

ELECTRIFICATION & VEHICLE ELECTRIFICATION IN THE TRANSPORTATION INDUSTRY

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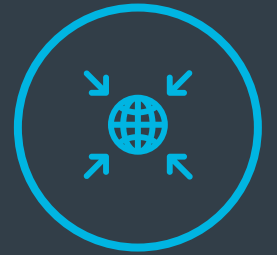
A Changing Market



Advancements in vehicle technologies have created a market where growth is imminent.

- / EV battery costs have dropped over 80 percent per kilowatt hour, creating a more accessible market of not only light duty vehicles, but also medium duty, heavy duty, and transit vehicles.
- / New charging technologies have also been developed that can provide immense amounts of energy to charge batteries in just minutes.
- / Emerging technologies are advancing that promote how renewable energy, transportation electrification, and distributed energy resources can all be harnessed to reinvent how we manage energy.

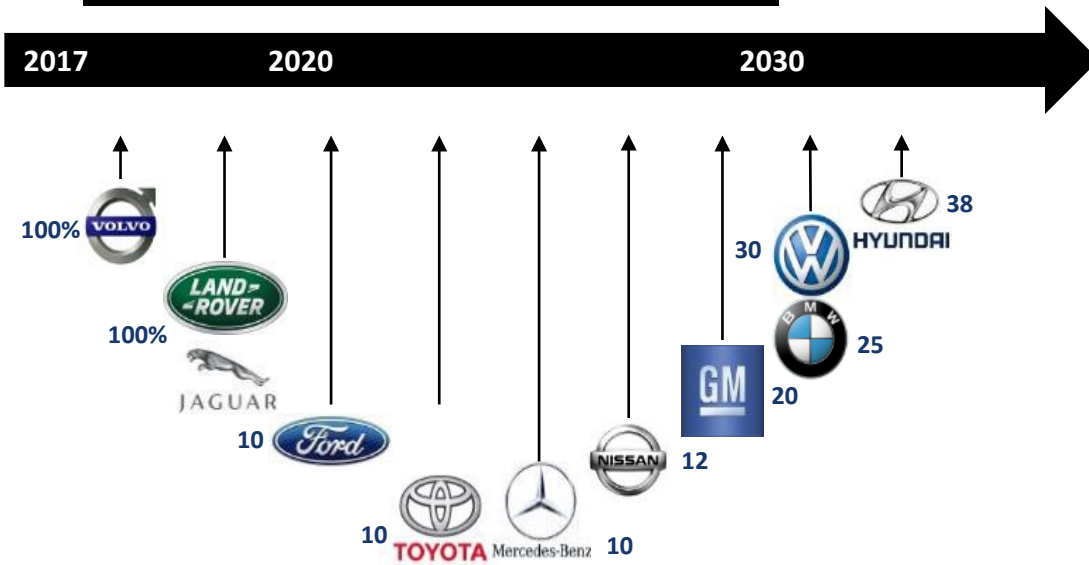
Additional Market Drivers



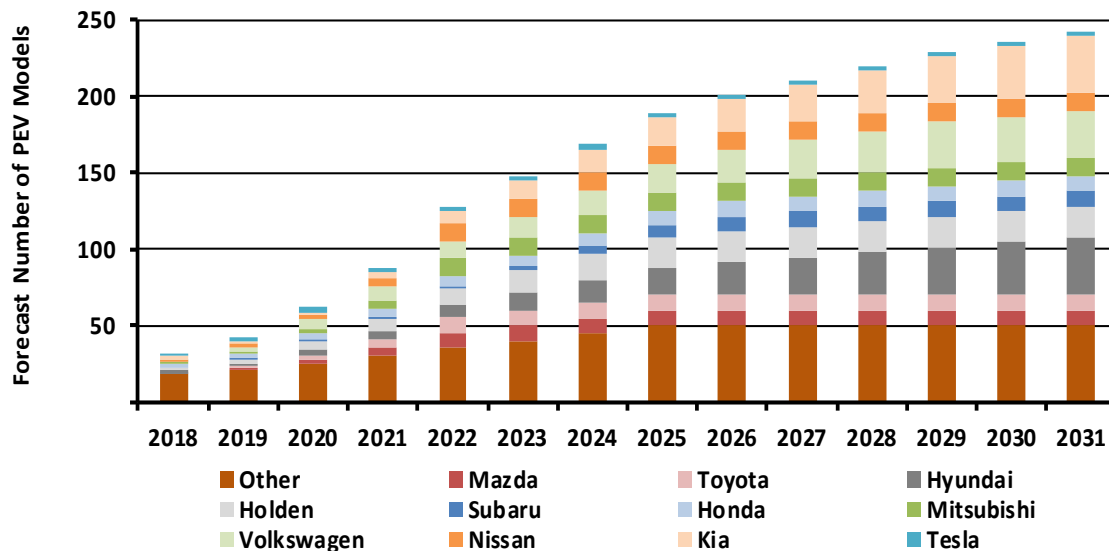
The push for transportation electrification is happening now.

