

DOCKETED

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California Energy Commission Merit Review 2016

**Colleen Quinn, Vice President, Government
Relations and Public Policy**

April 26, 2016

Public/Private Partnership = Exponential Growth



79%+

gallons of gas avoided
14M gallons*



54%+

pounds of CO₂ avoided
44,500,000 lbs.*



78%+

gas-free miles driven
334,700,000 miles*



78%+

MWh of energy
dispensed
111,500 MWh*



29%+

total charging spots
27,400+ spots*



30%+

new customers
5,300+ customers*

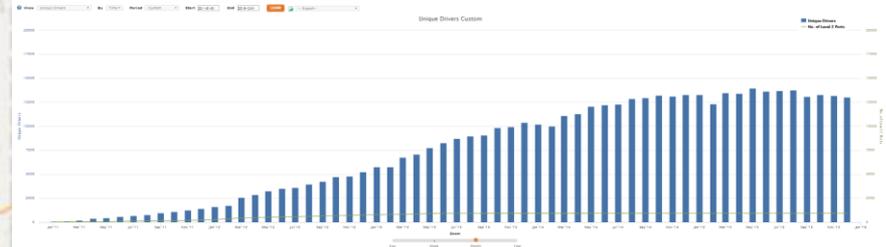
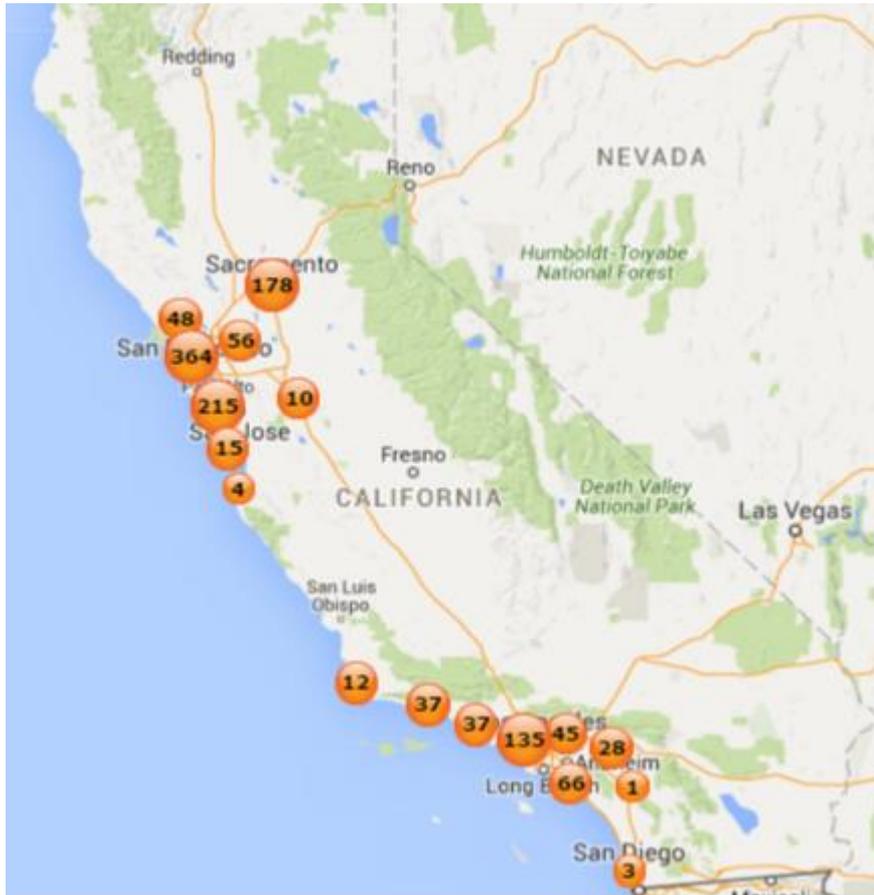
ChargePoint Network
March 2015 – March 2016

