

# EV Charging Industry Overview



**SemaConnect**

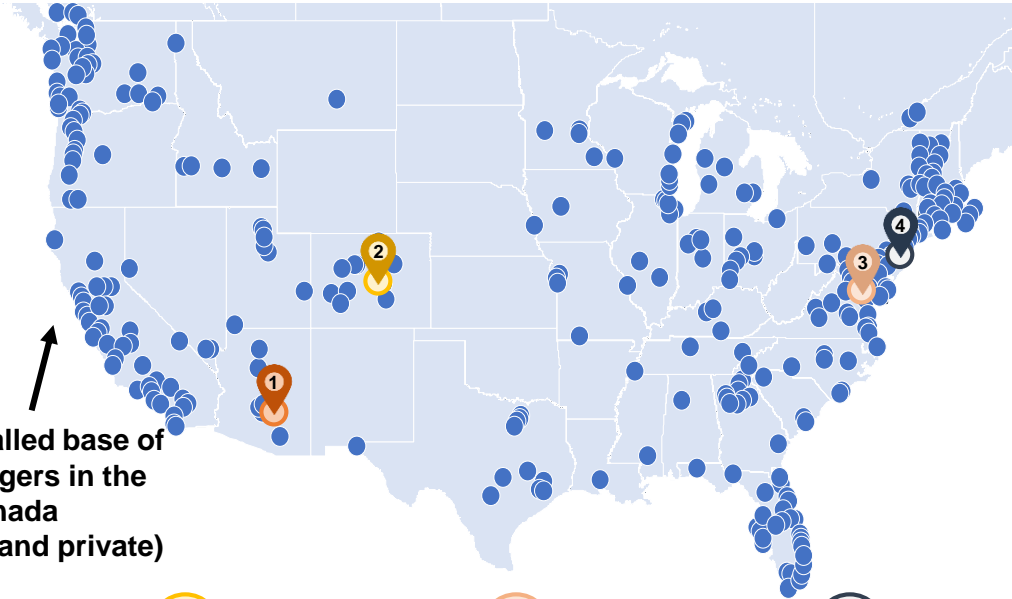
**Joe Inglis**  
Vice President, Business Development  
SemaConnect

# SemaConnect Overview: Leading Provider of EV Charging Solutions in North America

Our proven technology, integrated solutions, and intimate blue-chip customer relationships have created a strong foundation to provide the charging solutions required for the expected rapid EV adoption and charging industry growth.

<b>Proven Technology</b>	<ul style="list-style-type: none"> <li>Comprehensive smart hardware and software solutions</li> <li>Large portfolio of intellectual property with successful defense of patents</li> </ul>
<b>Vertically-Integrated</b>	<ul style="list-style-type: none"> <li>End-to-end solution provider</li> <li>Final product assembly at our company headquarters in Bowie, Maryland</li> </ul>
<b>Robust Customer and User Base</b>	<ul style="list-style-type: none"> <li>1,550+ marquee accounts across key end markets</li> <li>Managed over five million charging sessions to date and counting</li> </ul>
<b>Project Management</b>	<ul style="list-style-type: none"> <li>Completed most demanding multi-family and workplace program in industry (Electrify America)</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>Strong partnerships with leading commercial real estate firms, network providers, fleet management companies, and owner/operator customers</li> </ul>

## Top-2 Market Share in the U.S.



Current installed base of 16,000+ chargers in the USA and Canada (both public and private)

1



**CBRE**  
Phoenix, AZ

2



**JLL**  
Denver, CO

3



**bxp** Boston Properties  
Reston, VA

4



**WYNDHAM**  
WORLDWIDE  
Parsippany, NJ

# EV Charging Levels



**Level I  
L1**

Power	MPH	Availability	Application
120 V, 12 amps	4 mph.	All EVs	Occasional Use

**Level II  
L2**

Power	MPH	Availability	Application
240 V, 48 amps	45 mph	All EVs	Everyday

**DC Fast  
Charging  
DCFC**

Power	MPH	Availability	Application
480 V, 100+ amps	15-60 min	Select EVs	Road Trips

# Cost and Societal Shifts are Fueling Adoption of EVs

EV adoption is expected to reach an inflection point in the coming years driven by rapidly declining battery costs, lower total cost of ownership, friendly regulatory environment, corporate action and shifts in consumer preference

