Medium- and Heavy-Duty Mobile Charging Solutions

Pilot Technology Inventory

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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.

Contents

Introduction

Thank you for participating in the Massachusetts Clean Energy Center's (MassCEC) Medium and Heavy-Duty Mobile Charging Solutions Program (the "Program"). "Mobile Charging" refers to any type of semi-permanent, off-grid, and grid-flexible charging stations that can be disconnected and transported between locations and may be used for limited duration or for extended periods without the need to break ground or pursue permitting processes. Mobile Charging solutions have become increasingly appealing for fleets looking to evaluate and right size medium and heavy-duty (MHD) electric vehicles (EV) in alignment with their business cases. To adopt MHD EVs, fleet owners incur substantial charging infrastructure costs and face extended utility and hardware lead times which can be prohibitive to electrifying fleets. To address these complexities, the Program, administered by CALSTART, will fund the deployment of mobile charging solutions and provide supplemental incentives up to four (4) MHD zero emission (ZE) vehicles per fleet for participating fleets. This technology inventory is designed specifically for fleets participating in the MassCEC program. The inventory includes assets that are available with a generalized turnaround time of 4 to 8 weeks and are all legally operable within the state of Massachusetts. Each asset has been pre-screened to meet requirements for mobility, semi-permanence, and alignment with zero-emission goals, particularly focusing on reducing non-point source emissions.

Asset Type	***Definition***
Mobile	Mobile charging units offer a flexible and adaptable approach to charging EVs. These units have smaller footprints- typically occupying a parking space- and can be disconnected and transported between EV charging locations. They require a direct grid connection or connection to a generator in the case of hydrogen charging. Examples include trailer or direct wheel mount.
Semi-permanent	Semi-permanent units refer to charging solutions with a generally larger footprint that require direct grid/generator connection or may include a contained generator. The units are not readily relocatable and are often palletized or containerized. Semi-permanent solutions may be used in perpetuity.
Charging-as-a-Service (CaaS)	Charging-as-a-Service delivers on-demand and scheduled charging solutions for fleets with the supply, installation, and management of mobile charging units operated by the Service company. This model removes the burden of ownership and maintenance, enabling rapid deployment with ongoing operational support.

Acronyms	
CaaS	Charging as a Service
MHD	Medium- and Heavy-Duty
ZE	Zero-emission
EV	Electric vehicle
OEM	Original Equipment Manufacturer
EVSE	Electric Vehicle Supply Equipment
MassCEC	Massachusetts Clean Energy Center

