



# The Electric Revolution Is Here.

Our obsession? Making it easy.

**-chargepoint+**



# Introductions

# A Bit About Me

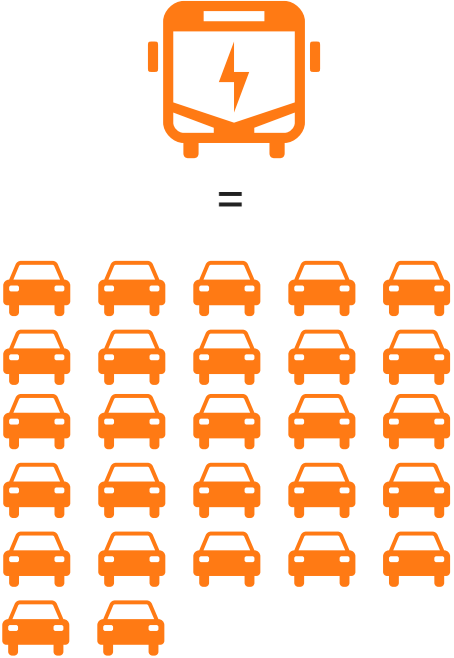
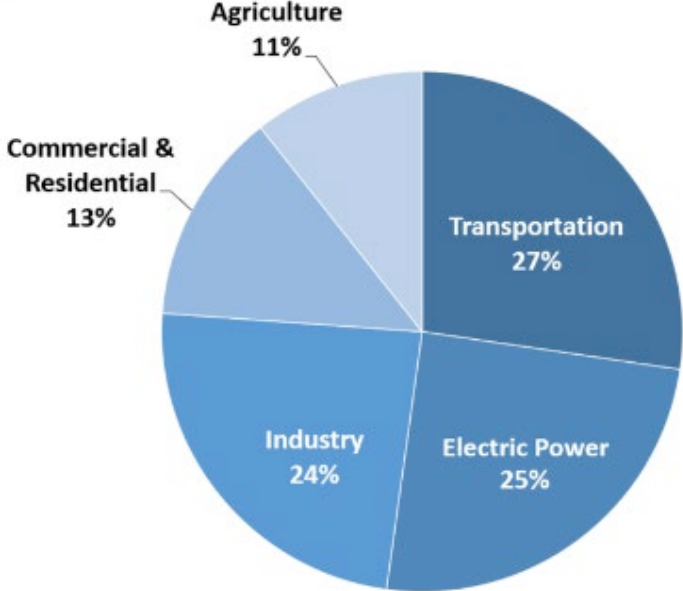




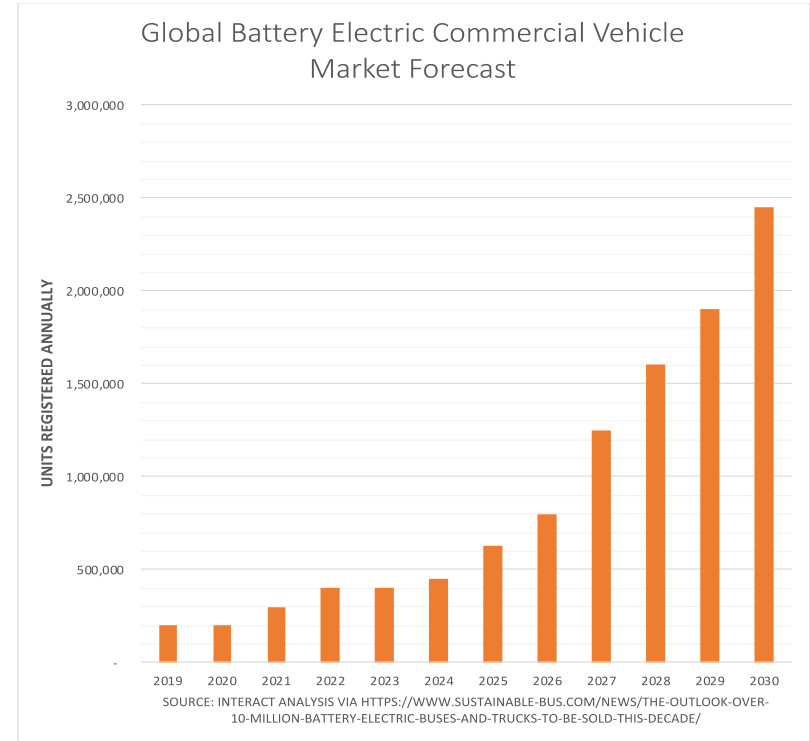
# Why Zero Emission in the First Place?

