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TCO ANALYSIS / CHARGE REQUIREMENT ANALYSIS / V2G FEASIBILITY AN
ROUTE ANALYSIS / TCO ANALYSIS / CHARGE REQUIREMENT ANALYSIS / V2G
STRATEGIES / SMART INFRASTRUCTURE CONSULTING / CHARGING HARDW
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Powering Jouley

Charging Infrastructure Guide – 2024/25



Infrastructure Consulting

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Charging Infrastructure Planning Checklist

Step	Key Considerations	Logic
Pre-Planning	<ul style="list-style-type: none">• Timeline and buffer estimation	Early planning ensures sufficient time for infrastructure development and avoids delays.
Site Selection	<ul style="list-style-type: none">• New site vs. repurposing• Consolidation• Deadhead mile optimization	Evaluating these factors helps optimize charging efficiency, reduce operational costs, and minimize energy consumption.
Route Analysis	<ul style="list-style-type: none">• Bus route analysis• Outdoor temperature impact• Topography assessment• Traffic pattern analysis	Understanding bus routes, temperature effects, terrain, and traffic helps identify suitable charging locations and plan charging schedules.
Power Estimation	<ul style="list-style-type: none">• Battery capacity• Peak pricing analysis	Accurate power estimation ensures sufficient capacity and helps minimize energy costs by optimizing charging times.
Utility Engagement	<ul style="list-style-type: none">• Early contact• Power availability	Early engagement with utilities ensures smooth interconnection, approval, and permit processes.
Current Footprint	<ul style="list-style-type: none">• Site assessment• Charging cycle planning• Utility cost profile calculation	Evaluating the suitability of existing sites, planning charging cycles, and analyzing utility costs helps optimize infrastructure utilization and minimize operational expenses.
Load Management	<ul style="list-style-type: none">• Energy storage• Solar options• Charging schedule optimization• Microgrid exploration	Implementing load management strategies helps reduce peak demand charges, optimize energy consumption, and improve grid stability.
Construction Schedule	<ul style="list-style-type: none">* Alignment with bus delivery	Coordinating construction with bus delivery ensures timely infrastructure availability and reduces operational disruptions.
Financial Models	<ul style="list-style-type: none">• OPEX vs. CAPEX• Turnkey solutions	Analyzing financial models helps make informed decisions about infrastructure investment and management.
RFP Operating Period	<ul style="list-style-type: none">• Extended period for better investment	A longer RFP period allows for more competitive bidding and potentially lower costs.
Service Level Agreement	<ul style="list-style-type: none">• Uptime requirements• Vendor accountability	A well-defined SLA ensures high charger uptime and holds vendors accountable for performance.

Charger OEMs/EVSE Providers*

***Disclaimer:**

The chargers listed in this catalog have been vetted by Thomas Built Buses for compatibility. Selecting a charger not included may result in interoperability or performance challenges. For assistance, please contact the TBB Infrastructure Team.



E-mobility



COMPACT

DC Wallbox

24 kW

Flexible, Safe and Compact DC Charging

- Wall- and pedestal-mounted
- Evaluated and tested to the highest standards
- Broad range of connectivity options to control, monitor and maintain

**Contact your TBB
eConsultant to learn more
about how to purchase and
special TBB programs/rates.**



ALL-IN-ONE

T184

up to 180 kW

All-in-One Fast Charging at a Small Footprint

- Power sharing across 2 DC outlets to charge two vehicles
- All-weather construction for all operational environments
- NTEP/CTEP and ENERGY STAR certified, meets NEVI requirements
- Also available as T124 with up to 120 kW



SPLIT-SYSTEM

HVC360

360 kW

Flexibility and Scalability for Electric Fleet Operations

- Designed for heavy-duty applications with continuous power output up to 360 kW
- Efficient power delivery on compact footprint for reduced fleet TCO
- Flexible configuration enables multiple charging scenarios
- Supply up to 4 dispensers with only one power cabinet



HYC_50

50kW (2 x 25kW) DC-charging station for EVs

hypercharger
by alpitronic

Key Features

Contact your TBB
eConsultant to learn more
about how to purchase and
special TBB programs/rates.



