# Fleet Solutions

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# Why Electric Vehicles For Fleets?

+ **Cheaper to Own and Operate**
  - Cost-effective lease or buy options + incentives
  - Low fuel costs:
    - $1/gallon of gas equivalent vs. $2.25/gallon of gas
    - Less fuel price volatility
  - Lower maintenance costs: 50-80% savings
+ **Environmental Advantages**
  - Meet emerging green fleet initiatives
  - Fuel from increasingly sustainable (and renewable) resources

*Source: U.S. Energy Information Administration*
*U.S. Department of Energy Energy.gov*

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# Charging Stations – Where to Start?

1. Know Your Fleet
2. Evaluate Your Electrical Infrastructure
3. Develop an EV Fleet Adoption Plan

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# Know Your Fleet

## + Key Questions

- What is the average number of miles driven per day?
- Where do vehicles park?
- For how long do they park?

## + What You Learn

- Locations where charging stations could be installed
- Available duration to charge vehicles
- Estimated energy necessary per vehicle

## + Pro Analysis

- Analyze your fleet telematics data to discover which segments of your fleet are most suitable for conversion to EVs

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# Evaluate Your Electrical Infrastructure

## + Key Questions

- How many available circuit breaker slots are on the electrical panel?
- How much available capacity (amps) is on the electrical panel?
- What tariffs/rates apply to EV charging (demand and energy charges)?

## + What You Learn

- Power available to charge vehicles without an electrical upgrade
- Estimated cost to charge (time of use rates and demand charges).

## + Pro Analysis

- Ask your electrician or facilities manager if (a) existing non-EV loads can be made more efficient, and (b) can a building energy management system create additional capacity.

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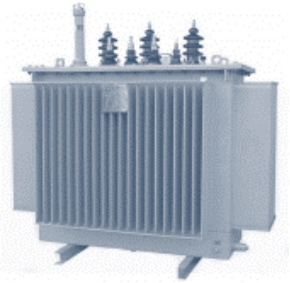
# Depot Power Basics

- **Circuits**
  - Installed wiring that connects electrical equipment to an electrical panel
- **Panels**
  - Divide an **electrical** power feed into “circuits”
- **Transformers**
  - Bring power from the electrical grid into a site



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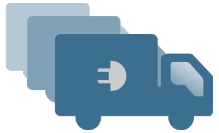
# Develop an EV Fleet Adoption Plan

## + Key Questions

- How many vehicles can I charge with my existing electrical service?
- Am I charging vehicles in the most efficient way possible?
- When do I need to upgrade my electrical service or panel?



## + What You Learn

- Timing and budget for electrical upgrades
- How to minimize unnecessary electrical capacity upgrades

## + Pro Analysis

- If the vehicle charging time is less than 75% of the time the vehicle is parked, you should investigate if there is an opportunity to charge more efficiently (e.g., reduce power or allocate power to other vehicles when charging is complete)

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# Case Study

- City 5-year plan: 70 EVs
- Year 1: 8 EVs (Ford Focus', Nissan LEAFs, Chevy Volts)
- Capital budget: $50,000

- **Step 1:** all 8 EVs charge overnight at the same parking depot every night
- **Step 2:** 160A were available – only enough for 4 charging stations!
- **Step 3:** City developed a plan to avoid panel, service and transformer upgrade and instead use **Power Sharing** to charge 8 vehicles

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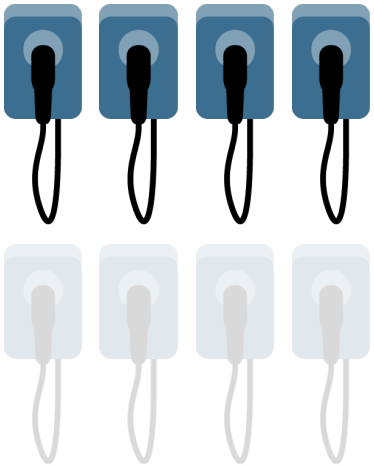
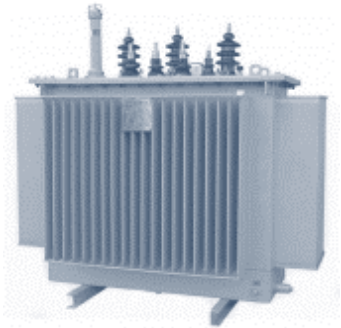
# Charging More Vehicles Without Electrical Upgrades

