

# **Overview of Canadian SMR Market**

## **4th International Nuclear Conference**

### **April 2025**

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# About OCNI

The Organization of Canadian Nuclear Industries (OCNI) represents a broad range of Canadian nuclear suppliers.

**250** Canadian member companies /

**10** International members in **4** Countries /

**Nuclear Fission**

**Medical Isotopes**

**Advanced Manufacturing**

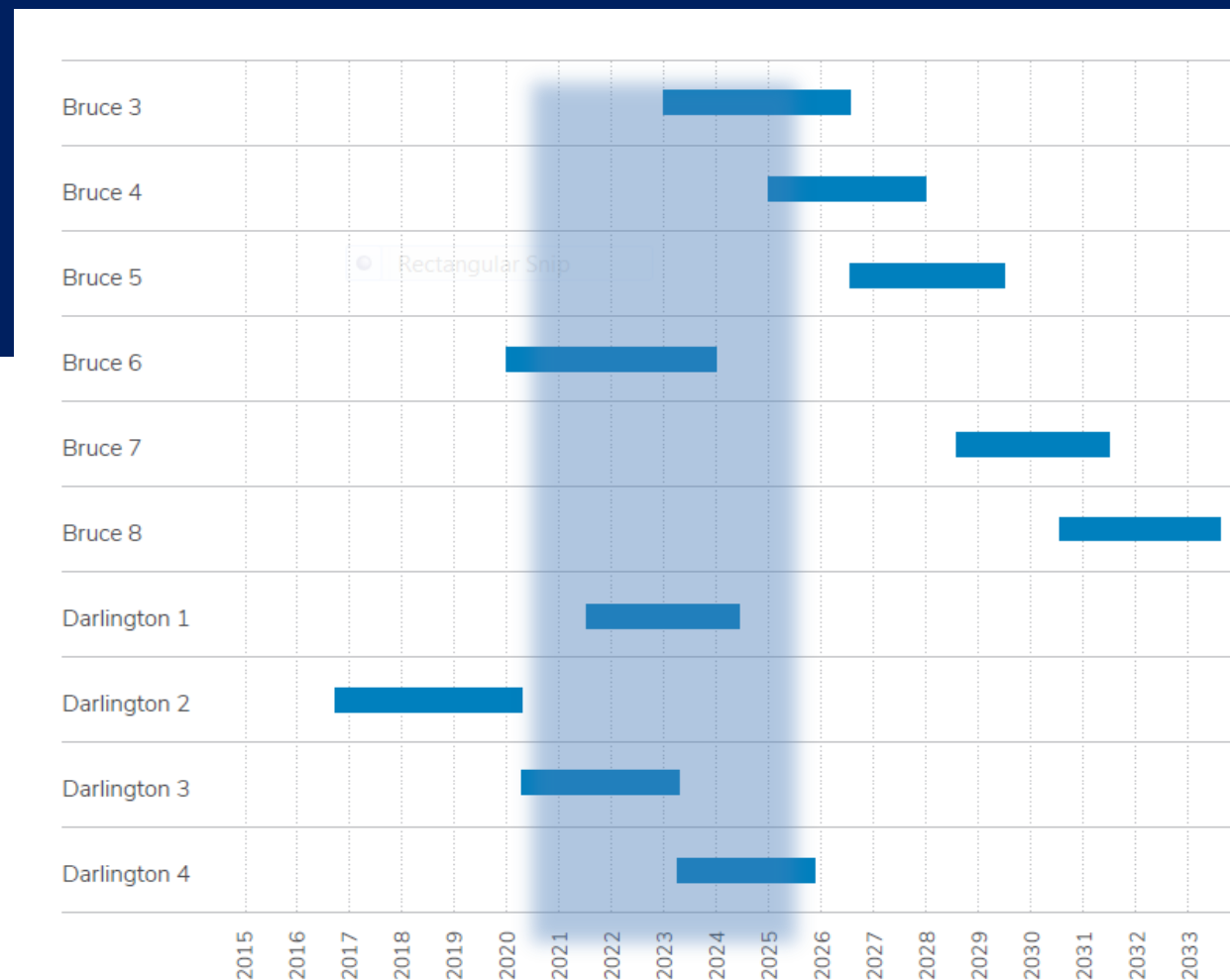
