Introduction to Mobile Charging Solutions: Meet the Mobile Charging Manufacturers

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Program Manager

September 30, 2025

Agenda

- Introduction to MassCEC
- Introduction to the Medium and Heavy-Duty Mobile Charging Solutions Program
- What is mobile charging?
- Mobile charging use cases
- Mobile Charging Panel
  - Xos Trucks
  - Dannar
  - Luvante
- Question & Answer

MASSCEC'S WORK BY FOCUS AREA

ACCELERATING DECARBONIZATION

We contribute to meeting our state's ambitious climate goals by tackling barriers to widespread use of clean energy and climate technology in buildings, transportation, and the grid.

EMERGING CLIMATETECH

We help new climate-focused businesses grow faster by backing a vibrant community of researchers, startups, and established industry players - creating an ecosystem where they connect and thrive.

LARGE SCALE DEPLOYMENT: OFFSHORE ENERGY

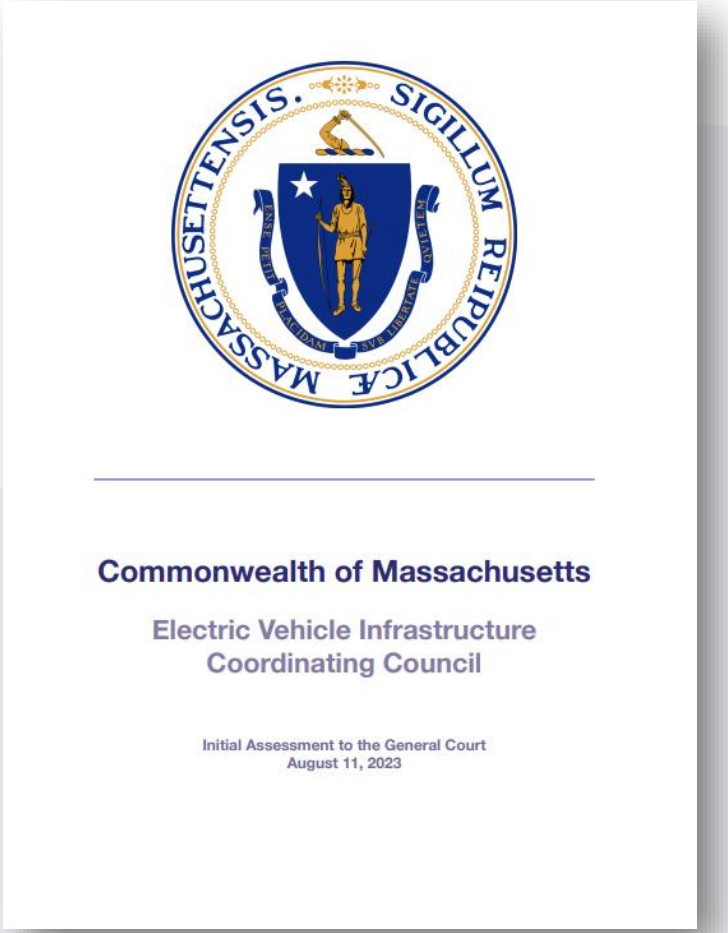
We're building a cutting-edge offshore energy industry, marshaling world-class ports while addressing supply chain and workforce development challenges.

CLEAN ENERGY & CLIMATE WORKFORCE DEVELOPMENT

We're growing a diverse and talented clean energy workforce by supporting a dynamic network of community-based organizations, labor, training providers, schools and employers committed to a sustainable future for all.

Electric Vehicle Infrastructure Coordinating Council (EVICC)

- In 2024, the EVICC awarded MassCEC $38M to increase access to charging infrastructure for various sectors
- EVICC identified **mobile charging** as a promising technology that can help fleet owners electrify without the need for immediate large-scale investment in charging infrastructure



Medium and Heavy-Duty (MHD) Mobile Charging Solutions Program

PROGRAM OVERVIEW

- The Program will accelerate the electrification of four MHD fleets (class 3-8) through the deployment of mobile charging stations

PROGRAM GOALS

- Increase access to Mobile Charging and reduce barriers to EV adoption for MHD fleet owners and operators in MA;
- Pilot innovative Mobile Charging stations that can be scaled across the Commonwealth; and
- Publish resources for MHD fleet owners and operators in MA to implement Mobile Charging solutions independently
  - Mobile Charging Technology Inventory

