Despite threats from fossil fuel giants and climate change skeptics, “the electric car has already left the garage.”¹ Since the Electric Vehicle Charging Association published the inaugural State of the Charge report in 2015, the multi-billion dollar industry has grown exponentially. It is becoming increasingly clear that the EV revolution is no longer a vision of the future, but a reality.

Nationally, plug-in electric vehicles (PEVs) and battery electric vehicles (BEVs) total more than 699,700 cars on the road.² Annual sales are expected to exceed 1.2 million by 2025, a 7% share of total annual vehicle sales.³ The projected rising level of annual sales will help build the national EV fleet to 7 million by 2025,⁴ a 900% increase from today’s stock.

EV drivers in the U.S. are currently able to access 56,826 public and private charging outlets.⁵ National sales of electric vehicle supply equipment (EVSE) units are expected to reach about 500,000 in 2020,⁶ providing much-needed infrastructure support for the rapidly expanding EV fleet.
Globally, the EV charging infrastructure industry is expected to grow at a compound annual growth rate of 46.8% from 2017 to 2025, reaching $45.59 billion in revenue by 2025. In the U.S. alone, revenue increased by 576% over five years, growing from $27 million in 2011 to $182 million in 2016. If the annual increase in revenue matches the 11% growth rate from 2015 to 2016, the U.S. could see more than $276 million by 2020.

United States EV Charging Infrastructure Revenue

There are nine states that are implementing Zero Emissions Vehicle Regulations. These states include Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island and Vermont. Part of the regulations includes getting to a 15.4% sales target by 2025.

The Northeast is poised to become a national leader in corridor charging-infrastructure deployment and best practices development. Items of note include the settlement with Volkswagen under its Electrify America plan that will contribute more than $69 million in investments in EV charging infrastructure in the region, the “Drive Change, Drive Electric” education campaign, and the May 2018 release of the Northeast Regional Charging Strategy as well as various policy-making discussions between legislators and industry stakeholders to forge public-private partnerships that propel innovation.

The Northeast accounted for 16% of the total auto market but 13.8% of EV sales in 2017. The region has added more than 170,578 EVs on the road since 2011, and has increased its available public and private charging outlets by 454% since then. Today, the Northeast has 7,608 charging outlets, not including residential outlets.

Despite the Northeast’s ZEV commitment, none of the the 10 top cities in the U.S. for direct current (DC) fast-charging networks are in the region.
The Growth of EV Charging Outlets in the Region

Northeast ZEV States

<table>
<thead>
<tr>
<th>Connecticut</th>
<th>Maryland</th>
<th>New Jersey</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maine</td>
<td>Massachusetts</td>
<td>New York</td>
<td>Vermont</td>
</tr>
</tbody>
</table>

Players, Partnerships and the Public

The EV charging industry has evolved to include a variety of perspectives on the best practices for advanced grid technologies, EVSE development, charging infrastructure deployment, station maintenance and other services. National leaders include ABM, BTC Power, ChargePoint, Clean Fuel Connection, Envision Solar, EVBox, eVgo, EV Connect, SemaConnect and Volta.

Five companies, ChargePoint, EV Connect, eVgo, SemaConnect and Volta, collectively operate over 50% of all public and private charging outlets in the U.S. for a total of almost 30,000.

With leaders such as these allying themselves with each other to advocate for best practices in the industry, innovation and advancement are all but guaranteed to continue for years to come. As the Northeast continues to position itself as a clean transportation leader with progressive EV regulatory policies, state and local policymakers will look to the region as a template for driving public-private partnerships.
Even with 80% of charging done at home, it remains imperative to encourage expeditious deployment of public and workplace charging infrastructure. When consumers recognize there are more and more charging stations popping up, their range-anxiety is eased and they are more likely to make the switch to an EV.

Even more influential in encouraging EV adoption than the number of charging stations is the quality of the charge and station location. With the deployment of more public Level 2 and DC fast-charging stations, drivers won’t have to spend as much time charging and can get where they are going without a hassle. Strategically deploying chargers at high-traffic commercial centers and along transportation corridors makes it easier for drivers to charge up and makes the stations more profitable as well.

Investing in lower-income communities is another priority of the industry, extending the same opportunity of EV adoption to those often neglected by markets despite being disproportionately exposed to the impacts of excessive greenhouse gas emissions. The industry as a whole has made it a priority to work with state and local policymakers to provide access to these underserved areas.

INNOVATION SNAPSHOTS

**ABM** is a leading provider of facilities solutions, and also top installer of EV charging stations in the U.S. ABM sells, installs, services and maintains thousands of EV charging stations—and solar and battery storage solutions—at commercial and municipal facilities, as well as multi-family residential complexes. In 2017, the company partnered with other clean energy leaders to create the “Charge to Work” program, engaging employers in and around New York City to provide incentives for the installation of EV charging stations at workplaces.

**BTCPower** (Broadband TelCom Power, Inc.) was founded in 1999 to commercialize its proprietary Flat Matrix Transformer Technology (FMTX) by developing power supplies and converters for the telecom and internet infrastructure market. The FMTX technology enabled the company to offer the highest current density converters in the market (current supply capability per cubic inch), receiving numerous awards and recognition.