**Nuclear Fusion**

**Hydrogen**



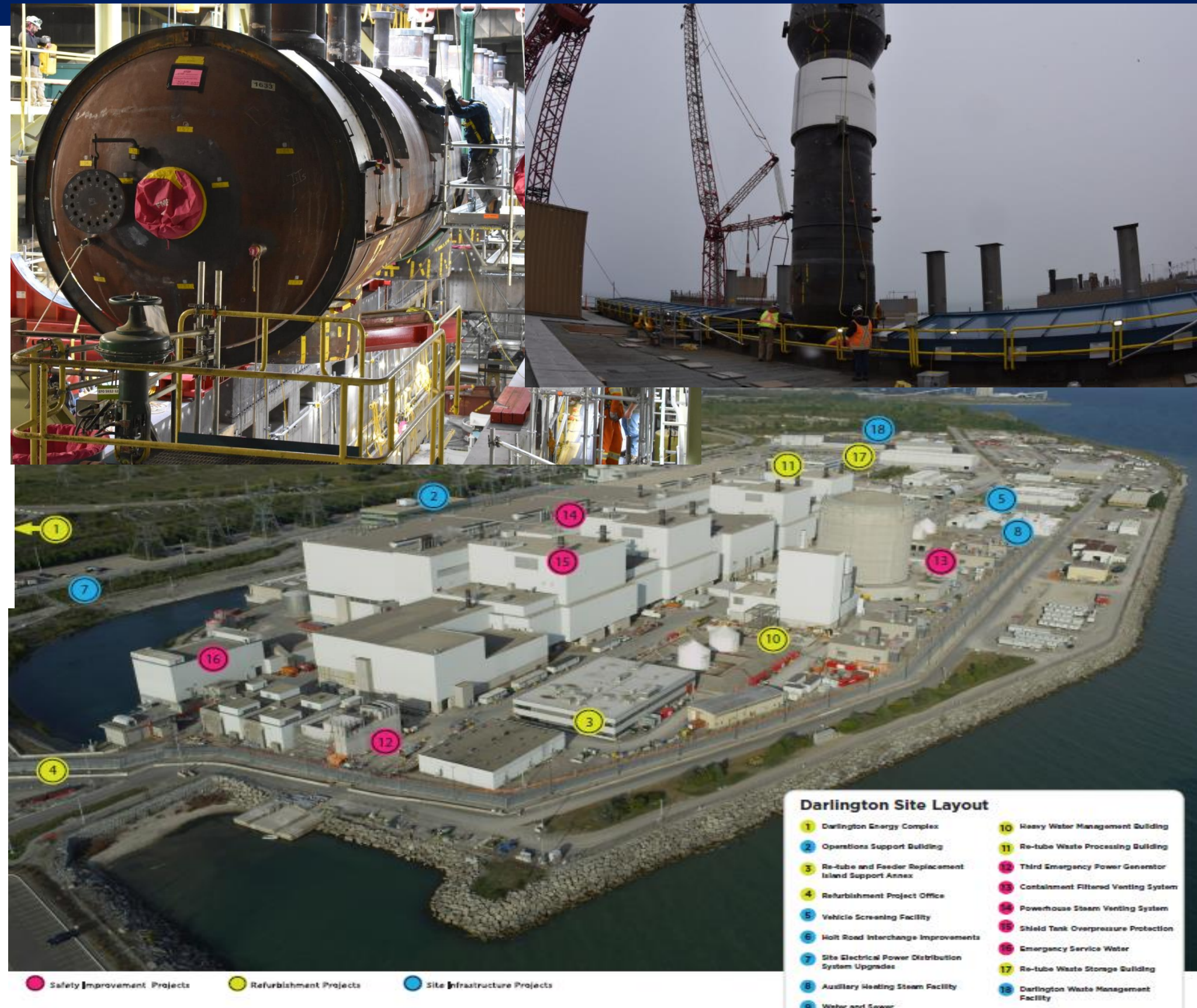


# Ontario's Refurbishment Success = Social License



## Ontario's successful nuclear refurbishment:

- Total capital cost \$25B (2017 CAD) for 10 CANDU reactors
- Projects will generate \$19.4B towards Ontario's DGDP over 30 years and support more than 20,000 jobs annually
- Projects are ahead of schedule and on budget which contributes to the social license for more nuclear projects