PROGRAM SERVICES

- **Mobile Charger Deployment**
  - Fund the deployment mobile charging stations for four participating fleets
- **Supplemental Funding**
  - Participating fleets are eligible for supplemental funds to procure MHD Zero Emission Vehicles (ZEVs)
- Charging stations and MHD ZEVs will be deployed on a rolling basis no later than February 2026
- The Program is fully enrolled

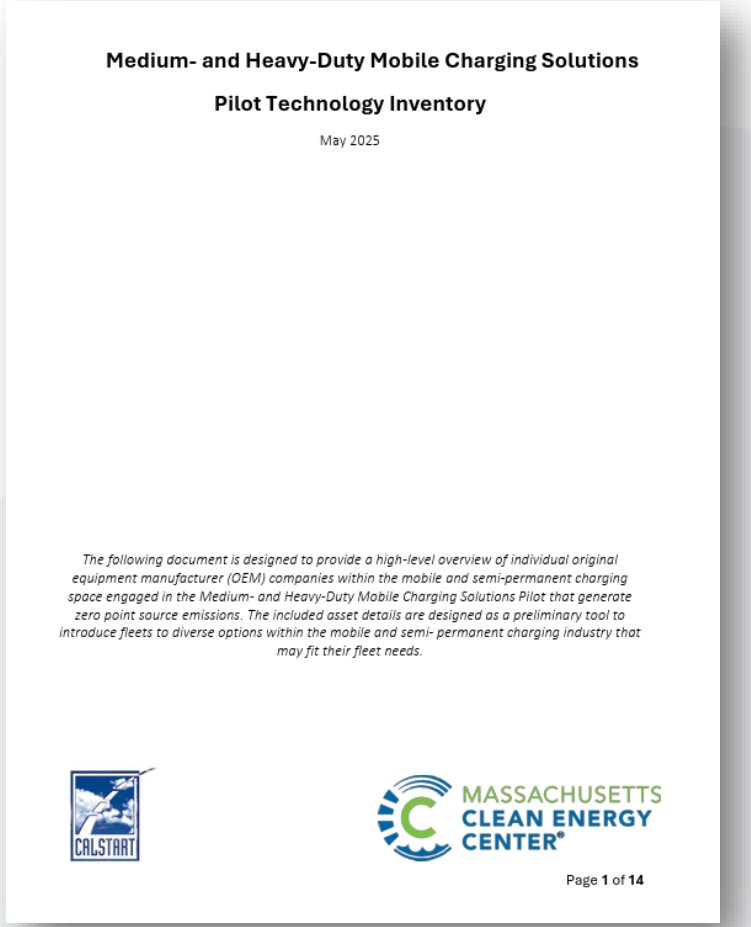
What is Mobile Charging?

- Mobile Charging refers to any type of semi-permanent, off-grid, and grid-flexible charging solution that can be disconnected and transported between locations

  - **Mobile Charging:** Charging units with smaller footprints – typically occupying a parking space - and can be disconnected and transported between EV charging locations

  - **Semi-Permanent Charging**: Charging solutions that require direct grid/generator connection. These units are not readily relocatable

  - **Charging-as-a-Service (CaaS)**: Delivers on-demand and scheduled charging solutions for fleets with the supply, installation, and management of mobile charging units operated by the Service company


Medium- and Heavy-Duty Mobile Charging Solutions

Pilot Technology Inventory

May 2025

The following document is designed to provide a high-level overview of individual original equipment manufacturer (OEM) companies within the mobile and semi-permanent charging space engaged in the Medium- and Heavy-Duty Mobile Charging Solutions Pilot that generate zero point source emissions. The included asset details are designed as a preliminary tool to introduce fleets to diverse options within the mobile and semi- permanent charging industry that may fit their fleet needs.

