

Electric Vehicles as DERs

Utility Remuneration and Responding to DERs

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Stakeholder Meeting – September 19, 2019

Distributed Resource Coalition

Cara Clairman and Michael Knox



Distributed Resource Coalition (DRC)

- DRC is an intervenor in OEB rate proceedings and consultations focused on:
 1. optimizing existing energy assets;
 2. efficiently facilitating the integration of existing and innovative DERs (including EV-related DERs) to achieve customer and grid solutions; and
 3. providing input on direct customer needs and local distribution company opportunities relating to DERs (including EV-related DERs).



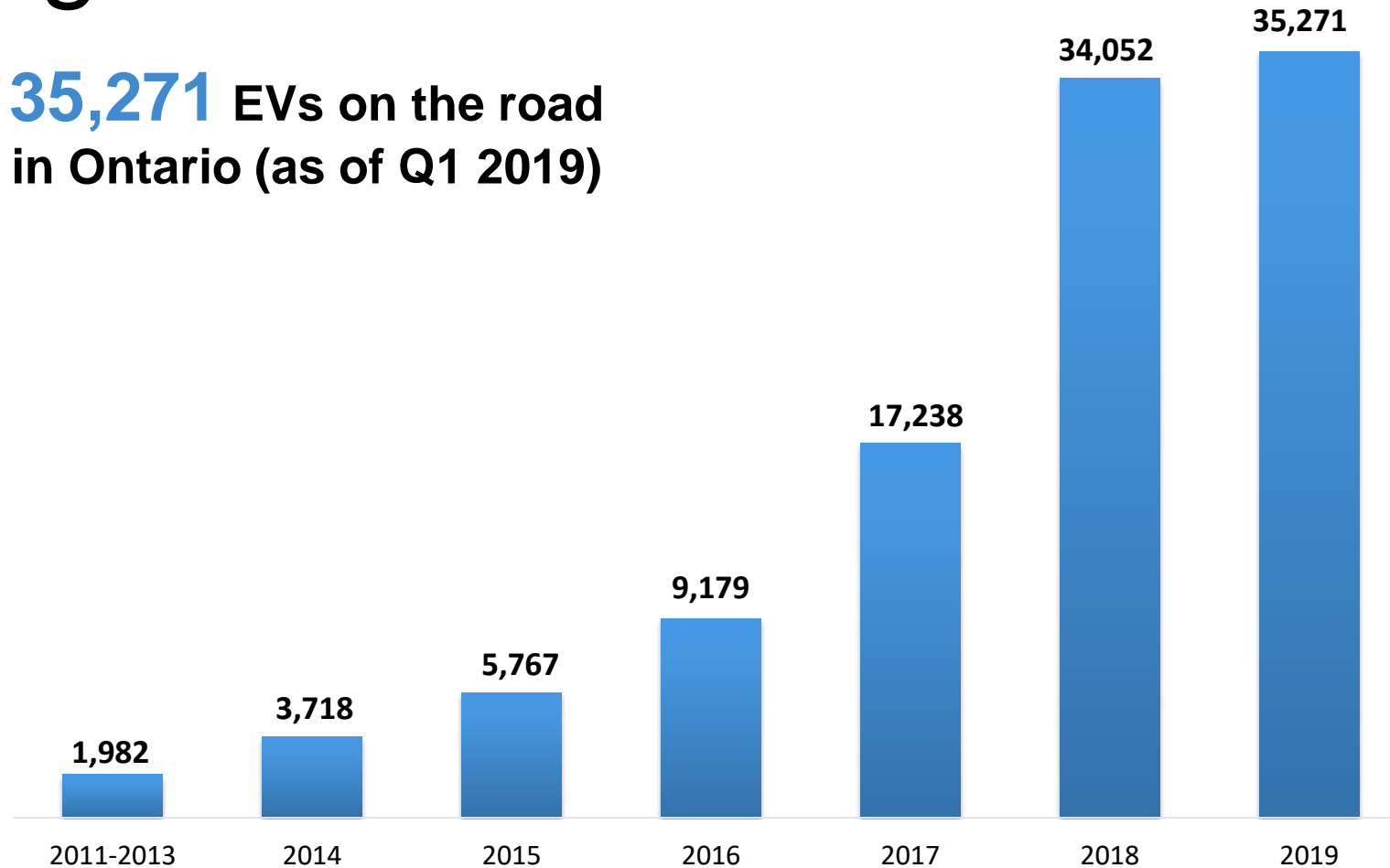
DRC membership

- **Plug'n Drive:** Non-profit organization committed to accelerating the adoption of EVs in order to maximize their environmental and economic benefits; a leader in the EV industry, a trusted and unbiased source of information on electric cars, charging stations, and the electricity sector.
- **Electric Vehicle Society:** Membership-based organization representing over 1,000 end-use, largely residential, individual electricity customers in 12 local chapters across Ontario. Mission to accelerate the adoption of EVs and shift the car culture towards an environmentally more sustainable future.

