

Integrated Electricity Planning in the Northeast

Pierre-Olivier Pineau

November 5th, 2025 – 9-10 am

Session 1: Integrated Planning - Annual Workshop: Charting the Path for Canada's Energy Future
Ivey Energy Policy and Management Centre - Ivey Donald K. Johnson Centre, 130 King St W, Toronto

HEC
MONTREAL

ASSOCIATION
OF
AMBA
ACCREDITED

AACSB
ACCREDITED

EQUIS
ACCREDITED



Chair in Energy Sector Management **HEC MONTREAL**

Since 2014

10 partners from the energy sector

Contract with the Government of Québec to
publish a yearly state of energy in Québec (*État de
l'énergie au Québec*)

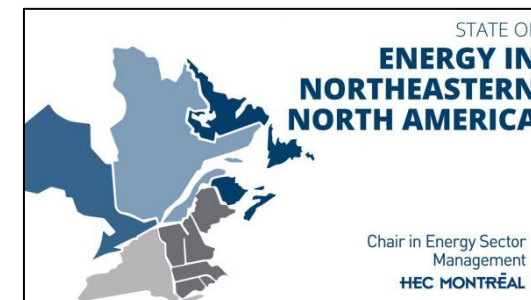
10 students (Master's & PhD)

First business school in Canada (1907)

14,148 students (3,649 international) in 2025

Undergraduate to PhD – including MBA and EMBA

310 faculty members



<https://energie.hec.ca/state-of-energy-nena/>

Outline

1. (Dis)Integrated Resource Plans
2. Why collaborate?
3. What can be done?

Pathways to Decarbonization

A report to the Minister of Energy to evaluate a moratorium on new natural gas generation in Ontario and to develop a pathway to zero emissions in the electricity sector.

DECEMBER 15, 2022

Hydro Québec

Plan d'approvisionnement 2023-2032

PLAN D'APPROVISIONNEMENT 2023-2032

R-4210-2022
Original : 2022-11-01

HQD-1, document 1
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**Maritime Electric Company, Limited
2020
Integrated System Plan**

Release Date: September 2020
Prepared By: Corporate Planning

**MARITIME
ELECTRIC**
A FORTIS COMPANY

newfoundland labrador
hydro

**POWER THE
PROVINCE**

2024 RESOURCE ADEQUACY PLAN

JULY 2024

PUBLIC

ieso
Connecting Today.
Powering Tomorrow.

Energy for Generations

Ontario's Integrated Plan to Power the Strongest Economy in the G7

June 2025

Ontario

VISION ÉNERGIE

La tournée sur la planification énergétique

Québec's forthcoming
Integrated Energy Resources
Plan (2026)