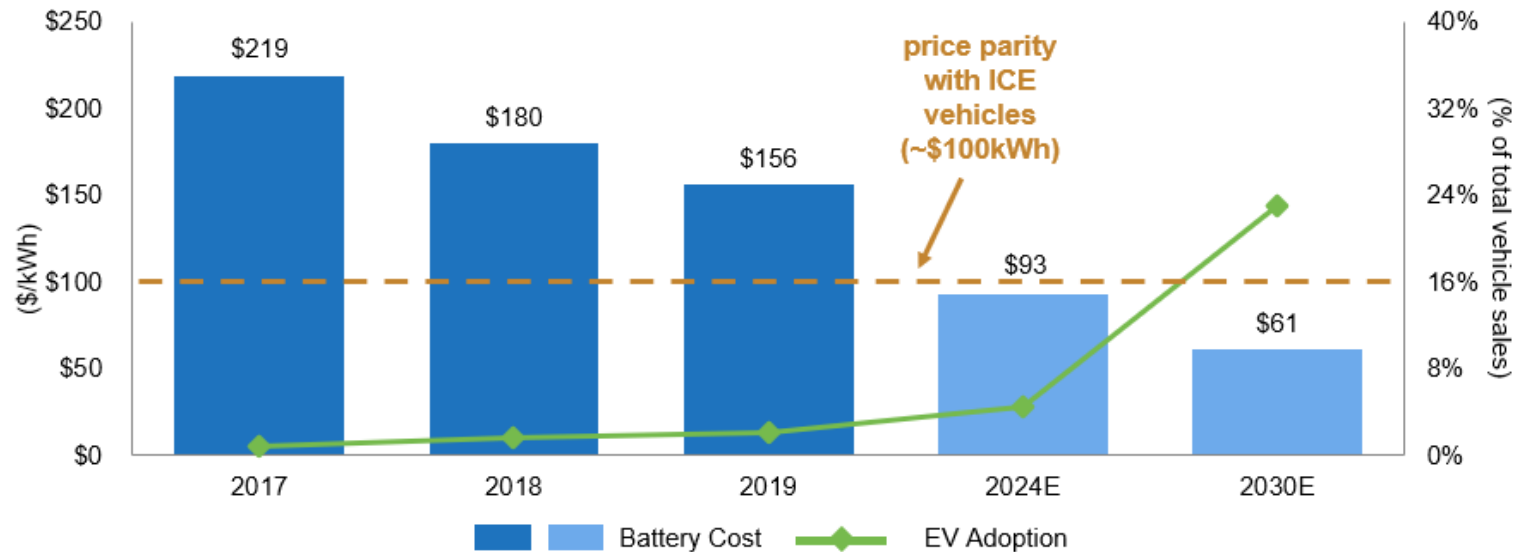
- Battery costs are expected to decline due to increased scale and new designs coming to market
- Automotive OEMs released 143 new electric vehicles in 2019. Automakers are expected to launch 450 additional models by 2022
- OEMs are furthering electrification through pledges and R&D investment such as GM's pledge to end gasoline powered vehicle sales by 2035 along with \$27bn in capital investment

Sources: BloombergNEF, Consumer Reports, McKinsey

Note:

1 Denotes lithium-ion battery pack cost; data has been adjusted to be in real 2019 dollars

Lithium-ion Battery Costs (\$/kWh)<sup>1</sup> vs EV Adoption (% of total vehicle sales)



Key Drivers of EV Adoption





# Change in Vehicle “Fueling” Paradigm

EV charging stations are a **NECESSITY** wherever vehicles are parked for a significant duration of time.



# Shift to Electric Vehicles is Altering the Fueling Paradigm

- ~90% of all household vehicle trips in the U.S. cover less than 100 miles
- Cars are not in use 90% of the time
- L2 chargers requires much lower up front costs vs DCFC
- No grid upgrades required for L2
- No routine maintenance required for L2
- L2 significantly less to purchase vs DCFC
- L2 is well suited for fleets who can benefit from over night charging
  - 220kWh school bus can be charged in under 12 hours
  - 68kWh Ford E Transit Van can be charged in under 4 hours

# Industry Game Changers & Policy Issues

- **Support EV charging in building codes for new construction:**
  - “Make-ready” charging to accelerate EV adoption is more cost-effective.
  - States are shifting to kilowatt hour pricing from time/duration pricing.
- **Federal and state EV incentives are essential:**
  - Renew and expand EV tax credits for consumers to support EV adoption
    - Federal tax credit expired in December 2021.
  - Strengthen incentives/rebates for EV charging infrastructure
    - Maryland is a leader among the states with its 40% rebate & EVSE grant programs.
- **Equitable access is vital for transportation electrification:**
  - Increase the availability of EV charging in rural and underserved areas
  - Offer reasonable rates for charging in low-income communities

Thank You



**SemaConnect**