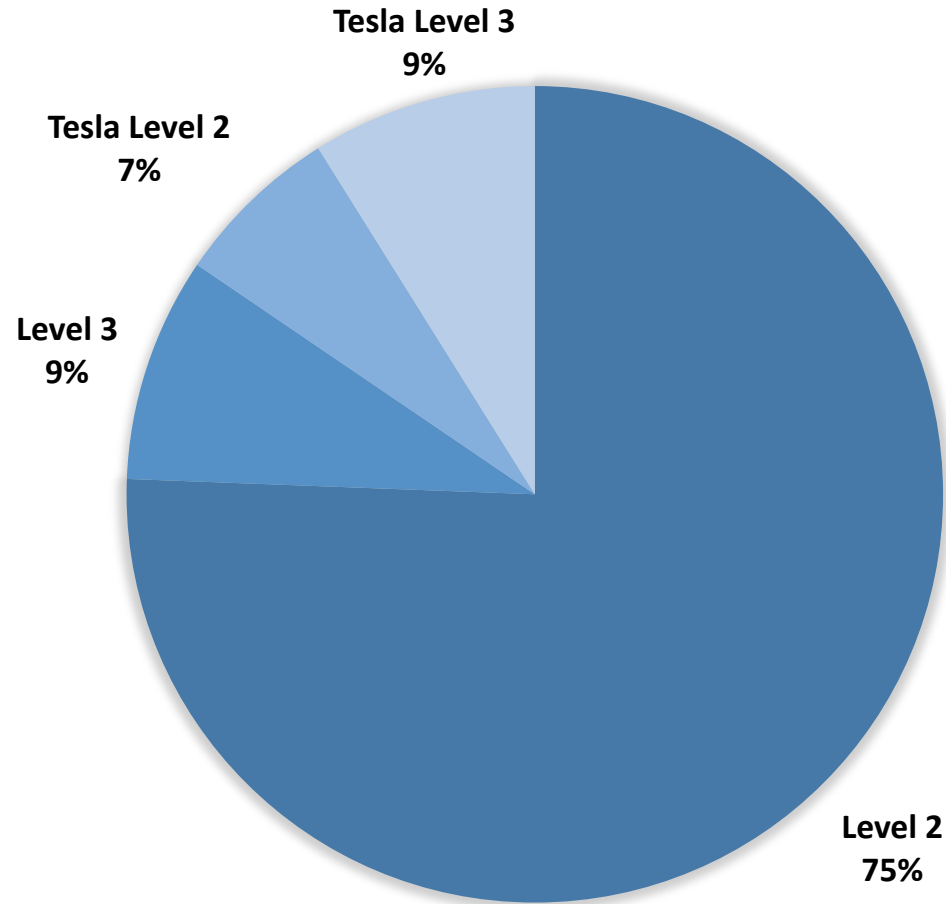


EV sales growth in Ontario

35,271 EVs on the road
in Ontario (as of Q1 2019)



