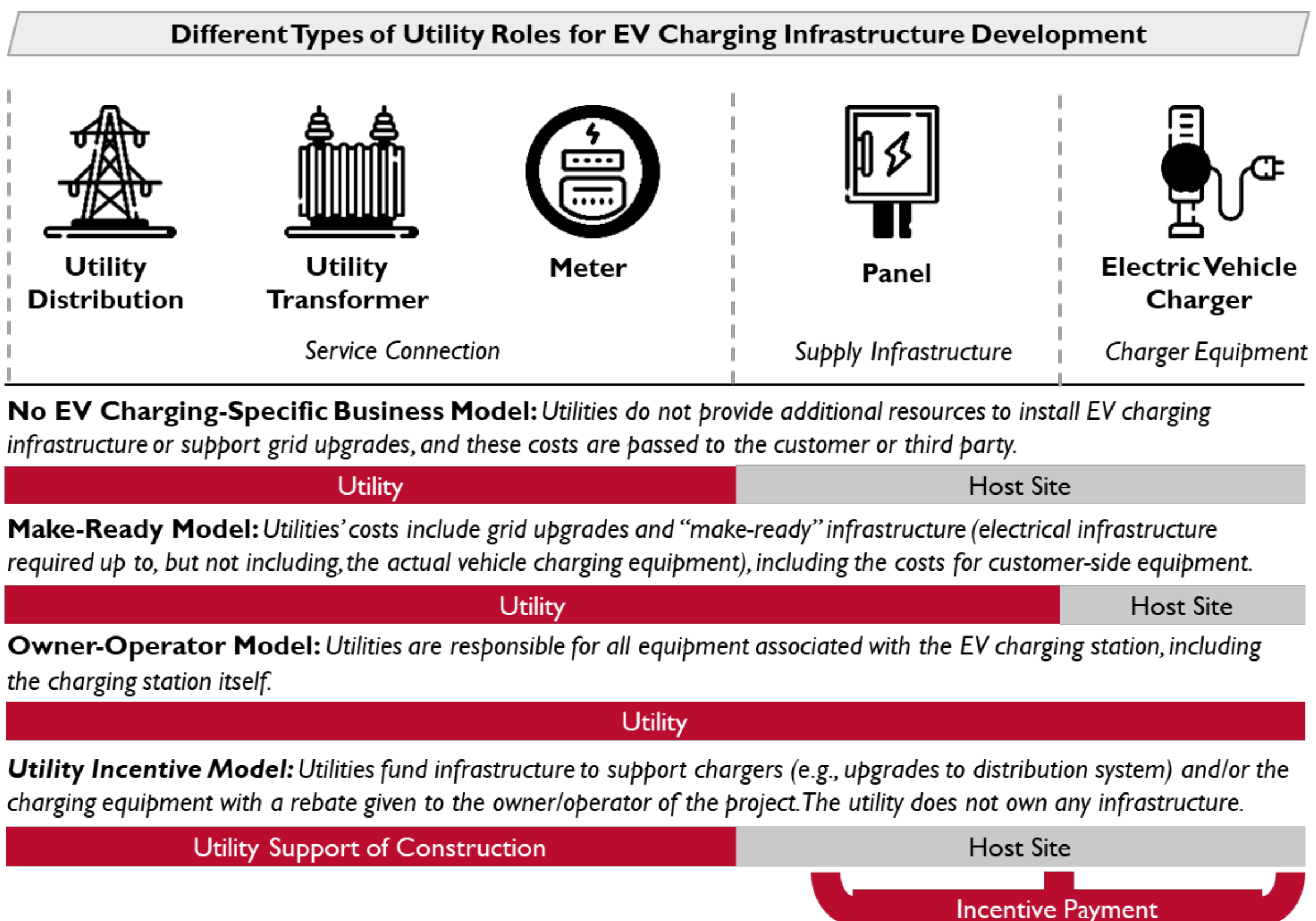


Issue Brief: The Role of Power Utilities in Supporting EV Charging

Power utilities play a key role in electric vehicle (EV) market development, since access to charging is a necessity for EV adoption and utilities supply power to most EV chargers. Globally, utilities have had different levels of involvement in EV charging infrastructure expansion as illustrated in the figure below, which shows common utility EV charging business models.

Both state-owned and private utilities face challenges with EV charging expansion based upon the business model (or lack thereof) any given utility is pursuing. The **pages following** provide a brief description of these challenges, as well as leading practice solutions that the USAID *Strengthening Utilities and Promoting Energy Reform (SUPER)* Task Order can provide to support EV expansion.



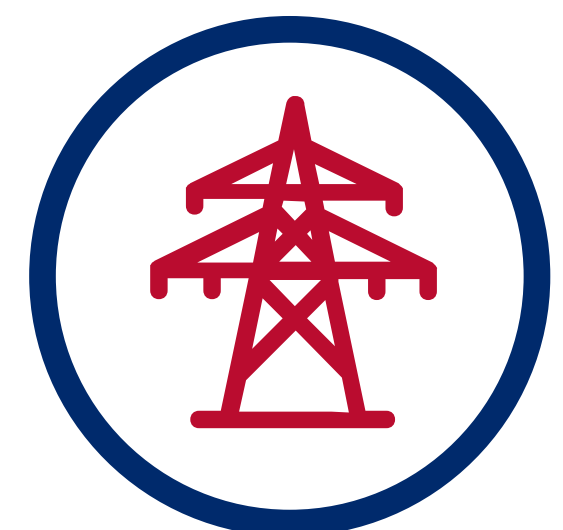
Note: Utilities will engage Host Sites (e.g., petrol stations, malls, offices) as key stakeholders regarding EV charging infrastructure development.