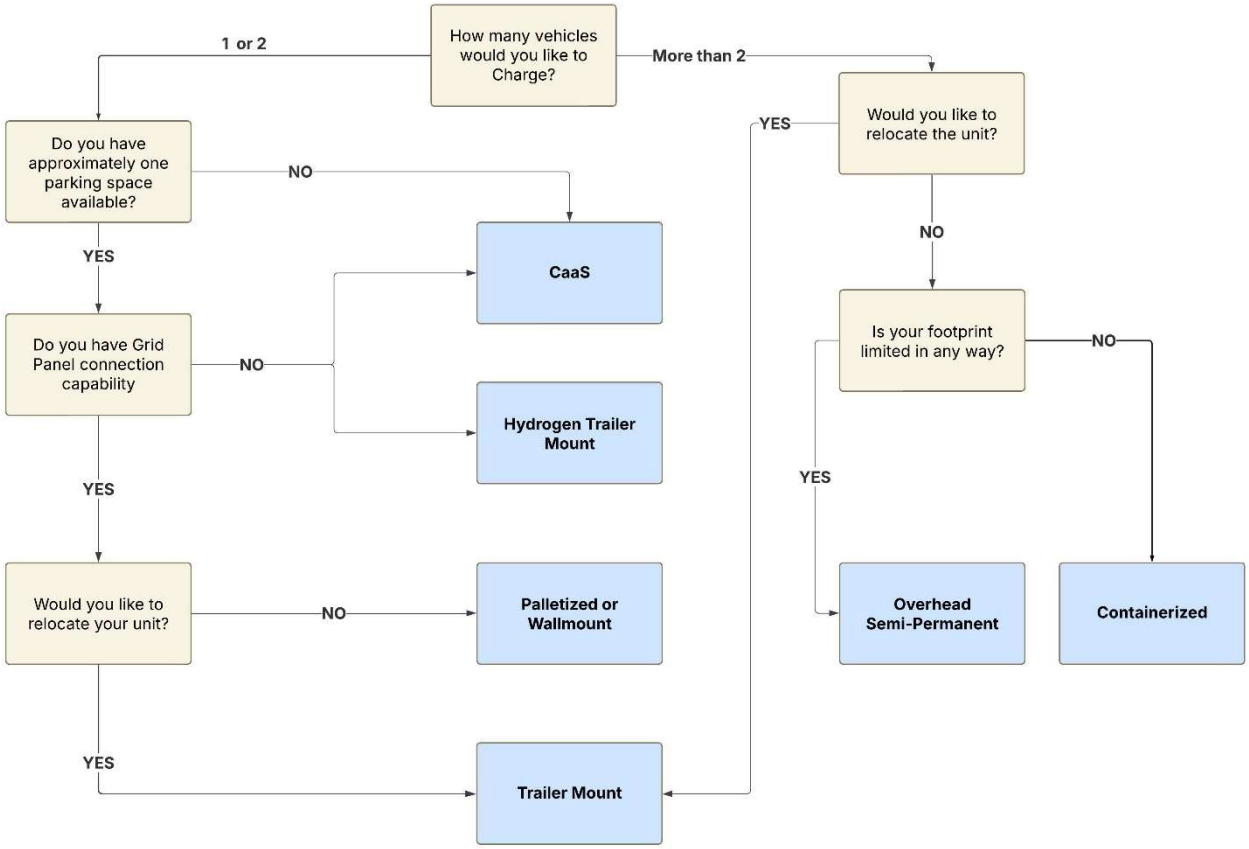
Key Terms and Concepts	*Definition*
Islanded	A localized electrical grid that operates independently from main electrical grid. Islanded systems offer resilience in outage situations.
Palletized	A semi-permanent charging unit that sits on a pallet; not readily relocatable.
Skid-Mounted	A semi-permanent or mobile charging unit contained on a single platform; can be added to wheels for relocation.
Wheel-Mounted	A reduced-footprint mobile-charging unit on wheels that can be charged and moved by hand (rolling) across a site.
Wall-Mounted	A semi-permanent unit mounted to the wall with direct grid access.
Trailer-Mounted	A mobile charging unit that sits on a trailer that can be charged in one location then relocated across site(s).
Location Dependent	Charging assets are powered offsite by the CaaS provider, making the energy source and emissions profile dependent on the provider's chosen charging location and utility fuel mix. Because these inputs vary and are not site-specific, energy sourcing cannot be predetermined.

About Hydrogen-powered Charging

Hydrogen fuel cells and fueling systems are powered by compressed or liquid hydrogen, often requiring specialized storage, handling, and delivery infrastructure rather than direct grid connection. Hydrogen fueling systems include a generator to produce electricity which is then distributed through connected charging apparatus. The State of Massachusetts contains multiple commercial suppliers including but not limited to; American Gas Products (AGP), Middlesex Gasses, Igo's Welding Supply. Other fuel suppliers, such as Air Products, deliver to Massachusetts. Hydrogen costs vary based on multiple input factors, including costs for generating equipment at a station and delivery, and costs approximately $5-$15 per kg. Generating electricity from hydrogen using stationary fuel cells can be up to 20% more energy-efficient than using hydrogen in fuel cell vehicles, due to reduced conversion losses and fewer mobility-related constraints.

Decision Making Support

Identifying the best-fit mobile or semi-permanent solution for your fleet can be challenging due to the variety in fleet facility footprints, existing infrastructure considerations, and diversity across charging provider technologies and platforms, amongst other considerations. The following decision tree is designed to support thinking through which charging formats may align with fleet needs. This decision tree does not necessarily capture all fleet scenarios and should *only be used as a preliminary exercise*.



Technology Inventory

Timeline quotes and pricing quotes are specific to this pilot project and may not apply to other acquisition scenarios. Pricing is specific to this pilot project and any post-pilot contracting must be coordinated independently between the Fleet and OEM. All dollar values and timelines are approximations and subject to market fluctuations.

This is not an exhaustive list of all OEMs available on the market, nor is inclusion of an OEM or asset a formal endorsement by MassCEC or CALSTART. OEM order is alphabetical.

DANNAR

Mobile Power Station®

https://www.dannar.us.com/

DD DANNAR, LLC, ("DANNAR") based in Muncie, Indiana, has been in operation for 20 years, with their Mobile Power Station® (MPS) introduced in 2017.

