CHASING THE WIND

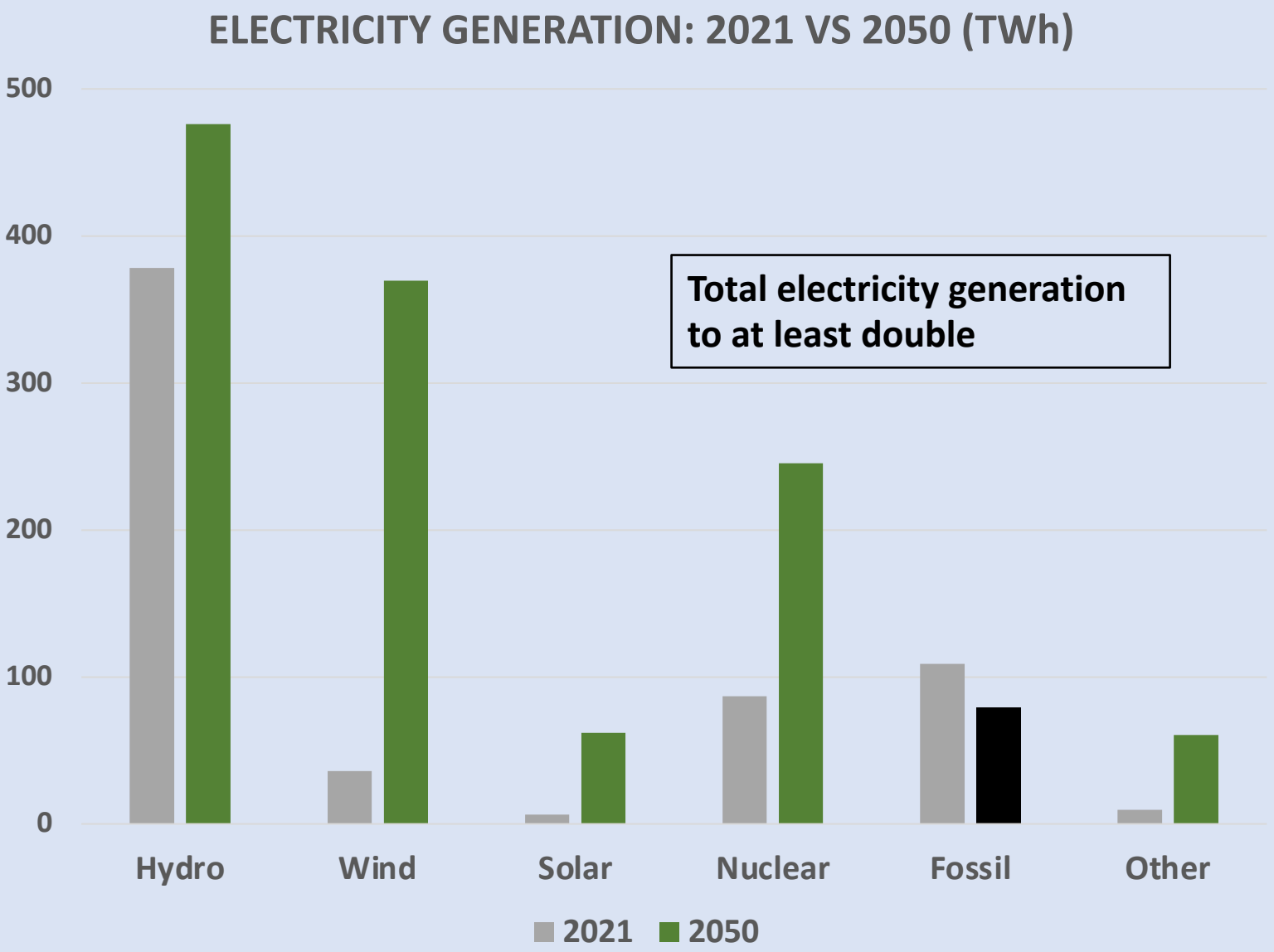
How Atlantic Canada Can Become an Energy Superpower

October 16, 2023

GETTING TO NET ZERO

- ❑ **Decarbonize the global and national energy systems**
- ❑ **At least *double* electricity generation**
- ❑ **Ensure that *all* generation is net non-emitting**