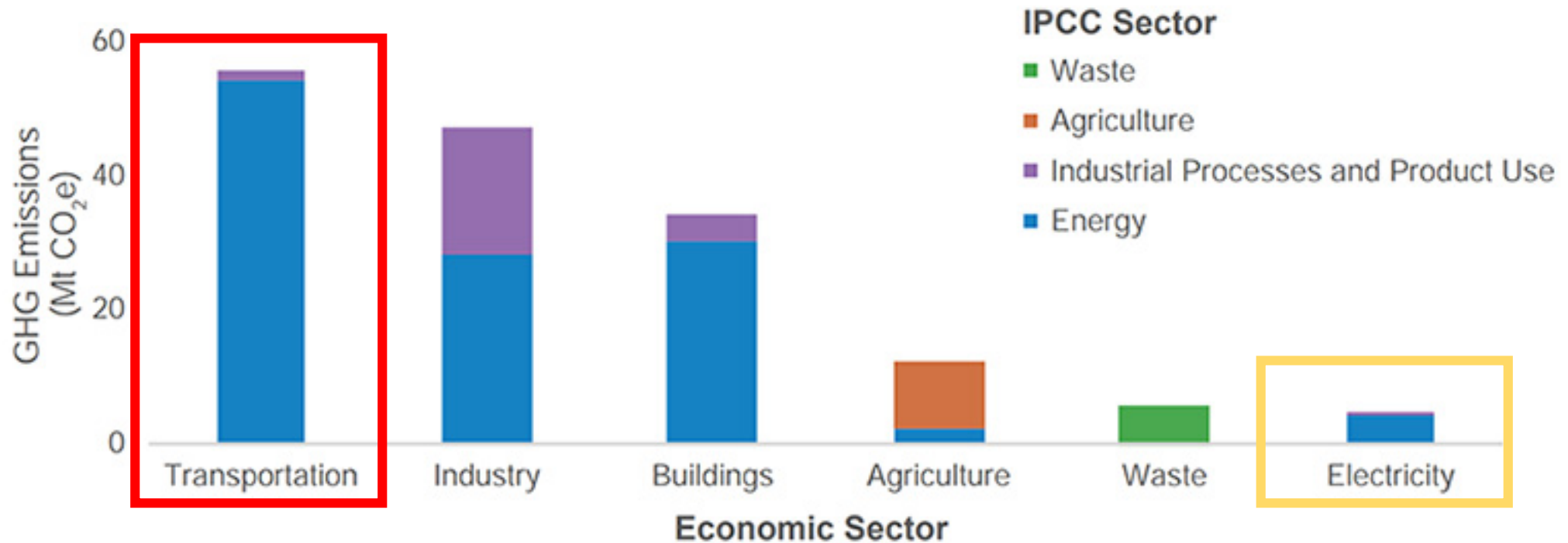
Charging infrastructure in Ontario



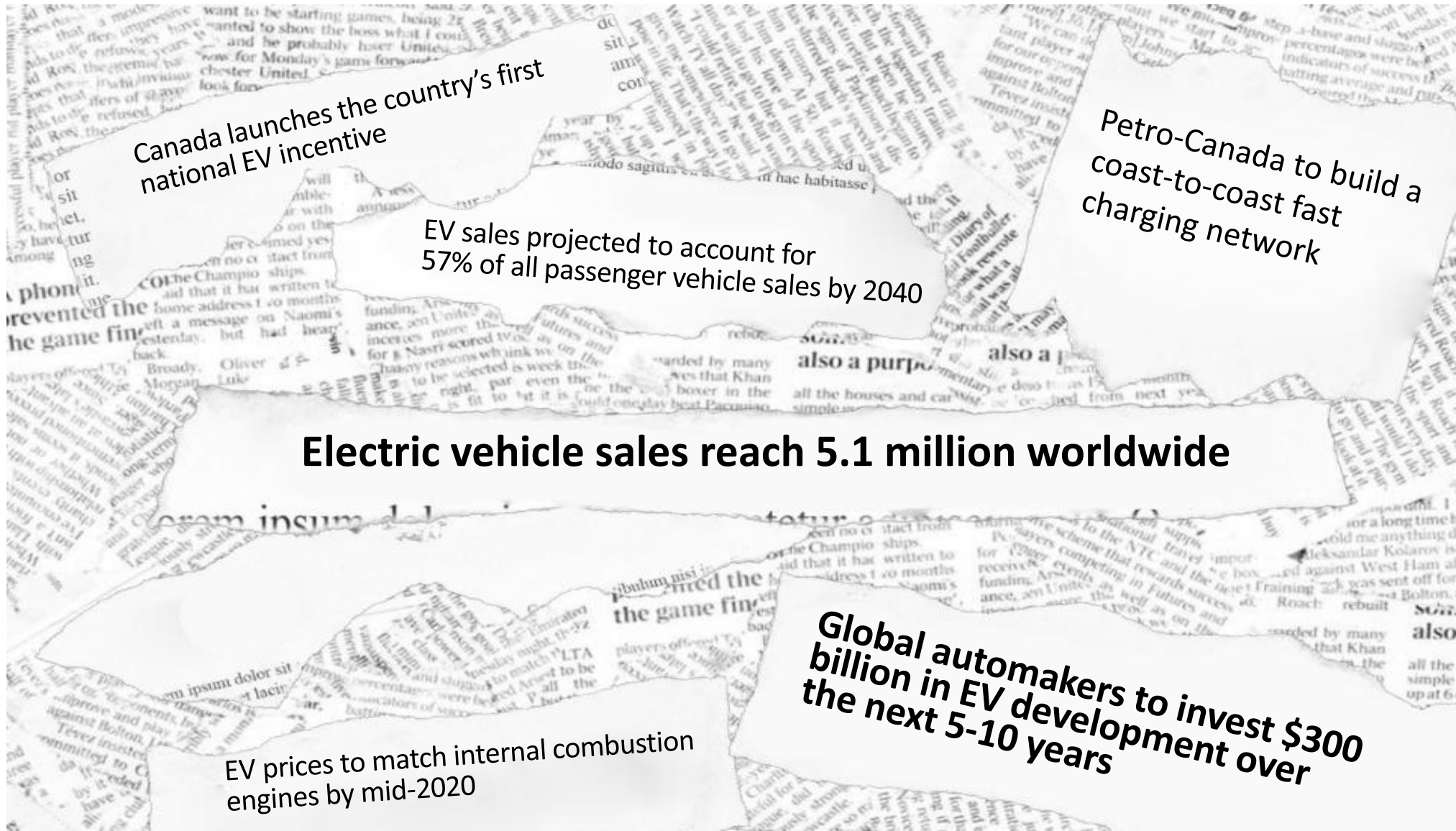
Approximately **1,960** Charging Stations Across Ontario*

