

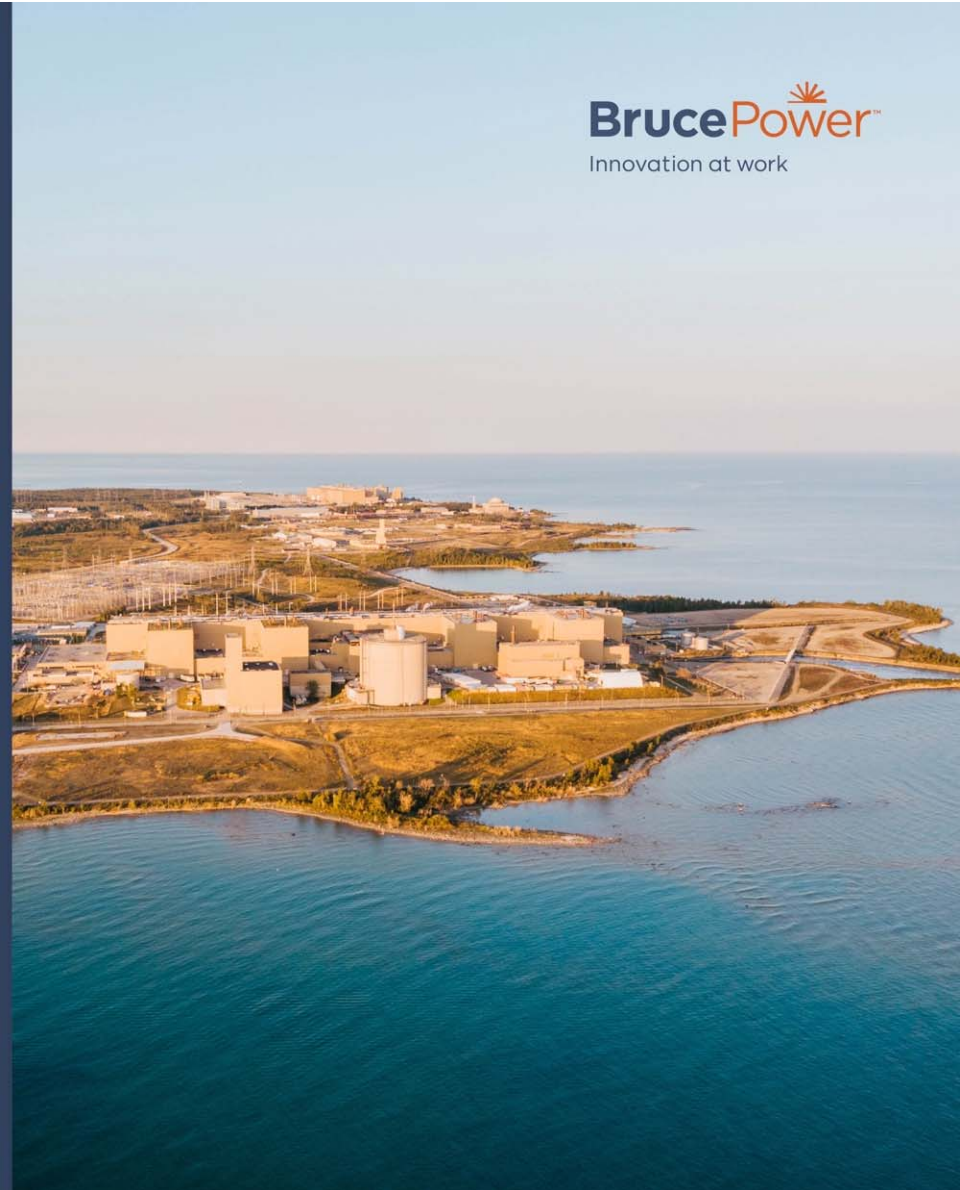
# Bruce Power – Powering Ontario Forward

Presentation to Kincardine Council  
Jenn Edey Senior Vice President, Operational Services

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November 27, 2023

**BrucePower™**  
Innovation at work





# Safety First

BRUCE POWER'S NUMBER 1 VALUE

**Safety First is and always will be our number one value, and it is the first step in securing our future. Together, we need to look out for our peers, our plants and our communities, using the Bruce Power Excellence Model as our guide.**

## A bit about Bruce Power

Canada's only private-sector nuclear generator, producing 30% of Ontario's clean, reliable electricity.

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An important source of sterilization and cancer-fighting medical isotopes used globally.

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Investing in extending the life of our fleet. Canada's largest private sector infrastructure project

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Increasing the output of existing units to contribute to a prosperous, clean energy future

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# Nuclear's Contributions. Powering Ontario.



**Nuclear provides roughly 60 per cent of Ontario's electricity.**

This carbon-free generation is equivalent to avoiding 19 million tonnes of GHG each year.