**2023
INTEGRATED
RESOURCE PLAN**

Pathways to a Net-Zero
Electricity System

**Integrated Resource Plan
Action Plan Update**

2025

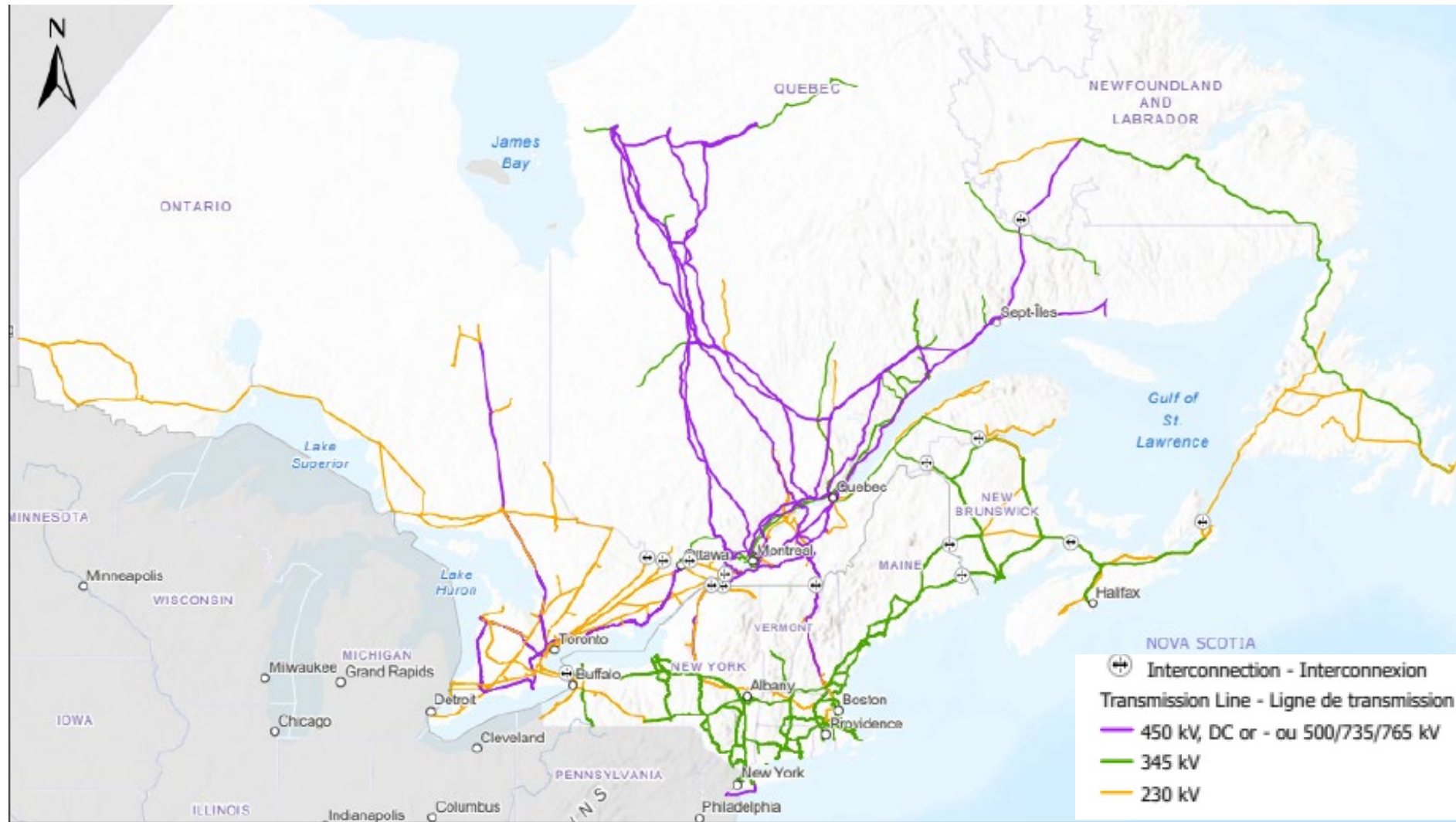
Nova Scotia
POWER
An Emera Company

NEW BRUNSWICK
POWER CORPORATION

Energie NB Power

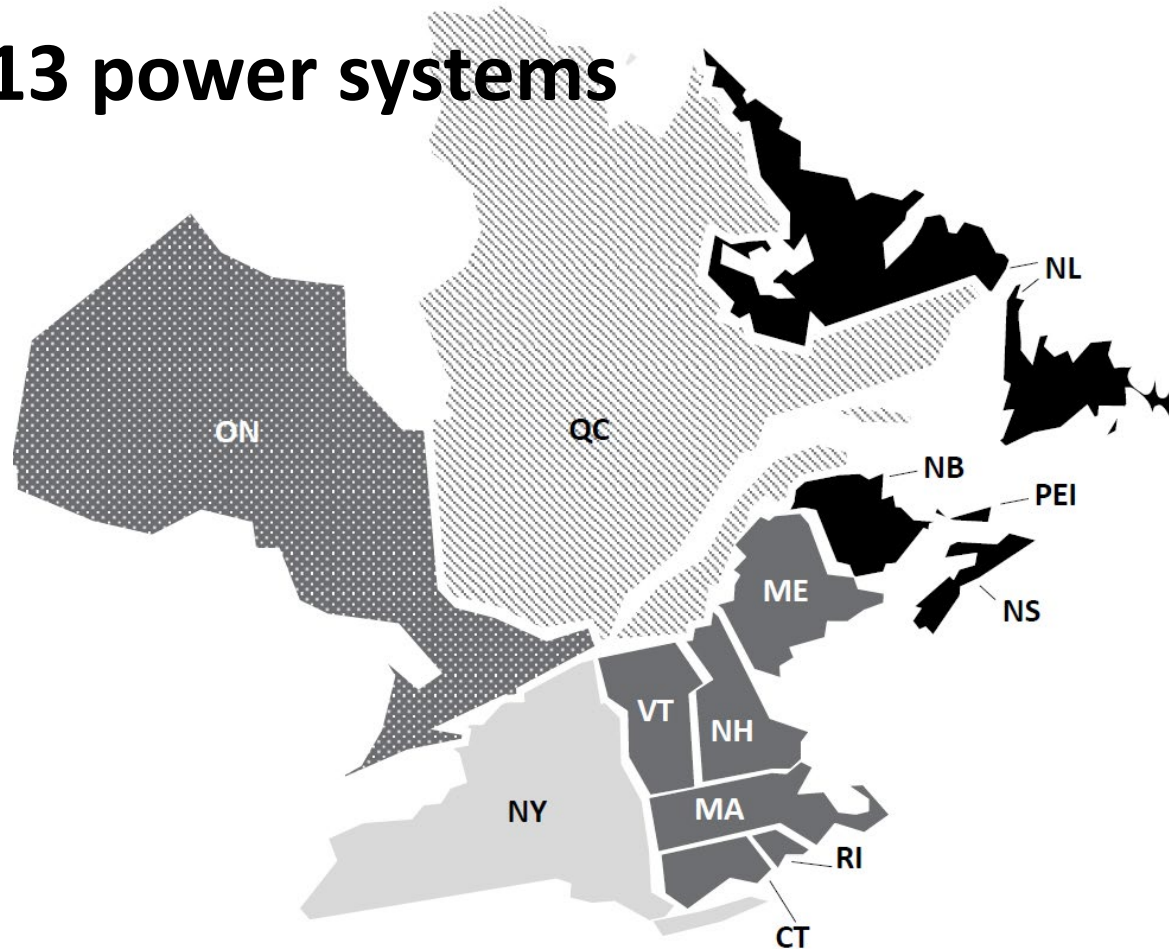
the power of possibility
l'énergie d'avenir

Map of transmission lines (2020)