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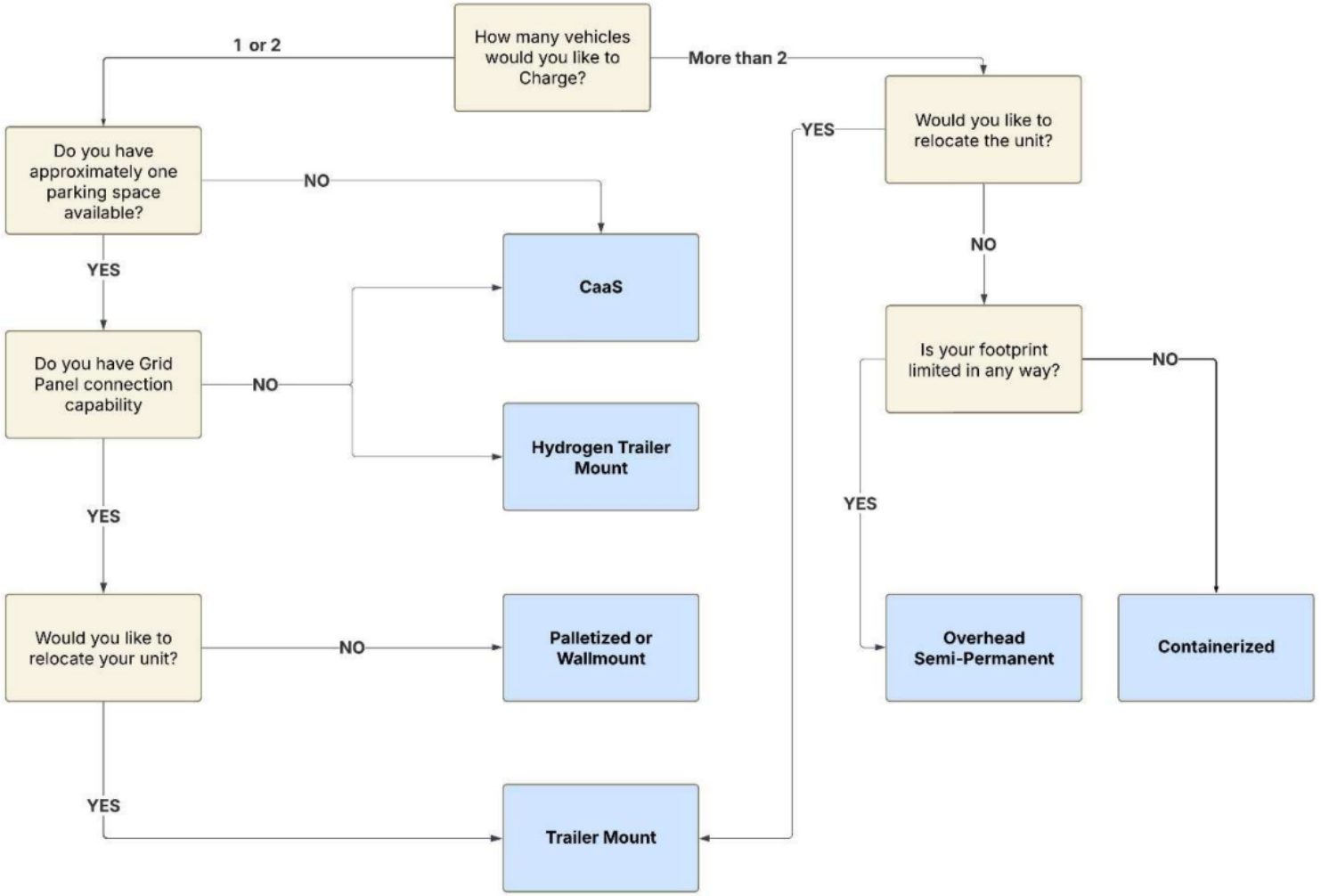
Mobile Charging Technology Inventory

What Barriers Does Mobile Charging Address?

- Based on previous EV and charging station deployment programs, MassCEC has identified specific problem areas that can be addressed by mobile charging
  - **Charging Station Right-Sizing** – Mobile and temporary charging can inform fleet owners about appropriate charging needs prior to permanent charging station installation
  - **Facility Upgrade and Infrastructure Installation Delays** – Mobile charging can provide a temporary solution to ensure that vehicles remain operational until charging stations are energized
  - **Facility Ownership Structures** – Mobile charging stations can provide temporary or longer-term solutions for fleets unable to install permanent infrastructure due to lease agreements
  - **Grid and/or Space Constraints** – Mobile charging units that don't require connection to the grid and have smaller footprints are preferable for fleets with grid and/or space constraints

Mobile Charging Solutions – Decision Making Support



The Mobile Charging Decision Tree is designed to support thinking through which charging formats may align with fleet needs.

