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Electrification as a societal opportunity

Québec's policies in transportation electrification

Fleuve Saint-Laurent
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EVS35
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Presentation

- Setting the scene
- Examples of strong policies
- An opportunity for richness
- Results and looking forward

Setting the scene

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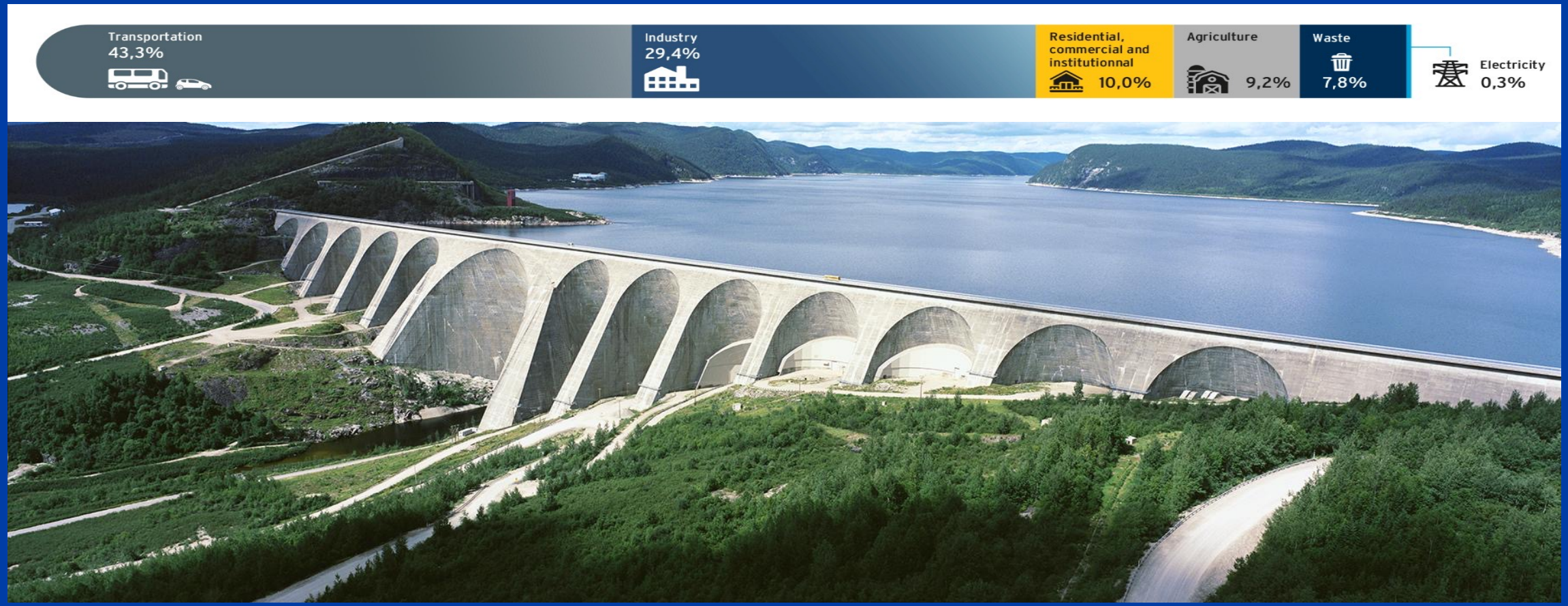
Québec's GHG Emissions



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A Clean Electricity

- 99.8% renewable
- Hydro-Québec: a nationalized utility provider
- $4.9B contribution to the Québec government in 2021