Northeastern North America and Italy

Population: 60 millions
13 power systems



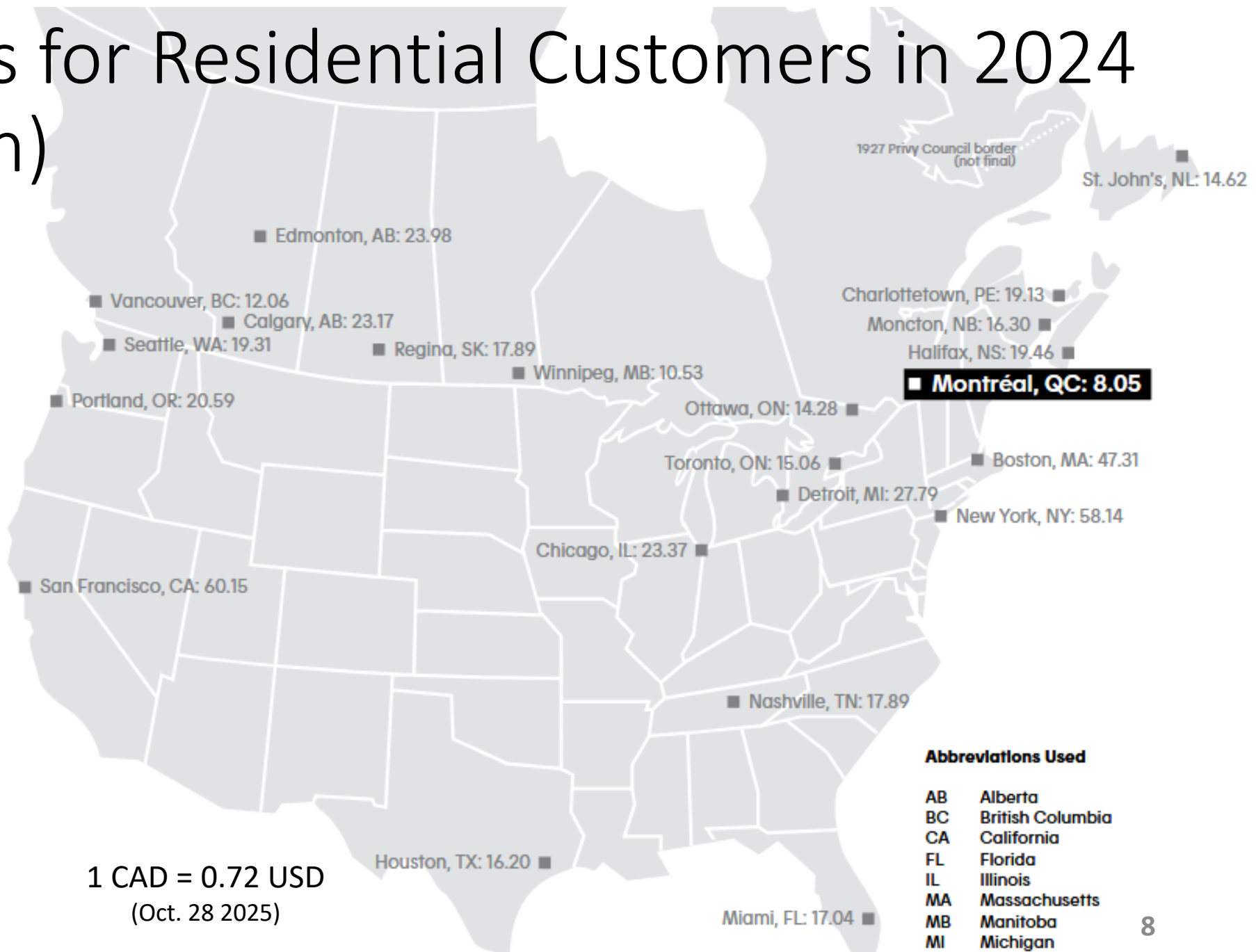
Population: 60 millions
1 power system



2. Why collaborate?



Average Prices for Residential Customers in 2024 (in CAD ¢/kWh)



