

Tuesday, September 12, 2017

Workplace Charging

National Drive Electric Week Webinar Series

- Zach Henkin, Forth Mobility
- Stephanie Byrd, Schneider Electric
- Durand Crutchfield, Southwest Airlines
- Dave Aasheim, ChargePoint



#texasEV

Conference Line

- ▶ For Audio, dial:
- ▶ 1-800-250-3900
- ▶ Participant PIN: 55197039#

**Workplace Charging: Good for
Business ; Great for employees**

**Zach Henkin, Deputy
Director**

September 2017



Who we are:



- ▶ Nonprofit (501c6 & 501c3)
- ▶ Mission: Forth is transforming the way we get around. Through innovation, demonstration projects, advocacy and engagement, we are advancing electric, smart, and shared transportation in the Pacific Northwest and beyond.
- ▶ Funded by grants, member companies, and Roadmap—our annual conference
- ▶ Membership 120+ companies, utilities, local governments, other stakeholders

WHY INSTALL ELECTRIC VEHICLE CHARGERS AT YOUR WORKPLACE?



Boost Your Brand and Your Bottom Line



Make your parking lot your best marketing tool



Decrease your carbon footprint



Earn LEED points



Attract and retain innovative employees

Energize Employees with a Low-Cost Perk



Health insurance
\$8.25/day



Gym membership
\$4.16/day



Company cell phone
\$3.40/day



Coffee
\$2.50/cup

LEVEL 2
CHARGING
<\$1.50/day



LEVEL 1
CHARGING
<\$0.60/day



52%

of employees believe their employers should be doing more for the environment

20x

Employees with workplace charging are 20 times more likely to drive an electric vehicle

41m

vehicles on the road will be electric by 2040

Urban living and charging woes

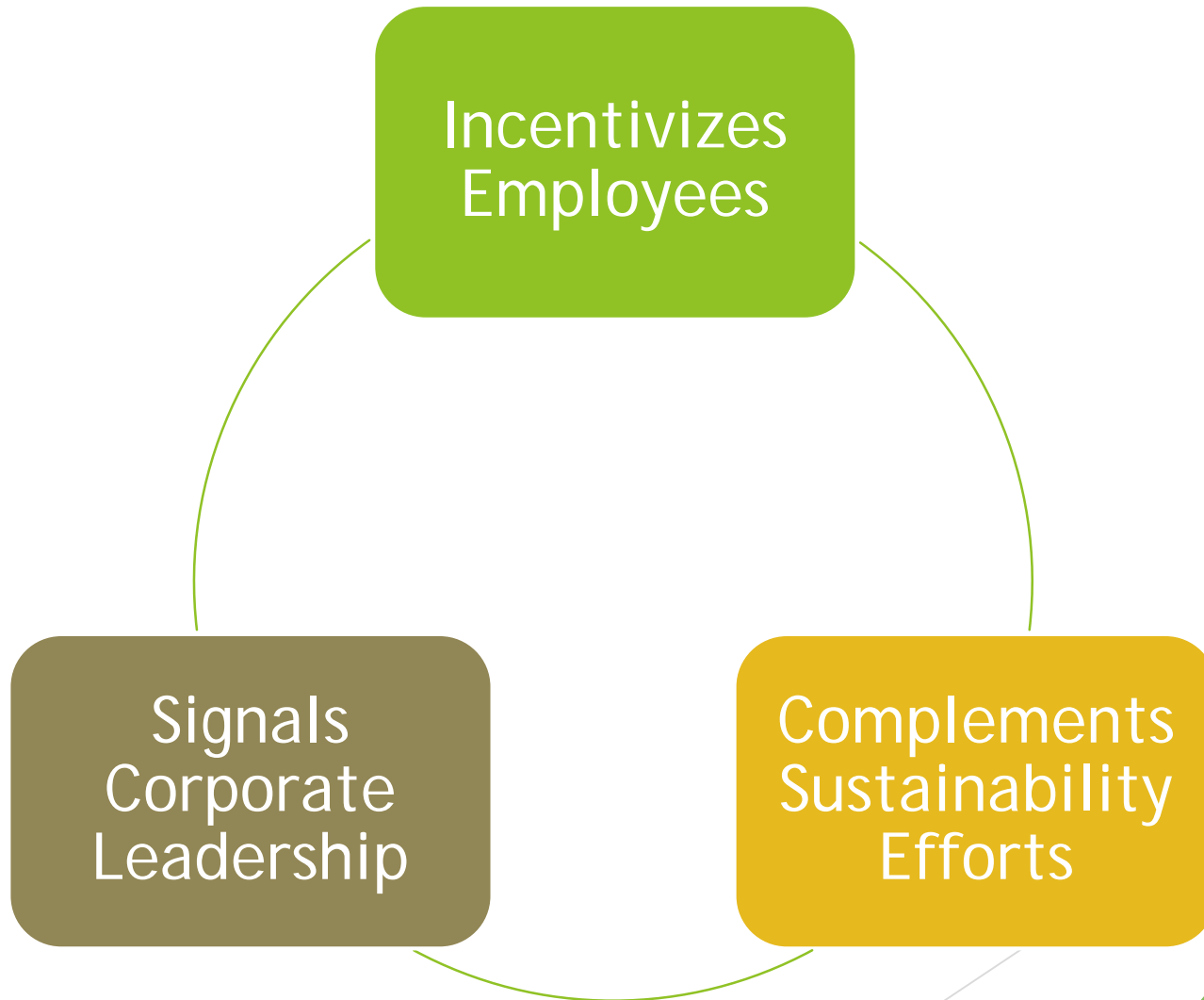
- ▶ Our population is increasingly urbanizing (more than half of worlds population live in cities).
- ▶ Thousands more EVs will be on the road soon.
- ▶ If you have access to EV charging at work you are 20x more likely to buy a plug-in.



