Electric Utility Interconnection Timelines for EV Charging

Please Note: This is a discussion draft that will continue to evolve as we receive feedback from stakeholders and utility staff.

The purpose of this fact sheet is to improve communication between local electric utilities and EV charging (EVC) project proponents (e.g., EV service providers). It also highlights opportunities to streamline the interconnection approval process for EVC projects to speed up deployment. Like any construction project, electrical infrastructure installations can be complex and time consuming, with conditions unique to each site influencing approval timelines considerably. Among the most influential are:

- Timing of utility involvement in the project planning process
- Property ownership
- Site electrical capacity and utility-side infrastructure upgrades required
- Utility equipment and resource availability
- Clarity of utility interconnection processes for EVC projects

Projects that involved the utility early in the planning phase, where the site host and the project proponent are one and the same, with sufficient electrical service at the site or that require minimal utility-side upgrades, where utility equipment and resources are in robust supply, and where utility interconnection processes for EVC projects are sufficiently clear offer the shortest path for electrification. Conversely, projects for which the utility was involved late in the planning process, where the site host and project proponent are distinct entities with competing objectives, require extensive utility-side upgrades, where utility equipment and resources are in short supply, or where EVC interconnection processes are less well-developed often result in longer timelines.

Please note that this fact sheet provides general timelines and that the unique characteristics of a project will determine the actual timeline.

Timing of Utility Engagement

Project proponents should engage local electric utilities in the project planning process as early as possible. It is essential to begin the planning process early and work closely with your utility to accomplish your goals. Open and frequent communication between the utility and the project proponent is an essential part of the interconnection process. Some utilities have various forms of EV advisory services to educate and guide commercial customers through the web of considerations that influence the cost, timing, and performance of EVC deployments. Services may cover selection of appropriate EVs for specific duty cycles and use cases to meet critical mission needs, selection of proper charging equipment, or siting, layout, and integration with

solar, energy storage, and other project elements. The utility will need to know about the types of EVs to be acquired and when they will arrive, as well as the types and number of chargers to be used, with their operating voltage and input power requirements to determine the needed grid capacity for the project and start working on needed upgrades.

Property Ownership

There are many decisions that must be made by the project proponent on issues that may take time to negotiate, particularly situations in which the project proponent is not the landowner. One of the most important things for a project proponent to do is to complete as much of the planning and negotiating with the property owner to enable authority to execute real property contracts up front so that the application is complete when it is submitted, and the project does not encounter significant design changes after the utility has reviewed the application and completed the preliminary design. To that end, utilities are working on harmonizing the documents and files needed for an application and creating a checklist for those documents and files that can be provided by the utility to the project proponent when beginning the planning and application phase.

Site Capacity and Extent of Utility-Side Upgrades

A key determinant of timing is the availability of electrical service to meet the new load planned for the site. Project proponents and, if different, the customer of record should be prepared to provide information to the utility on the location and scope of the project, the number of ports, EV load, use of load-management, EV panel size and voltage, and requested energize date, among other information. If available, project proponents should leverage advisory and other support services that may be offered by the utility to assist with planning and to ensure their planning incorporates all the various considerations that go into an EVC project.

Project proponents should also submit site plans and civil plans, completed by a licensed surveyor and professional engineer, showing all other underground utilities in the desired work area. Depending on the size of the project, if a project proponent submits a complete application and accepts the preliminary design, some utilities can provide a final design within 1 to 3 months.

The California Public Utilities Commission has an ongoing proceeding that will set an average service timing expectation and has directed the investor-owned utilities to propose an average timeline between a project proponent submitting a complete service request to when the facility is energized. As part of this process, the IOUs will host a workshop in Spring 2022 to discuss barriers and strategies to shorten the interconnection timeline.

Utility Equipment and Resource Availability

Relative to their larger utility counterparts, smaller public or municipally owned utilities may lack the capability to stock significant equipment inventory and may also have limited resources at

their disposal to support EVC projects. In addition to all the customer-side design and equipment that must be procured, utilities may or may not need to procure utility-side equipment. Fulfillment and delivery of equipment orders is a part of project timelines, hence early communication with the utility is key to minimizing lead time. Other influences outside the utility's control can impact equipment availability, such as the supply chain disruptions witnessed during the COVID-19 pandemic.

Clarity of Utility Interconnection Processes for EVC Projects

Based on different service territories' EV adoption curves, utilities are at various stages of shifting EVC project support out of R&D, scaling up their teams, and developing new processes that cater to the unique needs of this emerging customer segment. The best course of action for any project proponent is to engage the utility early to provide sufficient opportunity for the utility to engage, support, and guide the project toward the best and most cost-effective solution.

Charging projects can take different paths depending on the size and complexity of the project or whether the project qualifies for a utility incentive program. Developing a greater line of communication between the utility and project proponent will help both parties navigate the process. The table below describes the interconnection process generally and delineates the responsibilities between the utility and project proponent throughout the three phases of the interconnection process: (1) planning and application, (2) design, and (3) construction. The table provides general actions and timeframes for illustrative purposes: specific actions and timeframes will vary based upon the utility and the project requirements. As noted above, a public workshop will be held in spring 2022 to further discuss the EV energization timelines.