**Regulated Energy Price
(wholesale contracts)**

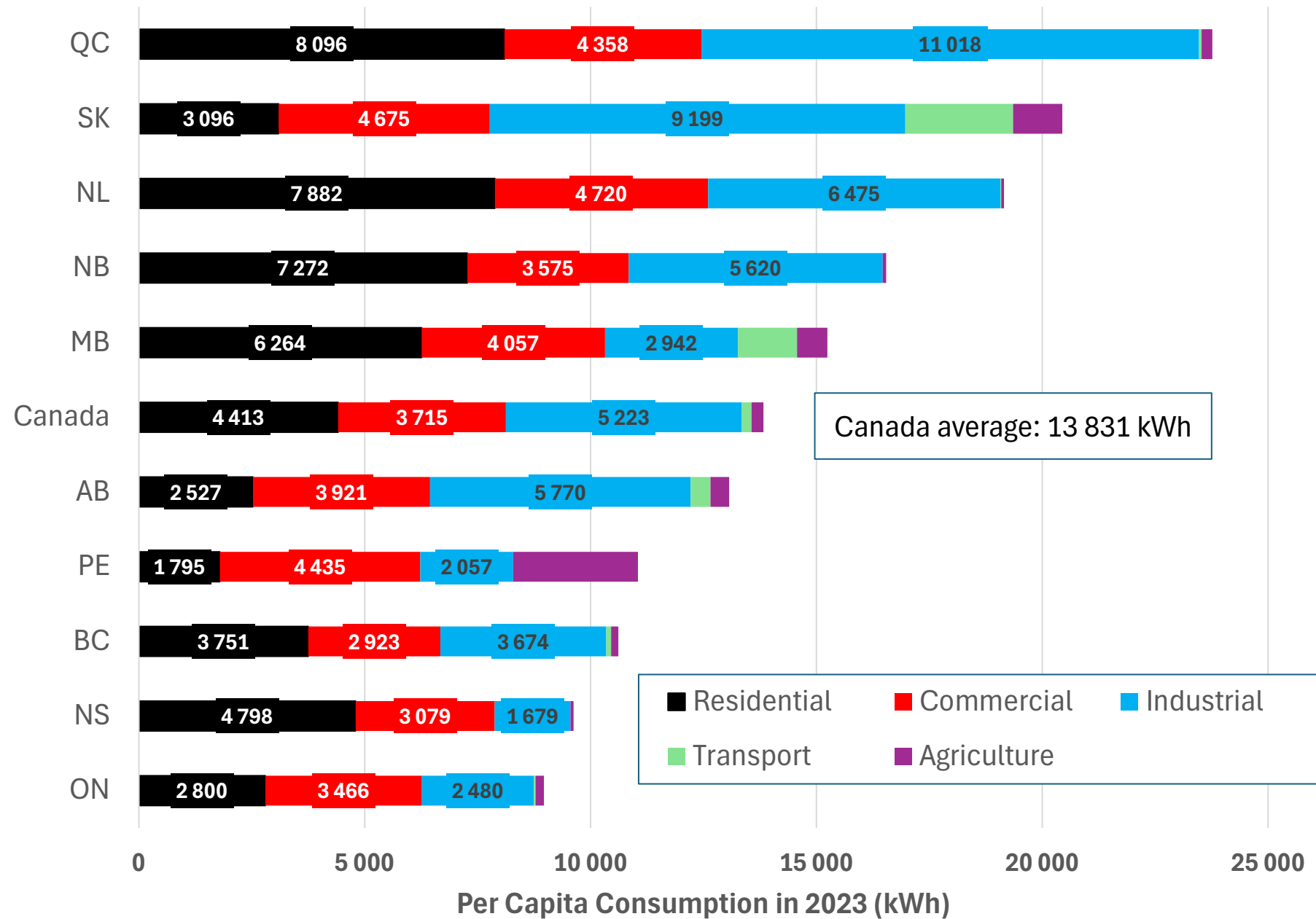
OPG
Nuclear (33 TWh): **\$107.76** /MWh
Hydro (32.5 TWh): **\$47.52**/MWh

Hydro-Québec
Hydro (171.85 TWh): **\$32.2**/MWh

Hydro-Québec (2024 & 2025)
OPG (2025)

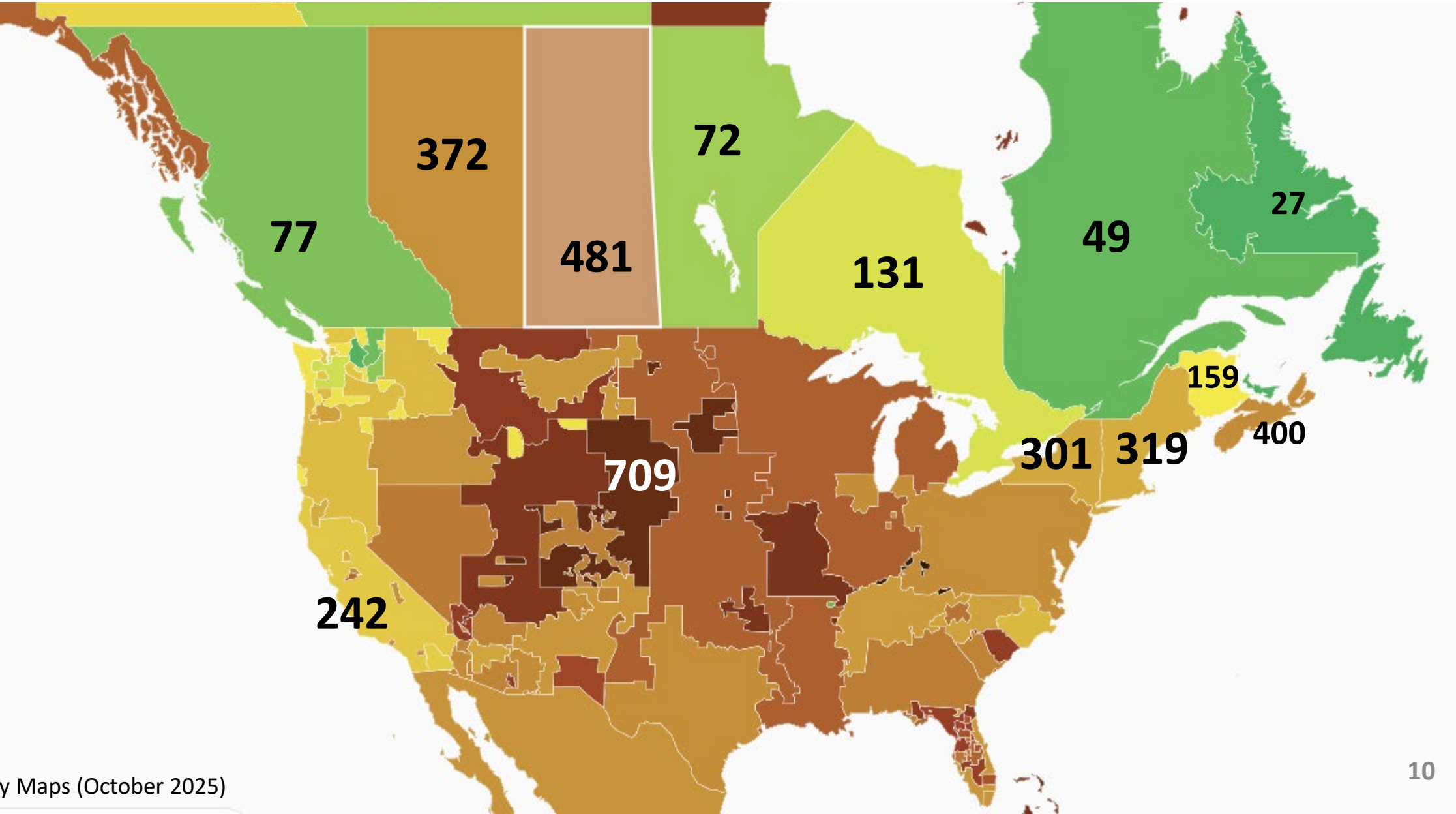
1 CAD = 0.72 USD
(Oct. 28 2025)

