubric, which uses transparent, third-party measures like traffic density, distance to existing DCFC, and measures of environmental justice impact. Rather than specify that all chargers must be located a certain distance from a highway, sites within 2 miles receive 15 points, 2-3 miles receive 10 points, etc.

**Practices to Improve:**
- State planning efforts to dictate ideal locations for DCFC may ignore real estate and power constraints, traffic patterns, EV density, and environmental justice concerns. Programs that are highly engineered with location-specific requirements often end up with less interest, and in the case of one state with its VW funding, zero qualified bids.

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5. Internal estimates based on available state, federal, and Appendix D funding.
Publish a Schedule and Stick to It

**Best Practices:**
- Give charging networks a clear indication of when EVSE programs will launch and commit to those timelines to provide certainty to potential applicants and the market overall.
- The schedule should include the open date for the RFP, a commitment for a decision timeline from the funder, a timeline for redlines, and deadlines for charger energization.

**Practices to Improve:**
- Uncertainty and lack of communication around timelines for public funding programs can lead to shovel-ready projects being abandoned, investments forgone, and a negative experience for site hosts and stakeholders.

Solicit Public Comment on RFP Design

**Best Practices:**
- Releasing the RFP after publishing draft guidelines allows charging network operators to spot red flags that may impede successful projects from moving forward, suggest best practices from other successful programs, and share the latest EV charging technology.
- When drafting their Dieselgate program, the Maryland Department of the Environment released an initial RFP and proactively solicited feedback.

**Practices to Improve:**
- Programs that do not allow for public input may be poorly designed, resulting in a lack of qualified bids or underqualified bidders who fail to execute.

Allow EVSPs to Build at Risk

**Best Practices:**
- Charging network operators should be allowed to build at their own financial risk between the time the program starts accepting applications to when the grant is awarded. If an application receives an award, those expenses should be reimbursable.
- Florida DEP allows almost everything up to commissioning to occur after the program opens and is reimbursable regardless of when the grant contract is signed (of course, no reimbursement occurs if a grant is not awarded).

**Practices to Improve:**
- Policies that prohibit or disallow reimbursement for work undertaken prior to final contract signature can delay project development up to 12 months. This can force network operators to act slowly before contracts are signed given higher risk of mobilizing, transforming many programs into sources of delay instead of acceleration.
Connecting EV fast chargers to the grid requires coordination with the local utility throughout the site design and installation process. There are many steps along the way, starting with work requests to assess power, through collaborative design iterations, and culminating with scheduling of the utility-side construction and interconnection. Project timelines can be negatively impacted by long response times to requests, utility engineering cycle times, lead time for utility equipment (e.g. transformers), a lengthy scheduling process for utility construction, outage timing, inclement weather, and interruptions to the utility workflow due to things like storm response obligations. Many of these challenges can be mitigated by utility incorporation of some field-tested best practices described below.

The Connect the Watts team, including utility representation and input, has identified 5 areas for utilities to focus on as they design and staff their EV charger project support processes: 1) Easement Process Streamlining, 2) Utility Equipment Inventory Maintenance, 3) Design and Construction Staffing, 4) Study Phase Streamlining, and 5) Utility Design Approvals Streamlining.

**Improve the Easement Process**

- **Best Practices:**
  - Utilities should make easement language available to the public and should dedicate right of way resources to EV developers for work on public property.
  - To significantly reduce delays, utilities should model after PG&E’s lease language, which can be inserted in site host agreements instead of the easement process.

- **Practices to Improve:**
  - The long turnaround time for initial easement documents, including templates and final documents, can create multi-month delays.
  - Other causes of delays include: refusal to allow for quit claims, language that includes permanent access rights, and long and/or complicated processes for negotiating easement document language.

**Sample Language for Utility Adoption**

Utility easements are a significant source of delays, adding approximately two months to a project schedule on average (it takes three to four weeks for the utility to produce the easement and up to four months for the host to execute). Access agreements can eliminate the burden for utilities, site hosts and/or landlords, counties, electric vehicle service providers, etc.

_______(e.g. Lessor, Landlord, etc.) grants to _________ (e.g. Lessee, Tenant, etc.) the right to receive utility services including but not limited to electric, and the right for the utility service supplier to construct, reconstruct, install, inspect, maintain, replace, remove, and use said utility services to serve _________ (e.g. tenant facilities, EV Charging Stations, etc.) together with the right for the utility service supplier to ingress to and egress from said utility service facilities across the _________(e.g. Property, Premises, etc.). _________(e.g. Lessor, Landlord, etc.) grants the right for the utility service supplier to trim, cut down, and clear away or otherwise control any trees or brush within five (5) feet of said route. In addition, _________(e.g. Lessor, Landlord, etc.) shall not erect or construct any building or other structure or drill or operate any well under or within five (5) feet of said route.
Maintain an Inventory of Utility Equipment

**Best Practices:**
- Maintain an inventory of transformers instead of having each “made to order.” AHJ permitting must typically be completed within one year of being approved. However, long lead items such as transformers that are the responsibility of the utility may take up to 20 weeks to obtain, thus putting the project in jeopardy.
- Ordering utility equipment once the project has been assigned allows for a faster timeline.

**Practices to Improve:**
- Lacking an inventory of transformers can delay projects for more than six weeks.
- Utility equipment issues can delay projects 6-9 months. Deviating from their utility standards can lead to further delays and complications.
- Differences in site host requirements vs. utility power availability create inefficiencies. Utilities can help by providing a capacity constraint map or similar tool for utility assessments.