- / Cities want the benefits EVs can bring to help them meet sustainability and air quality goals, improve the health of their communities, and even potentially reduce the life cycle cost of their own fleets.
- / Utilities recognize that EV adoption is the pathway to grid modernization, as transportation is set to become their biggest customer.
- / Transportation agencies are trying to develop best practices for planning and design of infrastructure required to support new vehicles.
- / States and regulatory agencies are passing mandates and proposals to support those efforts.

EV Transition Announcements



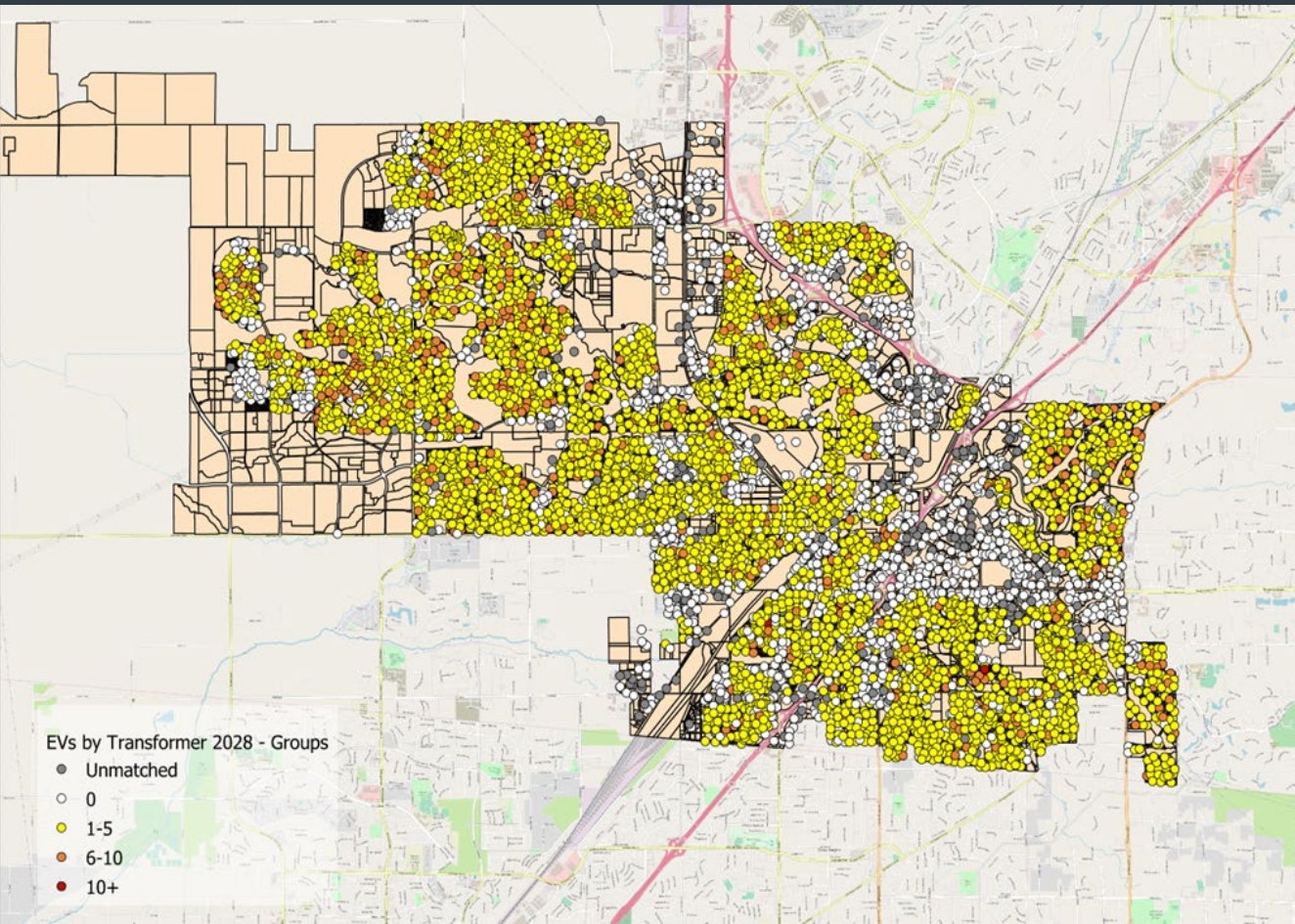
PEV Forecast Model Availability



Transition to Electric Vehicles

- / Approximately 890,000 EVs are on the road in the U.S.
- / Original Equipment Manufacturers (OEMs) increasingly working to transition their vehicles in response to policy changes and new regulations.
- / In the next five years, the automotive industry is expecting 127 battery-electric models to be introduced.
- / Total EV sales increased by 40 percent from 2017 to 2018.
- / EVs are forecast to reach price parity with their gasoline counterparts by 2023.