Per Capita Electricity Consumption by Sector 2023





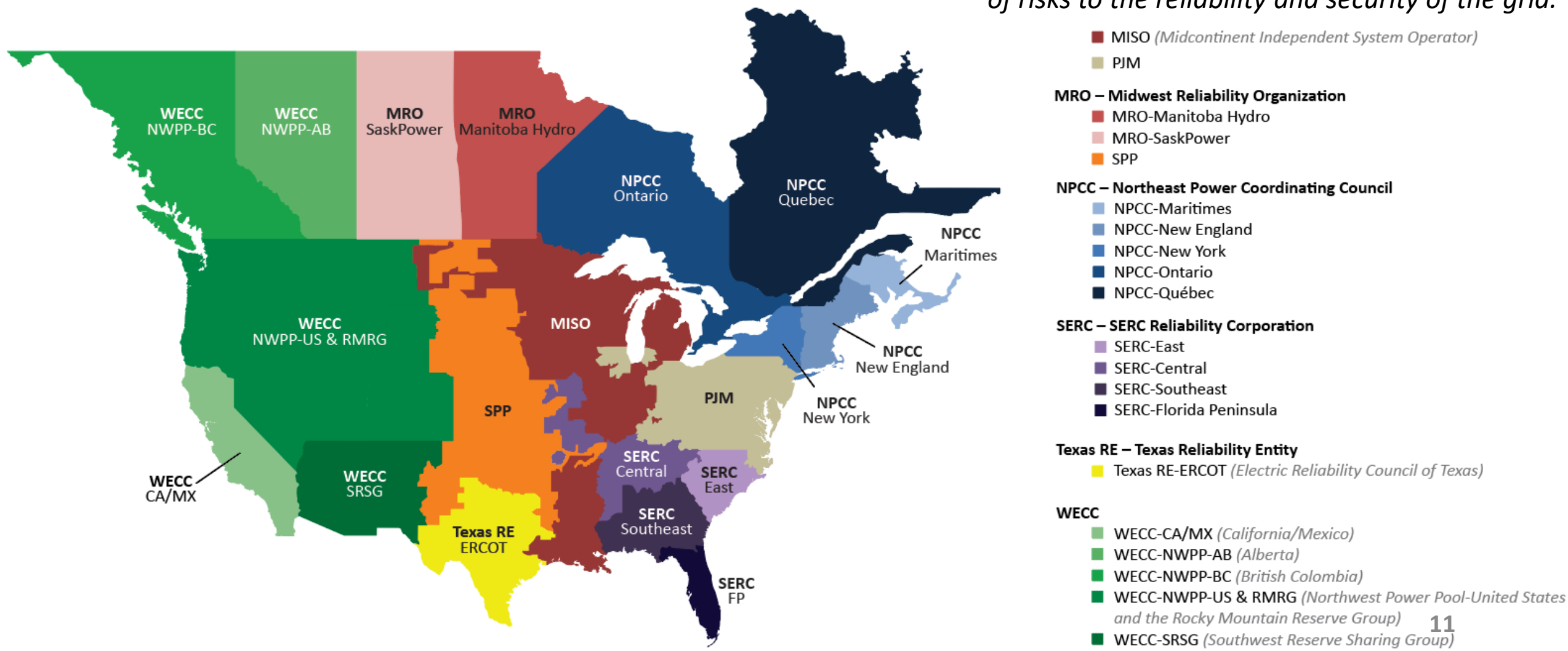
Electricity Generation Carbon Intensity (gCO₂eq/kWh)





