

SECURING THE ELECTRIC VEHICLE ECOSYSTEM: CHARGING INFRASTRUCTURE CYBERSECURITY

AN EXPANDING ECOSYSTEM

The transition to electric vehicles (EVs) is a cornerstone of the auto industry's commitment to creating a cleaner transportation future. As vehicles are becoming cleaner, they are also becoming more digitized. EVs operate in an expanded ecosystem that includes charging equipment, payment processing, and connection to the electric grid. Without proper planning and safeguards, each element of this ecosystem introduces cybersecurity risks that can be exploited.



Through manipulations of system voltage or load patterns, a malicious compromise of a charging station connected to the electric grid could impede access to the power required to charge EVs or cause damage to an EV's systems.



A hacker could compromise a payment system to gain unauthorized access to personally identifiable information, potentially resulting in financial losses for an EV driver.



A threat actor could introduce malware into an unsecured charging station which could hinder charging, capture consumer data, or damage a vehicle's battery management system.

WORKING TOGETHER TO ADVANCE CYBERSECURITY

The various stakeholders (including automotive companies, utility companies, charging providers, and financial services companies, among others) within the EV ecosystem must work together to ensure the resiliency, security, and reliability of EVs. To advance the security of EVs, roles and responsibilities related to cybersecurity elements should start with the entities within the ecosystem that are best positioned to address them.

The government can help foster this shared responsibility by:

- developing a risk-based EV charging cybersecurity framework that is flexible and identifies relevant stakeholders in the EV ecosystem and delineates clear cybersecurity roles and responsibilities;
- collecting and disseminating cybersecurity best practices for the EV charging infrastructure;
- incorporating cybersecurity best practices into EV charging infrastructure, including infrastructure funded by government; and
- facilitating public and private sector partnerships to protect the broader EV charging ecosystem.