EV Uptake Forecast – Spatial Forecast 2028



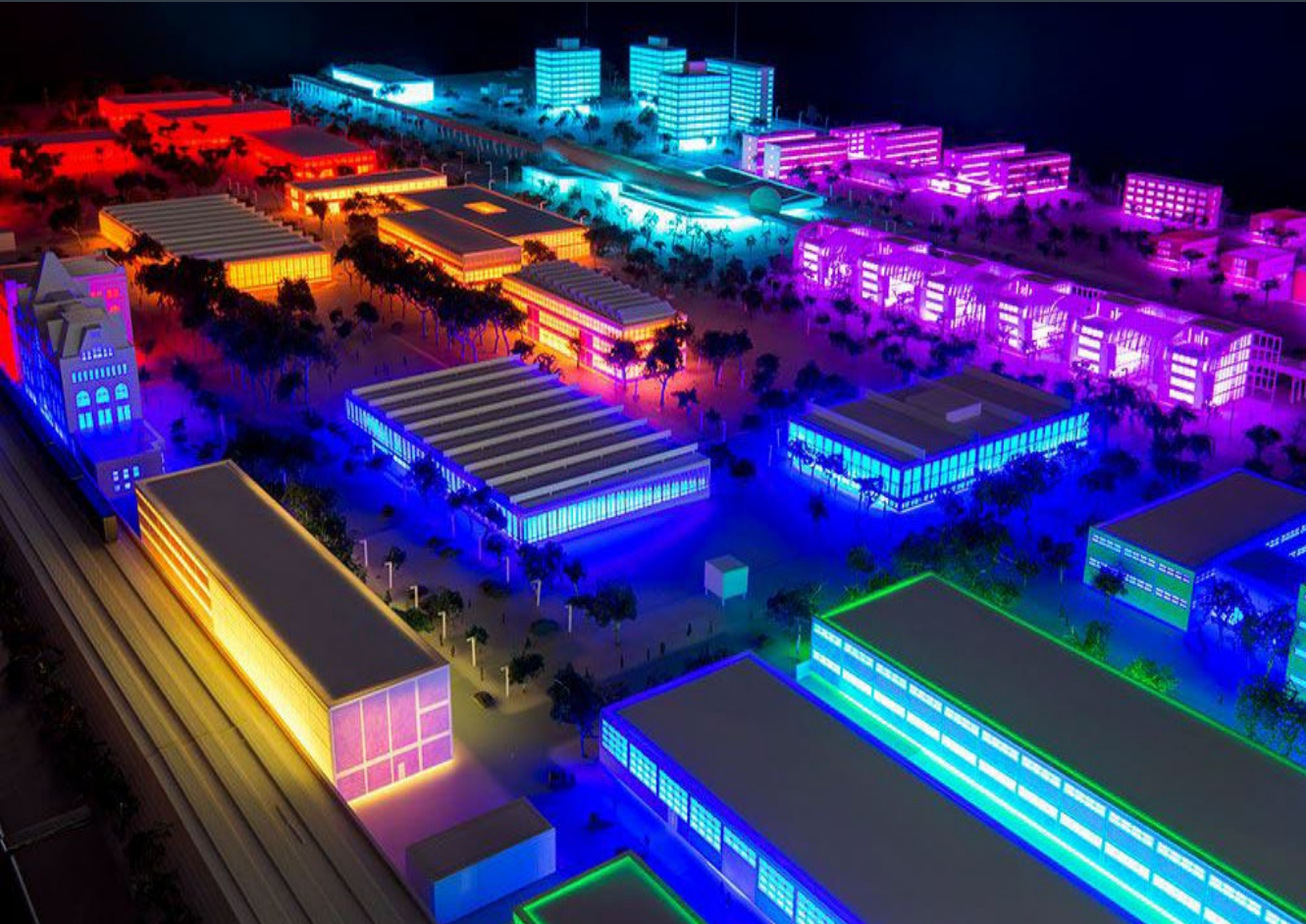
- ✓ Understand utility grid impacts of EV adoption at the distribution system level.
- ✓ Modeling shows EV adoption relatively even across the network, with some “hot spots” in areas of:
 - ✓ Relatively low commercial services
 - ✓ Relatively high education
 - ✓ Relatively high solar PV adoption
- ✓ Model results can be used for system planning and capital improvement projects.

The Energy – Transportation Nexus



- ✓ Increased adoption of EVs will radically impact electricity and transportation infrastructure.
- ✓ Simultaneous need to decarbonize and rebuild resilience in electric grid.
- ✓ Rapid deployment of smart energy and mobility technologies needed to meet these challenges.

Electrification, Renewable Energy & Microgrids



Microgrids

- / Allows island mode from broader grid with onsite conventional or renewable generation and storage.
- / Enables continuous operation of critical infrastructure, community assets.
- / When paired with EV:
 - / Supports critical transportation
 - / Vehicles serve as DERs

Community of the Future

Bronzeville Community Microgrid



ComEd's Community of the Future

- / Smart city, energy, and mobility pilots to create a more connected, resilient, green community.
- / Pilots include:
 - / Air quality sensors
 - / Microtransit
 - / Off-grid lighting

New Opportunities



- ✓ Deploying these new technologies opens opportunities for low-income communities.
- ✓ Renewables and EVs can generate household/transportation cost savings.
- ✓ Increased opportunities for job training, economic development.

An Electrified Future