## Without Power Share

+ Each station requires a dedicated 40A circuit at all times no matter how many vehicles are plugged in
+ Expensive service upgrade required in order to accommodate more than a small handful of stations

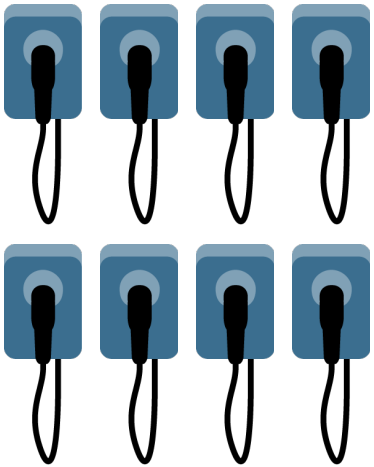




*$20,000 Upgrade*

## With Power Share

+ Vehicles draw full power when few are plugged in
+ Power is intelligently shared when many vehicles are plugged in. Uses existing 160A!



*$20,000 Upgrade Avoided*

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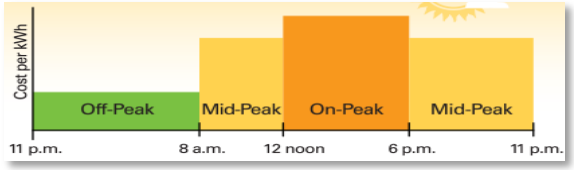
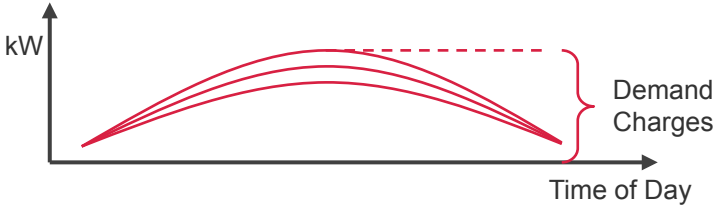
# Additional Costs to Consider

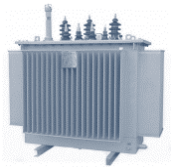
1. **Energy Prices**: the cost of every **kWh** pumped into an EV's battery, which typically varies by Time of Use




2. **Demand Charges**: how high the power curve gets on the worst day of the month (in **kW**)




3. **Service Upgrades**: getting enough power to the site to feed all of the chargers



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# Why Cloud Services Matter

+ Charging depots were not designed to accommodate EV fueling

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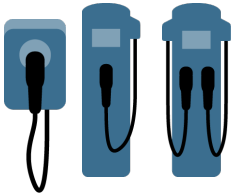
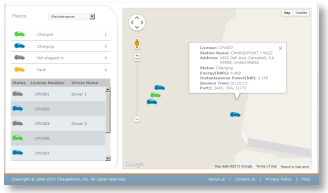
# Cloud Services to Scale with Your Fleet

