



ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

Clean Energy for a Low Carbon Economy

Canadian Nuclear Renaissance

Brian Fehrenbach
Sofia, January 2024



OCNI

The **Organization of Canadian Nuclear Industries (OCNI)** represents a broad range of Canadian nuclear suppliers – majority of members are SME's

Vision

To drive and strengthen a thriving Canadian nuclear supply chain through innovation and leadership

Mandate

To deliver value to our members through programs and initiatives that support success in the domestic and international nuclear markets



CONNECTION

Linkages between suppliers & utilities .



CAPABILITY

Increase supplier skills and resources



GLOBAL REACH

Develop international opportunities.



ADVOCACY

"Ontario Nuclear Advocacy Team"

241 member companies / 15,000 highly skilled people increasing to 20,000 while Ontario refurbishment projects are underway



ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

Clean Energy for a Low Carbon Economy

The provinces of New Brunswick, Ontario, Saskatchewan and Alberta have released a shared, interprovincial strategic plan for the deployment of SMRs.

SaskPower

Saskatchewan

BWRX-300
300 MWe water-cooled, natural circulation SMR
Connected to the grid

Target: Decision in 2029

Up to 4 units, to be built between 2034 and 2042
Construction planned to start in 2030, with a 2034 target for the first unit

Westinghouse - Bruce Power Feasibility Study

Mines and Remote communities

eVinci micro-reactor
5 MWe heat pipe reactor with a high temperature heat capability of 14 MWt

McMaster University Feasibility Study

Hamilton, Ontario

McMaster University, Ultra Safe Nuclear Corporation and Global First Power SMR Deployment Feasibility Study

Estimated 18-month initiative, ongoing

OPG – GE Hitachi

Darlington, Ontario

BWRX-300
300 MWe water-cooled, natural circulation SMR
Connected to the grid

Target: 2028

Moltex

Point Lepreau, New Brunswick

SSR-W
300 MWe Stable Salt Reactor-Wasteburner
Connected to the grid

Target: Early 2030s

ARC Clean Energy

Point Lepreau, New Brunswick

ARC-100
100 MWe liquid sodium cooled fast reactor
Connected to the grid

Target: 2029

Global First Power

Chalk River, Ontario

MMR
15 MW of thermal energy provided to an adjacent plant for conversion to electrical energy and/or heat for local use, off-grid micro-SMR technology demonstration project

Target: 2026



HITACHI BWRX-300



The Darlington New Nuclear Project site (adjacent to the existing Darlington Nuclear Generating Station) is planned to be the site of Canada's first 300 MW on-grid SMR by the end of the decade.

The Darlington site has already completed an Environmental Assessment (EA) and obtained a "License to Prepare Site" for a new-build project from the CNSC, which provides Ontario with a 'first-mover' capability for on-grid SMRs.

The construction and operation of one 300 MW SMR over its life is expected to create around 2,460 jobs across the province and increase GDP by more than \$2.5 billion, while lowering CO2 emissions by 0.3 - 2 megatonnes (MT) per year.