**76,000+ direct and indirect jobs**

across Canada from the nuclear industry



**Nuclear power sits alongside renewables**

as electricity sources with lifetime carbon emissions of about 20 grams per kilowatt hour (g/kWh).

# Nuclear's Contributions. Powering Ontario.



**The province relied heavily on nuclear power to eliminate coal.**

Since coal was phased out in 2014 there has been zero smog days in Ontario.



**CANDU reactors have made Canada a world leader in the production of isotopes**

used to sterilize single-use medical equipment in hospitals around the globe and life-saving medical grade isotopes used to treat various forms of cancer.



**Reliable power**

During the 2003 blackout, Bruce Power's reactors were able to quickly reconnect to the grid to help restore power in Ontario.

# Powering Ontario's growth

The company's approach to supporting the role of the Bruce Power site in the province's Powering Ontario's Growth plan will be based on the following principles:

- Extend the operation of the eight Bruce Power operating units to continue producing clean energy and cancer-fighting isotopes through 2064 and beyond.
- Through the Life-Extension Program and Project 2030 investments, increase net peak output of the existing units to 7,000 megawatts (MW) for the 2030s – equivalent to adding a large-scale reactor with current infrastructure.
- Pursue an Impact Assessment (IA) as a planning tool to evaluate the potential for an additional 4,800 MW at the Bruce Power site and commit to open and transparent engagement with Indigenous communities, the local tri-county region and the public prior to any decision-making.
  - Undertake a robust technology review process to provide sound guidance for potential future decisions and milestones.
  - Position economic development/partnerships, localization, supply chain and workforce development as key priorities in development, especially in rural communities.

# Life Extension and MCR

The biggest contributor to the climate goals in Ontario is the Life Extension program – Units 3-8 at Bruce Power will be fully refurbished by 2033



**Largest private  
infrastructure  
project in Canada**



**Bruce Power's ongoing  
operations sustain 22,000  
direct and indirect jobs  
annually**



**\$10 billion in  
economic activity  
each year in Ontario**

# More Power Output - Project 2030



Helping meet  
future energy demand

2016

**6,300 MW**

SITE NET PEAK

2018

**6,430 MW**

SITE NET PEAK

*(Project 2030 start)*

2022

**6,550 MW**

SITE NET PEAK

Early 2030s

**7,000 MW+**

TARGET SITE NET PEAK



About equivalent to adding one large-scale reactor with current infrastructure



# Cancer-Fighting Medical Isotopes

- **Leading the way in nuclear medicine** – producing cobalt-60 and lutetium-177 through made-in-Ontario partnerships
- **Commercial production of lutetium-177 began in October 2022** – first company to produce this isotope in a commercial reactor
- **Future isotope production** – evaluating opportunities to produce up to six new isotopes
- **Collaboration with Saugeen Ojibway Nation** – collaborate to market new isotopes and economic opportunities



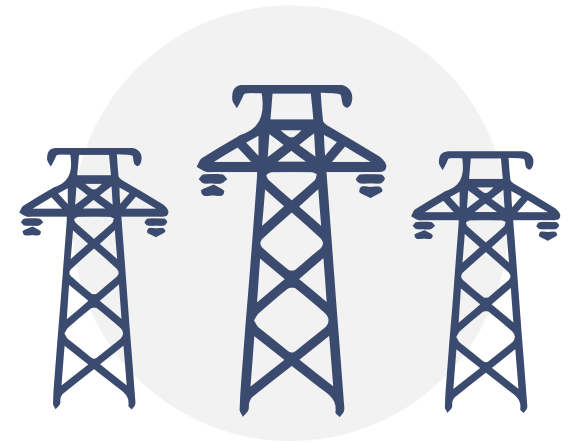
# The Net Zero Challenge. Big task in Canada.



The Government of Canada has committed to achieving **Net Zero carbon emissions by 2050** with 40% below 2005 levels by **2030**



**Demand from electrification**  
EVS and electrifying heavy industry;  
all new passenger car sales to be  
zero-emissions models by 2035



As Canada moves away from fossil fuels, **non-emitting energy sources must step up to meet demand.** Net Zero grid by 2035

# Reaching Our Decarbonization Goals.

“In order to meet a projected 60,000 MW of customer demand, Ontario will need all of the resources available to expand and decarbonize.”