## Real-time



*Station monitoring*

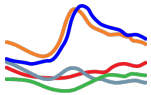


*Vehicle status (plugged-in and charging)*

## Control & Flexibility

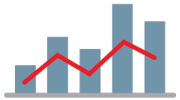
*Pricing for different users*

*Control who charges & when*



*Power Sharing, Circuit Sharing, Demand-Response (utility integration)*

## Data, Analytics & Reporting



*Fuel savings, greenhouse gases avoided, energy usage*

## Integration

*APIs for back end integration*

*ChargePoint Fleet Card*

*Telematics, Asset Management, 3rd Party Fuel Cards*

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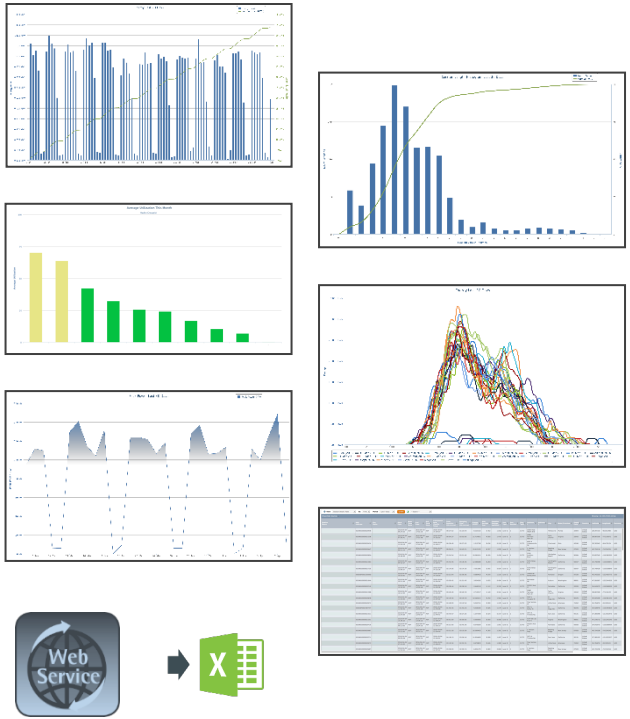
# ChargePoint Analytics: Measuring Success

+ Energy (kWh)
+ Peak Load, Average Load (kW)
+ GHG Avoidance and Gasoline Savings
+ Station Utilization
+ Peak Occupancy
+ Session Length Histogram
+ Detailed Transaction Data
+ Integrate data into your existing systems

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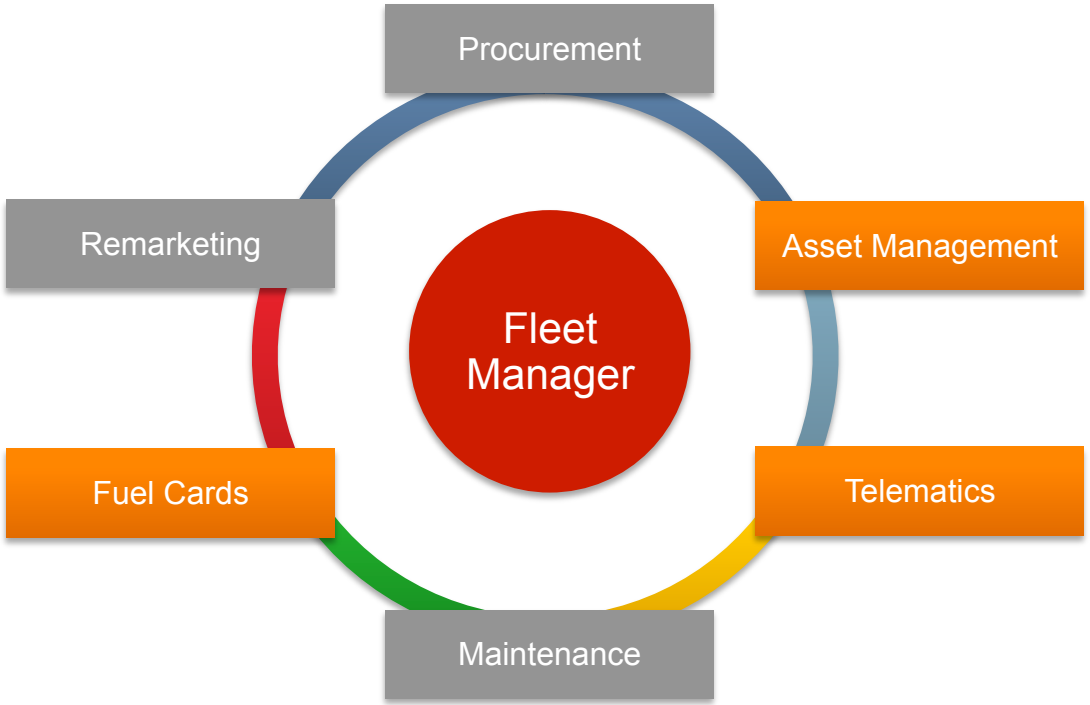
# Seamless Integration with Fleet Systems