- First 50kW wall mountable fast charger on market
- 50kW charging on one vehicle and 2 x 25kW parallel charging possible
- Continuous 150A charging current
- Best in class efficiency > 97% (*)
- In- and outdoor installation
- Ultra low noise level < 50dBA (*)

(*) preliminary data to be verified

 **alpitronic**[®]

AUTEL[®]

MAXICHARGER™

MEET THE EV FAMILY TREE

YOUR ONE-STOP EV CHARGING SOLUTION



HOME EV CHARGERS

COMMERCIAL EV CHARGERS

SEE THE FULL PRODUCT LINE



MaxiCharger DC Compact Pedestal

Big Power & Value In A Compact Package

Design Optimized For Any Location

[Learn More](#)

Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.

MaxiCharger DC Fast 60kW-240kW with 20kW Increments

Level 3 Electric Vehicle Charger

[Discover More](#)





Contact your TBB
eConsultant to learn more
about how to purchase and
special TBB programs/rates.



Charging Output
25 kW

Connector Type
CCS1, CHAdeMO

Mechanical Protection
NEMA 3R, IK10

Network Connectivity
Ethernet, Cellular



DC Wallbox Charger / DC Wallbox 25kW

- RFID card reader for user authentication
- Network connectivity (OCPP 1.5S and 1.6J)
- NEMA 3R protection and IK10 vandal-proof casing
- **Make sure to order model with voltage output through 1000 Vdc**



Charging Output
50 / 100 kW

Connector Type
CCS 1, CHAdeMO

Mechanical Protection
NEMA 3R / IK10

Network Connectivity
**Ethernet, Cellular
WLAN**



City Charger 100kW

- 50 / 100 kW fast charging with $\geq 94\%$ efficiency
- All-weather outdoor design for high environmental adaptability
- Complete system integration for better charging services

This is Detroit® eFill



+++ Detroit® eFill Portfolio



30 kW

1.4 MW



Wall Box (NBw30)

60kW All-in-One (NB060)

Compact Dispenser (NBDI200/NBDI300)

Power Center 180 (NBi180)

Power Station (NBSK)

120kW All-in-One (NB120)

Standard Dispenser (NBDC200/NBDC300)

Power Center 360 (NBi360)

240kW All-in-One (NB240)

High Power Dispenser (NBDC500)

400kW All-in-One (NB400)
Available Q2 2025

Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.



Powered by Detroit

Detroit is an established brand in the commercial vehicle industry with an 85-year history. In 2021, Detroit expanded its product portfolio to include Zero Emission Vehicle solutions, bringing its strong reputation of reliability, innovation, and maximum efficiency to ePowertrains, eConsulting services, and eFill chargers. Detroit is a brand that fleets rely on for expertise and integration – when you demand it all, Demand Detroit.



30kW DCFC Wall Mounted



Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.

EverCharge Info:

[EverCharge Solutions](#)

As a fully-integrated EV charging original equipment manufacturer (OEM), we specialize in EV management platforms with dynamic, real-time, intelligent power management to minimize infrastructure requirements while maximizing the number of EV connectors .

- Nationwide Service
- UL Certification
- Fleet Management Tools
- Usage Analytics and Reporting
- System Prioritization and Demand Response
- Commercial Fleet Charging Made Easy

Other high-speed DC charging solutions:



240kW Power Cabinet

- Up to 2 dispensers w/ 2 CCS1 cables charging 4 buses @60kW simultaneously
- Dynamic load distribution
- Certifications: UL, cUL, OpenADR, Energy Star

Complete charging solutions

Get your electric fleets on the move efficiently with Heliox DC charging solutions. We would like to be your partner of choice, today and tomorrow.