# Canadian SMR Support

2018 SMR

Road Map

2019 Provincial MOU with Saskatchewan, Ontario and New Brunswick (Alberta signed in 2021)

2020 SMR Action Plan

2022 OCNI Launches 1<sup>st</sup> Ready4SMR Program in New Brunswick

## CANADIAN SMR Excellence



**CANADA HAS AGREED ON  
AN INTEGRATED APPROACH  
TO A NATIONAL ROLL-OUT OF SMRs.**

### STREAM 1

- First grid-scale SMR of 300 MW to be built by Ontario Power Generation by the end of the 2020's
- Subsequent units in Saskatchewan in the 2030's

### STREAM 2

- Target date: 2030s – ARC Clean Energy and Moltex Energy Canada deploy two 4th Gen advanced SMRs at Point Lepreau Nuclear Generating Station, New Brunswick.
- Terrestrial Energy and X-Energy are other Stream 2 choices

### STREAM 3

- 5MW Global first power gas-cooled fast reactor demonstration unit at Chalk River Nuclear Laboratories underway. Expected completion: 2026
- Westinghouse's micro SMR is another Stream 3 choice









Watch later



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Forebay Pumphouse

Reactor Building Shaft

Launching Shaft



Marine Works – boreholes :  
Started 5<sup>th</sup> of June  
Completion 5<sup>th</sup> of August 2024



