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Electric Vehicle Charging Stations

Information and guidance related to the installation and management of electric vehicle charging stations on campuses

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Background

Reducing the use of fossil fuels through electrifying transportation is one of many paths toward a decarbonized environment. A transition to Electric vehicles can help support SUNY's reduction of Green House Gas (GHG) emissions. To enable the transition to EVs for faculty, staff, and students, SUNY campuses are encouraged to consider the installation and management of EV charging infrastructure.

Consideration must be given to the potential long term capital and operating impacts of providing electric vehicle (EV) charging stations to faculty, staff, students, and the surrounding community. All potential expenses need to be considered. Capital expenses include the stations themselves and connecting to the campus electric grid. Operational expenses include paying for the electricity being used to charge the vehicles, and require careful forethought and planning to avoid adding to the already strained campus cost of operations.

Across the SUNY portfolio, many campuses currently have pilot implementations of EV stations or are planning to install them. Given the financial incentives and current clean energy goals it is expected that the number of EV charging stations to be installed will continue to increase.

The guidance in this document is designed to help campuses and community colleges encourage the use of electric vehicles while recognizing the potential long-term capital and operating impact of electric vehicle (EV) charging stations.

Electric Vehicle Charging Station Options

SUNY's Clean Energy Roadmap includes a goal of electrifying SUNY's transportation. This initiative encourages campuses to facilitate the use of electric vehicles by students, faculty, and staff by providing EV charging infrastructure. EV charging stations are typically configured and installed in one of the three methods listed below. Given the anticipated use of the charging stations and cost considerations, campuses will most often implement AC Level 2 Charging.

- **Level 1 Charging** is limited to 120 volts of alternating current (VAC) and uses a typical household three-prong plug. Most electric vehicles (EV) are sold with AC Level 1 capabilities and only need a dedicated 20 amp outlet to charge. AC Level 1 stations charge slowly, and are generally used in home or workplace charging applications where EVs will be parked for long periods of time. AC Level 1 charging adds 2 to 5 miles of electric range per hour of charging time. Usually, a portable AC Level 1 charger is included in the initial vehicle purchase price.
- **Level 2 Charging** provides electrical energy at either 240 VAC (typical for residential applications) or 208 VAC (typical in commercial and industrial applications). This level of charging is viable for both residential and public charging locations. Unlike AC Level 1 charging,

AC Level 2 charging requires additional hardware able to be mounted on the wall, to a pole, or as a stand-alone pedestal. It must be hard-wired to the electrical source. The increased charging rate and affordability of AC Level 2 charging stations make them the most popular choice for EV charging applications. A Level 2 station provides up to 7.2 kilowatts (kW) for residential and up to 19.2 kW for commercial. Typical charging times if the EV is entirely empty of power is around 4-5 hours.

- **Level 3 Charging** uses direct-current (DC) energy transfer and a 480 VAC input to provide extremely rapid recharges at heavily used public charging locations. This type of station is cost prohibitive for some applications. However, depending on the EV, DC fast charge stations can provide an 80 % recharge in as little as 20 minutes. This option is only available on certain EVs.

Electric vehicle charging software programs – most charging stations offer a Software as Service (SaaS) platform for users of the electric vehicles to reserve parking station time for charging vehicles and making appropriate payment for the electricity. The charging stations have cellular wireless cards for autonomous operation and interface with both campus and public users.

Electric Vehicle Policy and Planning

Understanding Current and Future Campus Demand

When evaluating the implementation of EV Charging on campus, it is important to understand the current and anticipated future demand. This could be achieved in part by surveying student, faculty, and staff. A sample survey is provided below.

1. Do you own an electric vehicle?
2. Do you intend to purchase an electric vehicle within the next five years?
3. Would the availability of charging stations on campus increase the likelihood that you would purchase an electric vehicle?

Financial Considerations

There are various funding streams available to support the capital investment required to install EV charging stations. Potential funding avenues include;

- NYSERDA
- DEC
- Local Utilities
- NYPA

Additionally, campuses need to consider the long term operation and maintenance cost associated with EV charging stations. Given the cost of O&M and employee relations considerations, campuses need to determine a method for charging for the use of EV charging stations.

Managing Use of Electric Vehicle Charging Stations

Prior to the installation of EV charging stations, campus practices or procedures for the use of those stations need to be established. Questions to consider include:

1. Where will the EV charging stations be located? Will the location of those stations force existing parking to be reallocated? If so, what is the employee relations impact of that relocation?
2. How will the campus track the use of, and charge for, the use of the EV charging stations?
3. How will the campus structure the rates/charges for use of the EV charging stations including future increases?
4. Will charging stations be available to the public, or only to students, faculty and staff?
5. How will parking at EV charging stations be monitored and enforced?
6. Will additional signage be required, or revisions to campus maps to show EV charging locations?
7. How will the campus manage snow removal EV charger access and maintenance?
8. How will the campus periodically assess the number of electric vehicles on campus (i.e. campus survey)?

Employee Relations

Reallocation of existing faculty, staff, student, and visitor parking spaces as a result of installation of EV charging stations must be done thoughtfully. The relocation of employee parking could present an employee relations concern. A meter open to the public and charging a uniform fee, presents the least risk of employee relations concerns.