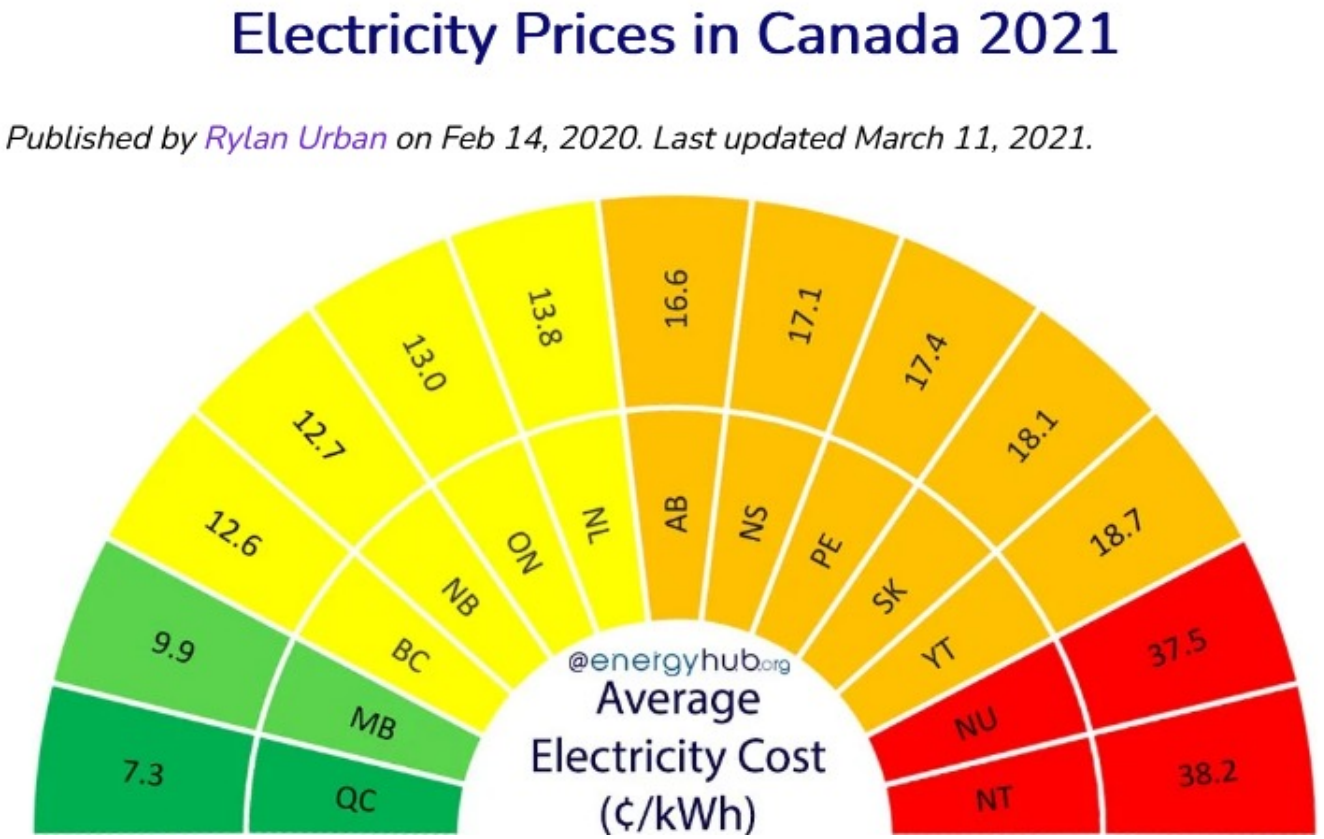
Expects a 20-TWh or 12% increase in demand over the 2019–2029 period:

- programs for efficiency and conservation
- diversifying (green H, wind, solar)
- currently developing and optimizing the hydroelectric network

A Cheap Electricity

7.3 ¢/kWh Québec

13.8 ¢/kWh Canada (average)



Benefits of Transportation Electrification

- Reducing GHG emissions
  - Reach climate goals : -37.5% 2030 vs 1990, carbon-neutral 2050
- Improved air quality and public health
- Economic niche of the future
  - Quality jobs
  - Direct and positive impact on Québec's trade balance

Examples of strong policies

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Various Policies

- 2013-2020 Climate Change Action Plan
- 2015-2020 Transportation Electrification Action Plan
- 2030 Energy Policy and its 2018-2023 Energy transition, Innovation and Efficiency Master Plan
- 2030 Sustainable Mobility Policy
- Québec's strategy for developing the battery sector
- Québec's Plan for the Development of Critical and Strategic Minerals

