

Refueling Infrastructure for an Electric Vehicle Future

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BC Hydro

January 28, 2014 | Hyatt Regency Hotel, Vancouver



Outline

- Electric Vehicle Overview
- EV Smart Infrastructure project





EV Value Proposition

- Zero Tailpipe Emissions
- Local Air Quality
- GHG Emission Mitigation Tool
- Energy Security



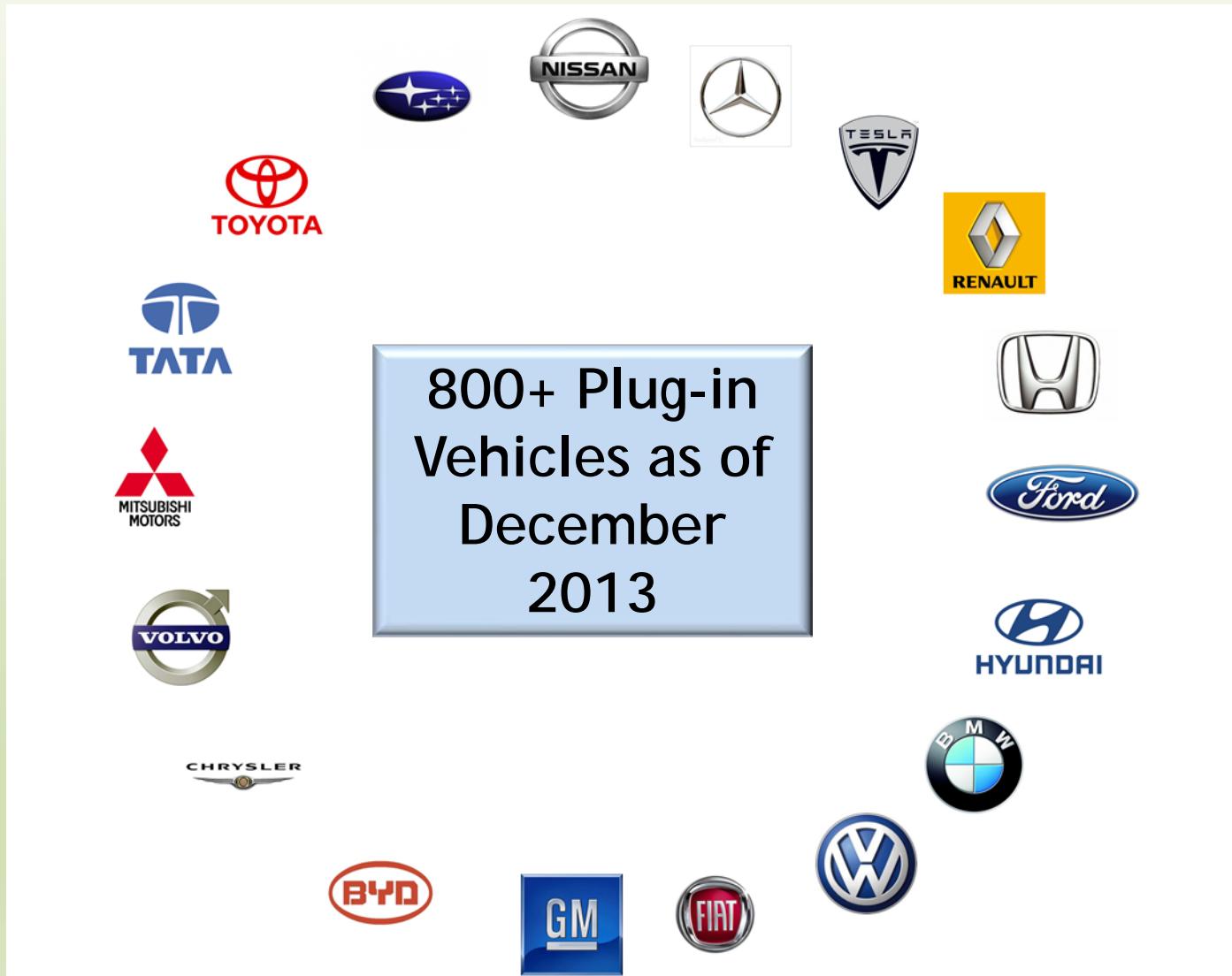


EV Market Barriers

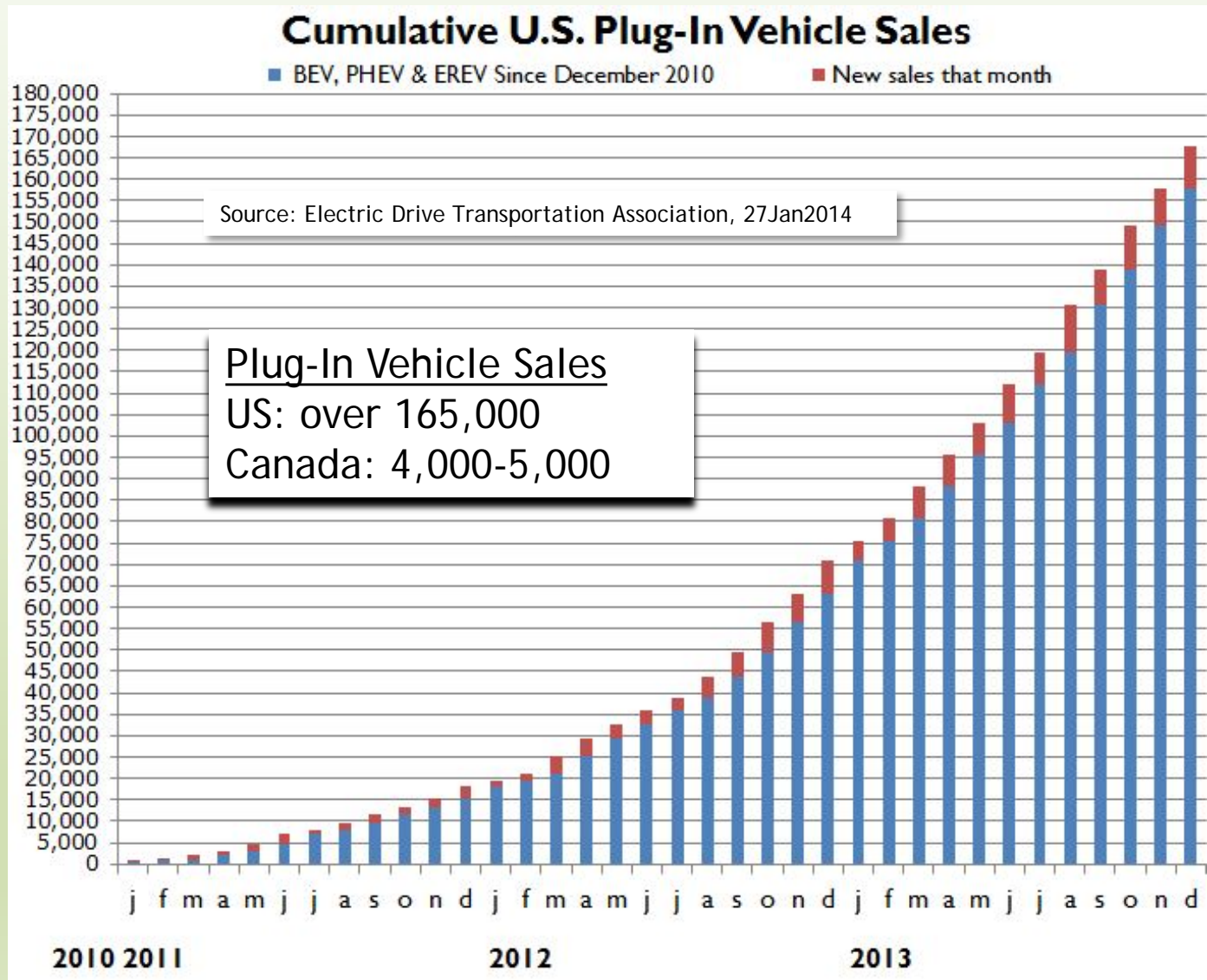
- Perception/Performance
- Cost
- Technology - Battery
- Infrastructure



EVs -BC Market



EVs North American Market



EV Infrastructure - last 20ft of copper

Level 1 - 1kW



Level 2 - 3-6kW



DC Fast Charge -
20-50kW
(critical EV infrastructure)





EV Smart Infrastructure project

- Overview
- Objectives
- Business Models
- Challenges



DC Fast Charging Stations

- Up to 30 DC Fast Charger (DCFC) Stations
- Project Deployment Schedule: 2012-2016
- Budget estimate: \$100,000 per station

-  = Regular Charging Station
-  = Fast Charging Station



Project Objectives

- Enable inter-urban EV travel
- Public outreach and education
- Explore business models and impacts on electric utility industry



Viabile Business Model?

Regulatory

Permissible under current regulations

Register as utility or Regulatory Reform

Requires new tariff

Profitability?