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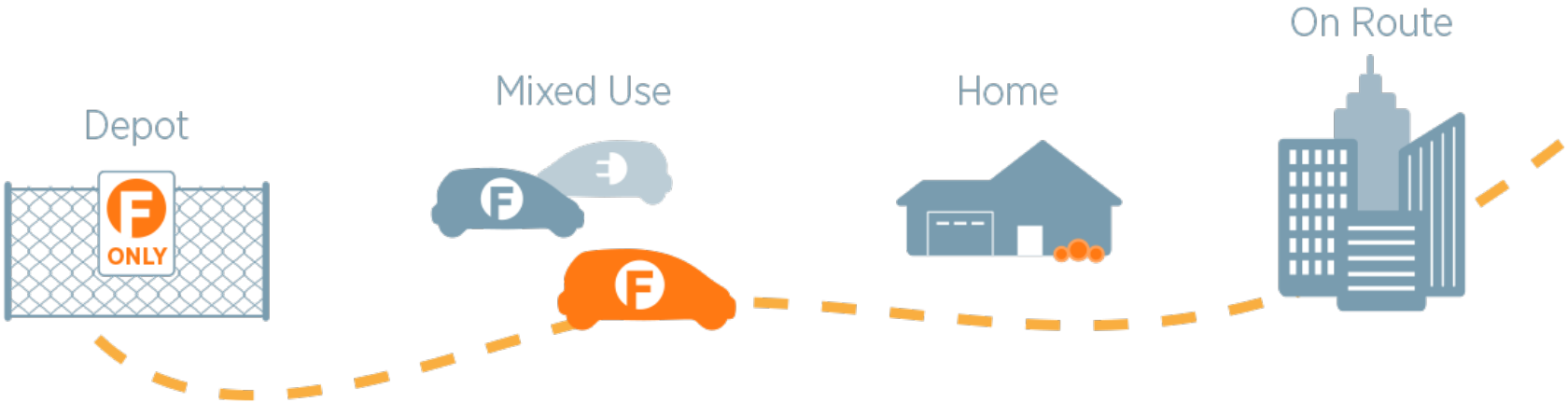
# Addressing Every Fleet Vehicle Charging Need




**Depot**
Dedicated fleet vehicle charging in the depot parking area

**Mixed Use**
Fleet vehicles and employee personal vehicles share access to charging stations

**Home Charging**
Drivers can charge fleet vehicles at home and get reimbursed for electricity costs

**On Route Charging**
Fleets can easily pay for and use public stations that require payment (Fuel Card)

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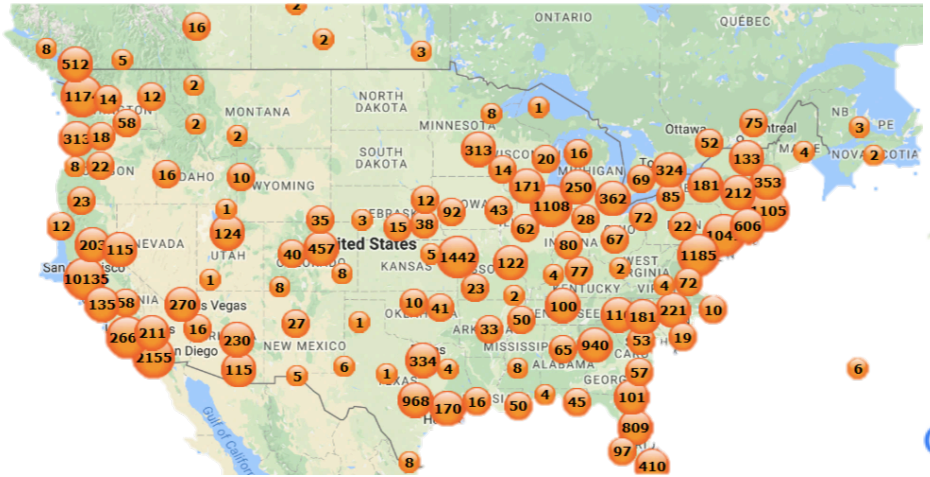
# ChargePoint Serves Fleets All Over USA

ChargePoint has thousands ports serving fleets, and custom solutions for several fleet verticals:

**Government** | **Transportation Network Co.** | **Utilities** | **Delivery Services** | **Workplace** | **Telecom**




**32,500+ Charging Spots**

**Marquee ChargePoint fleet customers**

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# ChargePoint Maintenance - Assure