## 17,800 MW

of additional nuclear capacity needed in Ontario by 2050  
in order for the province to decarbonize, with overall capacity  
more than doubling to 88,000 MW

Independent Electricity System Operator Pathways to Decarbonization 2022 Report

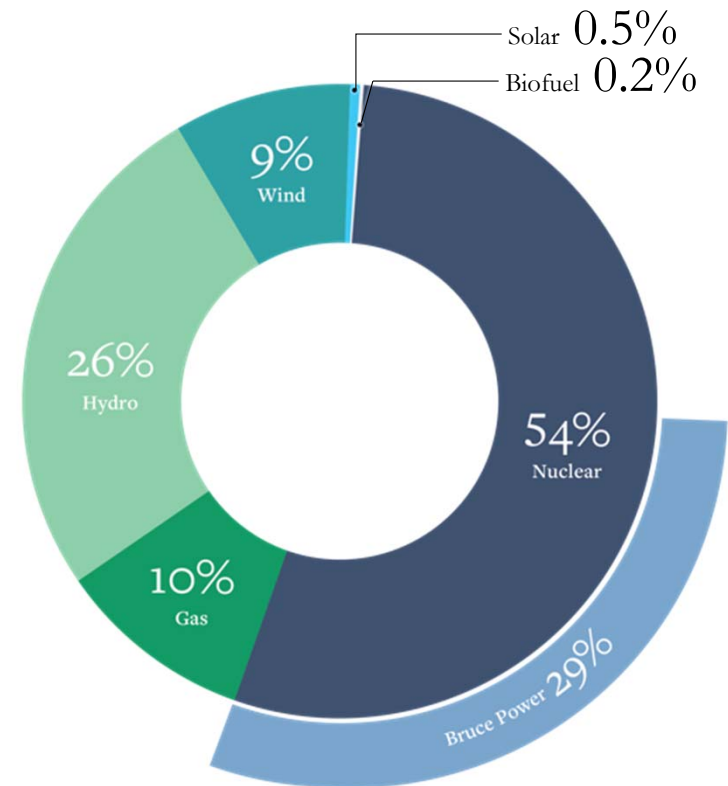


Figure 1: Electricity output by fuel type 2022

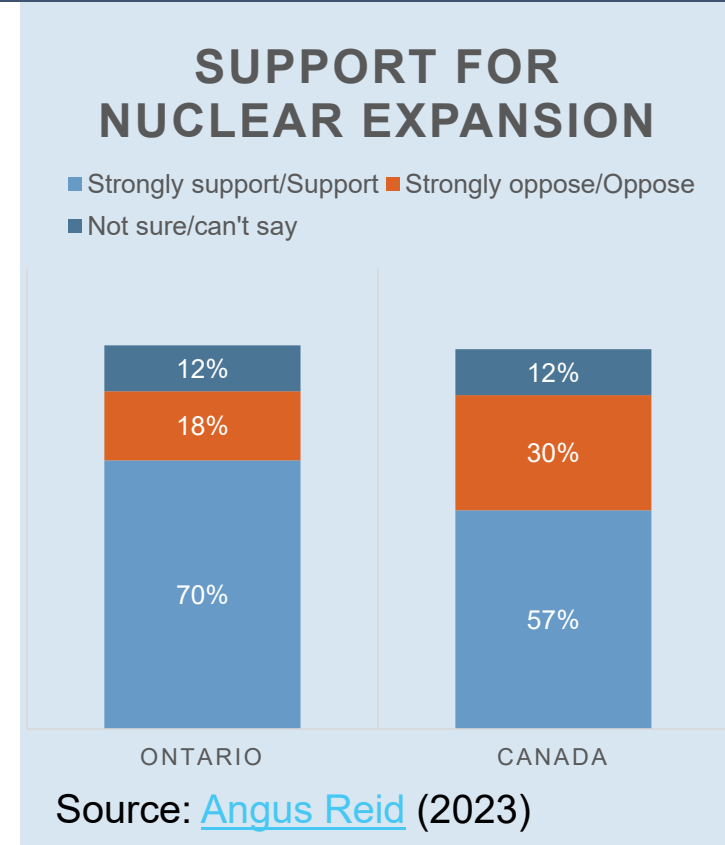
# Powering Ontario's Growth

- Ontario's plan to meet clean energy demand for the 2050s.
- **Bruce Power:** Starting licensing and Impact Assessment work (up to 4,800 MW)
- **OPG:** Three additional SMRs at Darlington; feasibility study to refurbish Pickering B Units
- IESO, OPG and Bruce Power to develop a feasibility study and business case for potential future nuclear generation in Ontario.