*indicates total lifetime

Public/Private Partnership

| Opportunity | Project Name | Purpose | Commission Funds | Role |
|-------------|--|---------------|---------------------|-----------|
| PON-08-010 | ChargePoint California | Deployment | \$3,417,000 | Applicant |
| PON-09-006 | Bay Area EV Corridor Project | Deployment | \$1,493,165 | Partner |
| PON-09-605 | Smart Charge Network | Manufacturing | \$1,103,076 | Applicant |
| PON-11-602 | MultiCharge San Diego | Deployment | \$499,512 | Applicant |
| PON-13-606 | Multiple Projects with municipalities, including San Bernardino, 18 Bay Area Cities, 10 Central Coast Cities | Deployment | \$3,000,000 | Partner |
| PON-14-301 | Smart Charging of PEVs | EPIC R&D | \$1,993,355 | Partner |
| PON-14-310 | Next Generation Grid Communications | EPIC R&D | \$1,500,000 | Applicant |
| GFO-15-601 | Southern California Express Corridor | Deployment | \$1,043,790 | Applicant |
| GFO-15-601 | Northern California Express Corridor | Deployment | \$1,997,222 | Applicant |
| GFO-15-601 | Central California Express Corridor | Deployment | \$698,603 | Applicant |
| | | Total | \$16,745,723 | |