# ZEB's Are Cleaner

Total U.S. Greenhouse Gas Emissions by Economic Sector in 2020



# ZEB's Are the Future





# What Challenges are New ZE Fleets Facing?

# Considerations for Depot Electrification



System Design



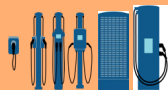
Engineering Consulting



Spare Parts Field Service



Technical Support



Charging Equipment



Energy Mgmt



Procurement Construction



Commission Train



Charge Mgmt



Yard Dispatch Mgmt

# Top Challenges for EV Fleet Deployment

## 1. Understanding Your New Assets

- + Energy/fuel management
- + Diagnostic Information
- + Data Gathering & Reporting



## 2. Maximizing Your New Assets

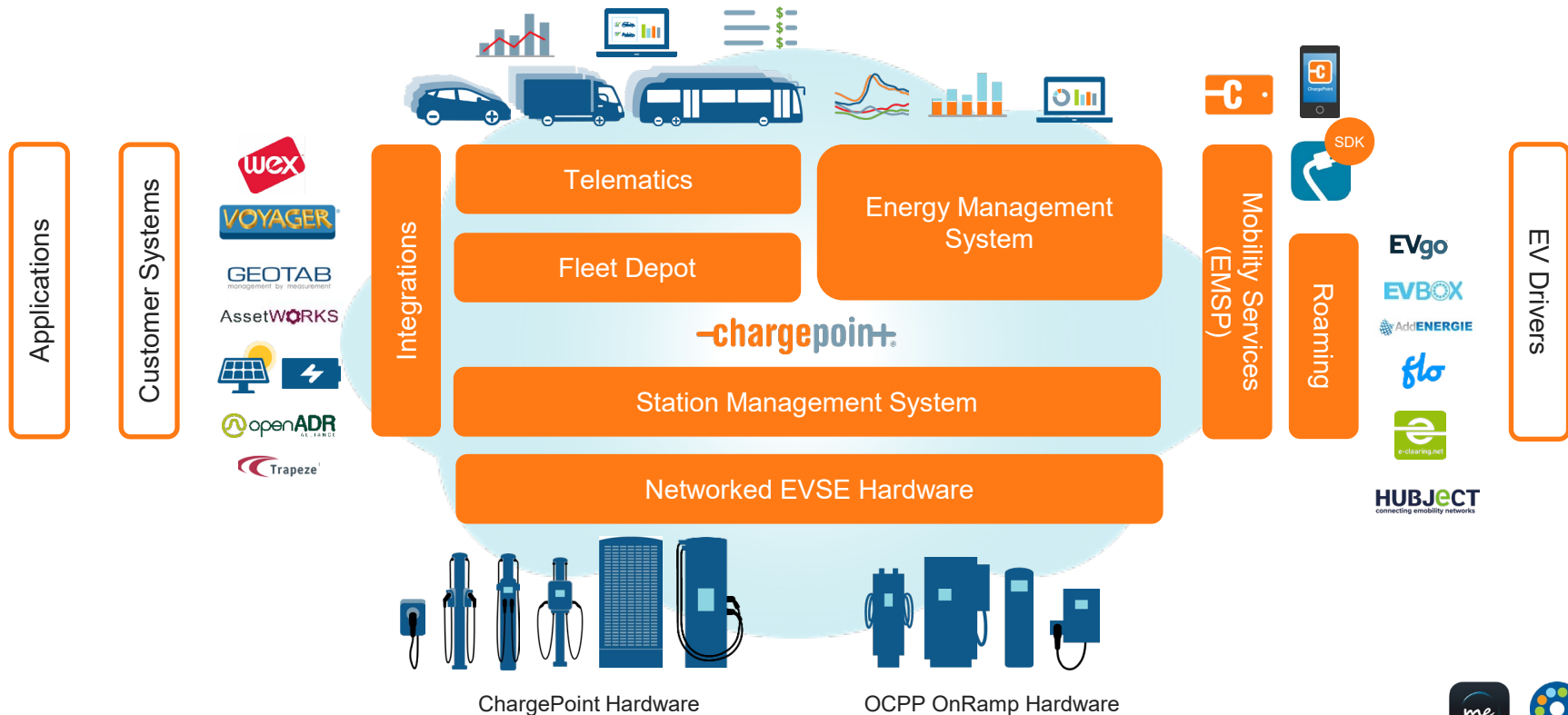
- + Infrastructure/Deployment
- + Utilization and uptime
- + Operational Readiness