Workplace Charging means more eVMT

- **Supports the commute of more drivers**
- **Allows for unplanned trips after work and during the day**
- **Supports a positive transportation choice similar to transit or bicycling**
- **Supportive to “new” EV drivers who may not have charging at home**

Workplace Charging Value Proposition



Employer Benefits: Inexpensive to Provide Instrumental To Attract and Keep Great Talent

- ▶ Recruit and retain great employees
- ▶ Contribute to clean air and a healthy community
- ▶ Show leadership in your space
- ▶ Show leadership in sustainability
- ▶ Appeal better to existing and new clients



If you want to attract the best people and top talent, EV charging is a must-have...It's a recruitment tool.

-Peter Graf, SAP's Chief Sustainability Officer

Build 'Range Confidence' by ensuring drivers have access to at least 2 or 3 charging options

Home
3-6kW



Workplace
≥6kW



Public
50kW



Workplace Charging Sells EVs



The mobile showroom... with plugs

The biggest challenges



- ▶ **Installation cost**



- ▶ **Making charging available to those who need it most**



- ▶ **Getting people to move their cars once charged up**



- ▶ **Pleasing everyone**



- ▶ **Implementing consistent use policies across all sites**

Helpful tips

If you can't get funding for chargers, find a way to get them for

free

Get an **Executive** sponsor, preferably one with an EV

Choose your install locations carefully, tearing up pavement and laying new electrical conduit is

expensive

Take advantage of **opportunistic** construction projects

Be aware of **local regulations** that may restrict if and how you can charge for charging

Have projects **shovel ready** in case excess funding becomes available

Claim **LEED** points

Put in **extra electrical** capacity for future expansion

Questions?

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The Schneider Electric workplace charging story