ChargePoint California Unique Drivers 2011 - 2015

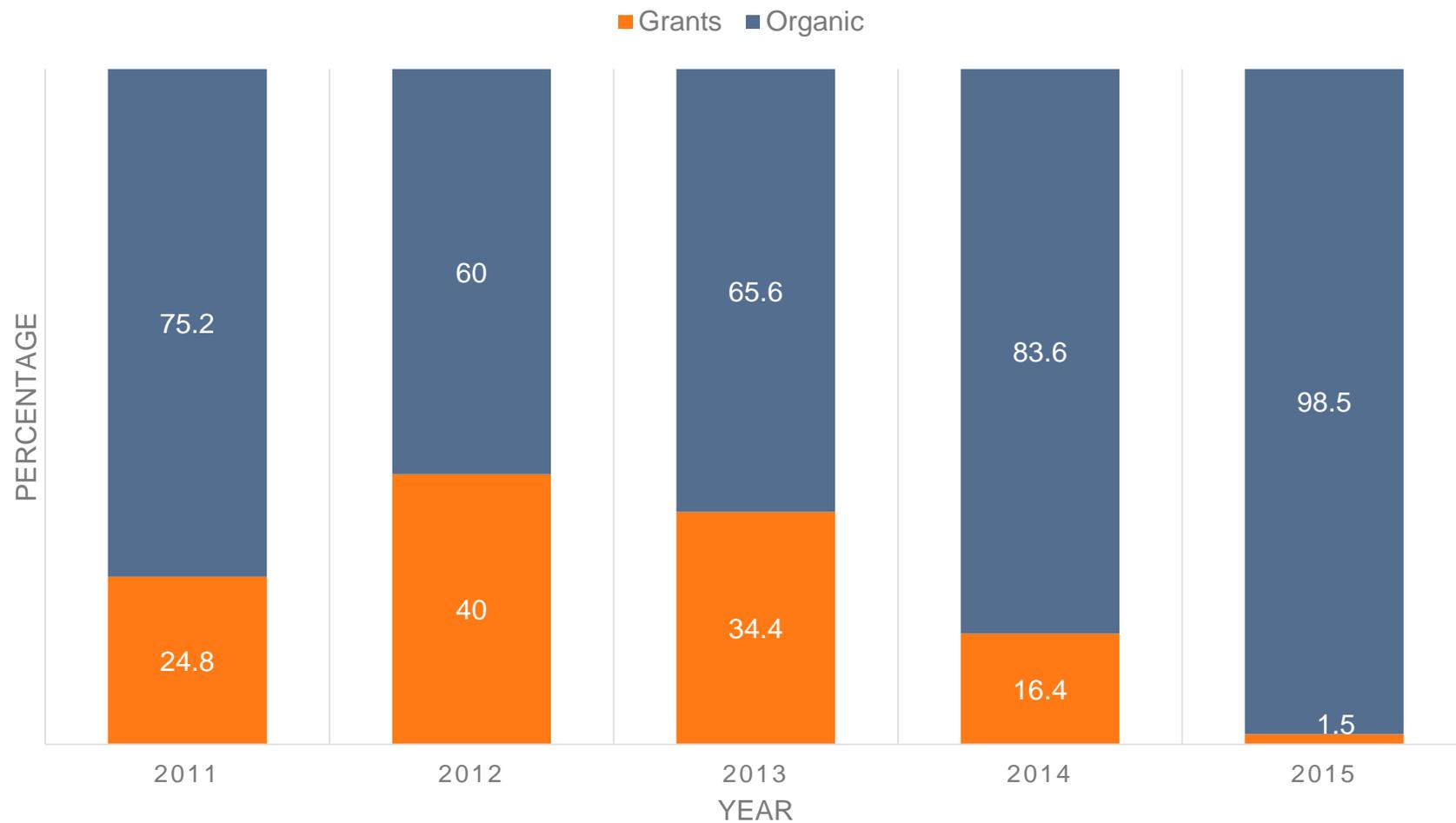


58,780 total unique drivers

Lesson: Public Funding Should Leverage Private Investment to Maximize Effectiveness

- + DOE Electrification of Transportation Grant 2010
- + \$15M/ 4,600 charging stations in 10 markets
- + ChargePoint enabled “skin in the game match formula” requiring site hosts to provide match by paying the installation costs
- + Leveraging private and state investment in installation resulted in a cost to the Department of Energy of only \$3,300 per installed charging station. Typical costs for installed Level 2 EV charging stations in the private sector are more than \$5,800