Panelists

Aldan Shank
Director of Mobile Charging
Xos Trucks

Matt Meyer
Sales and Business Development
Dannar

Chris Angelou
CEO
Luvante

Xos | September 2025

How Mobile Charging Creates Flexibility for EV Fleets


ENABLING ELECTRIC FLEETS
RIGHT NOW
XOS
XOS
100%
100% BATTERY-ELECTRIC | www.xostrucks.com

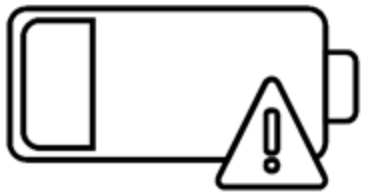
CHARGING INFRASTRUCTURE CHALLENGES

Costs

- Equipment
- Eng. / Project
- Peak demand

Time

- Up to 36 months
- Switchgear upgrades
- Permitting, supply chain, construction

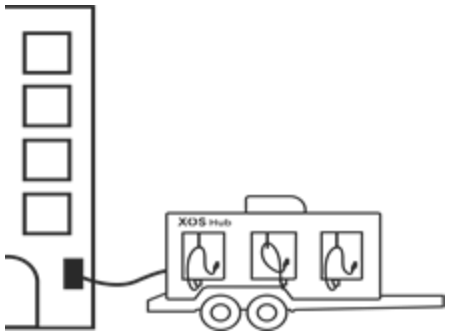


Flexibility

- Requires more current
- No energy storage
- Permanent

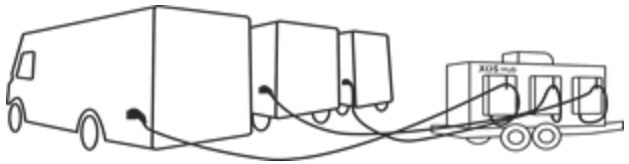

XOS Hub™
Mobile Charging Solution

OPTION 1: CHARGE AND TRANSPORT



1. Trickle Charge

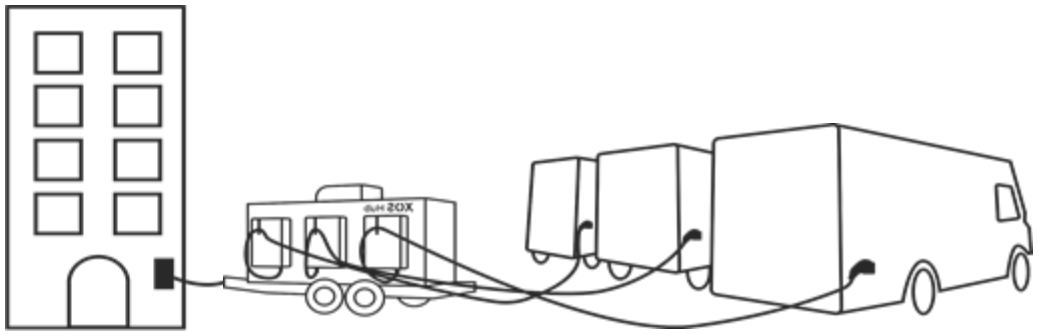
2. Deploy the Hub



3. Charge up to 4 EVs

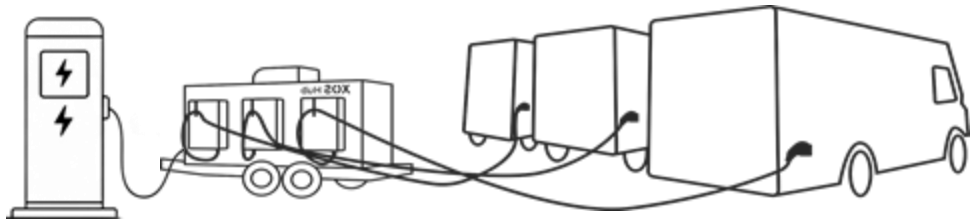
4. Remotely Monitor

OPTION 2: CHARGE IN PLACE



Charge from AC site power (480, 240, 208 V)

or



Charge from existing DC Fast Charger


XOS
/ ek-sō-s /
XOS Hub™
/ ek-sō-s /
SCAN ME
Mobile Charging Solution
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ELECTRIC