Stephanie Byrd

Schneider Electric

Global specialist in energy management and automation



DOE Workplace Charging Challenge Partner

FUELS &
VEHICLES

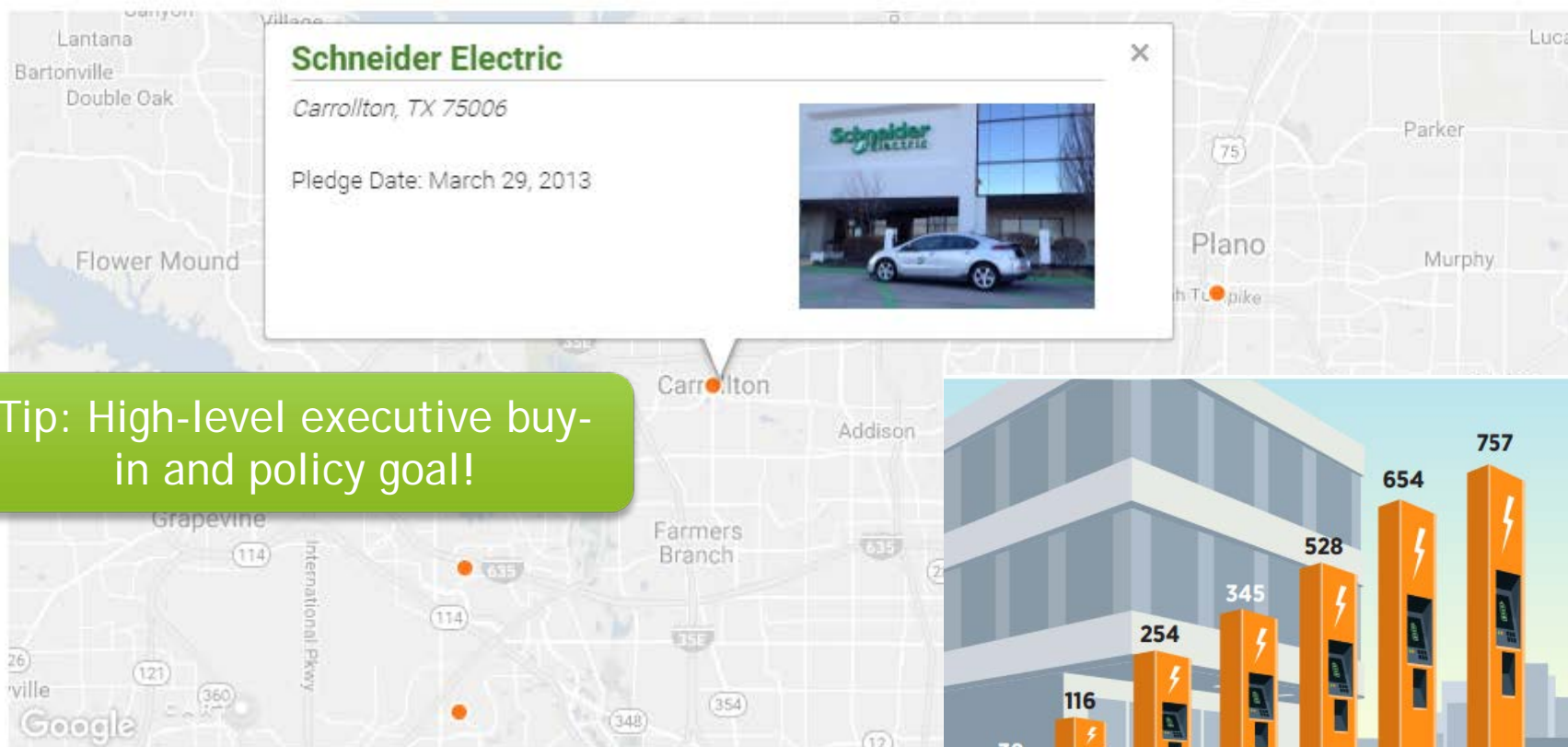
CONSERVE
FUEL

LOCATE
STATIONS

LAWS &
INCENTIVES

MORE...

Workplace Charging Challenge Partner Stations



Our charging footprint



- ▶ 24 Locations, 87 charging connectors
 - ▶ Most sites have 2-3 dual Level 2; two locations with a DCFC
 - ▶ Generally non-networked with RFID for access control; few networked
- ▶ 1-8 EV drivers per site
 - ▶ Six locations have 10+ drivers
 - ▶ Top locations are LaVergne, TN (20 and Lake Forest, CA (24)

Tip: Start with pilot program

Project and Installation

- ▶ Facility manager in charge
- ▶ Procurement for Schneider was a no brainer. But for others, consider cost, simplicity, and incentives.
 - ▶ Don't forget about life-cycle costs
- ▶ Benefits of wall-mounted units verses free-standing units
- ▶ Local electrician completed installation
- ▶ Consider additional infrastructure required