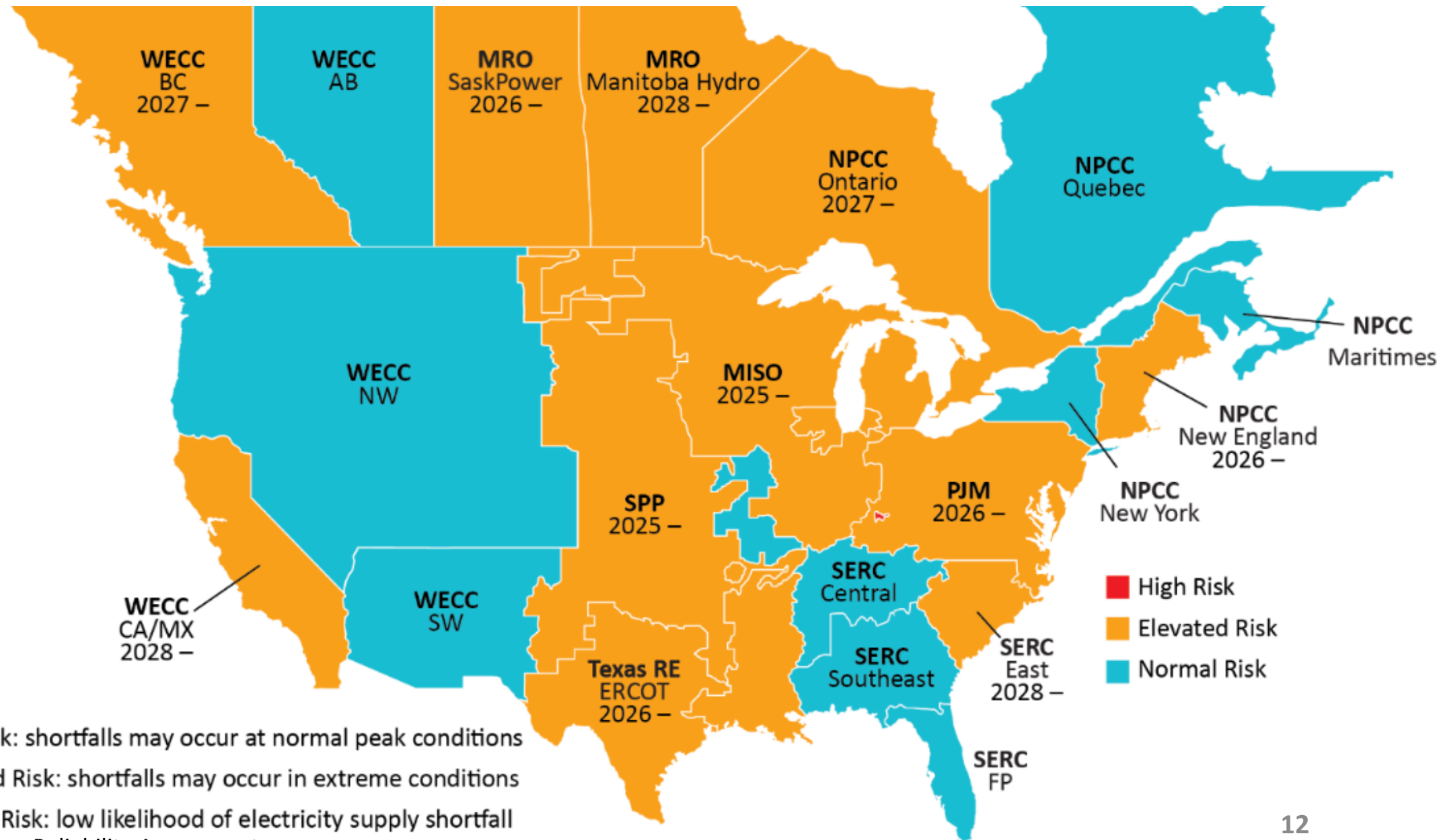
North American Electric Reliability Corporation (NERC)

NERC is a not-for-profit international regulatory authority whose mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.





Reliability is closely monitored





*No shortage of integration
recommendations*

The Academy

Programs & Publications

Fellows

News & Events

Support the CAE

cae-acg.ca / Energy Pathways Project

Power Grid Task Force Report – “Electricity: Interconnecting Canada – A Strategic Advantage”