COMMON APPLICATIONS

Stopgap Charging

Property Constraints

Remote Power

Backup Power

Stationary Installations

Emergency Response

Scan for Xos Hub One-Pager

Contact: aldan.shank@xostrucks.com

UPCOMING MODELS

Xos Hub - EV Charging Station

- Q1 2026: Additional Variants
  - 210 kWh
  - 420 kWh
  - 630 kWh
  - Super charger (200 kW charge speed)

Xos MG-01 - Energy Storage System

- Q2 2026: Zero-emissions generator alternative
  - AC/DC import, AC export
  - Bi-directional

SPECIFICATIONS

Charge Heads: 4

Plug Type: CCS1 (NACS available)

Output Charge: up to 160 kW

Battery Capacity: 280 kWh
Units linkable for double, triple, etc. capacity

Dimensions & Curb Weight
135” x 40” x 62”
<10,000 lbs (including trailer)

Tow Vehicle
½ to ¾ Ton Pickup

Input Charge Options
480, 240, or 208 Vac 3-Phase or CCS1 DCFC
Optional add-on: 208/240V Single Phase

Connectivity
4G / WiFi

Estimated Recharge Time
3.5 hrs via 480 V @ 80 kW
2.5 hrs via 120 kW DCFC

Expected Charge Times from 20% to 90% SOC @ 150 kW output speed:
Tesla Model 3 *(50-82 kWh)* - 14 to 23 min
Ford F-150 Lightning *(98-131 kWh)* - 28 to 37 min
Chevy Bolt *(55 kW max input)* ~1 hour
140 kWh Xos Step Van - 39 min

POWER OUTPUT

Output based on configuration (kW per chargehead)*

*Assumes Hub battery is fully charged

Configuration	**Number of Connected Chargeheads**			
	1	2	3	4
Disconnected from Power Source	150	75	50	38
Connected to grid @ 100A 480Vac 3P	160	115	77	58
Connected to grid @ 100A 240Vac 3P	160	95	63	48
Connected to 120 kW DCFC	160	150	80	68

