Transportation Electrification in Quebec: Overcoming barriers to cleaner cars

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Arthur Billette, Ministère des Transports du Québec
Arthur.billette@transports.gouv.qc.ca
Background: Issues

- **Environmental issues: Greenhouse gas emission (GhG)**
  - Transportation sector: 43% of Québec’s GhG (2016)
  - Road transportation: 80.1% of GhG from the transportation sector
  - From 1990 to 2016, Québec’s GhG emissions went up 52.3% for road transportation

- **Economic issues**
  - In 2013 Québec consumed 18.2 billion liters of oil products, of which 75% was used for transport
  - In 2012, oil products consumption for transport represented a negative impact of 9.2 G$ on Québec’s trade balance
Strategic Objectives

- **Take part** in the fight against climate change
  - Québec intends to reduce its GHG by 37.5% below the 1990 level by the year 2030

- **Reduce** oil dependence and therefore improve Québec’s trade balance

- **Contribute** to Québec’s economic development with an emerging industry and using the electric energy available in Québec
Background: actions taken

- **2013**: Transportation Electrification Strategy (TES)
- Key component of the 2013-2020 Climate Change Action Plan
- **2015**: Electrification of Transports Action Plan 2015-2020 (TEAP): Twelve ministries and agencies collaborate on this project
- Transportation electrification in Québec: a continuous and concerted effort through multiple election cycles and governments
Québec’s Assets

An abundant renewable electrical energy supply at a very competitive cost:
- Electricity surplus: 41,3 TWh (2019-2026);
- More than 99% renewable (hydro, wind, biomass);
- Lower rates for residential customers in North America.

Availability of rare earth minerals
- lithium and graphite for the manufacturing of batteries
- niobium or vanadium for special alloys to lighten vehicles
Québec’s Assets

- World-renowned expertise in electricity generation and related transportation technologies: motorization, batteries, on-board systems, light materials, energy management, charging stations, electronics, etc.

- Transportation industry: 650 corporations and 30 000 jobs including 3 000 jobs in electric transportation: Nova Bus, TM4, Bombardier Recreational Products, Blue Solutions (formerly known as Bathium) AddÉnergie, Néamska Lithium, Varitron, CVTech

- 30 research and technology transfer centers actively involved in the field
Challenges

› **Encourage** individuals and businesses to consider alternatives to gasoline-powered vehicles for their transportation needs
  - Limited variety of electric vehicle models
  - EV’s limited range and high cost.

› **Increase** the research potential in an emerging technology and develop an industry dedicated to electric transportation that is innovative and competitive on international markets

› **Create** a supportive environment for electric transportation
Action Plan

› A period of 5 years: 2015-2020

› Budget: initially 420.75 M$ (+ 191.4 M$ added in 2017 & 2018 and 439.3 M$ added in March 2019), for a total of 1 051.45 M$

› 37 measures in 3 strategic orientations:
  - Promote Electric Transportation
  - Develop the Industry
  - Create a favourable Environment

› Precision: The TEAP is about transportation, not just EVs…

› A clear vision: In 2020, Québec will be a leader in the use of electric-powered transportation means and a forerunner in the realm of sustainable mobility
Targets for 2020

› 100 000 Plug-in electric and hybrid vehicles registered
› 150 000 tonnes of GHG emissions reduction in transportation sector
› 66 million of liters of fuel saved annually
› $500 million of investment and 5 000 jobs in the electric vehicle industry
Keys results

› 44,434 electric vehicles on the road on April 30th 2019

› First electric vehicles sales rank in Canada

› 4,060 public charging stations on December 31st 2018, including 369 fast chargers

› Most important charging stations network in Canada, Electric Circuit (Hydro-Québec)
Incentives

- Rebate on the purchase of an electric vehicle (up to $8,000) and home charging station (up to $600)
- Financial assistance for workplace charging stations: 50% of eligible expenses, to a limit of $25,000 by company
- Privileged access to transit priority lanes
- Free access to toll bridges on highways and to the ferry services of Société des traversiers du Québec
- Deployement of fast charging stations along main roads
  - New pilot project by HQ: ultra-fast charging stations (100 to 350 kW) in 2019-2020
Measures to lead by example

- Pilot projects for the electrification of taxi fleets
- Electrification of the government fleet (more than 1 000 EV!)
- **New measure**: Electrification of driving schools fleets
Measures to stand out

- International ZEV Alliance
- Legislative and regulatory framework
  - ZEV (Zero-emission vehicles) bill
  - Construction code, Highway Safety Code
  - Adopt new government policy directions in land use planning
- Promote electric vehicles
Conclusion

› Successfull measures
  › Continued increase of the number of EVs registered
  › Commercialization of several distinctive products

› Showcases the expertise and the know-how of our industry and research centers

› A way to reduce our energy dependence on oil and to improve the trade balance of Québec

› One of the pillars of Québec’s economic development

› Next step: Electrification of Transports Action Plan 2021-2025?