Station Cost \$50k-\$120k

Fixed Operating Costs

- Demand charges: \$75/mo
- Network services: \$20-30/mo (remote payment, tech support)

Revenues: \$5-10/charge

Substitute: home/workplace charging

Revenue from all EV charging

Station Siting

community centres, libraries, city-owned parking

Vehicle oriented retailers: shopping malls, gas stations, coffee shops,

Requires land lease or right-of-ways

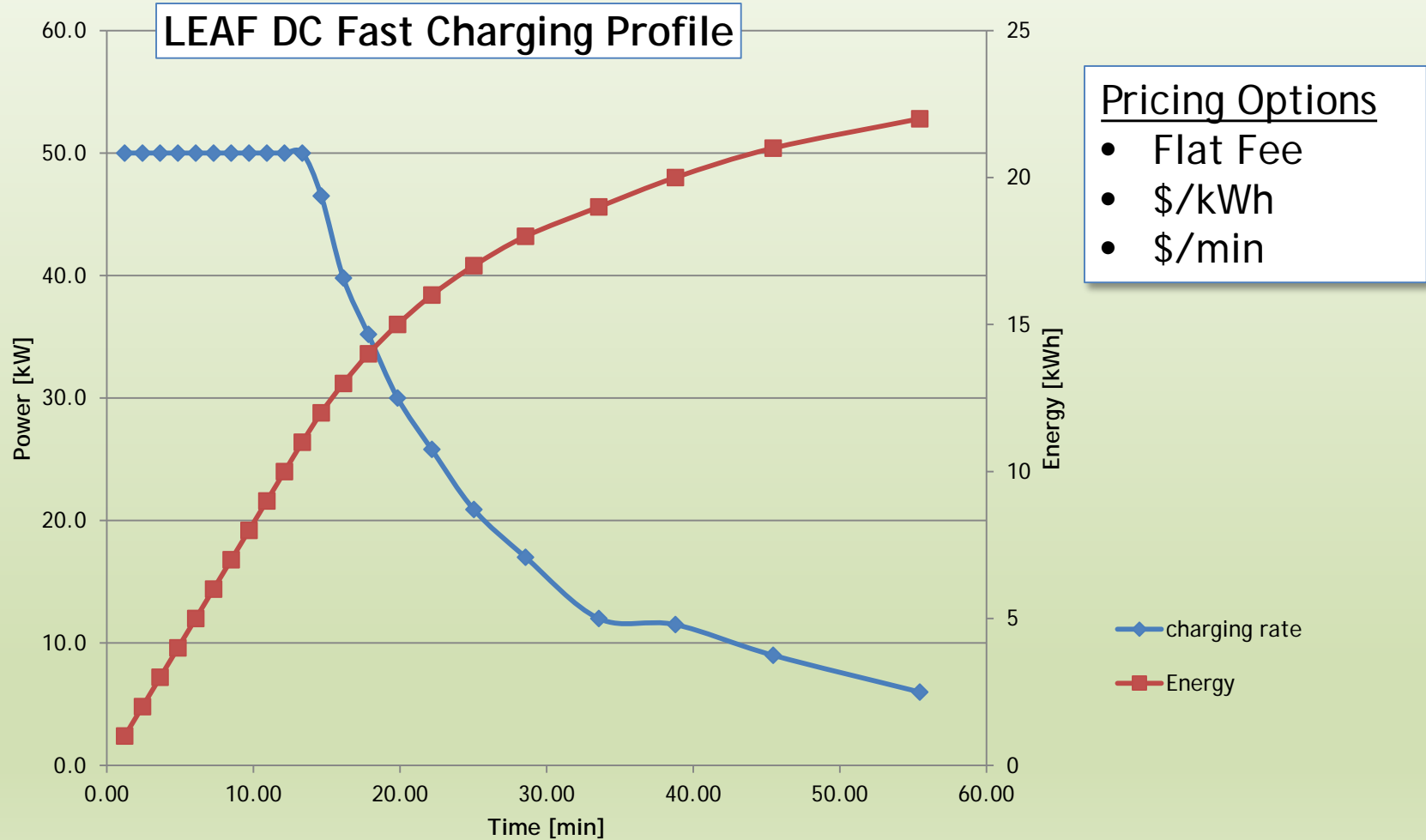
Municipal Model

Private Sector Model

Utility Model



Pricing Challenge



Project Technology Risk

CHAdeMo



100s of installations in North America

VS

SAE (Combo)



EVs and charging stations will be introduced this year (2014)



Thank You

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