*Data extracted from ChargeHub

Electrification and emissions reductions



EVs: not “if” but “when”



DERs include EVs

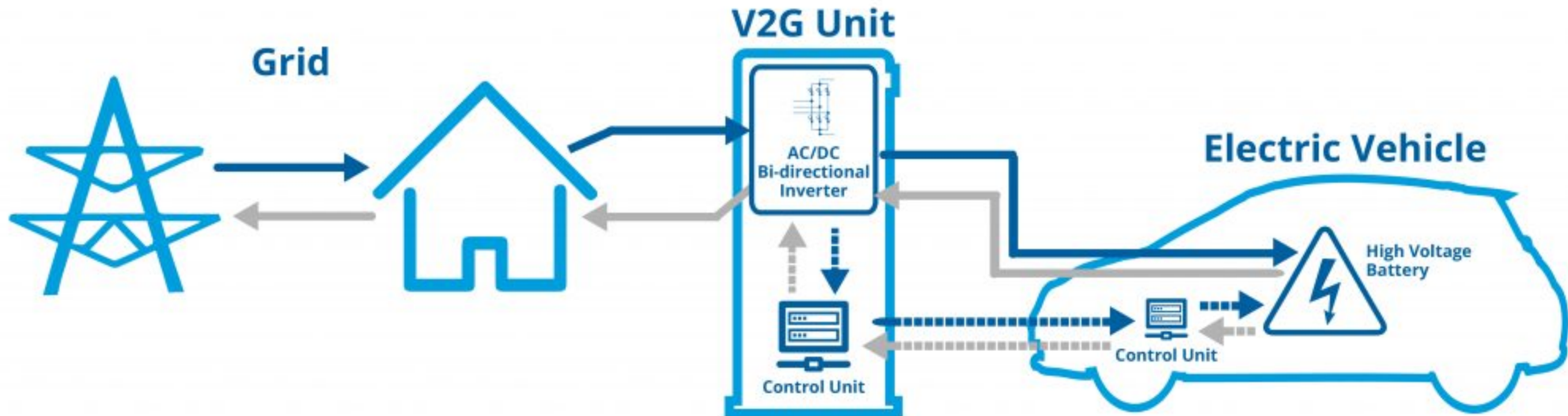
- The IESO defines distributed energy resources (**DERs**) as follows:
 - DERs are electricity-producing resources or controllable loads that are connected to a local distribution system or connected to a host facility within the local distribution system.
 - DERs can include solar panels, combined heat and power plants, electricity storage, small natural gas-fuelled generators, **electric vehicles** and controllable loads (e.g., HVAC systems, electric water heaters).