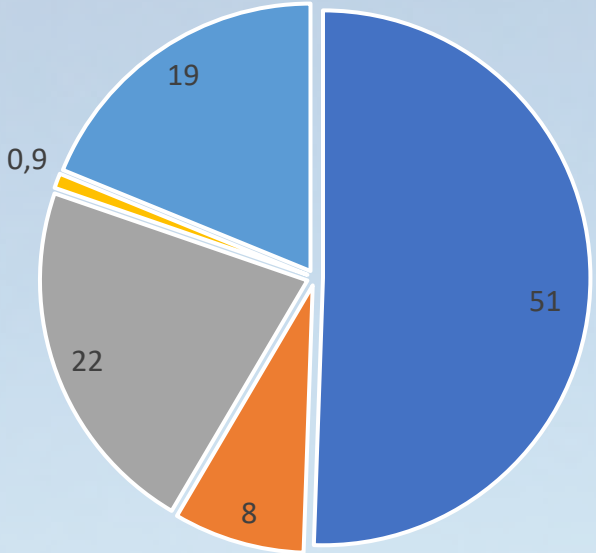


ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

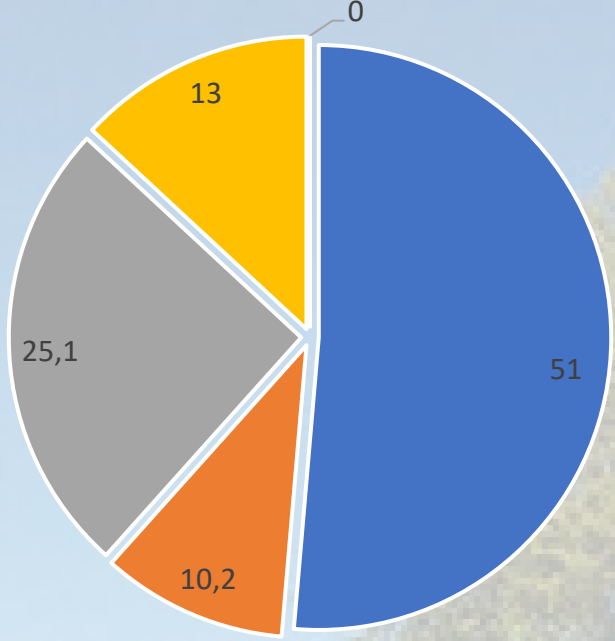
Clean Energy for a Low Carbon Economy

Canadian Nuclear Renaissance

2005



2022



- Nuclear
- Natural Gas
- Hydro
- Solar/Wind/Bio
- Coal

■ Nuclear ■ Natural Gas ■ Hydro ■ Solar/Wind/BioEnergy ■ Coal

Ontario generated about 155 TWh in 2022 with a peak demand of 22,600 in May 9, 2023.



ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

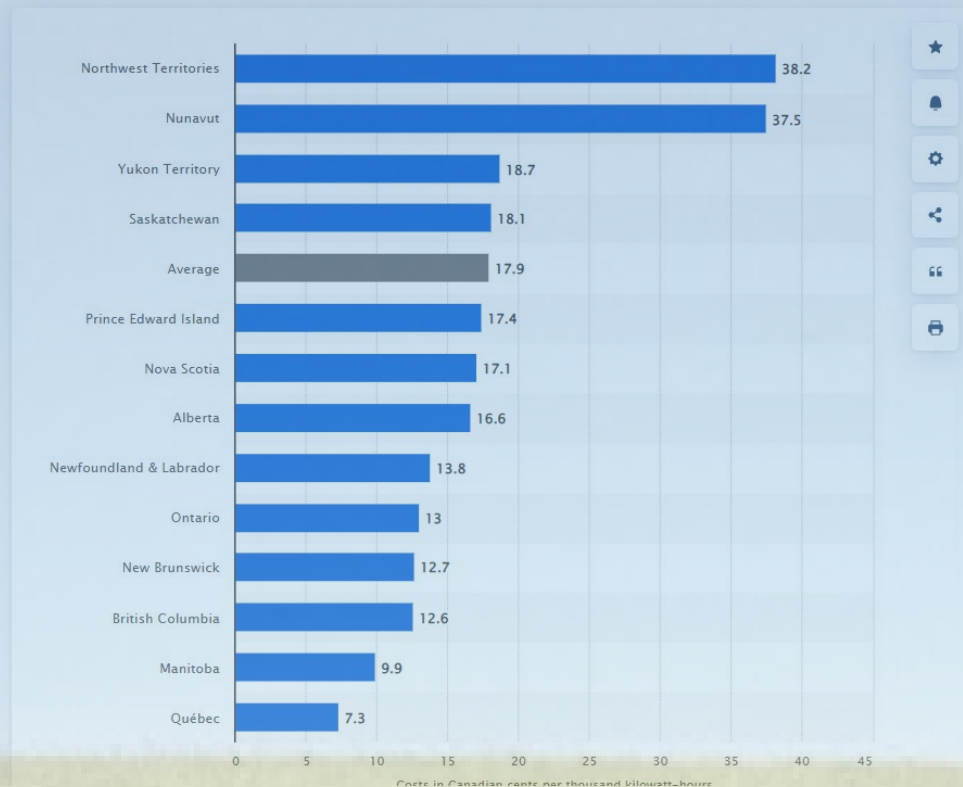
Clean Energy for a Low Carbon Economy

Canadian Nuclear Renaissance

Energy & Environment > Energy

Electricity costs for end-users in Canada in 2021, by province

(in Canadian cents per 1,000 kilowatt-hours)