SUPER's Capabilities

SUPER can support utilities to help them plan for and accelerate EV deployment and decarbonization of the transportation sector through tailored technical assistance, including:

- Developing strategic roadmaps;
- Supporting adoption and implementation of charging standards;
- Engaging the private sector to increase investment; and
- Advising on planning and load forecasting of future EV uptake.

SUPER recently launched a new EV activity to help utilities and USAID missions address the challenges listed below. Learn more about SUPER [here](#).



USAID
FROM THE AMERICAN PEOPLE

Key Challenges Utilities Face with EV Deployment, Leading Practice Solutions and Ways SUPER Can Help

CHALLENGE: Utilities lack policies and programs to encourage consumer **off-peak** EV charging. Such measures can help utilities better **manage** their **peak load**.

SOLUTIONS:

- Develop tariffs that encourage EV charging at off-peak hours. For example, Thailand's state-owned electric utility announced a discounted off-peak EV charging tariff.
- SUPER can help utilities conduct impact analyses and develop or implement new or adjusted tariff structures to support EV deployment while also encouraging off-peak charging.

CHALLENGE: Utilities face difficulties with **cost recovery** and **obtaining sufficient financing** to cover grid infrastructure upgrades and upfront costs of EV chargers.

SOLUTIONS:

- Some governments have allowed utilities to finance public EV charging-related grid expansion and infrastructure costs through ratepayers across different customer classes. ESB Networks, an Irish utility, used ratepayer funds to build a national public charging network. Utilities can also partner with the private sector to share costs of deploying EV charging infrastructure. For example, U.S. EV charging company ChargePoint, software company Cox Automotive Mobility, and utility Georgia Power collaborated to build EV charging stations in Atlanta in an underserved area.
- SUPER can support utilities to develop financing models for cost recovery and investment of infrastructure upgrades, as well as advise government agencies on options for financing utility infrastructure upgrades along with EV charging expansion.

CHALLENGE: Utilities in early-stage EV markets may not be adequately **forecasting demand** or planning for **long-term** power sector impacts of EV adoption in load forecasts. Additionally, many utilities lack access to data from private EV charging stations, nor do they have comprehensive plans to inform charging station siting based on existing and planned infrastructure.

SOLUTIONS:

- Utilities can iteratively forecast EV-related electricity demand by developing tools and modeling scenarios for consumer demand of different types of EV chargers (e.g., Level 1, Level 2, and DC Fast Chargers). California utility Pacific Gas and Electric (PG&E) forecasts system and localized load impacts of EVs and updates load forecasts annually. Utilities can also install sub-meters at the panel that powers the charger to monitor real-time, more granular electricity demand and activity.
- SUPER can help utilities analyze the impact of EVs on load and distribution infrastructure; include EV demand in integrated resource plans; and support utility program design to encourage smart and equitable private sector EV charging infrastructure development.

CHALLENGE: Utilities considering adding EV charging as a non-core service may lack awareness of the full suite of leading processes, procedures, and standards to plan, operate, and manage EV charging infrastructure across their service territory. Key issues include safety standards, charger and vehicle interoperability, and payment systems.

SOLUTIONS:

- Utilities can proactively implement leading international technical standards and practices, such as the Open Charge Point Protocol (OCPP); adequately forecast consumer demand and charging preferences; and ensure safety, reliability, and sufficient planning and coordination with relevant authorities. In Thailand, the Provincial Electricity Authority (PEA) utility has adopted international safety and interoperability standards to ensure safety for all EV chargers and consistency amongst PEA owned/operated chargers.
- SUPER can support utilities to identify and implement leading practices, standards, and procedures for EV charging infrastructure development, planning, operations, and management. SUPER could also help governments select and implement relevant standards.

Key Challenges Utilities Face with EV Deployment, Leading Practice Solutions and Ways SUPER Can Help

CHALLENGE: Most utilities lack **dedicated customer service lines or programs** to support customers with EV charging challenges. This can lead to customer frustration and disincentivize EV adoption.

SOLUTIONS:

- Utilities can establish dedicated teams, a public website, and programs to provide customers information and support on EVs and EV charging. Bangalore's utility, BESCOM, created a website to provide prospective developers information on how to set up an EV charging station.
- SUPER can help utilities design, implement, and manage programs to encourage greater EV adoption and support efforts to improve customer relations and outreach for enhanced EV development.

CHALLENGE: **Delays** and difficulties completing grid interconnection, navigating **complex permitting processes** involving multiple agencies, and **coordinating** with many stakeholders can **increase soft costs** for the utility; disincentivize private EV charger investment; and delay EV charger deployment.

SOLUTIONS:

- Utilities can establish dedicated teams and processes to facilitate and accelerate grid interconnection as well as navigate and streamline permitting processes. For example, PG&E has a dedicated team that reviews applications for standalone EV charger installation to accelerate application processing.
- SUPER can support stakeholder coordination between utilities, local and national governments and private sector firms; advise on relevant transportation regulations and laws; and help utilities implement efficient internal processes for interconnection. SUPER could also help governments streamline EV charging station permitting and interconnection processes and rules.

CHALLENGE: **Lack of consumer awareness and adoption** of EVs poses challenges for utilities tasked with increasing EV expansion. This is a particular challenge for state-owned utilities that have a mandate to support increased EV adoption.

SOLUTIONS:

- Develop programs that engage the community to spur EV adoption. Puget Sound Energy in Washington has an EV community engagement program focusing on increasing EV awareness amongst vulnerable communities.
- SUPER can assist utilities and relevant government agencies develop community and stakeholder engagement groups and facilitate workshops to increase awareness of EVs, EV charging, and potential incentives.