0:17 / 1:26



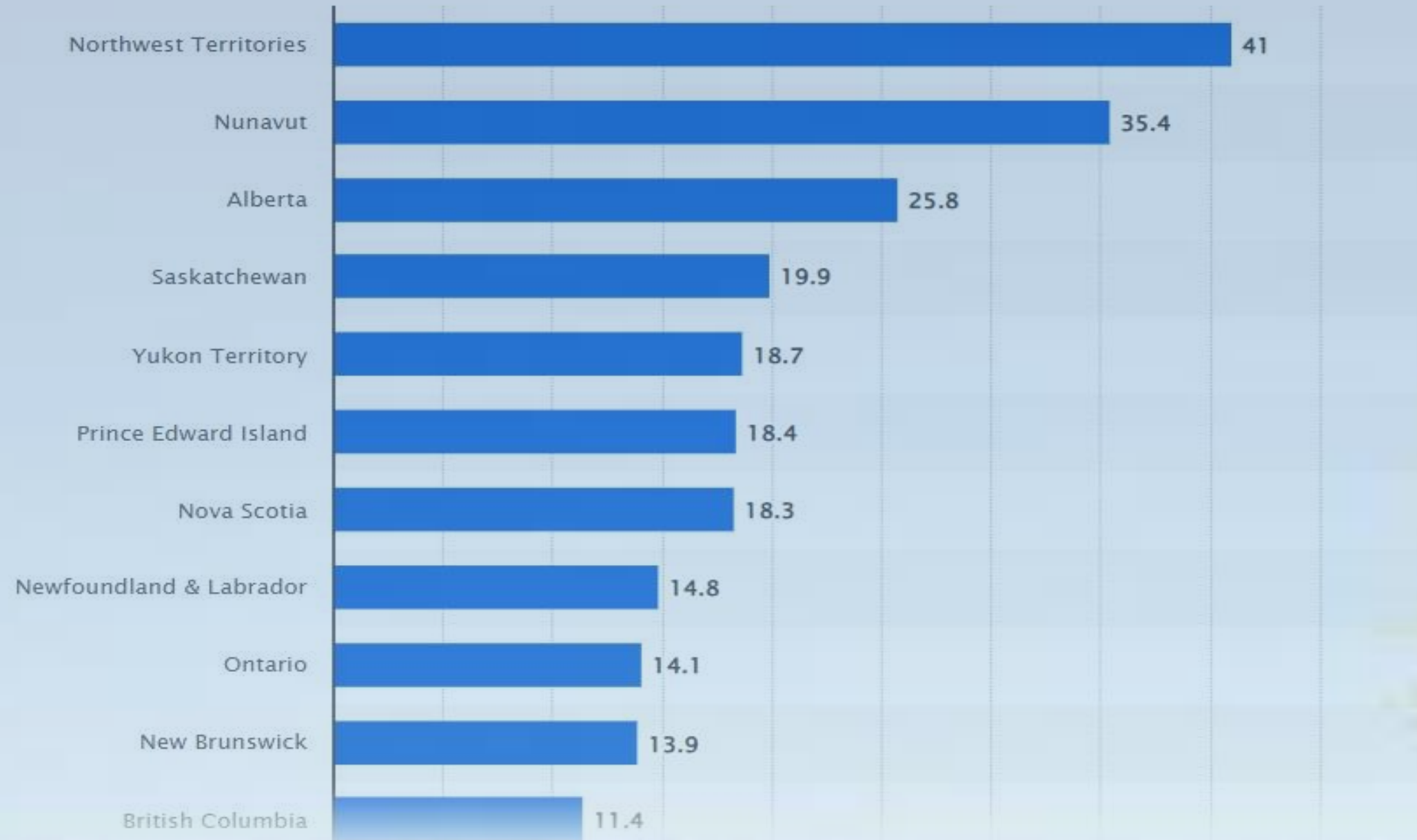
YouTube





# Canadian 2023 Electricity Statistics

*(in Canadian cents per kilowatt-hour)*



### **Oilsands**

Heat generation  
for oilsands  
production



### **Heavy industry**

Steam production  
for heavy industry  
through Canada's  
industrial heartland



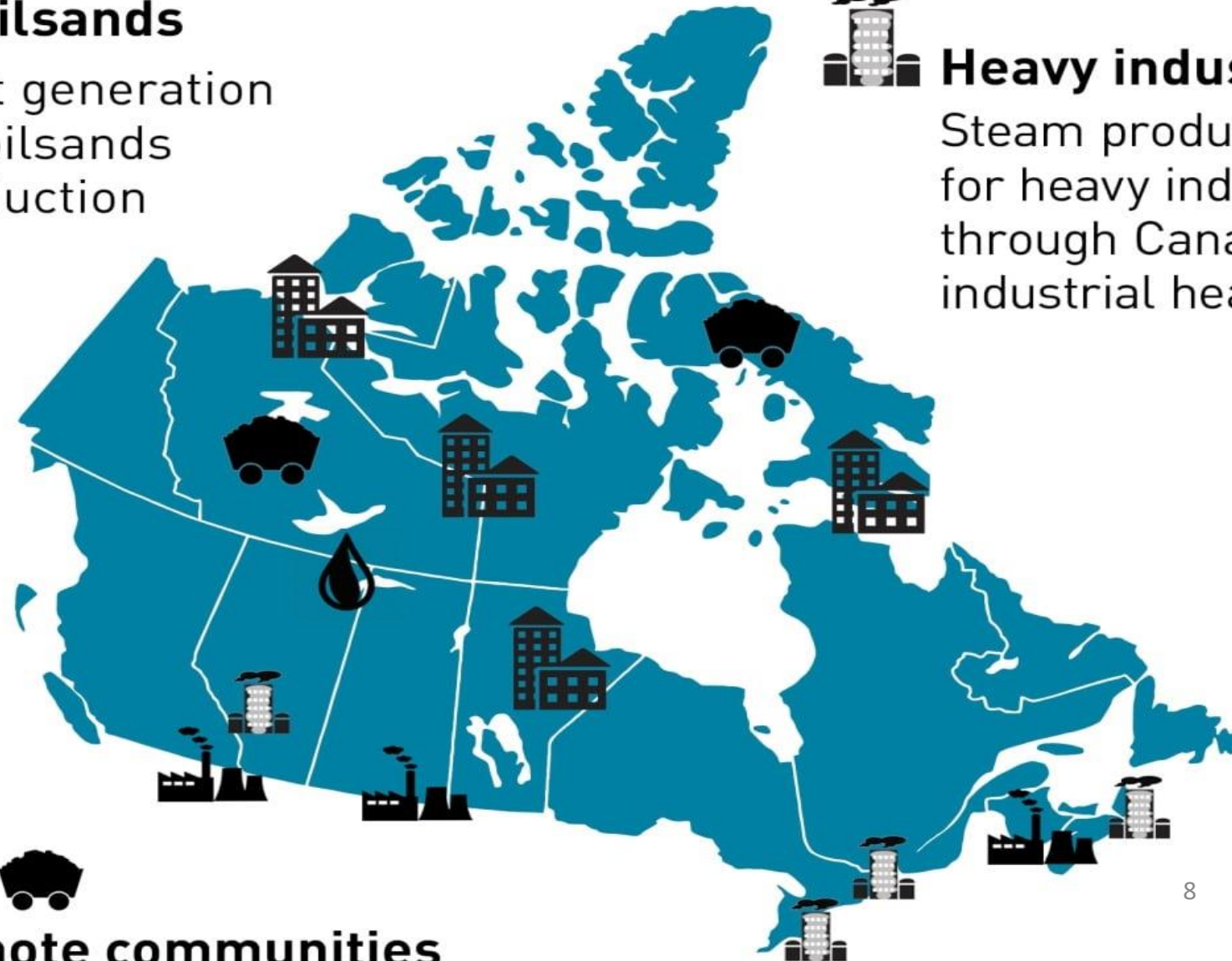
### **Remote communities and mines**

Power generation for  
some 170 northern  
remote and Indigenous  
communities plus  
dozens of off-grid mining  
sites currently dependent  
on polluting, GHG  
generating diesel



### **Conventional coal-fired power:**

Replacement of 17 coal-fired  
power stations across the  
country that produce  
approximately 65 megatonnes  
of CO<sub>2</sub> annually



## Economics

Each SMR Built in Canada would:

- Increase GDP by approximately CAD \$3.8B and provide 500 jobs annually over 65 years
- Generate approximately CAD \$4.9B in all levels of tax revenues over 65 years
- Provide an economic multiplier of 0.82 over the lifespan of the technologies

And, each SMR can prevent  
between 0.3 and 2 megatons of  
CO<sub>2</sub> emissions annually,  
depending on location and  
utilization.