Grant Revenue Evolution



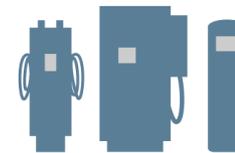
Market Knowledge



Government Relations



Auto



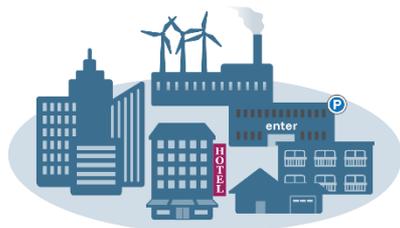
Technology
+
R&D



Sales



Support



Biz Dev

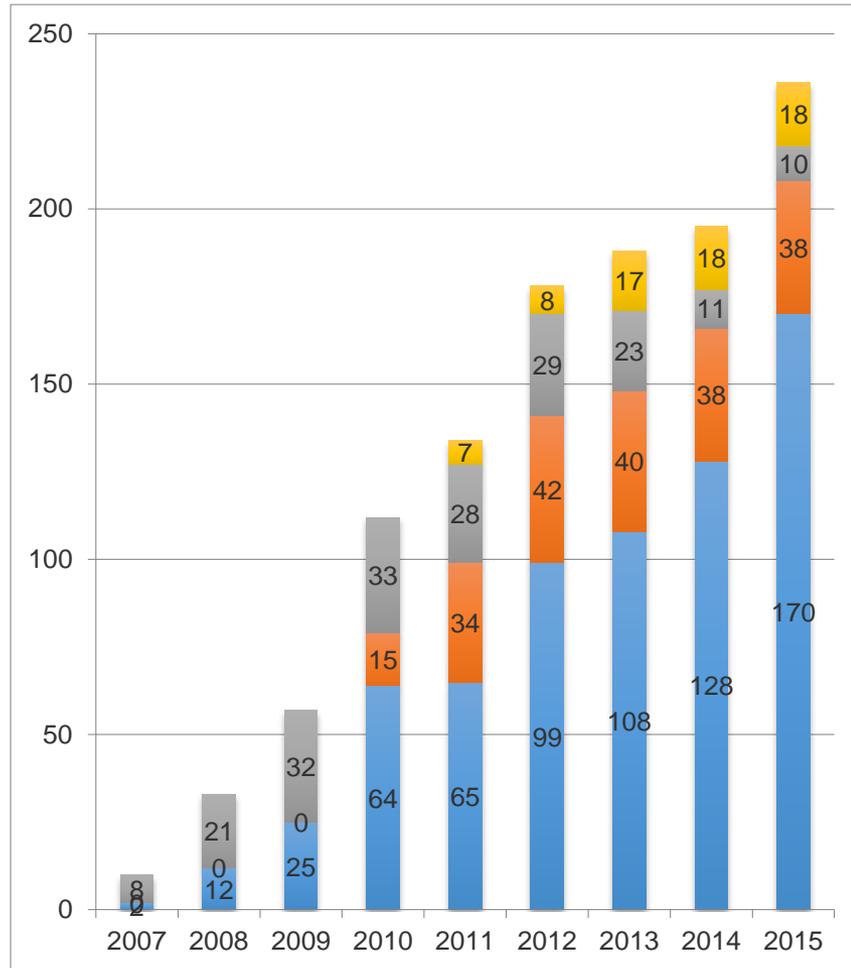


Operations



Utility

ChargePoint Job Growth



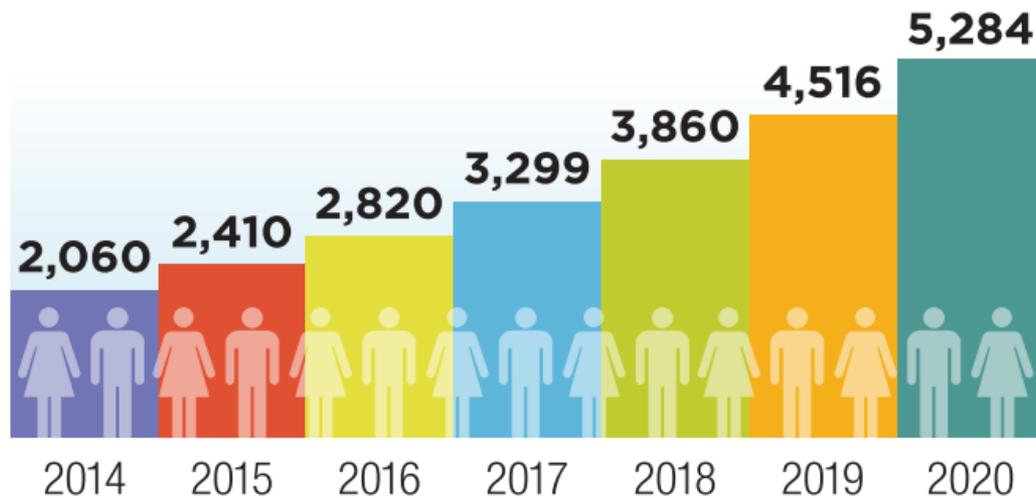
Channel Partners: Small Business Growth

- + Northwest 10 Partners
 - + Southwest 11 Partners
 - + National 2 Partners
 - + East 45 Partners
- Total 68 Partners**



California Job Creation

Electric Vehicle Charging Industry
Employment 2014-2020:



Collectively, more than **2,000 California jobs** are directly attributed to the electric vehicle charging industry.^{xiii} Given near term projections of annual California advanced energy job growth of 17%^{xiv}, the vehicle charging industry has the potential to bring an additional **3,200 jobs** to the state by 2020.

Source: Calculations based on AEE Institute, "California Advanced Energy Employment Survey" December 2014

Innovative Technologies and Varying Business Models

PLUGLESS

Plugless is the first wireless EV charging station for sale in the world.



Based in Campbell, California, ChargePoint is the largest EV charging network in North America, with over 22,000 ports. ChargePoint manufactures stations, allows other charging hardware to run on its network, and provides cloud software and support.



Launched in 2010, NRG EVgo is the largest provider of direct current (DC) fast charging in America. In California, EVgo is the only provider offering the ability to charge any EV on the road at their Freedom Stations.