Plan for a Green Economy 2030

- Launched in November 2020, it maps out Québec's climate action roadmap until 2030. It will bolster its resilience to climate change while contributing to economic development
- Rolling 5 years Implementation Plan (IP), revised annually
  - 2022-2027 IP published on April 28, 2022
  - 70% financed by Québec’s Cap and Trade Market
  - $7.6B until 2027
  - 15.9 Mt GHG reductions, or 51% of the effort for the 2030 target (-31.0 Mt)

Electrification Goals (by 2030)

- 1.6M electric vehicles (EV)
- 100% new light duty sales all-electric by 2035
- 40% of taxis, 55% of city buses and 65% of school buses
- 100% of governmental cars, SUVs, vans, and minivans and 25% of pickup trucks (100% light in 2035, 100% HDV in 2040)
- Up to 2,780 fast-charging stations
- 4,500 level 2 public chargers by 2028, complemented by a program in Montreal and Québec City for 900 more

Table 1: Principal actions in transport electrification supported by the 2022-2027 IP and associated budgets

Axis	Example of action	Budget (M CAD$)
Electrify passenger transport	Incentives for cars, taxis, and buses Charging stations (home, work, public network) Strengthen the light vehicle ZEV mandate	**1,987.4**
	Support the electrification of urban buses	**524.6**
Increase the use of renewable energies and efficiency in the transport of goods	Incentives for trucks and fleet conversion (including charging solutions) Aid to increase the efficiency of maritime, air, and train transportation Define a ZEV mandate for MHD vehicles	**331.0**
Stimulate the development of strategic sectors	Product development innovation in EV industry Battery recycling	**45.2**

ZEV Mandate

- Act adopted in 2016, put into force in 2018 (similar to California)

- Ask of manufacturers a % of credits applied to their sales
- Currently: each EV registered gives credits function of range
  - ZEV: max 4 credits; PHEV: max 1.3 credit
- 3 years compliance periods
- $5K fine for each missing credits

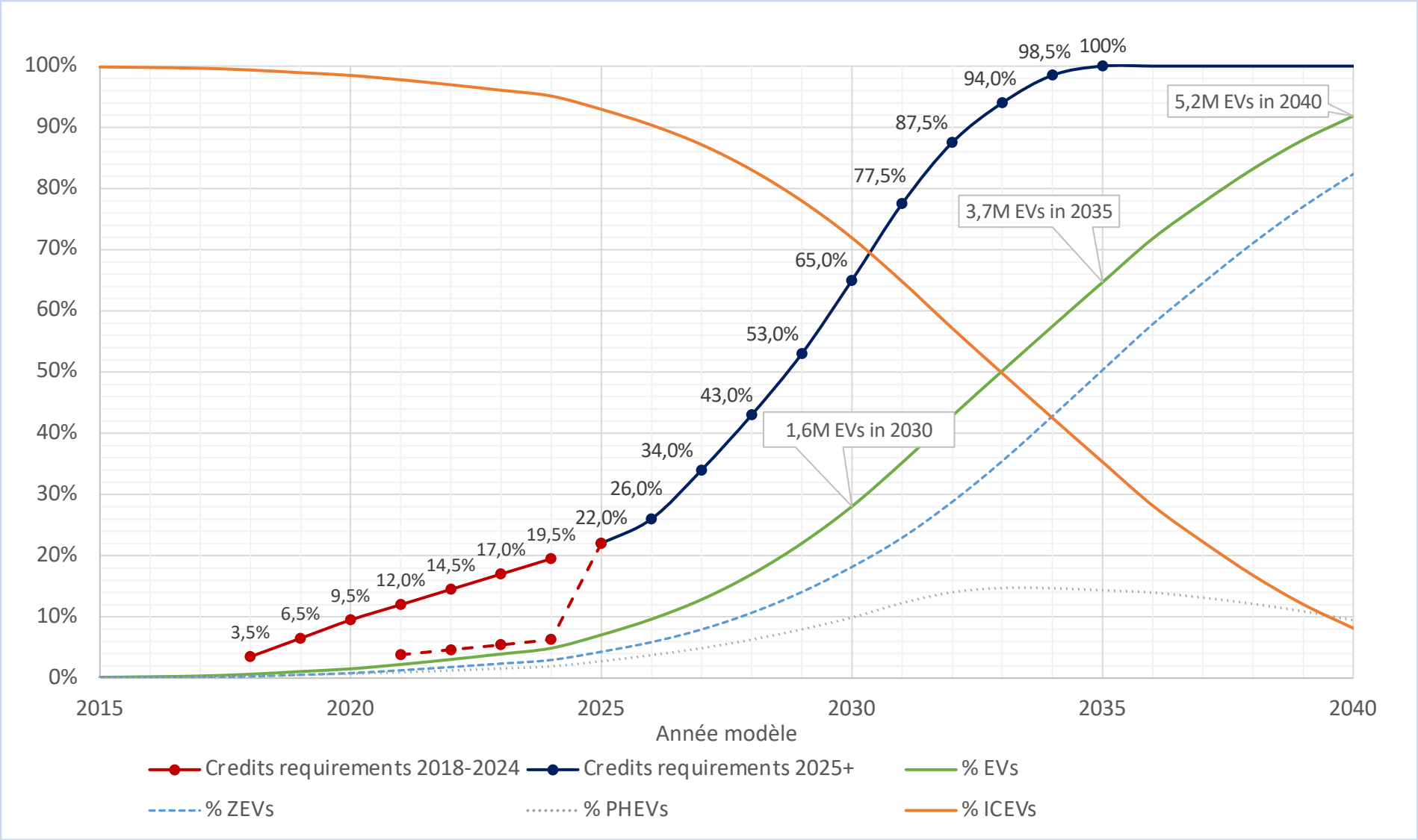
- For 2018 MY, all manufacturers complied (own credits or bought some)