The Mobile Power Station® features a drivable (both person-seated and remote-control capability) chassis and has swappable, brand agnostic attachment capabilities. Given its diverse use cases, the Mobile Power Station's utilization is largely seen at construction, air and seaports, and military sites. The Dannar MPS unit is unique within the field of mobile charging, as it is a multi-purpose tool in addition to battery storage. The DANNAR MPS unit would benefit scenarios such as construction site or port site where the MPS may be moved around a large, contained area to power other site-constrained EVs.

Sample Use Case: A fleet based at a large-scale shipping facility currently charges medium-duty box trucks and plans to expand as operations grow. With strong utility partnerships and access to permanent infrastructure, they're focused on maximizing flexible, creative solutions to support peak activity. During periods of high throughput, the DANNAR Mobile Power Station is configured as a battery-powered forklift to assist with material handling, while during slower periods, it transitions to serve as a mobile EV charger, supporting vehicles and equipment across the facility.

Unit Name	***Mobile Power Station® (MPS) 4.0***
Unit Type	Chassis Mount
Fuel Type(s)	Electrical Grid
Energy Capacity	Up to 500kWh
Charge Rate	L3/DC capable, L2 standard
Ports	2
Dimensions	15' L × 8.5' W × 8.25' H
Pricing	$550,000 – 600,000 max specs
Deployment Timeline	8-12 weeks
Ownership Model	Lease or Purchase

Electric Fish

350squared™

https://electricfish.co/

Electric Fish, based out of California, United States, began piloting its 350squared™ unit in 2021. Electric Fish's Units are made in the United States in Electric Fish's San Carlos, CA and Detroit, MI's facilities. 350squared's small footprint enables flexible "plug and play" style utilization through 3-phase AC input as well as offers simple 208V grid connection for grid-constrained sites. The palletized solution can power two vehicles simultaneously, with the narrow, vertical footprint offers flexibility in siting for space-constrained areas. Additionally, the unit include battery storage for up to 48 hours of backup charging capability.

Sample Use Case: A local business has a small fleet of two electric vehicles that perform multiple deliveries each day. The 350squared charges their vehicles up to 200 miles in under 10 minutes, enabling rapid turn around and minimized downtime between trips.

Unit Name	***350squared™ Generation Dory 2.0***
Unit Type	Palletized
Fuel Type(s)	Electrical Grid
Energy Capacity	350 kWh
Charge Rate	Up to 350 kW DCFC at 920V/600A
Ports	2
Dimensions	8.2' L x 4.4' W x 7.45' H
Pricing	$200,000
Deployment Timeline	4 weeks
Ownership Model	Lease or Purchase

InCharge Energy

ICE Configurations, Mobile Cart, Wallbox

https://inchargeus.com/

InCharge Energy provides versatile, small footprint grid-connected EV charging solutions. Their solutions include wall-mount, skid-mount, and palletized systems with narrow, vertical footprints, as well as compact, cart-wheeled units ranging for quick and simple relocation around facilities. InCharge performs interoperability testing with multiple vehicle OEMs and accommodates diverse use cases. For fleets with Build America, Buy America purchase requirement, InCharge's assets are BABA compliant.

Sample Use Case: A medium duty fleet is looking to move locations in a few months. They have grid capacity, but no charging infrastructure and must take delivery of their new electric vehicles immediately. The fleet has a small area in which to bring in semi-permanent charging, so they are looking for a wall mount option. The ICE configurations support rapid deployment and connect to existing infrastructure and can be relocated while infrastructure installation is completed.

Unit Name	***Mobile Cart 2.0*** *[ICE-30; ICE-60]*	***Wallbox*** *[ICE-30; ICE-60]*	***ICE-120; ICE-180***
Unit Type	Wheel Mount	Wall Mount	Skid Mount
Fuel Type(s)	Electrical Grid	Electrical Grid	Electrical Grid
Energy Capacity	Direct panel connect: 480V, 3-Phase, 200A	Direct panel connect: 480V, 3-Phase, 200A	Direct panel connect: 480V, 3-Phase, 200A
Charge Rate	30kW; 60kW DCFC	30kW; 60kW DCFC	120kW;180kW DFC
Ports	2	2	2
Dimensions	S: 31"L x 26.5" W x 45.5" H, L; 48" L x 30" W x 45.5" H	9.45" L x 27.75" W x 43.31" H	29.5" L x 27.5" W x 68.9" H
Pricing	$4,000; $6,500	$17, 244; $32,315	$41,394; $54,044
Deployment Timeline	6 weeks	6 weeks	6 weeks
Ownership Model	Lease to Own or Purchase	Lease to Own or Purchase	Lease to Own or Purchase

