**Ask** the following questions to think about the level of service you want to provide for your drivers:

1. Do you want to own the chargers outright, or lease them from a turnkey provider?

* In California, owning the chargers outright will allow you to claim and trade Low Carbon Fuel Standard credits for the energy dispensed by the chargers, which can help reduce monthly expenses
* Contracting with a turnkey provider can help buy down upfront costs, but typically requires a contract that requires maintaining the chargers and network for a designated period of time

1. How many drivers & vehicles do you need to serve?

*(More Drivers: Upfront Costs =* ***+$$$****, Recurring costs =* ***+$$****)*

* Increasing the number of vehicles served will improve the overall utility of your installation, but will increase the likelihood of requiring upgrades to your existing electrical infrastructure and increase monthly energy costs.

1. How fast do your drivers need to charge?

*(Faster: Upfront Costs =* ***+$$$****, Recurring Costs =* ***+$$*** *to* ***+$$$$****)*

* + - Increasing the maximum power offered by each charger will allow drivers to charge their vehicles faster (each kW of power increase will increase the maximum rate of charge by around 3 miles per hour). However, if your site is on an electrical plan that imposes charges on demand (kW), unmanaged charging at high powers is likely to both significantly increase the cost of utility bills and require electrical infrastructure upgrades.

**Determine** the specific requirements that your chargers will need to meet:

1. Will your property need electrical upgrades to support EV charging installation?

*(Yes: Upfront Costs =* ***+$$*** *to* ***+$$$****)*

* An unmanaged, single Level 2 EVSE will require, at a minimum, an electrical panel with space for a 40A, 240V dedicated circuit. Standard Level 2 chargers operate at 30 or 40A
* Load management systems can maximize the number of charging ports that can be installed before major electrical upgrades are necessary

1. What kind of software functionality will you you want on your chargers?

*(****Monitoring or Access control:*** *Recurring costs =* ***+$*** *to* ***+$$****)*

* If your chargers offer software-controlled monitoring, logging, and/or access controls, enabling those will typically incur an additional monthly cost.

1. If your property is on a utility rate plan where costs vary by the time of consumption (time-of-use) or where demand above a threshold is billed at an additional rate

*(****Active management:*** *Upfront cost =* ***+$****, Recurring costs =* ***-$*** *to* ***-$$$$***

***Battery storage:*** *Upfront costs =* ***+$$$*** *to* ***+$$$$****)*

* Chargers with charge management capabilities represent small incremental upfront and recurring costs, but depending on your rate plan and vehicle charging schedules may be able to significantly reduce operational costs by avoiding demand charges or peak rate periods.
* More advanced setups, such as battery storage, represent a significant increase to upfront cost, but can “buffer” against usage during high-cost times.

Using the answers to the above…

1. Work with a contractor or electrician to estimate your upfront installation costs.
   * Compare the costs of electrical upgrades to load management systems that can reduce the needed upgrades.
2. Examine your estimated usage, electrical rate, and desired functionality to estimate your monthly operational costs.
3. (Optional) If you own the chargers and are in a state with a low carbon fuel standard: estimate your annual revenue from LCFS using the calculator linked here: https://ww2.arb.ca.gov/sites/default/files/2022-03/creditvaluecalculator.xlsx
4. Based on your usage case and the number of sessions you anticipate occurring on a monthly basis, determine if charging a session initiation fee is an appropriate mechanism for cost recovery, and the usage fee that would be required to achieve profitability.

* Public charging initiation fees typically range from $4-$8; however, imposing fees on MUD residents or high fees for public charging may harm station usage past a certain point.

*For example:*

*John owns a small MUD complex, and is planning for 4 new EVs that will plug in and charge overnight. Based on talking with the drivers, John estimates that the drivers will likely plug in as soon as they get back from their work days, and each car will require about 10kWh of energy each day.*

* *John’s electricians quote him $30,000 to install 4 new Level 2 chargers.*
* *John’s utility will charge him $0.21/kWh between 5PM and 9PM, but only $0.11 after 9PM.*
  + *At 40kWh/day or 1,200kWh/month, it will cost John $252 per month to charge vehicles during peak hours, but only $132 to charge vehicles after 9PM.*
* *John wants to charge the vehicles at the fastest rate possible and is looking at 19.2kW Level 2 chargers. However, if his maximum demand in a month exceeds 20kW, John’s utility will charge him $10 for each kW by which he exceeded 20kW.* 
  + *If John installs 19.2kW chargers and the sessions aren’t managed to keep the full charging system from exceeding 20kW, he runs the risk of potentially having all 4 vehicles plugged in and charging at full power simultaneously, which will exceed the 20kW cap by 56.8kW and, thus, cost him $568 per month.*

*Based on this information, John elects to install managed 19.2kW chargers, which will help to manage charging to both keep the chargers from dispensing energy during the high-cost period, and also intelligently limits the power levels on the chargers to stay below the 20kW cap. While this system costs him an additional $400 per month, by managing his charging, he is actually avoiding $820 in utility charges, improving his business case by $420/month.*

For more specific information on costing and real-world deployment examples, please see the Vehicle Chargin innovations case studies: [link] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_