EVs as DERs

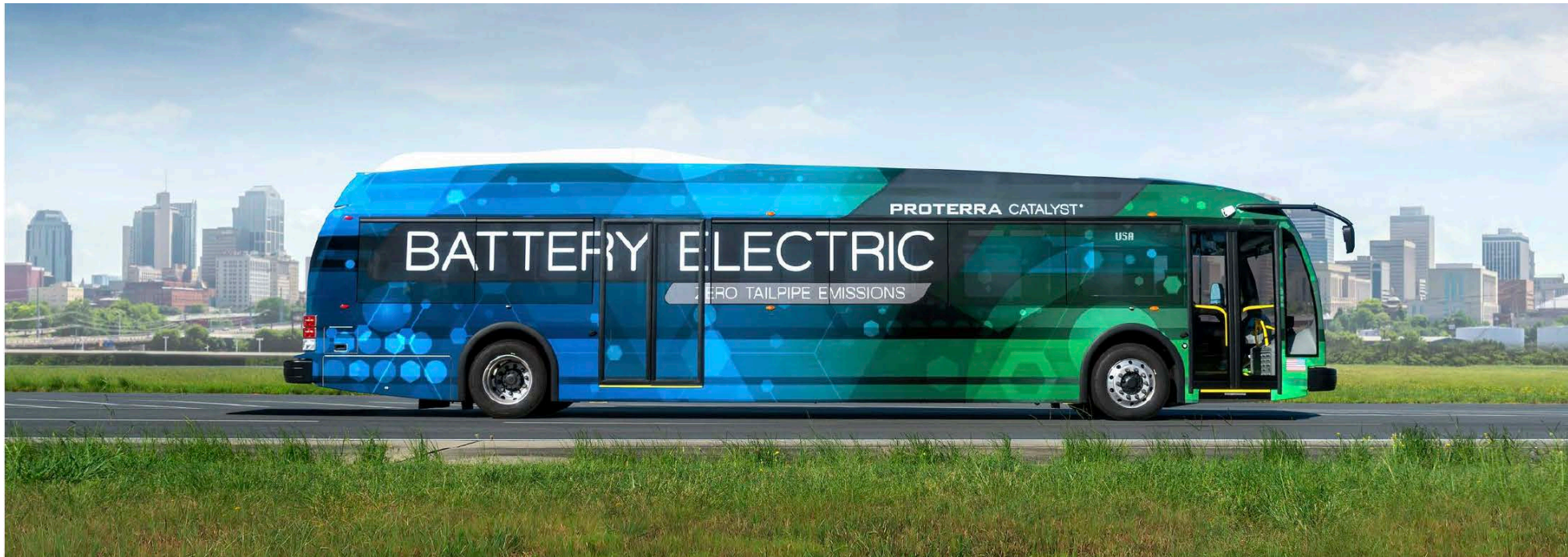
- Used EV batteries for storage (or storage in the vehicles)
- Used EV batteries to back up charging stations (microgrid)
- Not just emission reductions, but climate adaptation/resilience



Source: Fleetcarma, "The Latest in Vehicle to Grid (V2G) Charging", available online at: <https://www.fleetcarma.com/latest-vehicle-grid-v2g-charging/>.

Electric buses as DERs

- Brampton: single largest global deployment of standardized and fully interoperable battery electric buses and high powered overhead on-route charging systems: 8 electric buses and 4 charging systems.
- TTC will have 60 electric buses delivered by the end of 2019



System and consumer benefits of DERs and EV-related DERs

- EVs provide system-wide benefits, provide increased capacity in a cost effective manner, and emissions reductions that benefit all consumers, whether or not they are EV owners
- DER and EV-related DER growth and integration are resulting in fundamental changes to the distribution grid that will impact several aspects of the electricity system, including:
 - electricity supply and demand, customer preferences, capital expenditures, operations and maintenance, load and productivity.
- Utility and non-utility investment in DERs, including EV-related DERs may produce enhanced system reliability, lower customer costs through deferred/paced system investments and improved flexibility



Recommendations

- Reduce regulatory barriers to DERs, including EV-related DERs, by developing clear guidelines/rules and streamlining regulatory review
- Benefits of EVs should be considered fully in context of DER integration
- Utilities should not be prohibited from implementing EV DER infrastructure where efficient and effective for customers
- Re-assess and clarify regulatory restrictions on utility business activities and separation of regulated vs. competitive services
- Encourage deferred utility capital investment by advancing role of DERs as viable alternatives to traditional investment
- Develop mechanisms to compensate DERs, including EV-related DERs, for the services they provide to the electricity system
- Facilitate market-based solutions that respect consumer choices by increasing transparency



Thank you.