Envision Solar, based in San Diego, creates solar-powered products for the EV charging industry. Envision's EV ARC™ is the world's only transportable solar-powered charging station.

VOLTA

Volta deploys networked chargers at prominent and convenient venues, including shopping centers and entertainment districts, with free charging to drivers and free installation and maintenance for life to site owners.

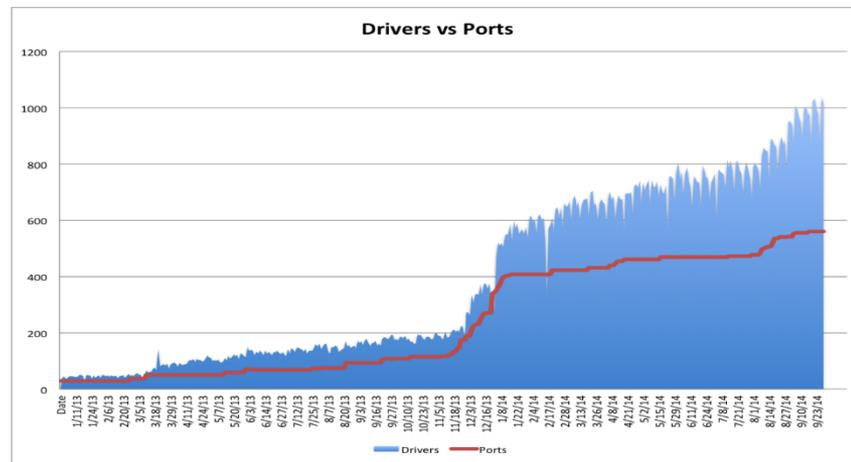
Contributing to California's Clean Tech Economy (LCFS)

- + ChargePoint was one of the first electric vehicle charging network operators to generate credits under the LCFS program.
- + ChargePoint has nearly 14,000 charging stations in California, most of which are public access.
- + The credits generated under the LCFS program are being used by ChargePoint to provide charging infrastructure for current and future EV drivers, and educational tools to drivers and charging station owners.
- + On Earth Day, ChargePoint launched an exciting new tool for EV drivers to calculate their state-specific carbon reductions switching to an EV. Check it out on our website <http://chargepoint.com>.

Importance of DATA : 14M Charging Sessions

Business Model Evolution

- + Utilization data informs customer sales and need for additional charging stations
- + Data sharing with research institutions



Benefits for Hosts/Drivers

- + Allows hosts to manage energy
- + Allows hosts to view station users and control access
- + Allows hosts to develop and optimize pricing policies
- + ChargePoint app and in-vehicle GPS to locate stations
- + Determine station availability and pricing
- + Start, schedule, and manage charging
- + Track charging data including money spent and energy usage

Understanding the Benefits/Challenges of Charging



| | Workplace | Retail | Parking | Municipality |
|--|---|--|---|---|
| Offering charging is good for your business | <ul style="list-style-type: none"> + Attract/retain talent + Improve corporate image + Meet sustainability goals | <ul style="list-style-type: none"> + Attract/retain high value customers + Improve corp. image + Engage in sustainability | <ul style="list-style-type: none"> + Attract customers + Enhance revenue | <ul style="list-style-type: none"> + Engage in sustainability + Improve image + Drive local jobs |
| The Objection | Upfront cost, ROI | Cost, ROI | Cost, ROI | Cost |
| Overcoming the objection | Use ChargePoint's cloud based SW to bring you revenue, new customers, and new tenants. Use our lease program to avoid upfront costs. | | | |
| Only with Networked Charging can you... | <ul style="list-style-type: none"> + Control who charges on your stations, and when + Set specific pricing for each and every driver + Provide real-time station availability + Manage driver behavior + Receive comprehensive driver services | | <ul style="list-style-type: none"> + Remotely monitor station usage and operation + Generate needed reports on usage data + Manage ROI, energy costs, and other impacts + Receive 24/7 remote support + Enjoy easy self service managing | |
| Key Benefit for your Drivers | 5% raise and HOV lane access | Preferred parking and loyalty rewards | Preferred and dedicated parking spot | Charging while eating, shopping, working |
| Bottom Line for You | Win big with employees for a few dollars a day | Attract new customers who stay longer and spend more | Attract new customers and increase revenue per per parking spot | Make money while serving residents, helping downtown retail and being green |