- ChargePoint Assure is a full service maintenance and support program designed specifically for ChargePoint customers
- Assure's #1 goal is customer satisfaction
  - Greater satisfaction = more loyal customers = more repeat business
- Assure Overview:
  - All parts and on-site labor to repair or replace product defects
  - 1 business day response time
  - Labor Coverage for Vandalism and Accidental Damage
  - Proactive Station Monitoring and Proactive Dispatch
  - Unlimited Software Moves, Adds and Changes
  - Coverage in all 50 US states + Canada

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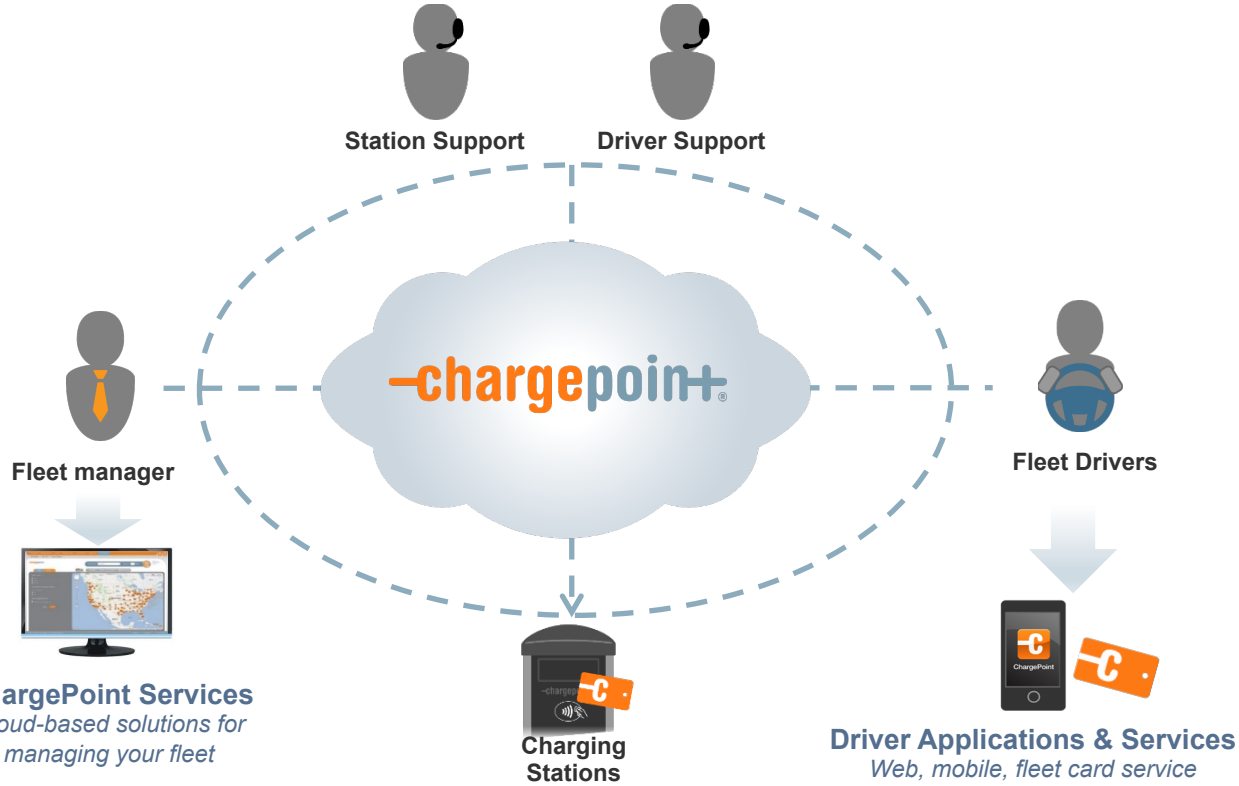
# World-Class Support

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# ChargePoint Fleet Value Proposition

1. **Reduce Capital and Operating Expenses with Smart Charging**
2. **Seamless Integration with Fleet Management Products/Services**
3. **Remote & On-Site Support for Operators & Fleet Managers**

- Increased vehicle adoption
- More charging stations for every dollar spent
- Vehicles are charged in the cheapest possible way
- Achieve 100% up-time of critical infrastructure

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# Thank You

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