Phase 1 – Planning and Application

Customer Action	Utility Action
The customer develops a plan for deploying charging infrastructure, including site considerations and the desired load that will serve EVs. The customer may need support from a private consultant or electrical engineer as the charging infrastructure solution may be a combination of the types of chargers, managed charging techniques, and any planned battery storage or self-generation, e.g., solar.	Some utilities provide online resources to aid customers in identifying grant and incentive funding opportunities. Some utilities offer EV project advisory services at no or reduced cost to educate project proponents and guide them through the interconnection application process.

Explore potential grants and incentive funds that can help offset project costs. Check with the utility to see if it offers EV project advisory services, which can help project proponents navigate the interconnection application process and explore whether your project is eligible for EV incentive programs and grant funding opportunities.	
If available, request an application checklist from the local utility and consider the utility's EV project advisory services. Complete the utility's online application or service request. The more complete and vetted the application is the better chance a project has at proceeding expeditiously through the interconnection process. For example: • Provide details on types of EVs and chargers, electrical design, and site plans for locating EV chargers. • Make sure to vet the location for other utility infrastructure, e.g., gas and water lines, so there is no conflict later with the new electrical infrastructure. • Make sure to have as close to a final agreement with the landowner as possible. Large changes to the site design will slow down the process. • Do not forget these important to-dos: ○ If necessary, an easement must be given to the utility to access the new utility-side infrastructure. Ask your utility for boilerplate access agreement language, if available, that can be incorporated into the site host agreement.	Some utilities can provide a checklist of what is required for a complete application. Some utilities can complete a feasibility study or pre-assessment without the customer submitting full detailed design plans. The feasibility study or pre-assessment may include a preliminary utility design, required customer and utility equipment, and available circuit capacity for the proposed location. Some utilities are able to complete this type of request within about 28 days. Some utilities provide boilerplate lease language for access agreements that can be inserted into the site host agreement to avoid delays associated with the easement process.

○ The customer must pay the invoice and sign the final contract with the utility. ○ TOU/TOD application for service must be submitted, if applicable. ○ Make sure to obtain the city panel release. ○ The address for the new service must be verified and a placard posted. ○ Pass all required inspections by local permitting offices and utility.	
	The utility determines that the application is complete, and this includes paying any necessary fees. Once the application is determined to be complete the clock is started for utility action.
If the application is not complete, the utility will ask the customer to supplement or correct the application and resubmit.	
	After resubmission the utility will determine whether the application is complete, and if so, move on to the design phase.

Phase 2 – Design

Customer Action	Utility Action
	The utility will perform a site evaluation and feasibility study based on the customer's application.
	The utility will prepare a preliminary construction design for the project. Certain characteristics of the project will determine the construction design timeline. For example: Some projects do not require any utility upgrades (e.g., Level 2 charging projects where there is sufficient capacity within the building's existing service). These typically

	have the shortest timelines, with many able to receive a preliminary construction design within 30 days. Other more involved projects require simple upgrades to utility infrastructure (e.g., DC fast charging installations that require upgrades to transformers, conductors, projects that require a meter change, etc.). These cases may take 2 to 3 months for construction design. Still other more complex projects require both simple and large or more extensive upgrades to utility infrastructure (e.g., line extensions, installing new transformers, etc.). These projects may take as long as 4 to 6 months to design.
The preliminary construction design is sent to the customer for their review and approval.	
	If the customer has no changes, the utility will finalize the construction design and issue a final contract and invoice to the customer. For simple changes, producing an updated design can take 15 to 30 days. For bigger changes, such as a landlord deciding to move the infrastructure to another part of the parcel, producing an updated design can take 2 to 3 months. Once complete, the utility will send the final design to the customer for approval.
Review the final design, sign the contract, and pay the invoice. At this time, the customer may move forward with any customer-side construction and does not need to sign the contract or pay the invoice. However, the utility will not move forward until the customer completes these steps.	
Prior to the utility beginning construction, the customer must also complete the following items:	

• If necessary, grant an easement to the utility for access to the new utility-side infrastructure. • Pay the invoice and sign the final contract with the utility. • Submit a TOU application for service, if applicable. • Obtain the city panel release. • Verify the address for the new service and post a placard. • Pass all required inspections by AHJ and utility.	
	Once the utility receives the executed final contract and the invoice payment, the project moves into the construction phase. Realizing efficiencies requires careful and deliberate management of the various project dependencies. Permitting, land rights, material logistics, and inspections are often the leading factors that delay the start of utility construction.

Phase 3 – Construction

Customer Action	Utility Action
Customers may request a pre-construction meeting with the utility to discuss scope and work method. Generally, utilities are available for these meetings within 72 hours.	
Secure permits before inspections and construction. Inspections by the AHJ and utility must be scheduled and completed.	
	Utility verifies that switchgear/panel meets Electrical Service Requirement (ESR) standards.
	Projects that require installation of new electric distribution infrastructure such as transformers, switches, poles, or service conductor can usually be performed in a shorter timeline but are dependent on the specific location and construction methods.

	For example, civil construction in dense cities is more complicated and time consuming than construction in less populated areas. Construction timelines for projects that require larger utility upgrades can vary considerably, typically from 12 to 36 months. In addition to the engineering at the site, a large project may require reconfiguration of off-site infrastructure (e.g., reconductoring distribution lines or performing substation upgrades) and thus will require extensive coordination with grid operators to minimize customer impacts and ensure worker safety.
Once the final inspections and approvals are completed, the site can be energized.	