# Canadian Advanced SMRs

eVinci  
Microreactor

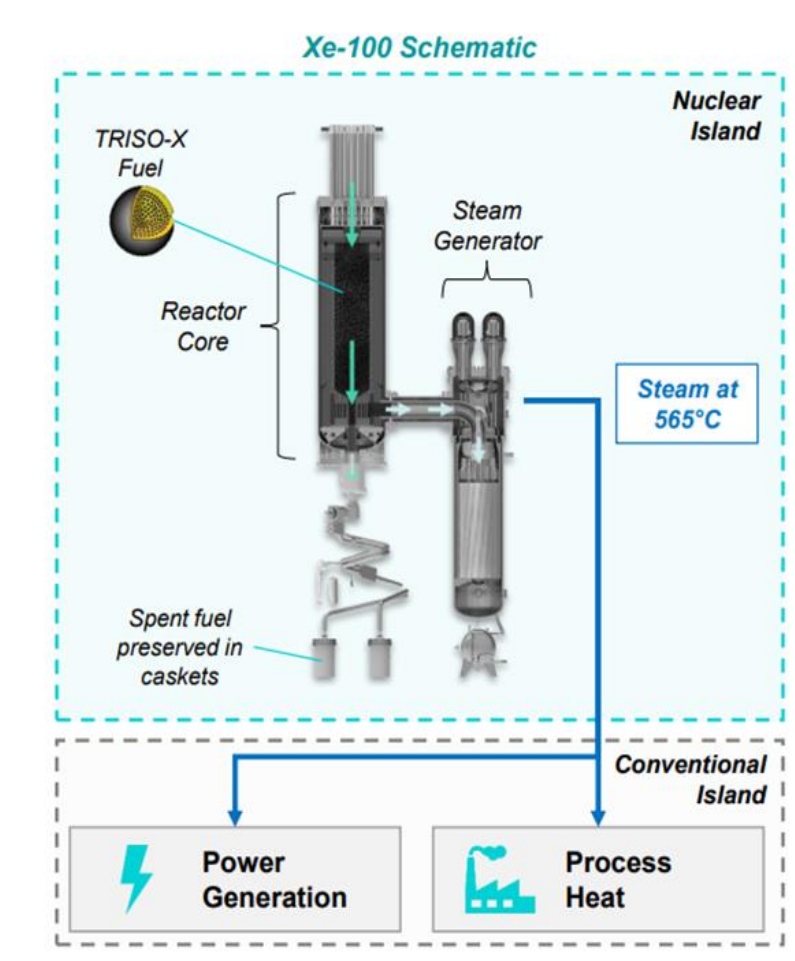
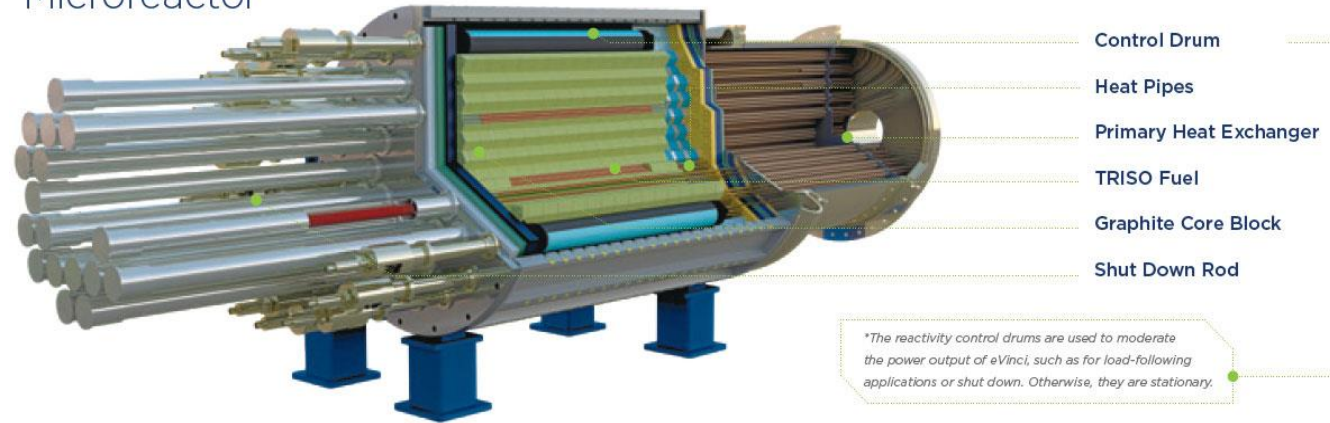