SOUTHWEST AIRLINES

- ▶ As part of SWA's initiatives for a greener planet
 - ▶ We have six EV Charging Stations on HDQ campus
 - ▶ We can charge twelve electric vehicles at a time
 - ▶ These are placed as a service to our employees
 - ▶ Employees get home from work in a green way
- ▶ The EV Chargers power source is 40% wind/solar
- ▶ Our new Wings building will have two chargers for four vehicles charging



SOUTHWEST AIRLINES

- ▶ We charge for free at Southwest
- ▶ The chargers on a 1st come, 1st serve
- ▶ We move the vehicle after 4 hours of charging as a courtesy
 - ▶ We are looking at free charging for 4 hours then a parking fee

Workplace Charging

Dave Aasheim- Sales Director

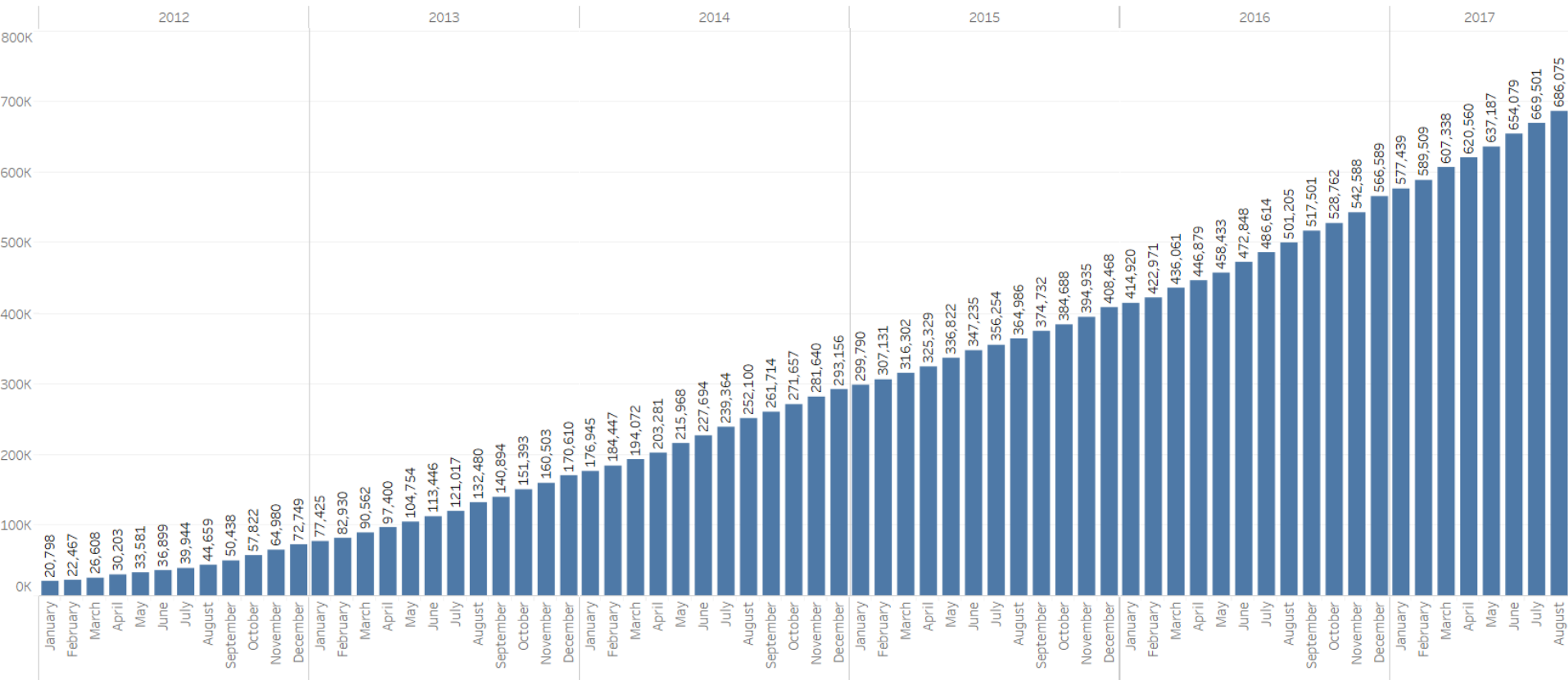


Agenda

1. Electric Vehicle Basics
2. Charging Basics
3. Why Do Employers Install EVSE?
4. Benefits to Employees
5. Pricing Strategies
6. Features that Help Utilization/Scalability