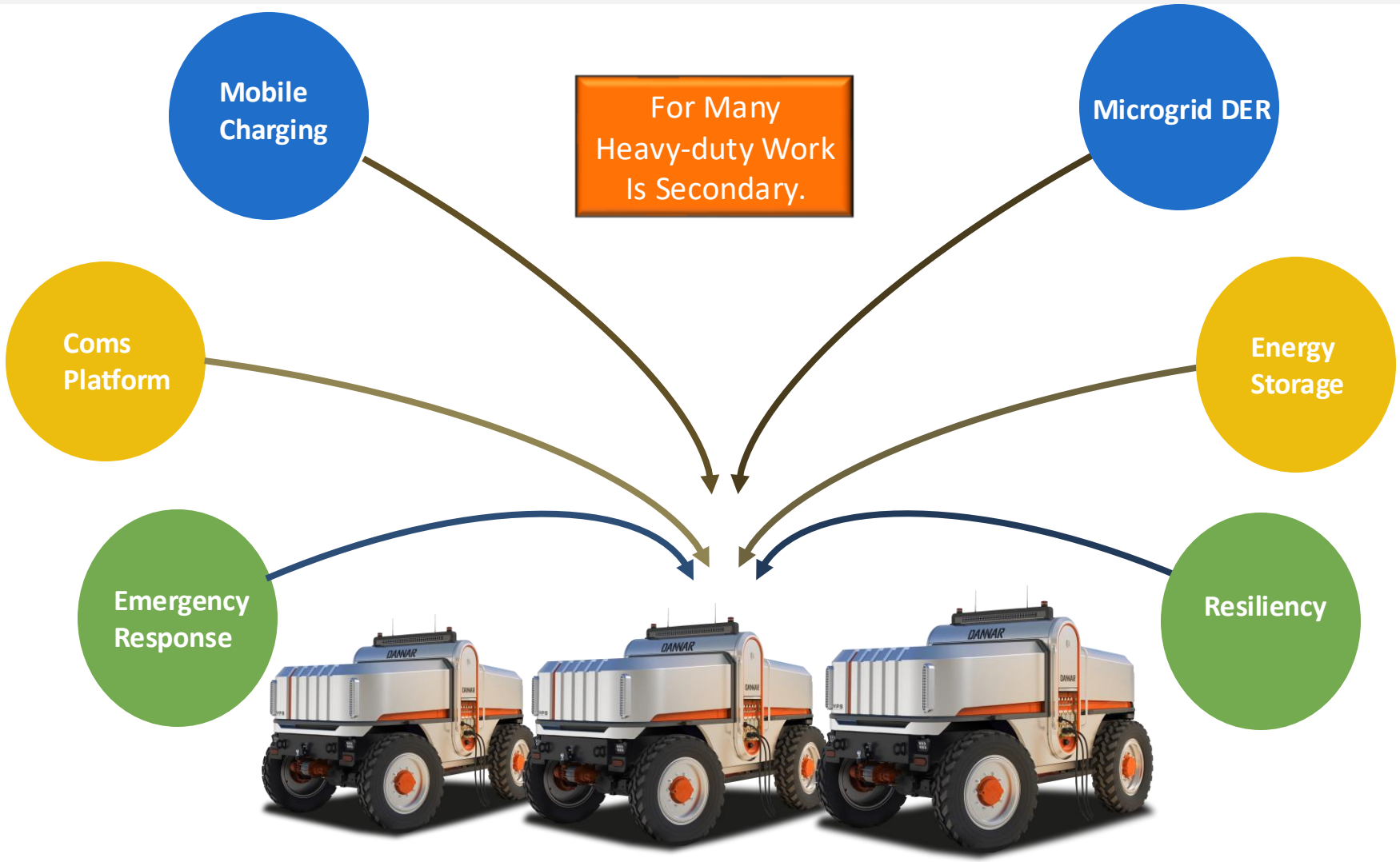
Introduction to DANNAR®

DANNAR
POWER TO TRANSFORM

Modular Work Platform: Configurable for the Day or Season

- 3-Point Hitch
- Universal Work Arms
- Open Deck Space
- Power to Pull

Energy First Solutions



Power to Transform

CAPACITY: up to 800 kWh of clean energy

MOBILITY: Drive power directly where needed

FLEXIBILITY: 120v/240v, add 480 3-P, DC Fast Charger

MICROGRID: effective DER with Renewables

Hydrogen Fuel Cell: upfit for Range Extension

RESILIENCY: Storm/Fire/Emergency

Use Case: Mobile Charging

- Capacity to 800kWh
- (2) Level 3 Fast Chargers (Pii), total ROC to 180kW
- Level 2 Charger
- Mobility
  - Save Infrastructure Cost & Timing
  - Augment Fixed Assets
  - Drive MPS where needed

Use Case: Jobsite Power & Work

POWER

- **Fast Charge** e-Equipment, Pickups
- Compressors, Pumps, Lights, Batteries
- Pair w/genset for **Energy Capture**

WORK

- Carry (mule), Lift, Material Handle
- Pull Equipment/Tools/Receptacles
- Scoop, Skim, Dig, Trench