Campuses must consult their Chief Human Resources Officer to assess potential employee relations concerns and develop a plan to address those concerns before initiating a project to install an EV charging station. The employee relations impact of changing the parameters for use of any existing charging stations must also be evaluated. Additionally, campuses should engage their campus counsel, parking department, and where applicable the University Police Department (UPD) in evaluating EV charging station practices. Parking regulations for State-operated campuses are individually codified in the New York Codes, Rules, and Regulations (NYCRR) and may need to be revised; such revision requires resolution by the College Council of the respective campus. Community colleges must follow their respective regulations for implementing a new/revised policy.

Potential Campus Electric Vehicle Charging Station Scenarios

When purchasing EV charging stations, campuses will need to determine whether or not the campus requires the system to be networked, allowing for non-cash payment at the stations. Common charging set-ups include the following:

- 1.) Networked charge stations:** Charging stations are networked, through a third party, to allow end users to pay for the electricity with a credit card or other campus networked payment card. These require a subscription fee, contract and internet connectivity, and have the added benefit of collection of usage data.
- 2.) Non-networked stations at metered parking spaces:** These are stations not connected to the internet, but are situated at parking spaces that are equipped with parking meters. The value of the electricity is built into the fee to park in the space.
- 3.) Non-networked stations:** These are stations not connected to the internet and without a mechanism for charging a fee or collecting data. The electricity is given away for free. **Non-networked stations where there is no fee for charging a vehicle are strongly discouraged due to limited operation budgets, employee relations concerns, and the potential for**

monopoly of limited assets. This option should only be used for public parking, and not for faculty, staff, or students.

Campuses need to assess average annual electricity costs and appropriate overhead for managing the EV unit, in order to develop a fee that captures both the direct and indirect costs. This cost structure must include provisions for adjusting as the direct and indirect costs change over time.

Procurement Considerations

When procuring an EV charging station campuses must follow New York State procurement rules, regulations and laws as well as applicable SUNY policies and procedures. Generally the installation of an EV charging station will involve a “purchase and install” commodity procurement for the equipment and the installation of that equipment subject to the requirements of [Procedure 7553](#). In order to prepare for installation a capital project will generally be required to set up the electrical infrastructure required to support the charging station. This capital project could be accomplished by campus crews, or by a construction procurement subject to the requirements of [Procedure 7554](#).

APPENDIX**Campus Electric Vehicle Charging Station Policy Template**

- 1.) The current campus parking policy, is revised to include the following provisions for rules regarding use of Electric vehicle (EV) Charging Stations.
- 2.) The following defines types of EV charging stations.
 - a. Level 1 Charging is limited to 120 volts of alternating current (VAC) and uses a typical household three-prong plug.
 - b. Level 2 Charging provides electrical energy at either 240 VAC or 208 VAC.
 - c. Level 3 Charging utilizes direct-current (DC) energy transfer at 480 VAC.
- 3.) EV charging is authorized only at designated EV charging stations. No electric vehicle shall be charged by any other means (i.e. use of an extension cord is prohibited).
- 4.) EV charging stations are currently located in various lots throughout campus. [Campus may include a dated listing by location and type for the EV charging stations]

The use and charge of each EV Charging Station will be specific to each campus.

- a. Use of all charging stations is regulated not only by the charging station rules but also by the regulations related to the parking area where the charger is located. Failure to adhere to the [campus] Parking Regulations and the EV charger rules may result in issuance of a citation and/or towing of the vehicle.
- b. Parking vehicles that cannot be properly coupled to the EV charger plug and charged is strictly prohibited (i.e. gas powered vehicles) [Campus may add between the hours of x and y].
- c. [Campus] will charge vehicle owner for electricity usage based on the length of time the vehicle is connected to the charging station and/or a kWh meter. Charges will be based on the annualized average electricity price for supply, transmission and delivery of electricity to the campus plus an overhead charge of [x %] for operations, maintenance

and management of the charging stations. [campuses may develop other methodologies for charging and adjust the language above accordingly]

- d. Vehicles must be moved according to the rules specified at the respective EV charging station, to allow the next EV owner access for vehicle charging. [consider 4-hr time limit, which almost fully charges most EVs, and coordinates well with the lunchtime window for moving cars.]
 - e. EV charging stations may have various options for payment. Each EV station will have specific instructions. [Describe campus specific charge system i.e. meal plan, book store, cash card, etc.]
 - f. Vehicles must be actively charging when parked in EV stalls. Specific rules will be stated at the individual stations. [list length of charging time by charging station type and location rules may include a grace period for moving a vehicle once charging is complete].
 - g. Observe charging “etiquette.” Don't charge a vehicle if you don't need to charge or if your commute can be accomplished by charging at home. Leave the spot free for another EV driver that might really need the charge.
 - h. [Campus] will reevaluate its EV charger parking policies periodically in order to determine if revisions to the fee structure or other rules are necessary. The EV charging rate will be adjusted to reflect actual annualized cost of electricity and operations and maintenance of the EV charging stations.
- 5.) When parking in the designated EV station, all regular parking rules must be followed.
 - 6.) EV charging station stalls may be closed for maintenance, construction, and special event parking without notice.
 - 7.) Authorized campus personnel may disconnect vehicles from the EV charging station at any time.
 - 8.) [Campus] assumes no responsibility or liability for damage to vehicles using the EV charging stations.