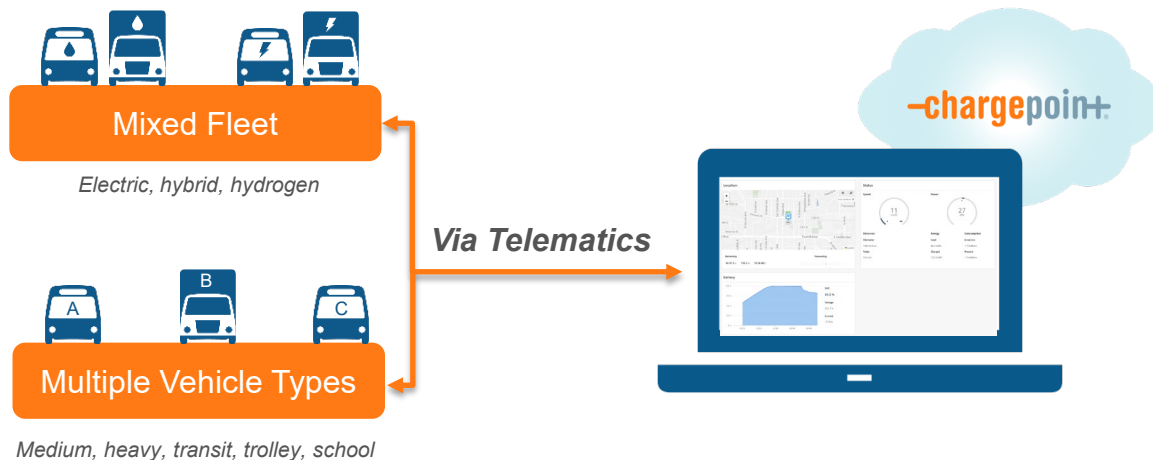


# How to Begin Solving Those Problems

# Start Thinking Software!



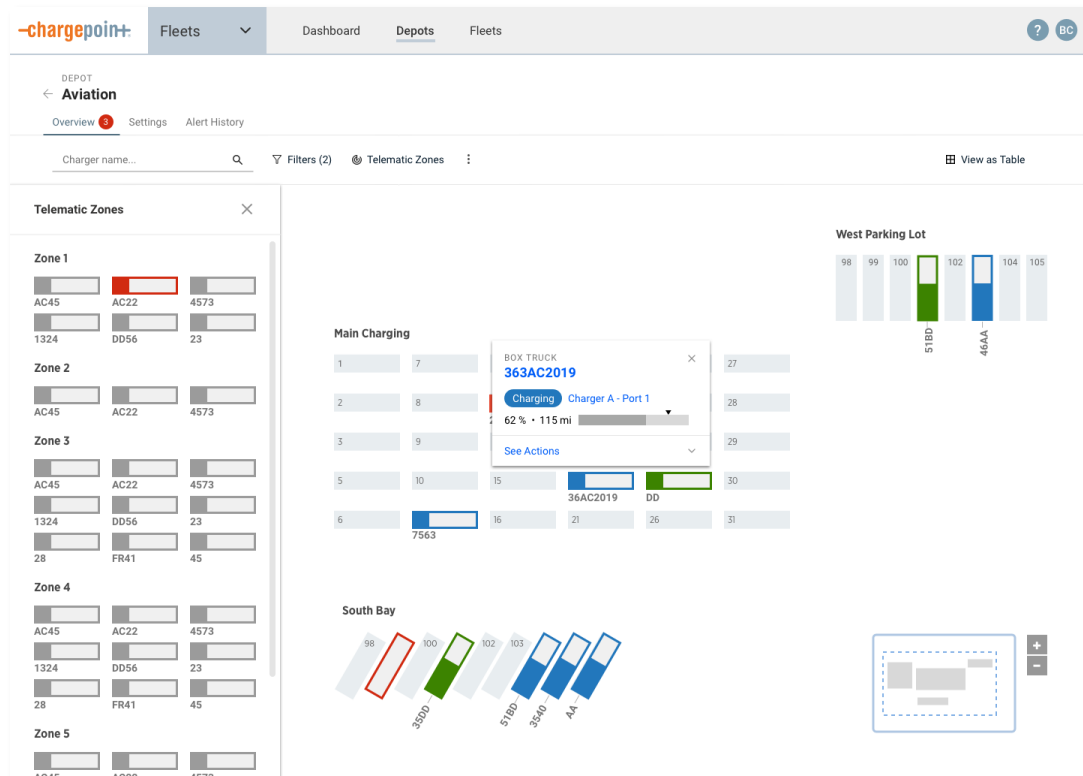
# Getting Data From the Vehicle



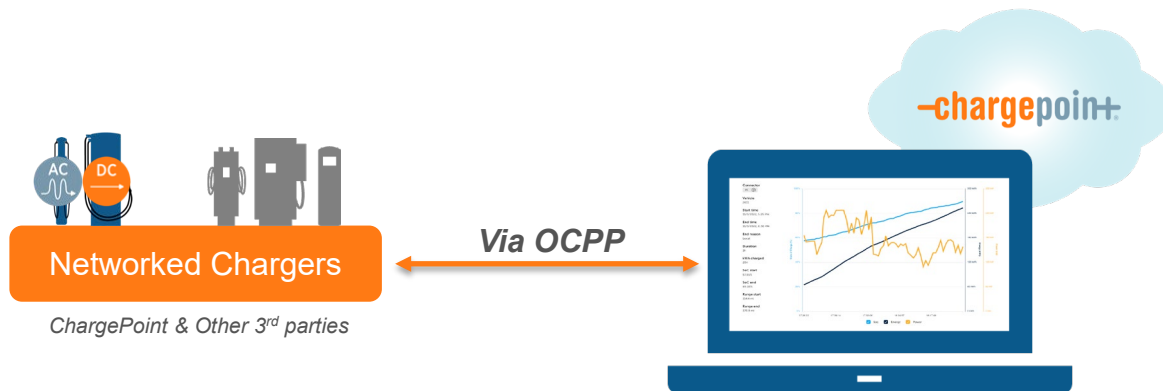
- + Data collected directly from the vehicle, sent over the cloud
  - + Speed
  - + State of Charge
  - + Battery cell temp & voltage
  - + Remaining Range
  - + Fault Codes
- + Datapoints down to the millisecond allows for action in real time

# Visualizing Your Depot

- + Allows for variable depot setups (First in First out, First in Last out, etc)
- + At a Glance view of buses that are charging/not charging
- + Alerts for vehicles that dwell too long (without being plugged in)
- + Linking vehicles to charging sessions



# Getting Data From the Charger



- + Data collected directly from the charger, sent over the cloud
  - + Operating State
  - + Power Output (kW)
  - + Session start/end
- + Combined w/ Telematics:
  - + Assign vehicle to charge session
  - + Time until 100%