Improve the Feasibility Study Phase

**Best Practices:**
- Meet with an EV team specialist to provide an assessment of interconnect options.
- SCE has dedicated resources to conduct field verification reviews, which take approximately 14 days. PG&G has a dedicated assessment process to outline capacity constraints and point of interconnect, which takes approximately 30 days.
- Make capacity planning and GIS map tools available to EVCS developers.

**Practices to Improve:**
- Utilities that lack an EV assessment process (and require designs by the applicant) are at risk of redesign once reviewed by the utility, which can take an additional 8-10 weeks.
- Feasibility studies that only account for worst-case scenarios do not inform the applicant design process.

Dedicated Design and Construction Staff

**Best Practices:**
- EV-dedicated design and construction resources can lead to a 40-day design cycle time and 4-week utility construction timeframe.
- PG&E provides a dedicated representative who manages the EVgo project portfolio, as does Dominion Energy in Virginia.

**Practices to Improve:**
- Non-dedicated resources that lead to a whomever-picks-up-the-phone approach.
- Processing applications through regional reps causes delays by treating projects like a 'stick-and-frame.'

Streamline Utility Design Approvals

**Best Practices:**
- Have dedicated EV staff that is already familiar with fast charger installation projects, self-imposed deadlines for turn-around, and enough staff to be able to handle project volume.
- While on average, utility design takes 4-5 weeks, approvals can happen as quickly as 3-4 weeks with utilities like Dominion Energy.

**Practices to Improve:**
- Approvals can take as long as 8 weeks or be considered “ongoing.”
- For one particular utility, design can take 4-6 months.
EVgo must work with the local permitting authority to acquire permits for fast charger construction. The entities that approve EVgo’s building plans are the Authority Having Jurisdictions (AHJs)—organizations, offices, or individuals responsible for enforcing codes or approving equipment, materials, or installation. The permitting requirements vary between AHJs, as can their familiarity with Electric Vehicle Charging Station (EVCS) equipment and projects. EVgo has been required to obtain Electrical Permits and/or Building Permits (depending on project and AHJ), appear before review boards, and ensure ADA compliance that can be interpreted differently by different AHJs. Planning and Zoning reviews are not required by every AHJ, but when they are, it is the primary source of significant delays.

The Connect the Watts team has identified 7 best practices for an efficient EVCS permitting process: 1) Adopt an Online Permitting Process, 2) Offer Expedited Processing that Shortens Permitting Timelines for EV Charger Projects, 3) Waive the Requirement for Pre-Appointment or Pre-Approvals for EV Charger Projects, 4) Standardize EVCS Permitting Reviews, 5) Streamline the Administrative Process to Avoid Document Processing Delays, 6) Require Only an Electrical Permit for these Primarily Electrical-Oriented Projects, and 7) Bring Policy Level Support for Equipment Placements.
Remove Requirement for Pre-Appointment or Pre-Approvals

**Best Practices:**
- Eliminate the need for a pre-appointment or pre-approvals as part of the plan check review intake process. EVgo stations are relatively simple and standardized, and don’t need the same screening as larger and more complex development projects.

**Practices to Improve:**
- Retaining pre-approvals adds 4-6 weeks for appointment scheduling to then submit plans, followed by 3-4 weeks to process the application.
- After pre-approval/pre-screening, the project application still goes through the same level of review as the standard submittal/review process, causing delays.

Require Only an Electrical Permit

**Best Practices:**
- Keep permit applications within one department (e.g., electrical only as in City of Biddeford and City of San Diego). Simple modification of parking stalls to accommodate EVCS need not require a building permit, and striping, signage, and ADA compliance can be inspected by the electrical inspector.
- Clearly define EVCS permit requirements so permitting staff does not expand scope of review.
- Avoid sending reviews to other departments (e.g., planning, zoning), and perform reviews for health and safety only as mandated by ordinance and not prohibited by laws like CA AB1236.

**Practices to Improve:**
- Lack of clarity on the reviewing departments that need to be engaged during project intake (and involving multiple departments).
- Sequential reviews by multiple departments, rather than concurrent review.

Standardize EVCS Permitting Reviews

**Best Practices:**
- Establish and publish EVCS-specific detailed permitting guidelines on the AHJ’s website outlining expectations for permit design sets and the application and review process (City of San Diego).
- Standardize the EVCS expedited permitting process (in compliance with AB1236 in CA, and S.3223 in NJ), and establish a quicker review timeline.
- Learn about EVCS design, and work with EVCS related inspector firms to define standards.
- Limit the number of review cycles and communicate comments as one batch rather than piecemeal.

**Practices to Improve:**
- It typically takes 3-4+ weeks for initial review, 1-2+ weeks for revision request and redesign, and 2-3+ weeks for plan check final, which can be shortened.

Policy Support for Equipment Placement

**Best Practices:**
- Allow EVCS and supporting equipment (including transformer, switchboards, and power cabinets) within building/property/landscaping setbacks.
- Expand the CA AB1100 guideline to count EVCS spaces as regular parking stalls in the parking count study to include supporting equipment (transformer, switchboards, power cabinets).
- Include EVCS and supporting equipment in the landscape impact study.

**Practices to Improve:**
- The Planning Department requesting an alternate location for EVCS equipment because of aesthetic considerations.
- The Planning Department requesting equipment be painted in a way that is outside of EVSP’s scope (when a transformer is owned by the utility)
- The Planning Department requiring landscape screening designs.