Matt Meyer

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San Clemente, CA

Intro to DANNAR

Available on GSA/CMAS

Manufactured in USA

DANNAR®

POWER TO TRANSFORM

250kWh

375kWh

500kWh

LUVANTE

Sustainable Elevated Electric Vehicle Charging Infrastructure

September 2025

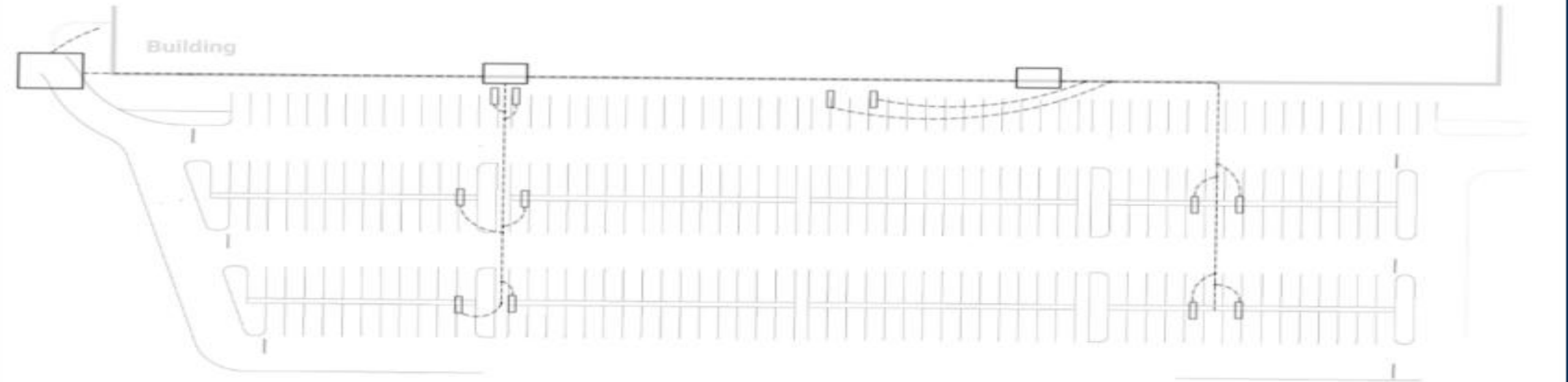
LUVANTE

Sustainable Elevated Electric Vehicle Charging Infrastructure

THE PROBLEM: IN GROUND INFRASTRUCTURE CONSTRUCTION

Conventional

Luvante



LUVANTE

Sustainable Elevated Electric Vehicle Charging Infrastructure

FLEET

Off-Grid

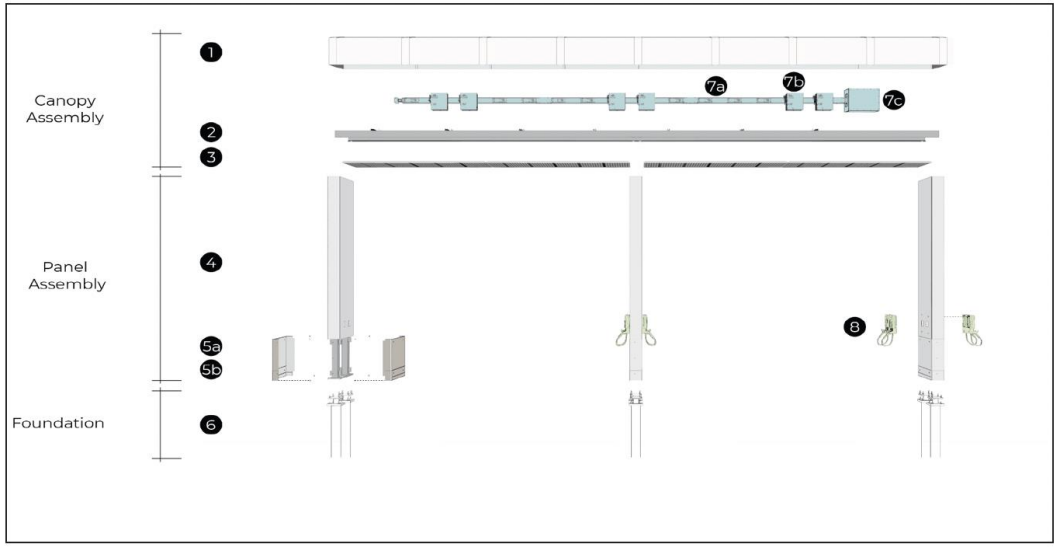
On-Grid

LUVANTE

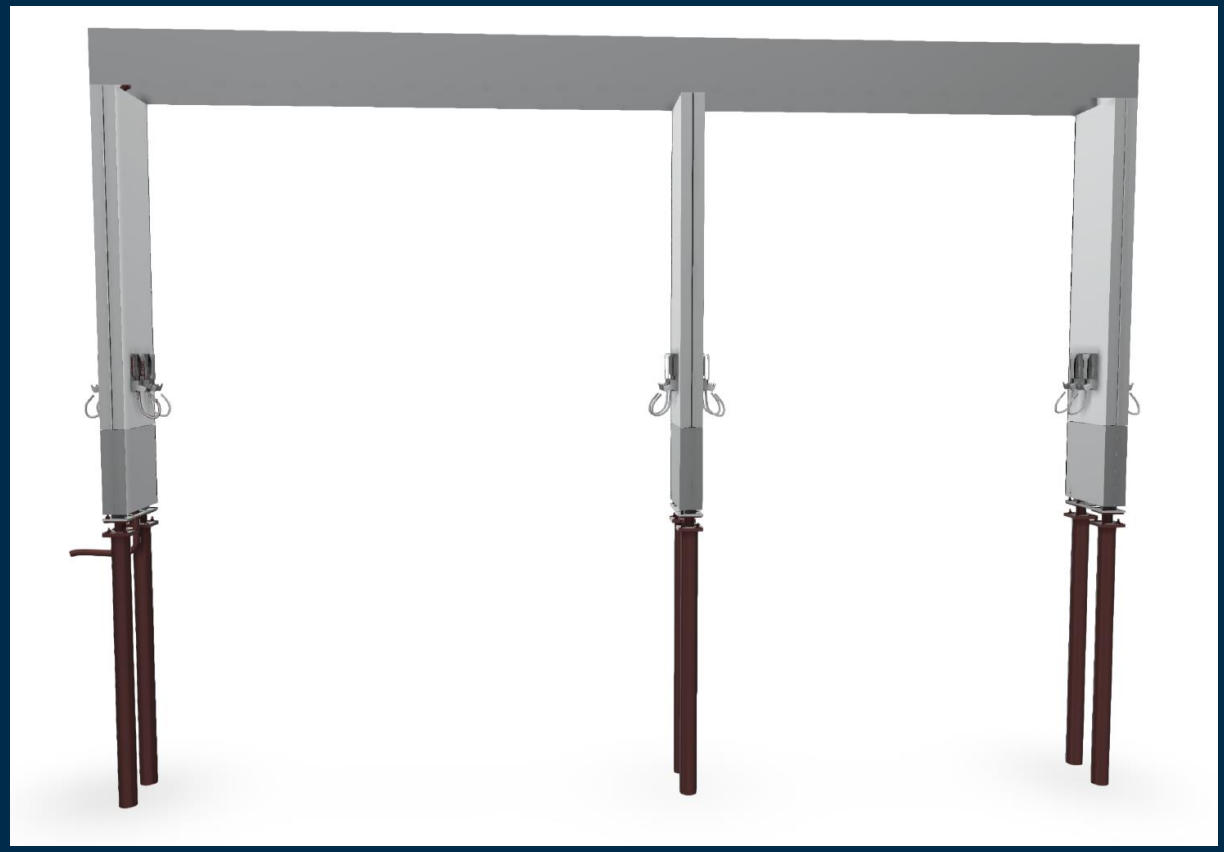
Sustainable Elevated Electric Vehicle Charging Infrastructure

STREET

THE SOLUTION



	Name		Description
1	Protective Cover		Aluminum Composite Panels, Lightweight Aluminum Skeleton, Self-Sealing Stainless Fasteners
2	Supporting Bridge		6 x13 Steel C-Channel, Unistrut
3	Operable Soffit		Perforated Steel Sheet, Lightweight Aluminum Frame, Stainless Fasteners, Continuous Hinge, Locking Hardware
4	Vertical Support Column		Structural Steel Frame, Fire Rated ACM Cover
5	Replaceable Crush Zone	5a Fixed Upper Section	Form Sheet Steel, 11-gauge, Shop Painted, Stainless Fasteners
		5b Adjustable Skirt	
6	Foundation		Hubbell-Chance Helical Screw Pile with Alignment Coupler OR concrete footing, precast or cast-in-place