# Energy Management

- + “Smart Charging” – limiting power peaks by creating a power ceiling
  - Set limits based on utility rate
- + Session history & utilization rate
- + Prioritize vehicles by fleet/type to ensure readiness
- + Spread charging load out over the dwell time of the vehicle

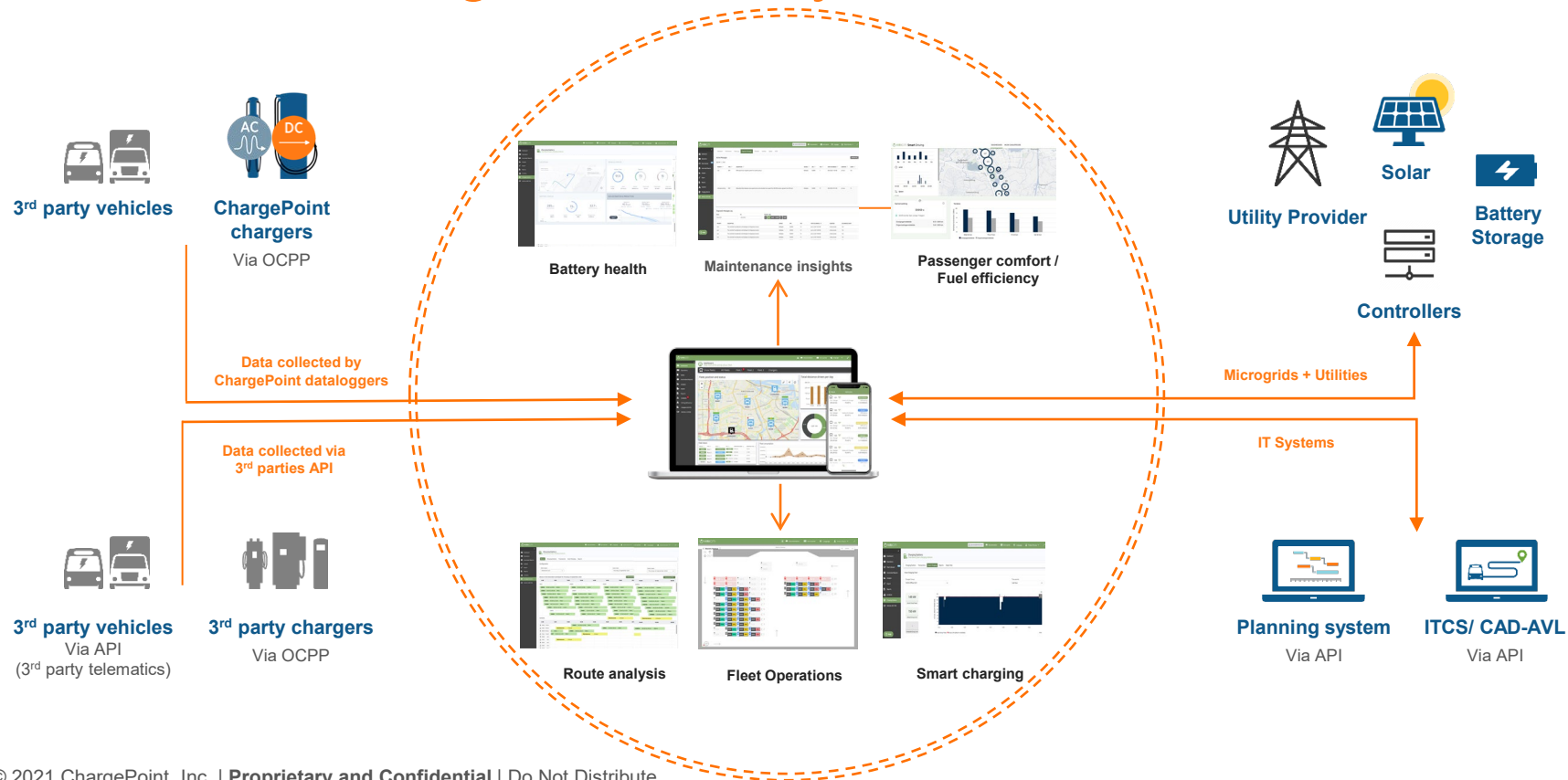
The screenshot displays the ChargePoint interface for site management. At the top, there are navigation tabs for 'Fleets', 'Dashboard', and 'Depots'. Below this, a table lists the power capacity for different site groups:

