Anticipate scaling needs

Though a fleet may initially demonstrate just a few electric trucks to determine fleet and operational suitability, it is critical to anticipate potential scaling needs. Your fleet could grow from 10 to 100 electric trucks sooner than you think.

Infrastructure costs can vary

Depending on fleet size, truck technology, charging equipment, access to the grid and power demand, infrastructure costs can vary with factors such as required utility upgrades, trenching and laying down conduit, and additional energy storage.

Work with your utility

Working with your utility from the onset of the planning process is critical to understand potential build out requirements, cost and development timelines.

Evaluate electric vehicle rates and potential demand charges

Working with your utility to evaluate electric vehicle rates and potential demand charges is important to avoiding high charging costs while operating an electric truck fleet.
**Engage Utilities**

- Evaluate existing infrastructure incentive programs.
- Determine EV rate structure.
- Plan charging times.
- Evaluate load sharing options.
- Understand utility application requirements.

**Technical Support**

- ID Electric Engineer (Internal or External).
- Evaluate energy options.
- Engage your utility and identify needed technical support.
- Confirm charging requirements, needs and costs from vehicle manufacturer and EVSE supplier.
- Identify energy requirements for various truck types.
- Determine fleet scaling potential.

**Deployment Timeline**

It is important that you factor in the time it will take to plan, develop and deploy your electric charging infrastructure. Full deployment can take up to 1–4 years based on fleet size and needed upgrades. The timeline below is based on deployment best practices.

**Planning:**
- Steps 1-5
  - 3 – 12 Months

**Development:**
- Electric Upgrades & Construction
  - 6 – 48 Months

**Deployment:**
- Integrating Electric Trucks
  - 1 - 3 Months

---

**Baseline Pathway (1-5 Trucks)**

1. **Consideration of Electric Truck Deployment**
   - Decide if fleet electrification will require electrical upgrades to your facility.
   - Engage your utility and identify needed technical support.
   - Confirm charging requirements, needs and costs from vehicle manufacturer and EVSE supplier.
   - Identify energy requirements for various truck types.
   - Determine fleet scaling potential.

2. **Additional Considerations for Building to Scale**
   - These additional considerations are aimed to help fleets that plan on deploying more than 5 trucks initially or in the future. Following these additional considerations will help your depot be built to scale for fleets larger than 5 trucks.

3. **Fleet Electrification**
   - Plan for phasing and timeline for deployment.
   - Understand truck duty cycles and how to integrate new vehicle into rotation.
   - Understand Projected energy needs (daily kWh, charging times, and speed).

4. **Depot Yard Analysis**
   - Evaluate site infrastructure and utility grid infrastructure needs.
   - Identify space availability.
   - Consider charging placement and electrical upgrades that allow for addition of electric trucks in the future.

5. **Decide Charging Specifications**
   - Identify charger type (AC or DC/Level 2 or 3).
   - Develop charging schedule (best window for charging).
   - Drawing of EVSE location.

6. **Development of Electric Service Plan**
   - Detail requested service voltage and load schedule.
   - Identify service drop and transformer locations.
   - Develop conceptual electric single line diagram.
   - Determine costs for infrastructure requirements & development.

---

**Additional Considerations for Building to Scale**

These additional considerations are aimed to help fleets that plan on deploying more than 5 trucks initially or in the future. Following these additional considerations will help your depot be built to scale for fleets larger than 5 trucks.

- Evaluate renewable energy options.
- Evaluate energy storage options.
- Evaluate electrical rates with your utility.

---

**Consignor Pathway**

- Decide if fleet electrification will require electrical upgrades to your facility.
- Engage your utility and identify needed technical support.
- Confirm charging requirements, needs and costs from vehicle manufacturer and EVSE supplier.
- Identify energy requirements for various truck types.
- Determine fleet scaling potential.

- Evaluate existing infrastructure incentive programs.
- Evaluate load sharing options.
- Determine EV rate structure.
- Plan charging times.
- Evaluate utility application requirements.

---

**Deployment Timeline**

- **Planning:**
  - Steps 1-5
  - 3 – 12 Months
- **Development:**
  - Electric Upgrades & Construction
  - 6 – 48 Months
- **Deployment:**
  - Integrating Electric Trucks
  - 1 - 3 Months

---

**Additional Considerations for Building to Scale**

- Evaluate renewable energy options.
- Evaluate energy storage options.
- Evaluate electrical rates with your utility.
Infrastructure Planning Check List

Before you get started with planning your electric charging infrastructure, make sure you are prepared to know the following and soon, you’ll be ready to go!

- Fleet Deployment Goals
- Project Team (Internal & External)
- Utility Point of Contact
- Staff Electrical Engineer (or External)
- Estimated Project Timeline
- Capital Budget for Project
- Available Battery Electric Truck Technologies
- Electric Vehicle Supply Equipment Options
- Smart Charging Software & Networking
- Available Incentive Programs
- Permitting Requirements
- Understanding of Contracting Process

Contact CALSTART for infrastructure planning assistance!

www.calstart.org