[Discover chargers](#)

[Download product catalog](#)



Heliox 30 kW

Versatile and user-friendly by design, the Heliox 30 kW was built to meet the diverse needs of all types of EV fleets and grow alongside them.

[Learn more >](#)



Mobile 50 kW

Heliox's most adaptative and compact solution. The Heliox Mobile 50 kW charger is a versatile, user-friendly solution suitable for a wide range of vehicles.

[Learn more >](#)



Heliox 60 kW

The Heliox 60 kW charger is a versatile, user-friendly solution suitable for a wide range of electric vehicles, including cars, buses, and trucks.

[Learn more >](#)



Flex 180 kW

Heliox' most versatile DC charging solution. Flexible in power range and configuration; mix and match to create your optimal charge system design.

[Learn more >](#)



Flex 360 kW

The Heliox Flex 360 kW allows 3 vehicles to be charged simultaneously, keeping your electric fleet ready at all times.

[Learn more >](#)



Flex 250 A Dispenser

The Heliox Flex 250A dispenser column is a simple and robust design that is compatible with all Flex power cabinets.

[Learn more >](#)

V2X Charger OEMs/EVSE Providers

(Providers with both V2X and
non-V2X options available)

RES-DCVC60/125-480 EV DC FAST CHARGING POWER CONVERSION SYSTEM (PCS)

Medium- and Heavy-Duty Electric Vehicles (EVs) Require More From Their Chargers

Today's medium- and heavy-duty (M/HD) EVs can have storage capacities from 150kWh to over 600kWh. These vehicles need charging systems that have been designed to continuously supply high rates of clean, reliable DC power (60kW to 125kW) on a continuous basis. At BorgWarner, we are experts in the design of high-power electrical systems with exceptional reliability and maintainability for the most demanding applications. We have deployed thousands of our units which are proudly designed and manufactured in the USA, with near-zero failure rates.

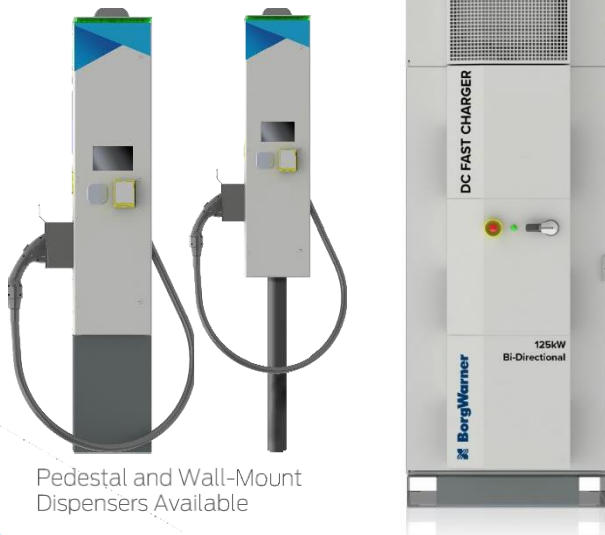
Solutions That Are Expert-Engineered for V2X-Capable EV Charging

The utility grid's resilience is constantly being challenged, from both weather events and peak loads. Vehicle to grid (V2G) provides the ability to offset peak loads by offering/selling excess vehicle power back to the grid, reducing total energy costs. Vehicle to building (V2B) enables vehicle energy to power critical building circuits during power outages, improving overall site power resilience. BorgWarner charging solutions are UL 1741-SA certified, simplifying fleet operator deployment of V2X-capable charging systems for the M/HD EV fleets.



And If Your Fleet Only Needs Unidirectional Capabilities, BorgWarner Is Still Your Best Option

At BorgWarner, we also apply our high-power expertise to the design of our unidirectional DC fast charging solutions for M/HD EV fleets such as school buses, public transit buses, delivery vehicles, refuse trucks, and drayage tractors. Our EV charging solutions are designed specifically for continuous operation at rated loads. These systems are also designed to support the unique needs of EV fleet operators, including the ability to remotely locate the small footprint EV charging dispenser up to 600 feet away from the charger PCS. This allows for optimal site placement in a high density vehicle yards when considering utility power feeds and high density parking.