ZEV Mandate Strengthening

- First draft regulation January 26, 2022
- New draft regulation, more stringent, June 8, 2022

- Changes for MY 2025 and +:
  - Reach a 100% credit requirement for MY 2035
  - ZEV: 1 credit; PHEV: 0.5 credit if min 80km range (flex. MY 25-27)
  - $20K fine if missing credits
  - Divide banked credits, introduce expiration credits, lower ceilings

Proposed ZEV credits requirements and fleet evolution



An opportunity for richness

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A Growing Economic Sector

Five key areas:

- Commercial and specialty vehicle companies
- Raw materials
- Enabling digital technologies
- Research laboratories
- Storage and charging

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Recent Investments and Announcements

- Cathode active material (CAM)
  - BASF and Société du parc Portuaire de Bécancour (+battery recycling)
  - GM and POSCO Chemicals ($500M, +200 jobs)
- Collaboration industry and research
  - InnovÉÉ ($5.4M)
- Battery shredding Plant + tech. Center + hydrometallurgy
  - Recyclage Lithion ($80M, +160 jobs)
- 100% electric bus and diesel conversion system
  - Prévost ($84.9M, +155 jobs, consolidate 650 others)

Results and looking forward

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Conclusion

A minimum of $2.888B in transportation electrification in the 2030 PGE, through the 2022-2027 IP

How many EVs?

- 140,164 LDV on April 30, 2022
- Leader in Canada in number of EVs on the road (45% of Canada)
  - New vehicles sales 0.7% in 2015, 6.6% in 2020
  - 2021: Québec 8.9%, Canada 5.2% (+71%)

- Piece of the solution to meet our climate goals
- Aim to lower imports of hydrocarbon crude oil and natural gas
  - $5.6B in 2019, 48% of Québec's trade balance deficit
- Take advantage of our clean nationalized electricity
- In 2019, $1.3B GDP through 147 companies, 6,240 direct jobs

Electrification = Societal opportunity for Québec

The government has a clear resolve to continue putting together the tools and policies necessary to succeed in the transition to a greener future.

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Merci - Tusen takk

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https://www.environnement.gouv.qc.ca/changementsclimatiques/vze/index-en.htm

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