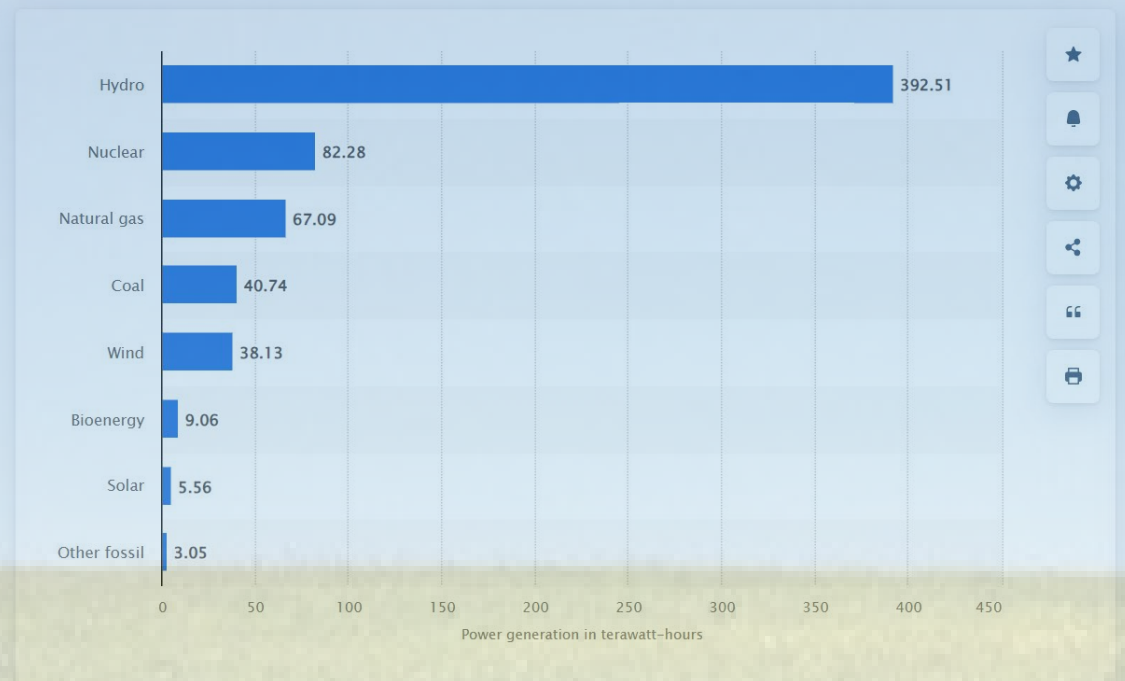
ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

Clean Energy for a Low Carbon Economy

Canadian Nuclear Renaissance

January 2023 Angus Reid poll found that almost 3 in 5 Canadians support expanded nuclear generation in Canada.

Electricity generation in Canada in 2022, by energy source
(in terawatt-hours)