Pedestal and Wall-Mount
Dispensers Available



TELLUS POWER GREEN

Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.

Robust | Modular | Reliable

AC and DC Charging Stations OEM

Contact sales →



AC Charger

DC Charger

V2G

Buy America

⚡ Amperage

30kW to 380kW

★ Features

- Experienced large scale charging station manufacturer
- Over 12,000+ DC Fast chargers installed globally and counting
- Durable hardware with reliable performance year-after-year
- Maximum security network to manage your equipment
- Flexible power output designs and connector configurations



Explore all Products →

V2G compliant EV chargers

Explore our Vehicle-to-Grid (V2G) solutions, empowering electric vehicles to seamlessly integrate with the grid.

Unlock the potential of bidirectional energy flow for grid stability and sustainable energy management. Drive innovation and sustainability with Tellus Power Green.

⚡ Amperage

20 kW to 60 kW

Connectors

- ✓ CCS1



V2G-OEM Test Pending



Download specifications →

Charging as a Service (CaaS)

360 Charging-as-a-Service (CaaS): Your Futureproofed Electric Fuel Solution

As the mobility landscape transitions to electric vehicles, managing fleet operations becomes more complex. With 360 CaaS, we've simplified that for fleet operators.

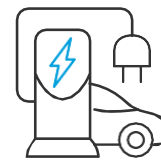
Here's why our complete electric fuel solution is the smarter choice for fleets.

Why Choose 360 CaaS?

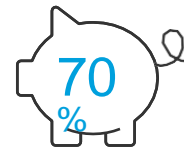
Performance-Contracted Reliability: We ensure 99%+ uptime at every fleet charging depot.

Futureproofed Solution: We ensure your EV charging infrastructure is built to last, ready to expand and incorporates ongoing tech upgrades.

End-to-End in Every Way: No capital to deploy and no puzzles to solve on your own; just a complete electric fuel solution for your fleet that has the potential to generate up to 70% in lifetime savings versus doing it yourself.



RELIABLE
99%
UPTIME



POTENTIAL
LIFETIME
SAVINGS OF UP
TO
70% VS. DIY

THE DOWNSIDES OF DIY

- Investing in Capital Equipment:** Owning EV charging infrastructure carries risks related to the performance of charging technology, outmoding, energy capacity planning and vehicle interoperability. Our 360 CaaS model insulates fleet owners from these risks by absorbing them.
- Pursuing all Incentives:** Securing and monetizing disparate EV charging incentives is complex. We simplify this by incorporating all benefit streams, including incentives, as reductions to the contracted electric fuel cost for fleets.
- EVSE Vendor 'as-a-service' Offerings:** EVSE equipment vendors may offer help, but they don't invest upfront capital, nor shift technology and infrastructure performance risks away from fleet owners. Our 360 CaaS model maintains a 'fleet-first' approach, with infrastructure and technology choices determined by each unique fleet use case.
- Upfront and Ongoing Expense:** DIY can be up to 70% more expensive across the project lifespan than the complete electric fuel solution that 360 CaaS delivers.



Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.

360 CaaS vs DIY - Key Differences

360 CaaS	DIY
Professional expertise in electric power supply, utility integration and infrastructure	Requires building an in-house power, utility and energy management team
Zero-volatility with predictable energy pricing	Energy pricing is subject to rate, fuel costs and intraday/time-of-use cost fluctuations
Technology risk elimination	Requires in-house expertise to vet charging technology
Capital risk elimination with Electrada's multiyear program capital commitment	Upfront and recurring capital funding needed to build and expand
Performance commitment @ 99%+ uptime	No performance guarantees – requires incremental investment over time to support fleet use case
Potential to generate up to 70% in lifetime savings vs. DIY	Higher upfront and ongoing costs

Choose the smart way to manage your fleet's transition to EVs.
Choose 360 CaaS – your complete electric fuel solution.