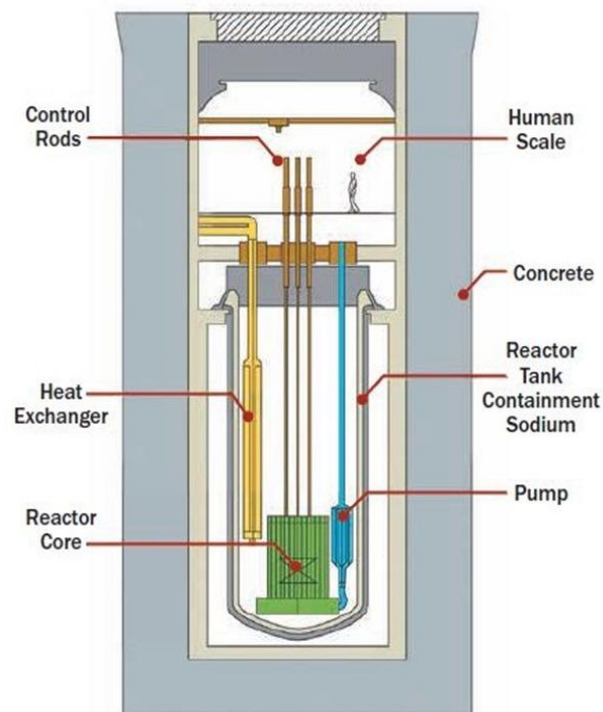
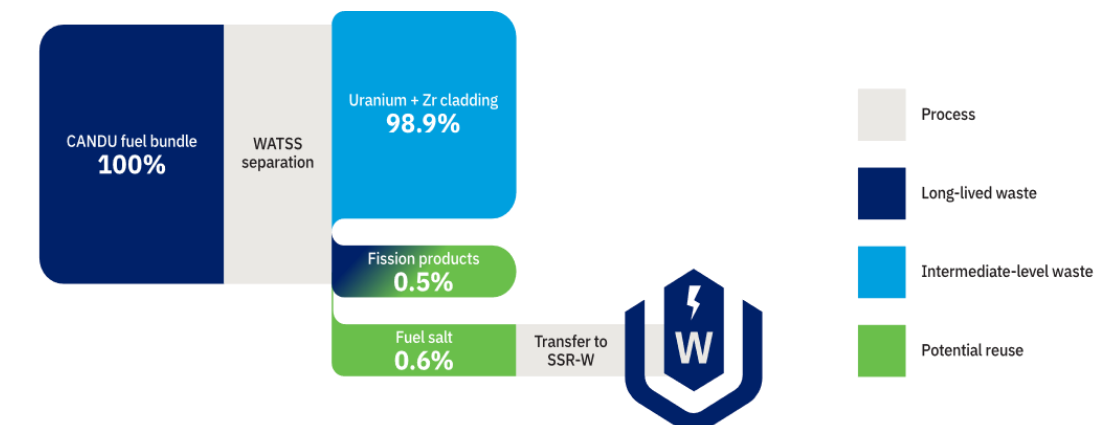
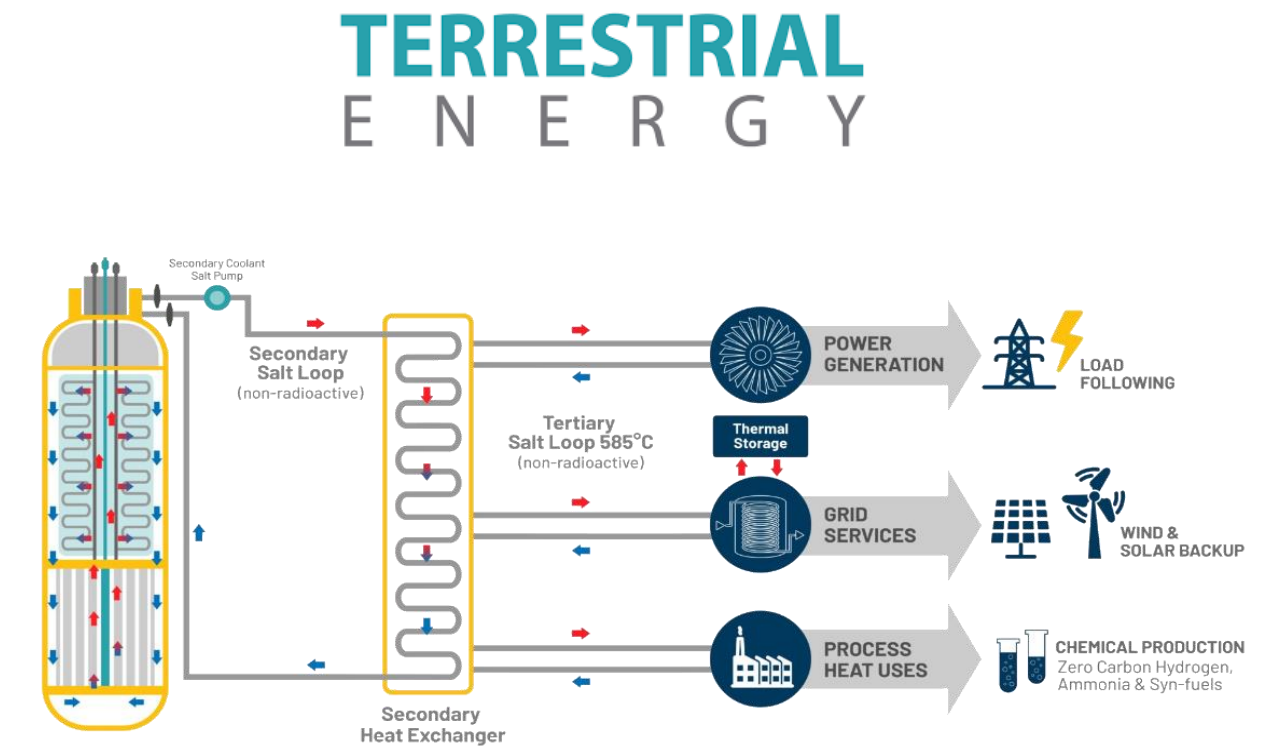