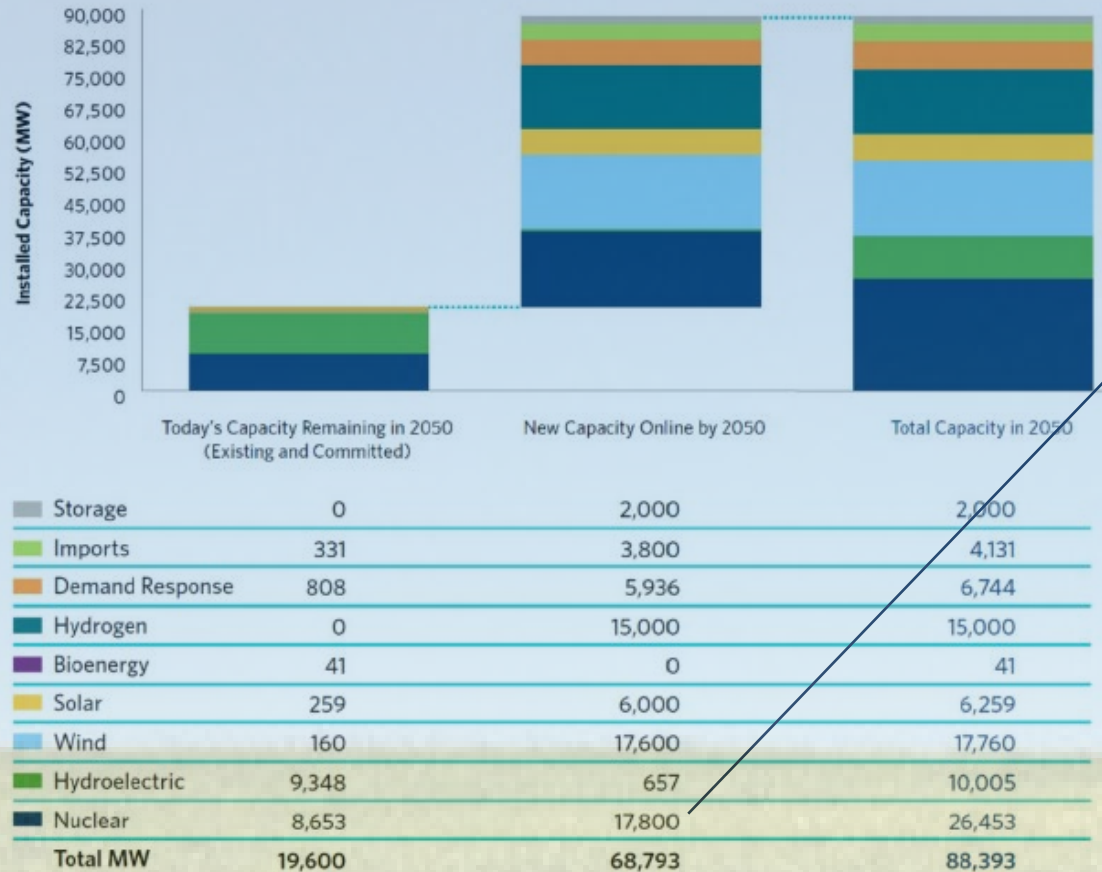


ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

Clean Energy for a Low Carbon Economy

Canadian Nuclear Renaissance

Figure 12 | Pathway Scenario - Installed Capacity in 2050



Recommendation to add 17,800 MW of new nuclear energy to the grid.

Source: IESO's Pathways to Decarbonization Report,



ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

Clean Energy for a Low Carbon Economy

Canadian Nuclear Renaissance

Bruce Power[™]

Innovation at work



Bruce Power is already the world's largest nuclear site with about 6600 MWe from Bruce A and Bruce B, a total of 8 CANDU reactors.

In 2023 Bruce Power announced a start of procurement activities to add an additional 4800 MWe of new large nuclear, with a Request for Information expected out this year.



ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

Clean Energy for a Low Carbon Economy

Remaining Risks and Actions

1. Continue Reconciliation with Canada's Indigenous Peoples/Licensing of new sites
2. Fuel concerns as Canada implements other nuclear technology
3. Labour / Training Action Plan



Ready 4 Reconciliation

Relationship Building

Build strong relationships with Indigenous Nations in nuclear generating regions

Supply Chain

Expand participation of Indigenous-owned businesses

Membership Programs

Provide resources to support Indigenous engagement programs

Employment

Increase hiring and retention rates across supply chain

Progressive Aboriginal Relations Program

Maintain and advance through the CCAB PAR program



ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

Clean Energy for a Low Carbon Economy

Canadian Nuclear Renaissance

Collaboration



The Honourable Jonathan Wilkinson, Minister of Energy and Natural Resources, alongside Sebastian Burduja, Minister of Energy of Romania, announced Canada's decision to support Romanian energy security and climate action through \$3 billion in available export financing to Nuclearelectrica S.A. (SNN), the national operator of the Cernavoda Nuclear Generating Station.

This decision may lead to Cernavoda site becoming the largest Candu 6 site in the world, producing clean electricity until up to or even into the 22nd century!



Canadian Nuclear Renaissance

Save the Date!



**14th ANNUAL
INTERNATIONAL
CONFERENCE ON
TRITIUM**

**SAVE THE
DATE**

SEPTEMBER 21 - 26, 2025
Ottawa, Canada

HOSTED BY:

 Canadian Nuclear Laboratories | Laboratoires Nucléaires Canadiens

 KINETRICS

 Laurentis Energy Partners

 **OCNI** ORGANIZATION OF CANADIAN NUCLEAR INDUSTRIES
Clean Energy for a Low Carbon Economy

 Fusion Energy Council of Canada

 Conseil canadien de l'énergie de fusion

 TRITIUM 2025

OCNI is pleased to announce that a Canadian team comprised of OCNI, CNL, Kinectrics, Laurentis Energy Partners and Fusion Energy Council of Canada was selected to host Tritium2025 in Ottawa September 21-25 2025.

This is a major international triennial conference focusing on Tritium

We will be advertising sponsorship opportunities in the near future – stay tuned and Save the Date!

OCNI ORGANIZATION OF
CANADIAN NUCLEAR
INDUSTRIES

Clean Energy for a Low Carbon Economy



OCNI

CAPACITY

ADVOCACY

CONNECTION

**GLOBAL
REACH**

www.ocni.ca