Site/Group	Power (kW)	Power Management
Modesto	600	Group Priority
Main Lot	450	Fleet Optimization
Loading Dock	150	Fleet Optimization

A modal window titled 'Main Lot' is open, showing configuration options for a 1000 kW site. It includes settings for Units, kW (Site, Transformer), Max Power (1000), Min Power, Tariff (Manteca XY-Z), Target Demand (800), and checkboxes for 'Auto Target Demand' and 'Use high-water mark'. On the right side of the modal, there are dropdown menus for 'Power Management' (set to Power Sharing), 'Sharing Algorithm', and 'Fleet Optimization'. Under 'Fleet Optimization (Drag to Order)', there are three categories: 'Box Trucks' (90% by Departure - Stop at 90% - Min 50kW), 'Yard Tractors' (80% ASAP - Stop at 90% - Min 50kW), and 'All Others' (90% at 25kW - Stop at 90% - Min 50kW). An 'Add Fleet' button is also present. At the bottom of the modal are 'Apply' and 'Cancel' buttons. A blue arrow points from the 'Fleet Optimization' dropdown in the table to the modal.

Below the table, there are two area charts. The left chart, titled 'BY GROUP BY STATION', shows power usage over time (13:05 to 15:05) for the Main Lot (blue) and Loading Dock (orange). The right chart, titled 'BY FLEET BY VEHICLE', shows power usage over the same period for Box Trucks (purple), Yard Tractors (teal), and Others (grey). Both charts include a solid line for 'TARGET' and a dashed line for 'REQUESTED' power.

# For A CMS, Integration is Key





# Considerations

# How to Get the Data

## From OEM's

- + Request Telematics & Vehicle Monitoring in RFP
  - + Telematics partners (like ChargePoint) will provide a guide to necessary parameters
- + Make sure **you own the data**

## From Charging Station Providers

- + Ensure stations are networked and communicate over OCPP

## From Utilities

- + Bring utility partners in early when planning depot electrification
- + Fully understand their rate structure (EV rates, demand charges)

# Things to Think About

## **Include Charge Management/Fleet Operations software in your grant applications**

### Opex vs Capex

- + Lots of grants currently limit operating expenses, and many software services qualify as opex because they are recurring yearly licenses
- + Buying multiple yearly licenses at a time can qualify as a capital expense (especially if it's for the lifetime of the charger,) so try to include multiple years in your applications!

### According to the FTA ([transit.dot.gov](https://www.transit.dot.gov))

- + "Data collection could qualify as incidental project management expenses associated with a Low-No partnership. Applicants would need to define how these expenses are a part of the project implementation strategy and are directly associated with acquiring these vehicles and deploying them in regular service."
- + Lean on your vendors to help define these expenses!

# Speaking of Grants

## Start asking about grant funding available to public entities for electrification

### FTA Low No

- + \$1.7B in FY23
- + Funding window just closed, but will reopen with more funding in 2024!

### EPA Clean School Bus

- + \$5 billion over five years (FY 2022-2026) to replace existing school buses with zero-emission and low-emission models.  
Funding is inclusive of other infrastructure costs, like EV charging equipment and software
- + 2023 funding window opens soon!!

### CFI (Charging and Fuelling Infrastructure) Grant

- + \$700MM in 2023 for communities and corridors to electrify
- + Application window closes May 30



**Thank You!**

[alex.guidry@chargepoint.com](mailto:alex.guidry@chargepoint.com)

(713) 447-0772