FIGURE 6  
Advanced Reactor Concepts'  
ARC-100 Power Module

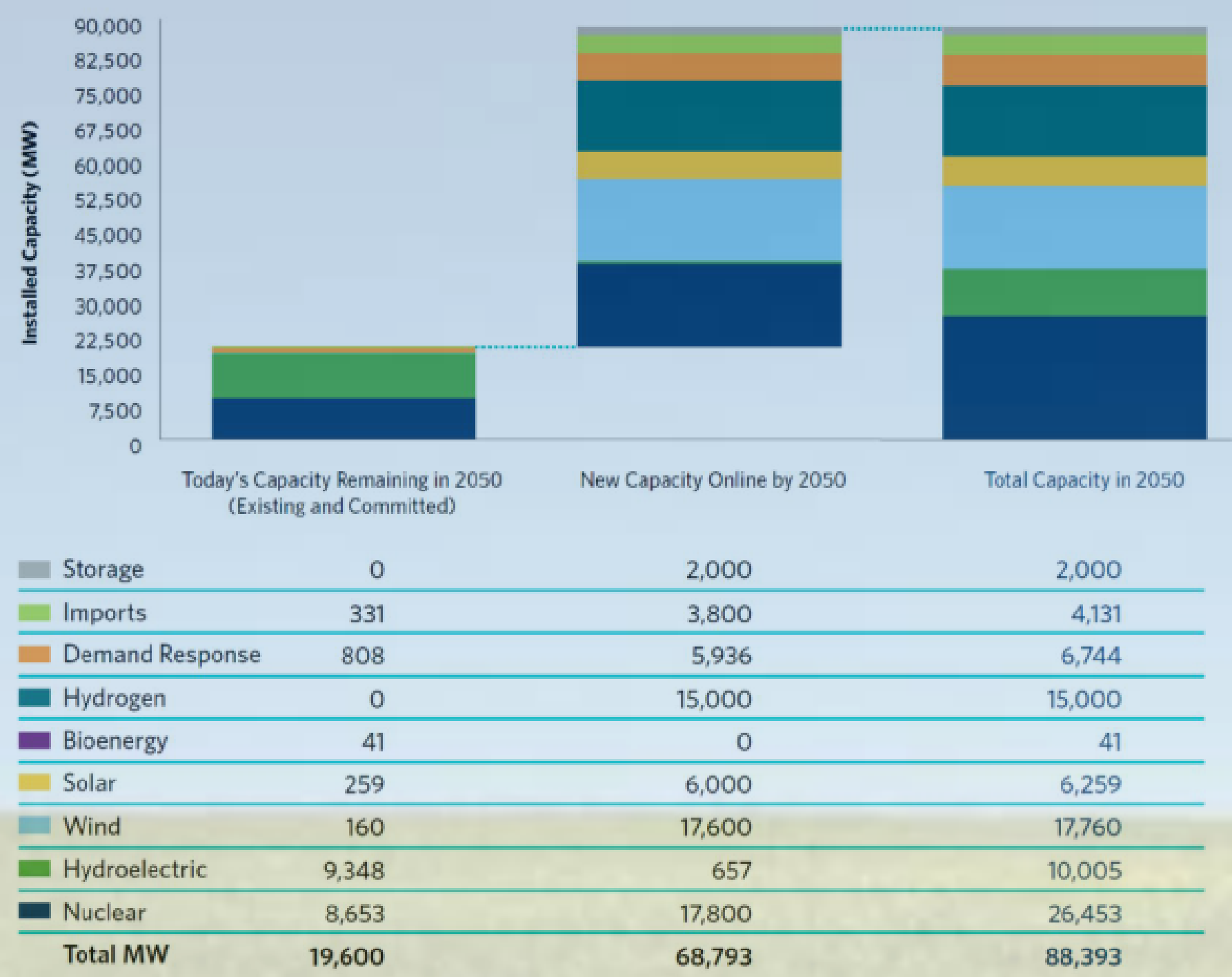


Source: © Advanced Reactor Concepts, LLC





**Figure 12 | Pathway Scenario - Installed Capacity in 2050**



Source: IESO's Pathways to Decarbonization Report,



The image features a background of a city skyline at night, with numerous lights from buildings and streets. Overlaid on this is a complex network diagram consisting of many small white dots connected by thin white lines, creating a web-like structure. Five large, semi-transparent blue circles are positioned across the image, each containing a white text label. The circles are interconnected by the network lines. The largest circle is in the top left, and the others are distributed towards the center and right. The overall theme is technology, communication, and global connectivity.

**OCNI**

**CAPACITY**

**ADVOCACY**

**CONNECTION**

**GLOBAL  
REACH**

**[www.ocni.ca](http://www.ocni.ca)**