April 19, 2010

The North American Grid



Canadian
Electricity
Association

Powering Cooperation on
Clean Energy & the Environment

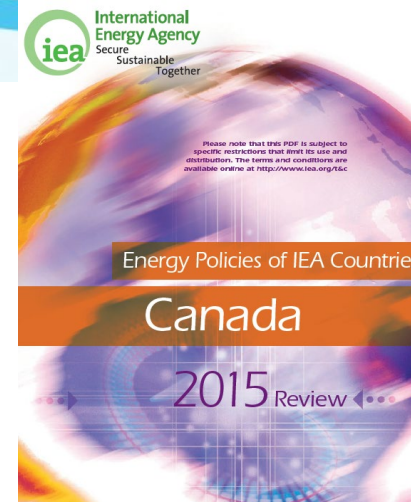
2016

Chapter VI

ENERGY.GOV

2017

ENHANCING ELECTRICITY INTEGRATION IN NORTH AMERICA

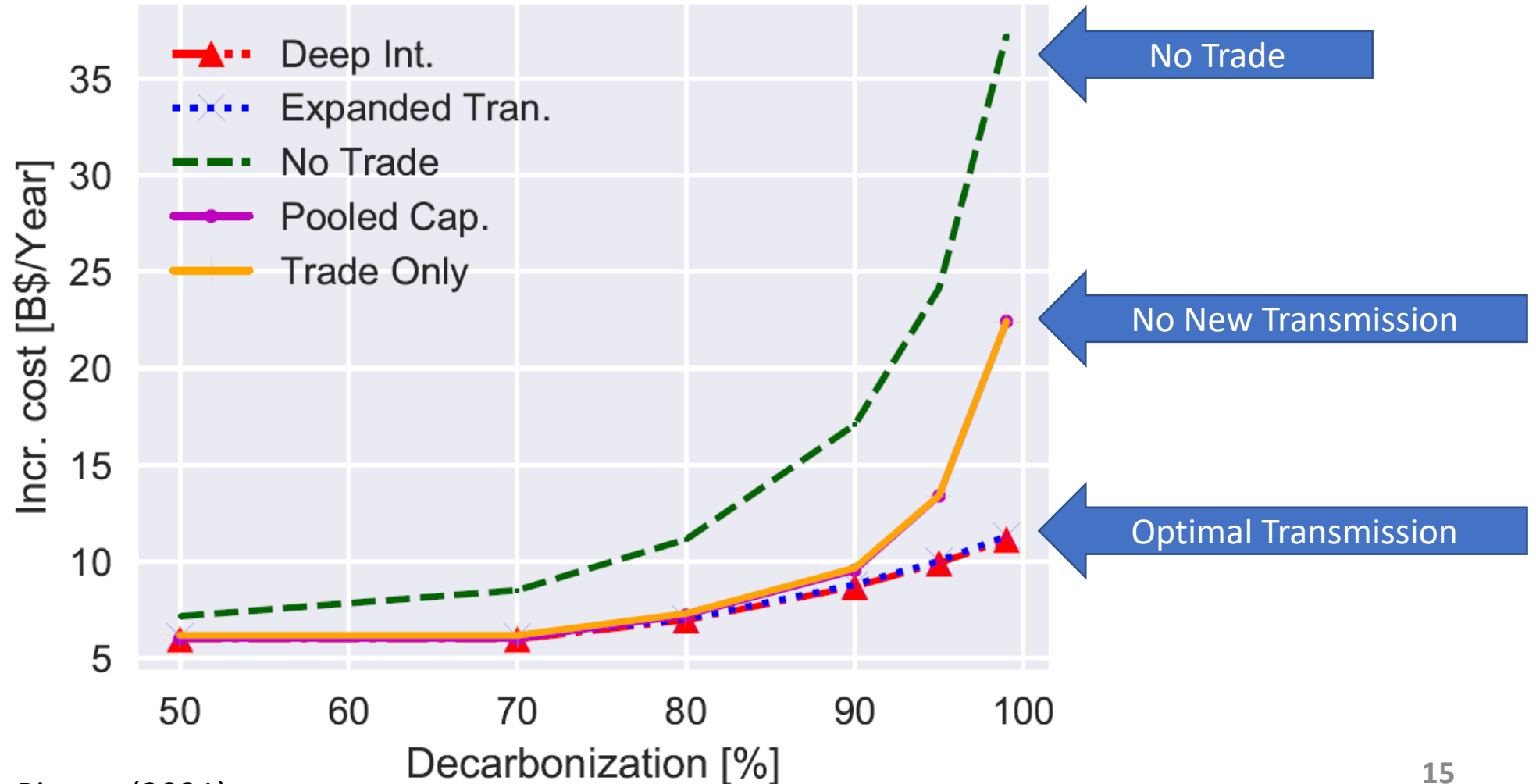


3. What can be done?

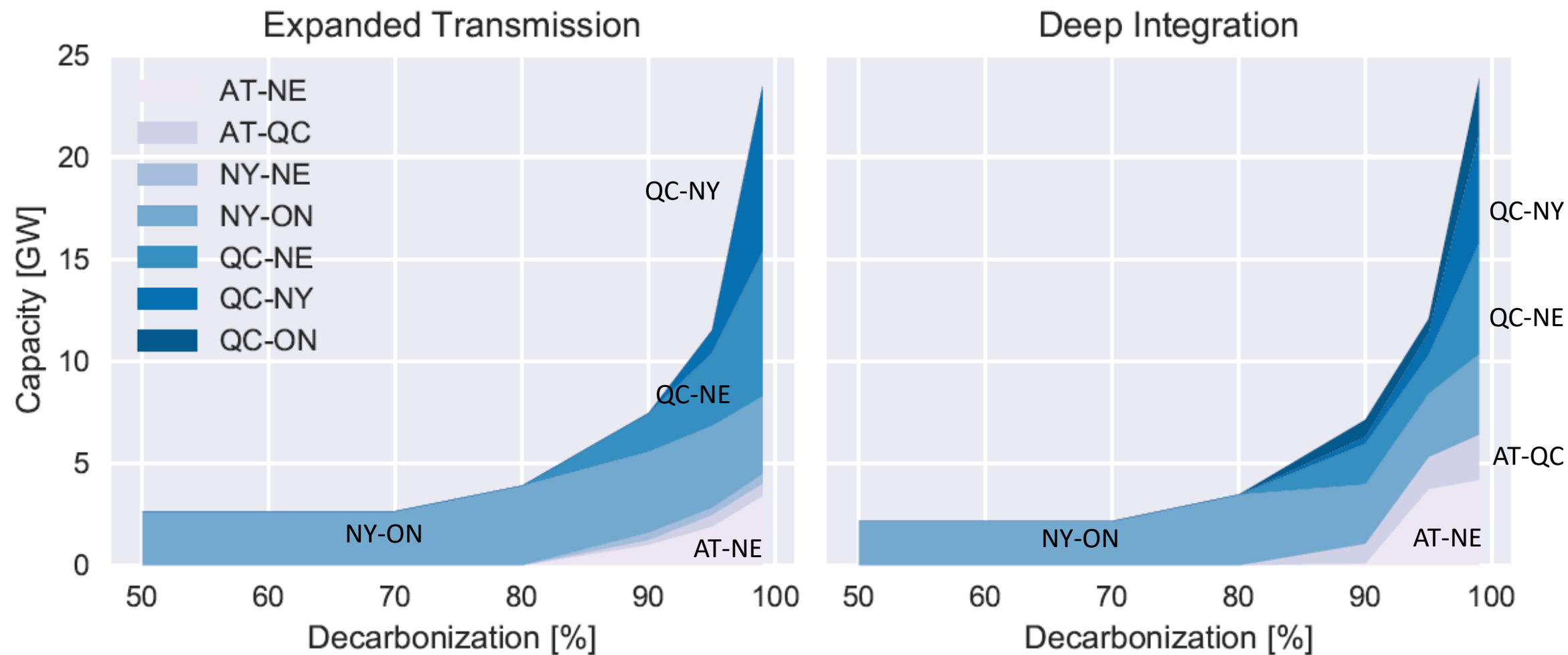
Integrated Planning on a larger scale

Annual decarbonization costs

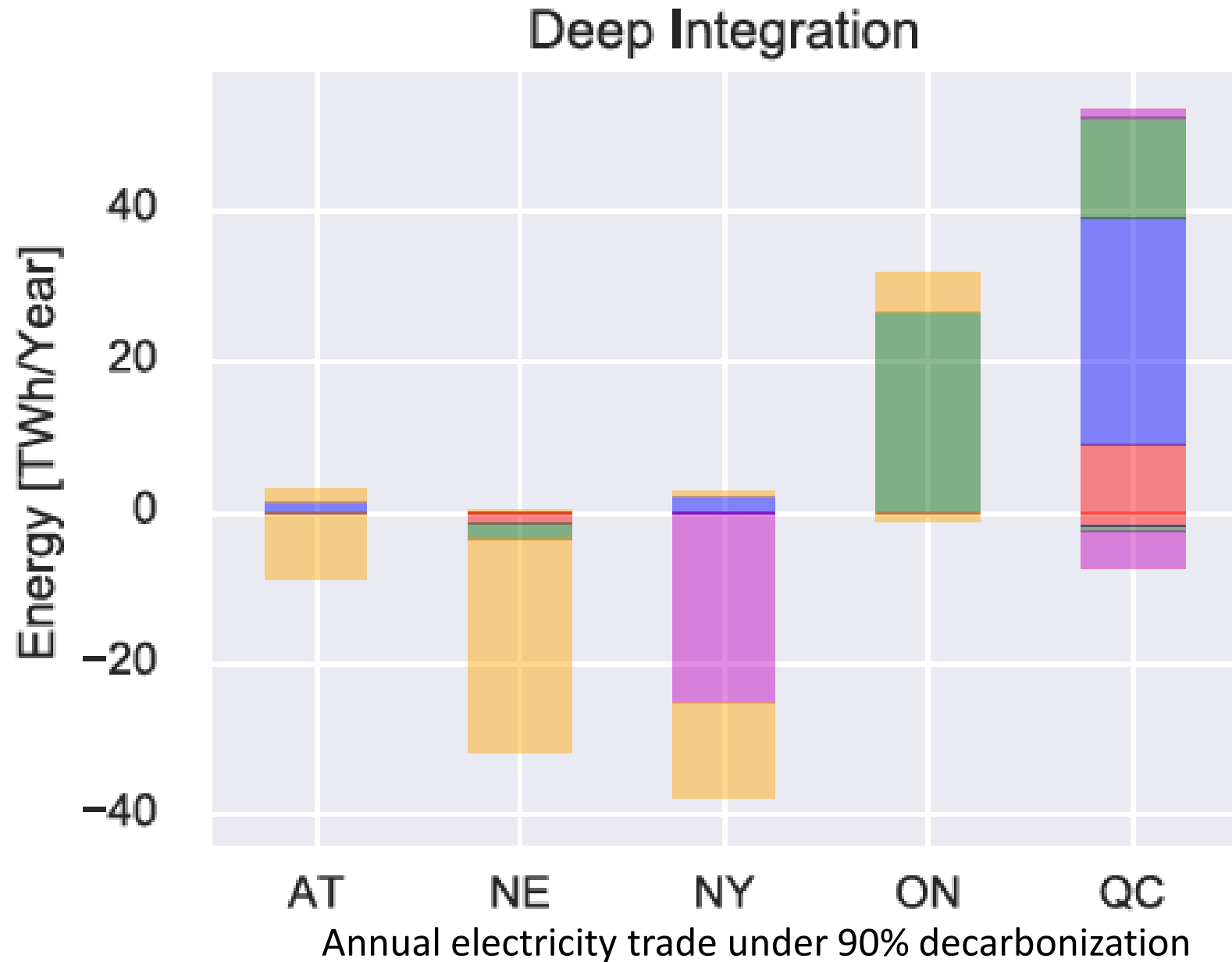
No Trade / No New Transmission / Optimal Transmission



Interties are critical



Trade grows





Avenues to consider

- Request the NERC/NPCC to consider grid decarbonization/long-term stability challenges in its activities
- **Interprovincial trade barriers** to be discussed (for instance at Canada's *Annual Energy and Mines Ministers' Conference* July 2025 in Charlottetown: *Securing the Future of Canada's Energy and Mines Sectors*)
- Better align carbon markets:
 - Canada's Output Based Pricing System (0.37 t/MWh from a natural gas plant)
 - Quebec Western Climate Initiative Cap-and-Trade (with California – formerly with ON and NS)
 - With the US:
 - Regional Greenhouse Gas Initiative (RGGI) & Massachusetts' state-specific cap-and-trade program for its power sector
 - New York's Cap-and-Invest proposal (for 2027?)

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Internet energie.hec.ca
LinkedIn [@HECenergie](https://www.linkedin.com/company/@HECenergie)
Courriel energie@hec.ca

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