Luvante

Elevated Charging Infrastructure

Reading, Massachusetts based Luvante offers a unique overhead solution for meeting mobile and semi-permanent charging challenges through their Sustainable Elevated Electric Vehicle Charging Infrastructure Solution. This ground-elevated solution utilizes direct grid connection through utility splits, with infrastructure supported by ground-connected (helical) posts. The standard unit is ground-connected at either end of 4 parking spaces for their standard unit, with posts for every two spaces, providing charging for up to 4 vehicles per pillar, as visualized in the OEM-generated image. Pillars can be arranged nose to nose or "street" style for corridor spaces. The overhead infrastructure includes built in soffit lighting and supporting communications/security installations and are wrappable to meet desired brand aesthetics.

Sample Use Case: A commercial fleet of four medium and heavy-duty vehicles, soon to expand to 8, need to charge in a parking lot on the public-facing side of their business. They do not want to utilize designated spaces that would take away from customer parking. With more vehicles incoming, the fleet would like to rapidly scale up charging capabilities.

Unit Name	***Luvante Elevated Charging Infrastructure***
Unit Type	Elevated Semi-Permanent to Permanent
Fuel Type	Electrical – Direct Grid Connect or External Battery Connect
Capacity	1600 Amps max current
Charge Rate	60kW through busway; L2/DCFC Swappable; Can support high power through dispensers
Ports	4-12 standard, scalable upwards [2 pillar minimum]
Dimensions	10 to 15' vertical clearance
Pricing	$60,000
Deployment Timeline	4-6 weeks (including 2-3 day install)
Ownership Model	Purchase, Lease, CaaS

Nuvera

HydroCharge™

https://www.nuvera.com/

The Nuvera HydroCharge™ is a hydrogen fuel cell powered mobile generator and charger pairing. Headquartered in Massachusetts, Nuvera Fuel Cell systems have powered a diverse array of zero emission vehicles in the ZE ecosystem, ranging from transit buses to maritime vehicles. The HydroCharge unit is fully customizable and may also be grid connected at 208V or 480V 3-phase. While not project required, the HydroCharge™ is Buy America (BABA) Compliant should fleets be required to comply for any potential purchases. Nuvera will coordinate the acquisition, delivery, and loading of fuel to the site.

Sample Use Case: A fleet needs to charge their new electric vehicle in a property where there is no access to the electric grid as well as substantial vehicle traffic. Though the property is large, any charging asset should occupy as little space as possible to minimize disruption to other vehicle routing. The fleet will need to regularly relocate their charging asset to accommodate movement and siting of the vehicle traffic.

Unit Name	***HydroCharge™ Mobile EV Charger + Genset***
Unit Type	Trailer Mount
Fuel Type(s)	Hydrogen
Energy Capacity	15 kg hydrogen (500 kWh gross)
Charge Rate	50kW Level 3 DC Fast Charger AC Power Output: 10kW at 120/240VAC
Ports	1 EV charging port, 1 or more AC outlets
Dimensions	16.5’ L x 7.75’ W x 9’ H
Pricing	$300,000; $13,500; $13,000; $30,000
Deployment Timeline	4-6 Weeks
Ownership Model	Purchase (preferred), Rental, Lease to Own, CaaS

SparkCharge

Mobile Battery Charger and Off-Grid Power Hub

SparkCharge | Commercial Fleet EV Charging Service

Boston-based SparkCharge offers a mobile trailer plus Charging-as-a-Service (CaaS) solution designed to meet fleet needs through scalable service levels. Their portable units support *three* operational models: a full-service option with on-site support, a self-service model with remote monitoring and unit swap-outs, and a hybrid approach that supplements limited on-site power with battery "boosts" for peak shaving. For larger deployments, SparkCharge supports integration with customer-owned charging stations and manages the transition from mobile units to permanent grid-connected infrastructure. The Off Grid Power Hub utilizes hydrogen fuel, with fuel refill by SparkCharge.