Lesson learned: O&M Is important

- + Early grants did not fund O&M
- + Municipal grants identified O&M as eligible match
- + Corridor funding includes 5 years of O&M cost
- + O&M services are competitive market offerings by EV charging providers
- + “Assure Program” stations under maintenance plans are repaired quickly and maintained to high standards and fail at a much lower rate
- + ChargePoint regularly repairs out of contract stations at its own cost to accommodate drivers in high utilization areas when stations have been abandoned or neglected by owners
- + California Level 2 stations properly enrolled under Assure Maintenance plans had ZERO downtime in the month of November

Pricing lessons: What Should I Charge?

| Free | Charge for Charging | Charge for Parking | Escalating Pricing |
|---|--|---|---|
| <ul style="list-style-type: none"> • Not recommended • Doesn't encourage sharing and creates sense of entitlement, will be hard to charge later | <ul style="list-style-type: none"> • Get reimbursed for electricity costs • "Fair" allocation of electricity costs across cars that charge at different speeds | <ul style="list-style-type: none"> • Encourage people to move when they are done charging • Can be "unfair" for cars that charge slower (like a Volt) | <ul style="list-style-type: none"> • REALLY encourage people to move after they are done charging • Escalating pricing is affective, but should not too punitive if someone forgets one time. |
| | <p>\$.10-35/kwh</p> | <p>\$.5-1.50/hr</p> | <p>\$.25/kwh for first Y hours, \$5/hr after</p> |

Industry Trade Associations: Knowledge



EVCA is a California-based advocacy organization representing the companies leading EV charging infrastructure, technology and services and working to grow clean transportation.

EVCA represents the companies who are leading the growth of the electric vehicle charging infrastructure, technology, and services industry.



Roaming for EV Charging Association (ROEV) is a non-profit trade association enabling Roaming for EV drivers

Founded by key players in the EV industry, ROEV is advancing EV adoption through public charging network interoperability

91% of public networked EV charging spots are operated by ROEV founders

Summary

Lessons

- + Importance of skin in the game/ don't give it all for free/ match important
- + O&M is important: early grants did not fund. Has to be part of the equation
- + Don't pick winners and losers: Technology and innovation. Addressing 300mile cars what consumers want
- + Importance of Data: 14 Million hits utilization, adoption (workplace); sharing with research institutions
- + Pricing should not be controlled by regulation. This is a business asset, a real estate play, an employee benefit. Not just about selling or controlling power
- + Market knowledge to advance the CEC investment: workplace and home: vehicle adoption market challenges workplace importance/MDU

Recommendations

- + Technology and manufacturing grants
- + Importance of the network. Drivers go between utilities districts
- + Interoperability - support ROEV
- + Corridors: Interstate, between the metro centers, continue regional partnerships
- + Rebates to customers
- + Industry on the AB 118 Advisory Board
- + Lead by example: NESCAUM

What's next?

Interstate Corridor Charging

Interstate corridors are the jurisdiction of the federal government

FAST ACT requires EV Charging Corridors be designated by December 2016

Infrastructure a pre-requisite for high volume EV sales in USA - aligned with environmental, climate change, and energy independence goals.