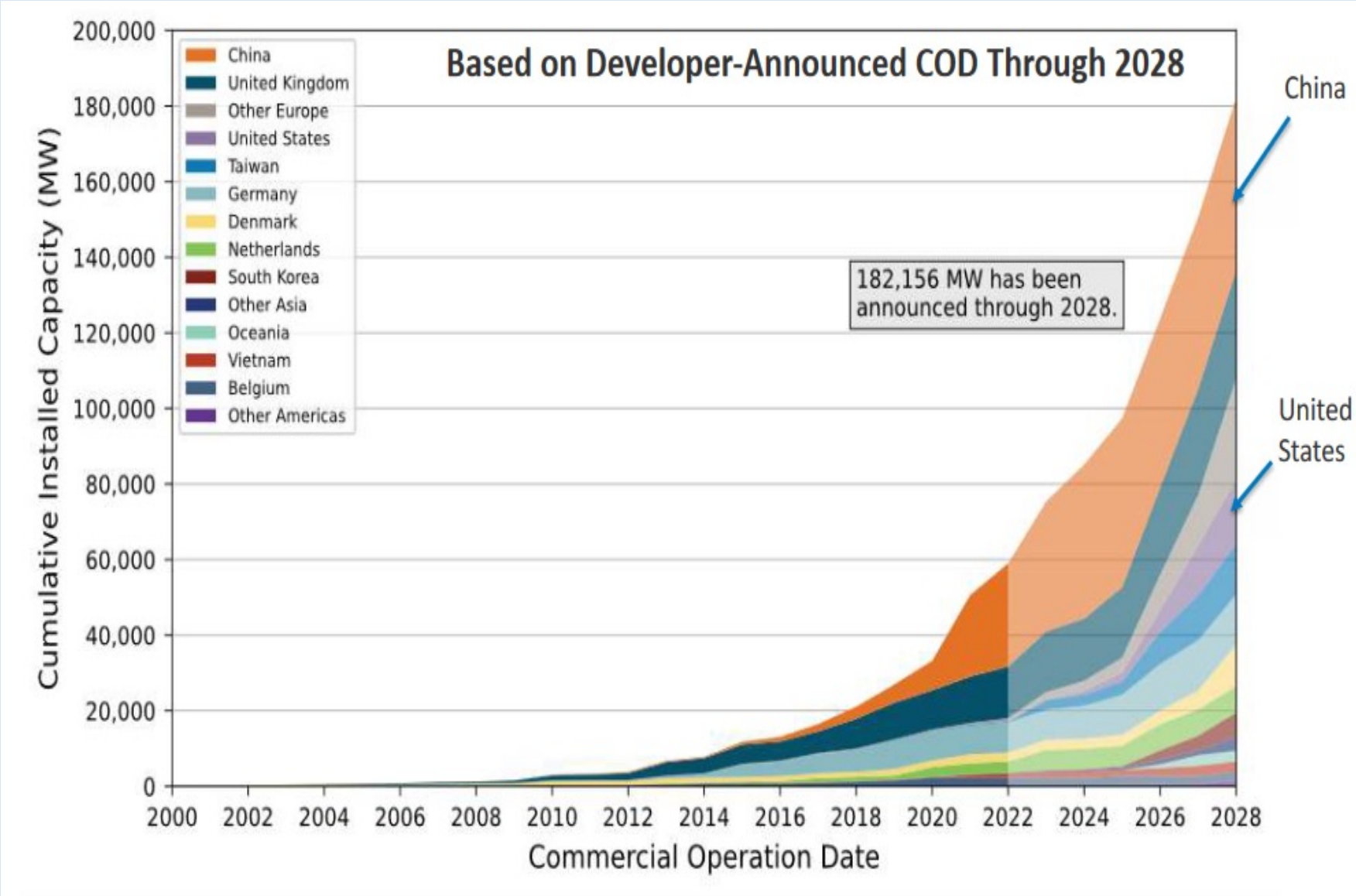
WHERE WILL ALL THAT CLEAN ELECTRICITY COME FROM?


ELECTRICITY GENERATION: 2021 VS 2050 (TWh)
500
400
300
200
100
0
Total electricity generation to at least double
Hydro
Wind
Solar
Nuclear
Fossil
Other
2021
2050