Sample Use Case: A fleet of 12 vehicles' facility is undergoing permanent infrastructure upgrades. They will need to relocate their semi-permanent charging asset as construction crosses the site. Due to construction, there is no grid access.

Unit Name	***Mobile Battery Charger***	***Off Grid Power Hub***
Unit Type	Trailer Mount	Trailer Mount
Fuel Type(s)	Grid, Solar, L1/DCFC	Hydrogen
Energy Capacity	300/500 kW	Up to 24,000 kWh
Charge Rate	80-125kW DCFC	180-500kW
Ports	Up to 4	4-20
Dimensions	20' L x 8.5' W x 7' H	18'L x 8.6'W x 10.8' H
Pricing	Up to $0.52 per kWh; $150,000 to $250,000	
Deployment Timeline	Approx. 7 days	Approx. 7 days
Ownership Model	Per kWh, Lease, Purchase	Per kWh, Lease, Purchase

Verne

Hydrogen Mobile Charger

https://www.verneh2.com/

The Verne hydrogen-powered mobile charger utilizes proprietary, state of the art patent-pending technology for cryo-compressed storage which minimizes space required and associated transportation costs. Their energy as a service model includes compressed hydrogen fuel, generator, and charger assets. Founded in 2020, Verne has received funding from institutions including Stanford, MIT, Caltech the National Science Foundation, and the Department of Energy's ARPA-E research funding, as well as private industry sources such as Amazon and Caterpillar, supporting its development of hydrogen storage solutions. Verne will coordinate the acquisition, delivery, and loading of fuel to the site.

Sample Use Case: A small fleet of 6 vehicles has access to the electrical grid but isn't able to utilize grid connectivity due to capacity limitations. The vehicles operate at different duty cycles, so the fleet is looking for a flexible charging option. They are still interested in zero-point source emissions, so they would like to utilize hydrogen as an option. Compared to other hydrogen options, the Verne solution's 4 ports support charging multiple vehicles at a time, as well as through right sizing charging times and durations without having to add an additional charging unit.

Unit Name	***Hydrogen Mobile Charger***
Unit Type	Trailer Mount
Fuel Type(s)	Hydrogen
Energy Capacity	2MWh per fill
Charge Rate	50 kW L3/DCFC
Ports	Up to 4 ports
Dimensions	238" L x 167" W x 104" H
Pricing	Charging electricity cost: $0.32 /kWh; Monthly equipment lease cost: $12,000
Deployment Timeline	4-12 weeks
Ownership Model	Lease

Xos

Xos Hub™

https://www.xostrucks.com/

The Xos Hub™ is charged through the electrical grid and can be either palletized or mounted on a trailer for easy relocation and convenient siting. The Hub™ is designed to fit within a standard parking space. In California's HVIP Mobile Charging Pilot, the Xos Hub™ has successfully demonstrated ongoing usage across medium and heavy-duty fleets facing electrification delays. Along with their Hub units, Xos is established within the zero-emission transportation industry as a manufacturer of step vans, medium-duty, and heavy-duty vehicles.

Sample Use Case: A medium duty fleet with several box trucks needs electric charging at a warehouse facility where they have grid capacity but are waiting for permanent infrastructure. They are in the process of getting electrical infrastructure installed across several other sites and would like the ability to relocate their charging asset as construction is completed across the different timelines.

Unit Name	***Xos Hub™***	
Unit Type	Trailer Mount	Palletized
Fuel Type	Grid input to battery storage; 480V 3 phase, 100Amp ideal; OR DCFC via CCS1	Grid input to battery storage; 480V 3 phase, 100Amp ideal; OR DCFC via CCS1
Energy Capacity	280 kWh	280 kWh
Charge Rate	Up to 180kW (480VAC), Up to 150 kW (DCFC)	Up to 180kW (480VAC), Up to 150 kW (DCFC);
Ports	2-4 CCSI [2 @ 32' cable + 2 @23' cable]	2-4 CCSI [2 @ 32' cable + 2 @23' cable]
Dimensions	15.5' L x 6.29' W x 6.67' H	11.25' L x 3.33' W x 5.17' H
Pricing	$228,000	$218,000
Deployment Timeline	8-10 weeks	8-10 weeks
Ownership Model	Purchase, Lease	Purchase, Lease

Charging Asset Spec Sheets Note

OEMs regularly update and release spec sheets detailing asset configurations.

Please reference OEM websites for most up to date versions of spec sheets.