EV Sales Are Growing

US Cumulative EV Sales



Over 686,000 cumulative EVs sold through August 2017

EV Models in USA

Plug-In Models

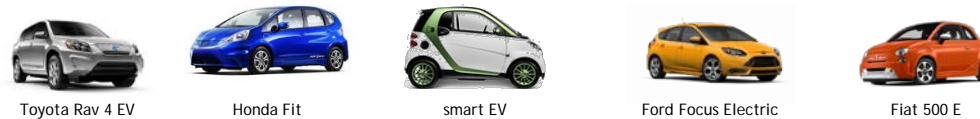


30+ currently available
with many more coming in 2018

Plug-In Hybrid EV PHEV



Battery EV BEV



BEV with DC Fast Charge

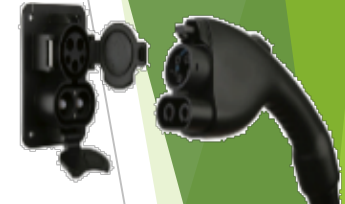


New EV Models



Charging Basics

- ▶ Charging Levels and vehicle compatibility
 - ▶ All electric vehicles are compatible with Level 2 (AC) charging
 - ▶ Some all-electric vehicles are compatible with DC Fast charging



	Level 1 (AC)	Level 2 (AC)	DC Fast
Electrical Specs	110 – 120 Volts AC 12 – 16 Amps (home appliance)	208/240 Volts AC 15 - 30 Amps (home washer/dryer, commercial standard)	208 to 480 Volts DC 70 – 125 Amps (commercial standard)
Range Per Hour of Charging	~6 – 8 miles (1.8 kW)	~15 – 30 miles (3.3 - 6.6 kW)	100-200 miles + (25 – 50+ kW)
Typical Time for Full Charge ¹	~12 hours	~3 - 4 hours	~25 - 45 mins

¹ EV with 80 mile range (average of Top 8 Selling mass-market EVs in 2016)

All EVs can use Level 2 EVSE



Level 2



J1772 Connector



Tesla Adaptor

Networked vs. Non-Networked



Capability	Networked Chargers	Non-Networked Chargers
Offer electricity	✓	✓
Visibility to drivers (through mobile app, in-dash navigation)	✓	✗
Ability to charge and recover cost (by kWh, hours of usage, time of use, etc.)	✓	✗
Access control (employees only, public, loyalty rewards)	✓	✗
Remote access and maintenance (check status, availability, etc.)	✓	✗
Analytics (usage, # of unique drivers, charging behavior, utilization, revenue, and costs)	✓	✗
Sustainability reporting (GHG savings, fuel savings)	✓	✗



Why Do Employers Install EV Charging Stations?

- ▶ Attract & Retain Top Talent
- ▶ Increase Employee Satisfaction & Productivity
- ▶ Make Your Benefits Package More Competitive
- ▶ Improve Corporate Image
- ▶ Achieve Corporate Sustainability Goals

Benefits for Employees

- ▶ Save Thousands of Dollars in Fuel Costs
 - ▶ Equates to a 5% raise
- ▶ Drive Their Preferred Car to Work
- ▶ Achieve Personal Sustainability Goals

Workplace Case Studies

Corporation 1: Attract and Retain Perk

Offer charging as perk to employees

- ▶ Attract and retain good employees
- ▶ Offer charging as a free perk exclusively to employees
- ▶ Absorb energy costs as benefit to the employees



Corporation 2: Cost Effective Benefit

Offer charging as benefit but recover costs

- ▶ Attract and retain good employees
- ▶ Recover deployment cost over time
- ▶ Transfer the energy cost to the drivers



Workplace Case Studies



Category 1: No charge to charge

- ▶ Apple, Google, Facebook

Category 2: Flat fee per Hour

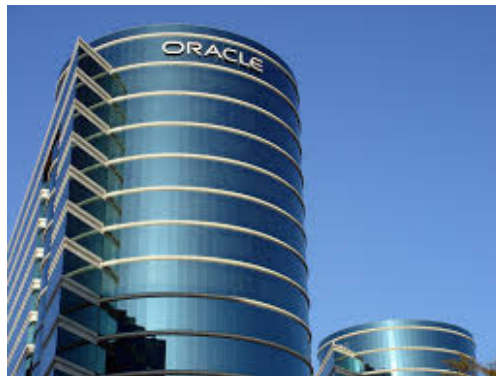
- ▶ eBay (\$0.75/hour, with \$0.75 minimum)