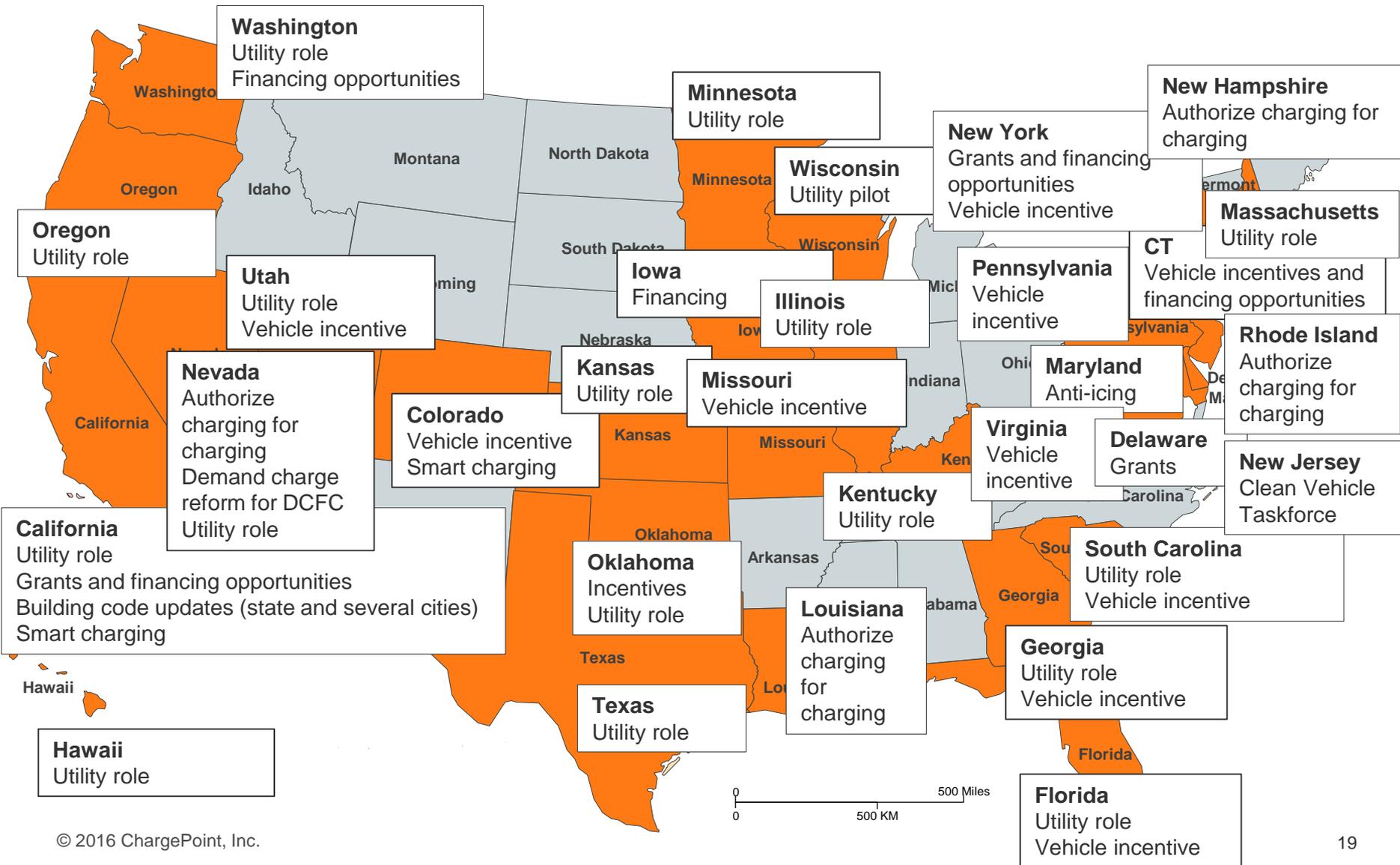
Foreign countries shouldn't have monopoly on high speed charging

Community Charging

Several states are actively considering utility investments in EV Charging infrastructure

ChargePoint is working with utilities and Public Utility Commission to ensure customer choice, competition and innovation

Beyond California : Activity in 30 States



International UN Momentum for Change Award COP 21 Paris

“Global warming, 40% of it derives from our transportation fleet, so its crucial that we develop the electric vehicle infrastructure we need. And that’s why ChargePoint has made such an important contribution.” – Governor Jerry Brown