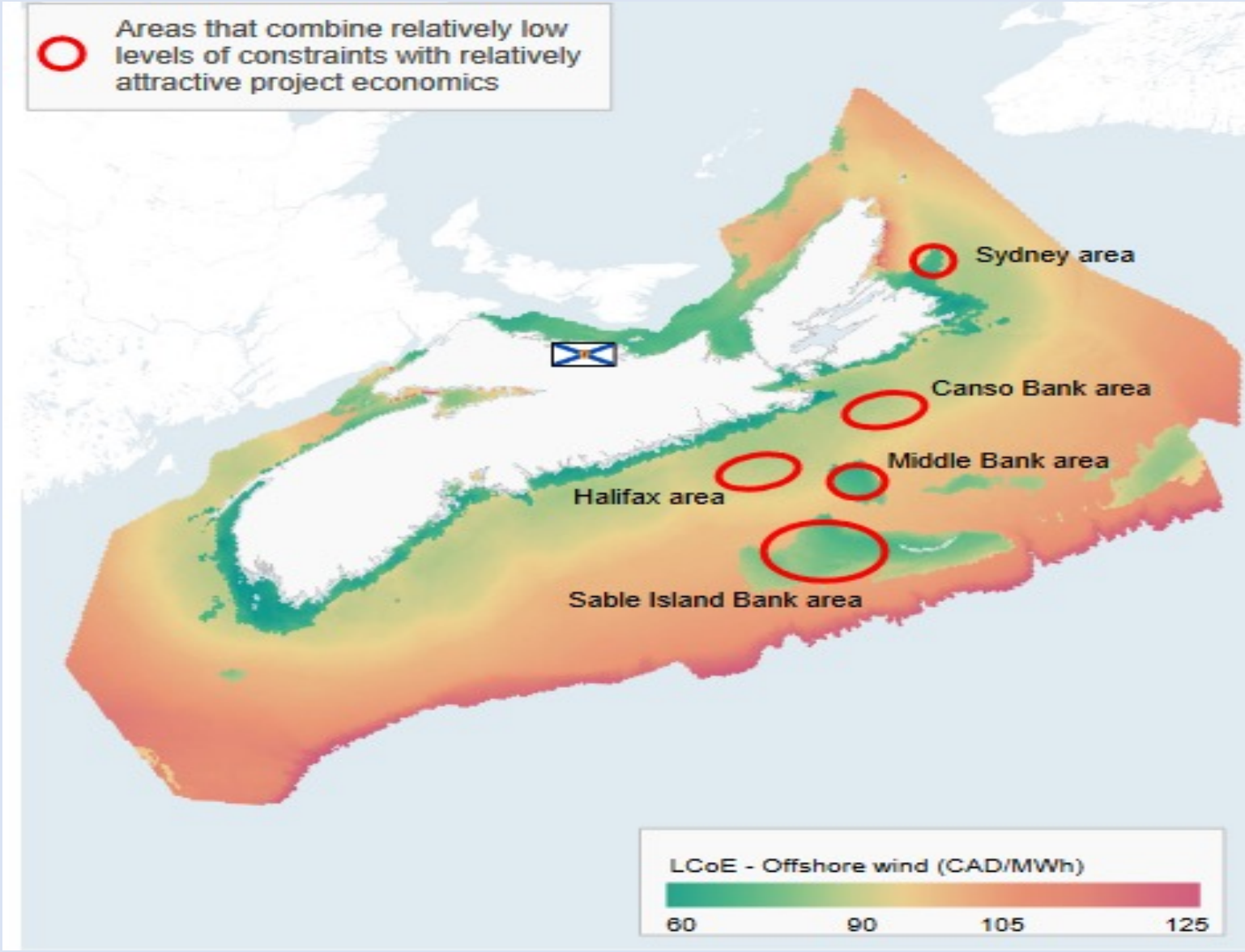
WHY OFFSHORE WIND ?

- ❑ Strong and relatively consistent, ultra-clean energy source
- ❑ Highest output in winter when demand is greatest
- ❑ Massive scalability with less local opposition
- ❑ Mature technology with favourable and improving economics

GLOBAL OFFSHORE WIND DEVELOPMENT PIPELINE



PROMISING WIND ENERGY AREAS ON THE SCOTIAN SHELF



A SENSE OF SCALE: 15,000 MW OFFSHORE WIND CAPACITY

- ❑ **Output of 70,000 gigawatt-hours of clean electricity annually**
- ❑ **Sufficient to power more than 6 million average Canadian homes**
- ❑ **Provides 20% of projected *national* increase of wind energy by 2050**
- ❑ **750-1,000 offshore turbines (15-20 MW) on 4,000 sq.km.**
- ❑ **Capital investment of approximately $80 billion ($US 4 million/MW)**

ECONOMIC BENEFITS FOR ATLANTIC CANADA

Rising Tide That Will Lift All Ships

- ❑ Direct jobs: 30,000 during installation; 1,200 permanent
- ❑ Offshore wind supply chain ecosystem: a new export sector
- ❑ Attracting industry in search of abundant clean energy
- ❑ Export revenue from power sales to Canada and potentially US
- ❑ New power source for green hydrogen

Locally captured benefits depend on a strategy to develop skills and infrastructure