# Support for Nuclear Expansion

- Increasing support for nuclear power
  - No path to Net Zero without nuclear
  - Energy security
  - Economic benefits
  - Medical isotopes
- Strong support in Canada across all major political parties: CPC (73%); Liberal (54%); NDP (56%)



Survey: Three-in-five Canadians want further development of nuclear power

# Purpose of Project – Bruce C

- Enhance support of Ontario's energy infrastructure and achievement of Canada's carbon emissions goals as a clean energy producer
- Bruce Power is uniquely positioned to help Canada and Ontario achieve its economic and climate change objectives between now and 2050
- Nuclear plays a significant role to meet future increased demand on the grid

## A new nuclear project at the Bruce site will:

- Create and sustain high-quality jobs in Bruce County and beyond
- Support partnerships and meaningful benefit to Indigenous communities
- Provide additional opportunities to build the medical isotope market

# Overview of IA Process



THE KEY PARTICIPANTS IN THE IMPACT ASSESSMENT SYSTEM ARE



# Optimizing the Impact Assessment process

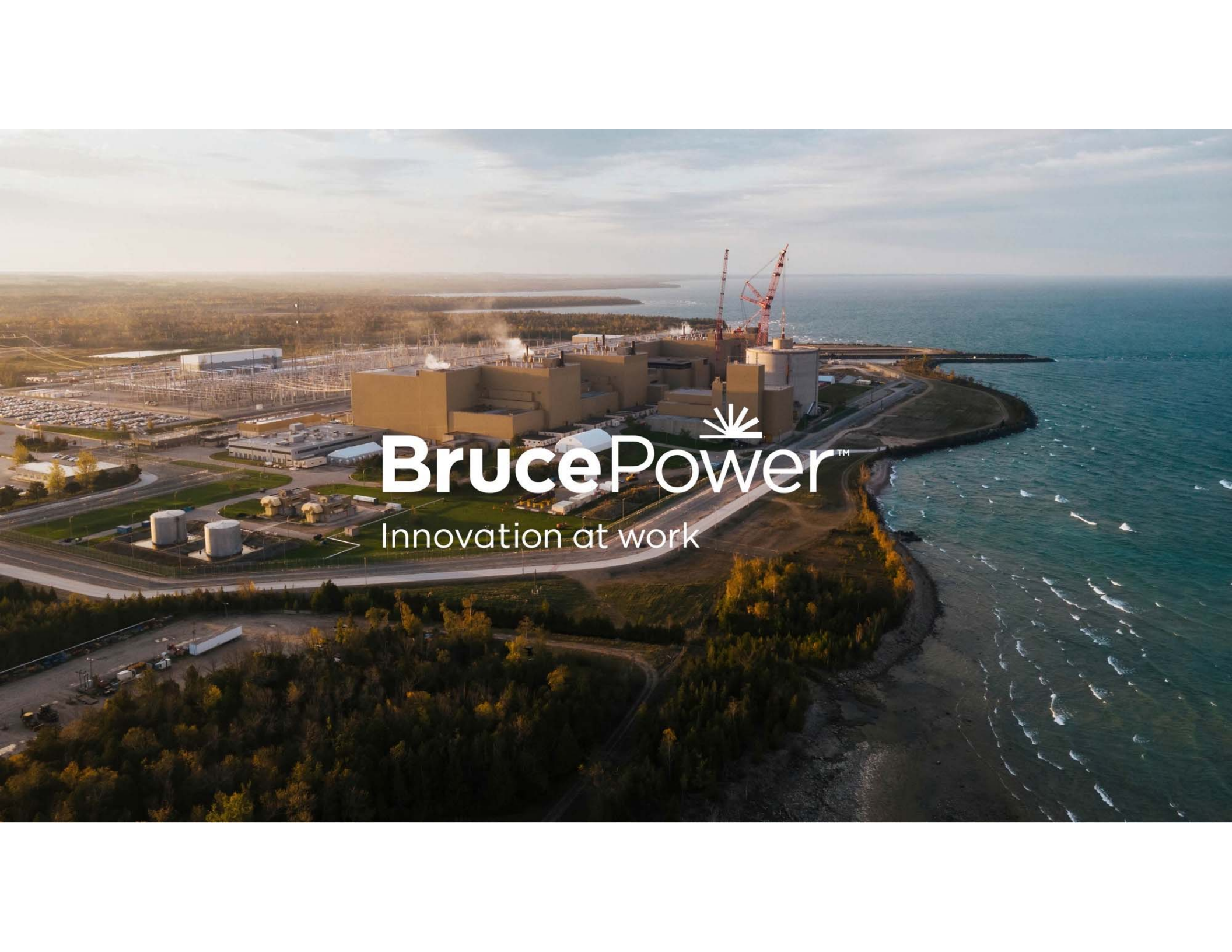
## Opportunities:

- Previous Environmental Assessment work was completed for the Bruce Power site (2008)
- The Bruce Power site is heavily studied, regulated, and reviewed by multiple agencies
- Bruce Power has a strong relationship and established protocol with the local Indigenous communities of SON, Historic Saugeen Metis, and Metis Nation of Ontario, as part of our ongoing operations, licence renewal, isotope production and Project 2030
- A more flexible regulatory environment will enable Canada to reach Net Zero goals



**Bruce Power is a unique site**





  
**BrucePower**<sup>TM</sup>

Innovation at work