7	Busway/Plug System	7a Busway	Siemens Sentron Busway System, Fusible Busplugs (1 per charger), End Tap Box
		7b Busplug	
		7c End Tap Box	
8	EV Charging Units		End-User Charging Stations



ON GRID – OFF GRID CAPABLE

VALUE PROPOSITION VS IN GROUND

~ 20% Less Cost

1. Reduced civil construction
2. Kit of parts
3. Less trenching
4. Easily add units \ chargers
5. Virtually no abandoned assets on relocation
6. Financing Options

~ 40% Faster

1. Modular - prefab
2. Kit of parts
3. Less trenching
4. Faster site approvals
5. Easily add units \ chargers

~90% Less Trenching

1. Above ground solution
2. Lower cost
3. Virtually eliminate lot disruption
4. Superior client satisfaction
5. Faster
6. Less carbon

~ 60% Less Carbon

1. Less trenching, less asphalt
2. Relocate - reuse
3. One stub up electrical supply
4. Less concrete

LUVANTE

THANK YOU!

CONTACT:

Chris Angelou, Partnerships

Morgan Allan, Sales

Todd Buchanan, Investment

Questions?

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Join us next week for part two!

OEM Inventory Part 2: October 8, 2025, 1-2 pm ET Register

Coming Soon

Mobile Charging Case Studies: November 6, 2025, 1-2pm ET Register

MassCEC MHD Mobile Charging Solutions Pilot: March 2026

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