SPECIALIZED WIND TURBINE INSTALLATION VESSEL IN HALIFAX

MAKING IT HAPPEN

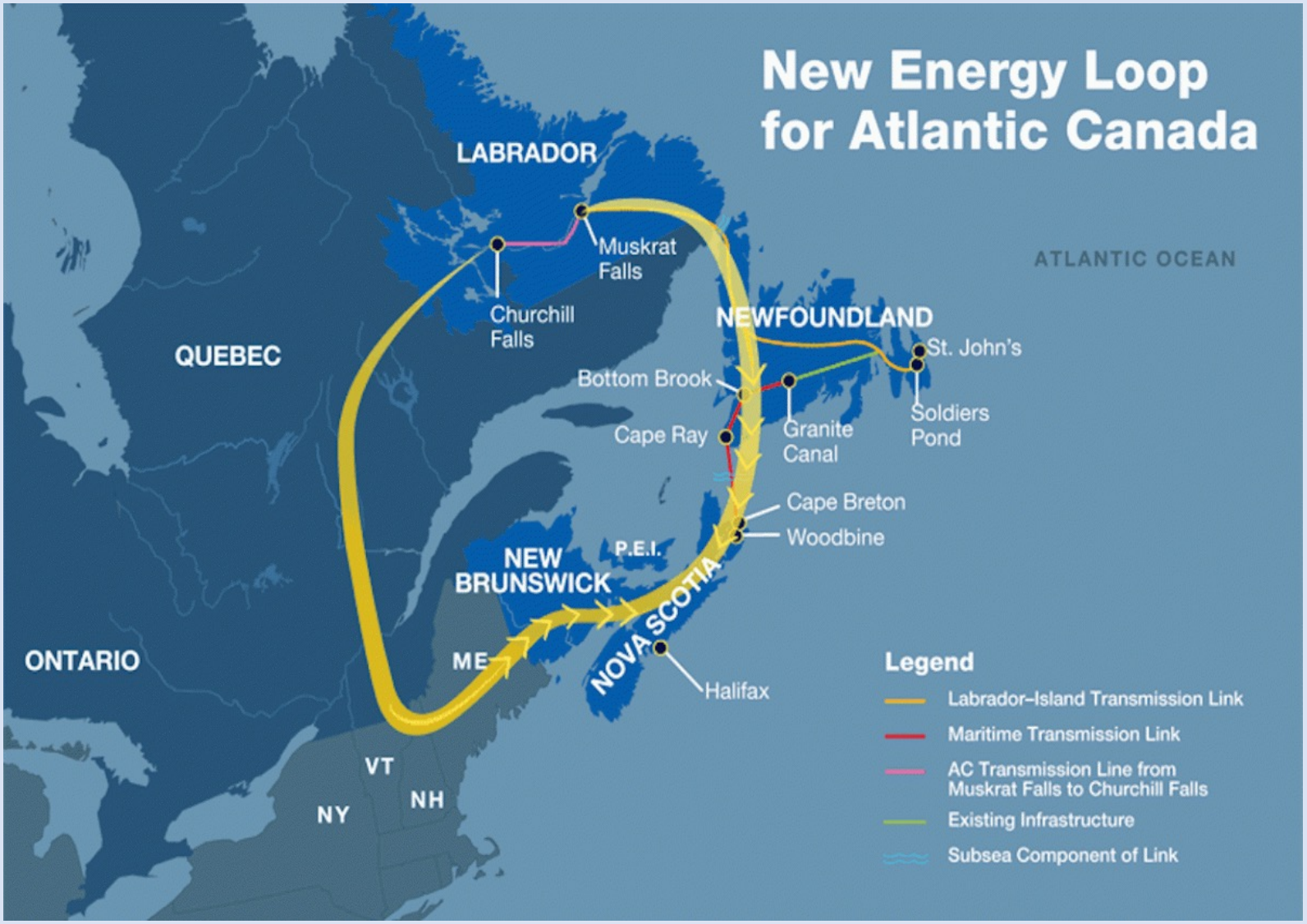
- **Market scale and access**
  - Atlantic, Quebec, Ontario, NE United States (?)
  - New high-capacity transmission (Atlantic Loop +++)

- **Cost-competitiveness**
  - AEGIR study is encouraging
  - Need detailed engineering-economic assessment
  - Costs come down with scale and innovation

- **Complementary regional assets**
  - Excellent port facilities throughout the region
  - Broad base of marine skills (leverage O&G experience; R&D)
  - Collaboration with international players will be essential

- **Policy, Regulatory and Financial support**
  - Utility boards need to facilitate the vision
  - Permitting and regulatory processes must recognize the stakes
  - Fiscal support appropriate for a *national* undertaking

THE ATLANTIC LOOP NEEDS A BOLDER VISION



WHERE TO NEXT?

The following steps need to begin *now*, and pursued *concurrently*

- ❑ **Concept needs to be critiqued by expert and directly affected communities**
- ❑ **“Champions” from business and government need to come forward**
- ❑ **Impact studies underway need to be completed (September 2024)**
- ❑ **International suppliers and partners need to be identified and engaged**

This is not a time for a business-as-usual pace

CONCLUSION

- Decarbonization of the energy system is the Project of the Century
- If we take climate change seriously, we must be prepared to THINK BIG
- Canada's energy transformation depends on massive wind generation
- Canada's Atlantic coast provides a world-class wind resource
- Its development at scale can make the region an energy superpower
- The payoff is prosperity for the region and green energy for the nation