[Learn more at electrada.com](https://www.electrada.com) →

Charge Management Systems (CMS)



Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.

Thomas Built Buses (TBB) and Synop are partnering to provide advanced telematics integration, combined with managed charging and energy management on a single platform. This collaboration enables vehicle and charging data all in one place to ensure optimal vehicle uptime and efficiency.

Synop is the leading platform for electric school bus fleets, seamlessly connecting school buses, chargers, and the grid through software that optimizes EV charging and energy management.

Thomas Built Buses has enjoyed a long and successful partnership with Synop:

- 300+ ESBs managed
- 7+ school districts
- 2M+ miles driven
- 40+ MWh of V2G transacted



With Synop & TBB, get your telematics and charging data all on one platform:

- | | |
|------------------|-----------------------|
| STATE OF CHARGE | ALARMS & ALERTS |
| TRIP INFORMATION | CHARGING SCHEDULE |
| VEHICLE LOCATION | CHARGING TRANSACTIONS |
| ODOMETER | CHARGER STATUS |
| SPEED | UTILITY PRICING |

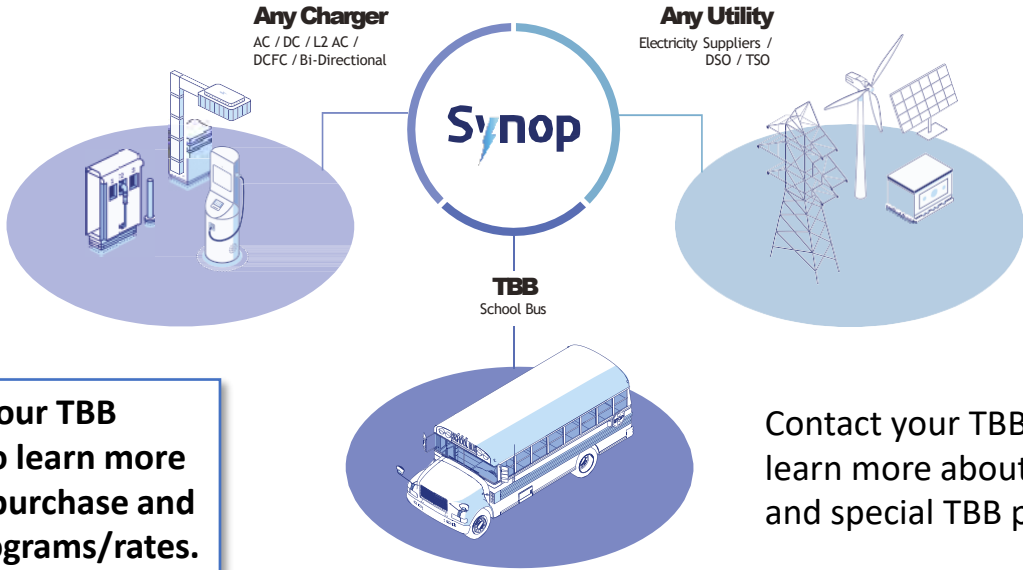
AND MORE ...

Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.

The Synop platform is interoperable

with any charger, any utility, at any time.

We've integrated with **24⁺** EVSEs **90⁺** Models



Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.

Contact your TBB eConsultant to learn more about how to purchase and special TBB programs/rates.

“We have had a front-row seat to the challenges of electrification for school bus operators, and the need for better hardware-software alignment is something we’ve identified as a gap for a while,” said Arjun Nair, Manager of Electric Vehicle Programs and Consulting for Thomas Built Buses. “We have been impressed by how Synop and its hardware partners have honed in on the relevant interoperability criteria and support channels criteria to deliver a great experience.”

Arjun Nair

Manager of Electric Vehicle Programs and Consulting for Thomas Built Buses.



The New York Times

TECH BREW



electrek



Want to learn more? www.synop.ai

Contact Synop at contact@synop.ai to get in touch with someone on our team who can help.

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