Running on Green Power!


1. Rationale
2. Existing measures
3. New measures
4. Financial implications
5. Targets
The rationale behind the action plan

- Lowering greenhouse gas emissions
- Leveraging industrial development opportunities
- Creating energy self-sufficiency
Québec’s strengths

- A reliable electric network
- A price differential between electricity and gas benefiting electric vehicles (EVs)
- Companies actively engaged in manufacturing electric vehicles
Different types of power sources

- Hybrid
- Plug-in hybrid
- Electric with extended range generators
- All-electric
Hybrid

Source: EDTA
Plug-in hybrid

Source: EDTA
Extended range generator

Source: EDTA
All-electric

Source: EDTA

Québec
## Fill-up costs

<table>
<thead>
<tr>
<th>TYPES DE MOTORISATION</th>
<th>Essence</th>
<th>Électrique à autonomie prolongée</th>
<th>Tout électrique</th>
</tr>
</thead>
<tbody>
<tr>
<td>COÛT POUR FAIRE LE PLEIN D’ÉLECTRICITÉ OU D’ESSENCE¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pour 100 km</td>
<td>11,50 $</td>
<td>2,78 $</td>
<td>1,24 $</td>
</tr>
<tr>
<td>Par semaine</td>
<td>44,23 $</td>
<td>7,40 $</td>
<td>4,78 $</td>
</tr>
<tr>
<td>Gain par semaine par rapport au véhicule à essence</td>
<td>-</td>
<td>36,83 $</td>
<td>39,45 $</td>
</tr>
<tr>
<td>Gain annuel par rapport au véhicule à essence</td>
<td>-</td>
<td>1,915 $</td>
<td>2,051 $</td>
</tr>
</tbody>
</table>

¹ Coût moyen pour une voiture médiane.
Scope of the action plan

1. Users
2. EV deployment
3. Public transit
4. Industry
Existing Measures
For users

- Tax credit for new fuel-efficient vehicles
- Financial assistance for hybrid and electric trucks
- Amortization rate for hybrid and electric heavy trucks
EV deployment

Trials and pilot projects:
- Ford
- Mitsubishi
- Nissan and Communauto
- Toyota and Université Laval
- Chevrolet Volt
- Pilot project for low-speed vehicles
Public transit

Assistance programs:
- Taxi owners and car-sharing organizations
- Hybrid and electric buses
- Transit corporation service vehicles
Major upcoming projects:

- Increase in metro capacity
- Electrification of commuter trains
- Boulevard Pie-IX in Montréal and Laval
- Tramway lines on the Island of Montréal
- Extension of the Montréal metro
Industry

- IREQ,
- TM4, Phostec, Bathium
- Electric buses: a mobilizing project
- Support for research and innovation
- Québec’s innovative companies
- Programs supporting industrial development
- The Laurentides region
Québec companies

- Assembly of hybrid vehicles: BRP, Nova Bus, Paccar and their suppliers
- Charging stations: AddÉnergie and its partner Gentec
- Batteries and battery materials: Bathium, Phostech Lithium
- Power systems: TM4, CVTech
New measures
3. Québec takes action to go further

1. Drivers can switch to electric vehicles (EVs)
2. EV deployment is approaching fast
3. Québec’s electricity for public transit
4. The Québec EV industry shows enviable prospects
Users

- Rebate on the purchase or lease of hybrid or electric vehicles
- Residential charging grant
- Education and promotion program
- Green license plate
Purchase rebate: terms

- Eligible recipients
- Eligible vehicles
- Rebate breakdown
Rebate: Eligible recipients

- Individuals
- Businesses
- Non-profit organizations
- Municipalities
Rebate: eligible vehicles

- New vehicles with a 4-kilowatthour (kWh) battery:
  - All-electric and hybrid plug-ins
- New hybrid vehicles:
  - Gas: consumption rate not exceeding 5.27 litres/100 kilometres
  - Diesel: consumption rate not exceeding 4.54 litres/100 kilometres
- New low-speed electric vehicles
<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Véhicules entièrement électriques et hybrides rechargeables avec une batterie de 4 kWh et plus. (ex. : Nissan Leaf, Chevrolet Volt)</td>
<td>De 5 000 $ à 8 000 $</td>
<td>De 4 500 $ à 8 000 $</td>
<td>De 3 000 $ à 4 000 $</td>
<td>De 2 000 $ à 3 000 $</td>
</tr>
<tr>
<td>Véhicules électriques à basse vitesse (VBV)</td>
<td>1 000 $</td>
<td>1 000 $</td>
<td>800 $</td>
<td>600 $</td>
</tr>
<tr>
<td>Véhicules hybrides (ex. : Toyota Prius, Honda Civic Hybride)</td>
<td>1 000 $</td>
<td>500 $</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Grants for residential charging stations

- Applicable to Level 2 stations (240 volts)
- Assistance representing 50% of eligible expenses
- Yearly maximum:
  - In 2012 = $1,000
  - In 2013 = $1,000
  - In 2014 = $800
  - In 2015 = $600
EV deployment

- Major EV projects: 400 electric vehicles
- Interfacing with the power grid
- Deploying the public charging infrastructure
  - Public charging strategy
  - Practical guide
  - Changes to the Québec Building Code for New Buildings
Filling up on electricity

- **Charging levels:**
  - Standard outdoor outlet (Level 1)
  - 240-volt outlet (Level 2)
  - Direct current chargers, a.k.a. quick chargers
Charging levels

Level 1

- 120-volt outdoor outlet
- Charging time (dead battery): overnight
- At home or at work
Charging levels

Level 2

- Dryer-type outlet (240 volts)
- Charging time (dead battery): a few hours
- At home or at work

Source: AddÉnergie
Charging levels

Direct current

- High voltage charging (400 to 600 volts)
- Charging time: according to technology
- In busy public places

Source: Hydro-Québec
Charging locations

- Lieux publics
- Lieu de travail
- Domicile

Québec
Public transit

- Next public transit policy
- Acquisition of hybrid buses and service vehicles in the next call for tenders
- Technology watch
- Taxis and public car sharing
Electric vehicle industry

- Support for R&D and innovation
- Industry research group
- Québec EV cluster
- Support for investment projects in Québec
- Attracting international manufacturers to Québec
Financial implications

- **Existing measures:** $85M
  - $30M for a Québec electric bus
- **New measures:** $165M
  - $95M for EV industry
- **Total:** $250M
Targets

- 25% of new light passenger vehicle sales in 2020
- 95% of commutes will use electricity
- Jobs will increase from 1,500 to 5,000
Making Québec a sustainable development leader

Here is a concrete example of an electric-powered trip chain.

A man...
1. Drives to work in his electric vehicle after charging it at home
2. Leaves his vehicle in a park-and-ride facility, where it recharges during the day
3. Goes downtown on a commuter train or electric bus
4. Gets around downtown using an electric rideshare vehicle or electric mass transit

Range of movement fed by electricity.