Category 3: Flat fee per kWh

- ▶ Pixar (\$0.25/kWh)

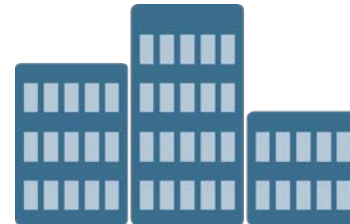
Category 4: Taxi pricing

- ▶ HP, Oracle (Free, then \$\$)



EV Station Owner Needs

- Control Access
- Monitor Usage
- Set and Forget
- Recover Money
- Connect with Drivers
- Visibility
- Easy Maintenance
- Ability to Plan for Growth- Scalability



EV Driver Needs

Station availability and use

- Reliable and easy
- Simple payment mechanism and ease of use

Locate stations

- Find available stations on web/mobile app
- Know “status” of the station before they arrive
- Know charging rate

Charging alerts

- Charging status to inform EV drivers and alert to critical situations
- Features like “Waitlist” or Reservations



Features that Help Utilization & Scalability

ChargePoint Innovation

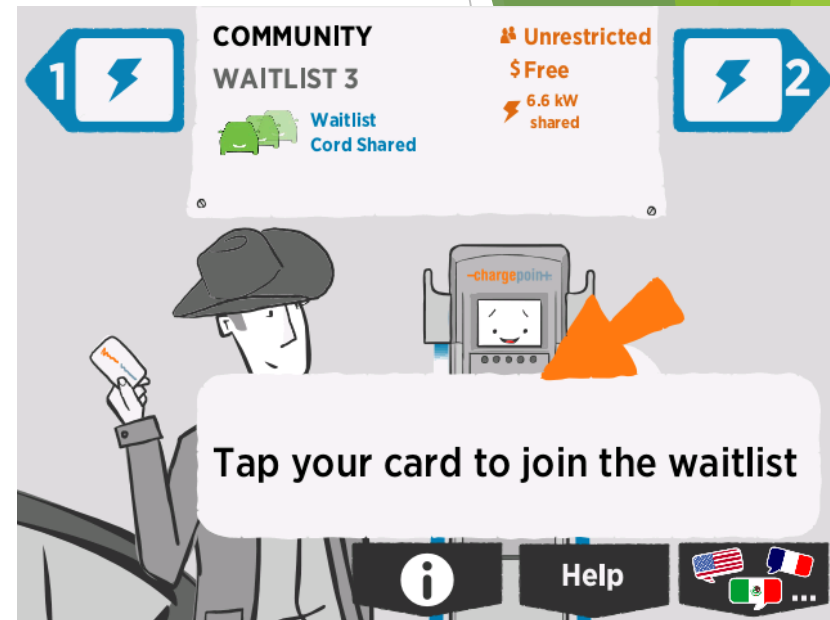
Why It Matters

Waitlist	Improve station utilization Make it even easier for drivers to charge their cars
Power and energy management	Reduce installation and ongoing costs Intelligently charge more cars with available power
Powerful administrative controls	Delegate configuration, station access rights, and reports, to others (tenants, different business units, other organizations)
Advanced pricing features and Wizard	Promote EV etiquette and automatically incorporate “Best Practices” into pricing policies
Integrated video display	Inform drivers how to use stations Launch promotions, convey brands

Waitlist

Waitlist lets drivers get in line to charge, with automatic notifications when they're up

- ▶ Increase station utilization
 - ▶ Hosts have seen 20% improvement after waitlist implemented
- ▶ Improve employee productivity
 - ▶ Automatic notifications; no need to constantly track station status
- ▶ Do away with spreadsheets, emails, texts...
 - ▶ Simple, integrated solution
- ▶ Give drivers peace of mind
 - ▶ Fair and easy access to a port when needed
- ▶ Identify drivers who don't move their vehicles promptly
 - ▶ Promote EV etiquette



Thank You

For further information on ChargePoint,
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Questions & Discussion

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