**ChargePoint** With nearly 40,000 charging spots, ChargePoint is the world’s largest EV charging network. The company manufactures charging stations, allows other charging hardware to run on its network, and provides cloud software and support. In 2017, ChargePoint expanded on its charging capabilities and unveiled its Express Plus ultra-fast DC charging platform, capable of charging the EVs of today and tomorrow at maximum capacity. Also this year, ChargePoint acquired GE’s entire EV charging network, adding thousands of commercial and residential charging spots to its already expansive network.
CLEAN FUEL CONNECTION

Clean Fuel Connection is a respected leader in EV charging infrastructure, partnering with leading manufacturers to distribute and install EVSE in accordance with its mission of supporting the commercialization of such alternative fuel technologies. The company has developed a family of products that provide easy to use, comprehensive platforms for utilities, municipalities and corporations to deliver EV charging for drivers everywhere.

Envision Solar is a sustainable technology innovation company. Envision invents, designs, engineers and manufactures solar powered products that enable vital services and amenities with free and clean electricity in locations where it is too expensive, environmentally impactful or just impossible to deliver traditional utility grid electricity. Their products dramatically reduce the time and cost associated with the installation of grid-tied electricity, and reduce vulnerability to expensive and dangerous blackouts and other grid interruptions. In 2017, Envision Solar entered into a three-year contract with New York City for any city department to order Envision Solar’s EV ARC™ product as needed, most recently taken advantage of by the Department of Citywide Administrative Services ordering thirty-two EV ARC™ units.

EVBox is the leading global manufacturer of electric vehicle charging stations and charging management software. In 2010, EVBox made its breakthrough when the market for electric vehicles was still in its infancy. EVBox soon became the sole supplier of public charging infrastructure in cities such as Amsterdam, Rotterdam and Monaco. Meanwhile, EVBox played an active role in creating and innovating Smart Charging technologies and roaming of charging infrastructure with industry partners. Today, EVBox moves forward as a strong leading brand perfecting its original recipe: a second generation of hardware and software that is energy efficient, future-proof, and easy to use. They make charging solutions with uncompromising quality and reliability.

EV Connect has created the most innovative, robust and hardware agnostic cloud-based software platform for managing the EV ecosystem. Its platform provides charge station-agnostic command and control, enterprise and energy stem integration via an open API, driver communications and support, and demand-response functionality across multiple networks. In 2016, EV Connect entered into a five-year, multi-million dollar contract with New York to install and manage 300 Level 2 charging stations in addition to its already-managed 100 stations in the state, and was contracted by the California Energy Commission to help complete the West Coast Electric Highway.

EVgo is the largest provider of public DC fast-charging in America. The company owns and operates its stations, providing the best driver experience and reliability in the industry at speeds up to eight times faster than other public charging networks. EVgo broke ground on the first 350 kW public charging station in the U.S. in December 2016, providing speeds seven times faster than other currently available chargers. In 2017 EVgo, partnered with ABB to deploy high-power fast-charging stations three times as fast as the standard public fast-charging station. Also this year, the company opened its 950th DC fast-charging station in the U.S., and helped complete California’s DRIVEtheARC corridor of fast-charging stations from Monterey to Lake Tahoe.
SemaConnect is the leading provider of EV amenities to the North American commercial and residential property market. A complete EV support partner, SemaConnect delivers a truly modern property experience through innovative, elegantly designed charging stations and a robust and open network. The company’s EV product line includes a Smart Personal Charging Station, its newest technology that allows two or more cars to share a station in multi-family residential properties with dedicated parking.

Volta Founded in 2010, San Francisco-based Volta has developed, proven and fine-tuned an innovative approach to EV charging. Partnering with national brands that sponsor the public amenity, Volta deploys and operates networked chargers at prominent and convenient community venues such as shopping centers and civic entertainment districts. Charging is offered free to drivers, while site hosts benefit from hardware, installation and lifetime maintenance at no cost. The strategic destinations and careful siting of Volta community charging drive both high utilization and high visibility, establishing Volta as an incredibly effective catalyst for EV adoption. More than two-thirds of non-EV drivers who see Volta’s charging amenities say they will consider a plug-in electric vehicle for their next car purchase.

2 EV Hub, citing figures dated October 23, 2017 (https://app.powerbi.com/view?r=eyJrIjoiYWMwOGNiMmItMjBmYi00NmQ0LWFiYjYtMmU4YzA-3ODBiY2Q0IiwidCI6IjFiYjQ4ZGE0LTMxNDMtNDAzMS1zZGFILWNjYzA0MDc1MDhmZSlslmMiOjF9&pageName=ReportSection).
3 Edison Electric Institute, “Plug-in Electric Vehicle Sales Forecast Through 2025 and the Charging Infrastructure Required.”
4 Ibid.
5 Calculations do not include residential outlets. Charger types included are AC Level 1, AC Level 2, and DC fast-charging. U.S. Department of Energy, citing figures dated June 1, 2018 (https://www.afdc.energy.gov/fuels/stations_counts.html).
7 Grand View Research, Inc., “Electric Vehicle (EV) Charging Infrastructure Mark Analysis By Charger Type (Slow Charger, Fast Charger), By Connector (CHAdeMo, Combined Charging System), By Application, By Region, And Segment Forecasts, 2014-2025.”
9 EV Hub
10 https://driveelectricus.com/
12 EV Hub, citing figures from HybridCars.com.
13 Auto Alliance (https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/).
14 Calculations do not include residential outlets. Charger types included are AC Level 1, AC Level 2, and DC fast-charging. U.S. Department of Energy, citing figures dated May 31, 2018 (http://www.afdc.energy.gov/fuels/stations_counts.html).