



## **Oral Presentation**

### **Submission from the Toronto Region Board of Trade**

In the Matter of

#### **Bruce Power Inc. – Bruce A and B Nuclear Generating Station**

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Request for a ten-year renewal of its Nuclear Power Reactor Operating Licence for the Bruce A and B Nuclear Generating Station

**Commission Public Hearing – Part 2**

**May 28-31, 2018**

## **Exposé oral**

### **Mémoire du Toronto Region Board of Trade**

À l'égard de

#### **Bruce Power Inc. - Centrale nucléaire de Bruce A et Bruce B**

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Demande de renouvellement, pour une période de dix ans, de son permis d'exploitation d'un réacteur nucléaire de puissance à la centrale nucléaire de Bruce A et Bruce B

**Audience publique de la Commission – Partie 2**

**28-31 mai 2018**





Photo credit: H4vok\_13 via Foter.com



# TORONTO REGION BOARD OF TRADE

BRUCE POWER LICENCE RENEWAL

CANADIAN NUCLEAR SAFETY COMMISSION

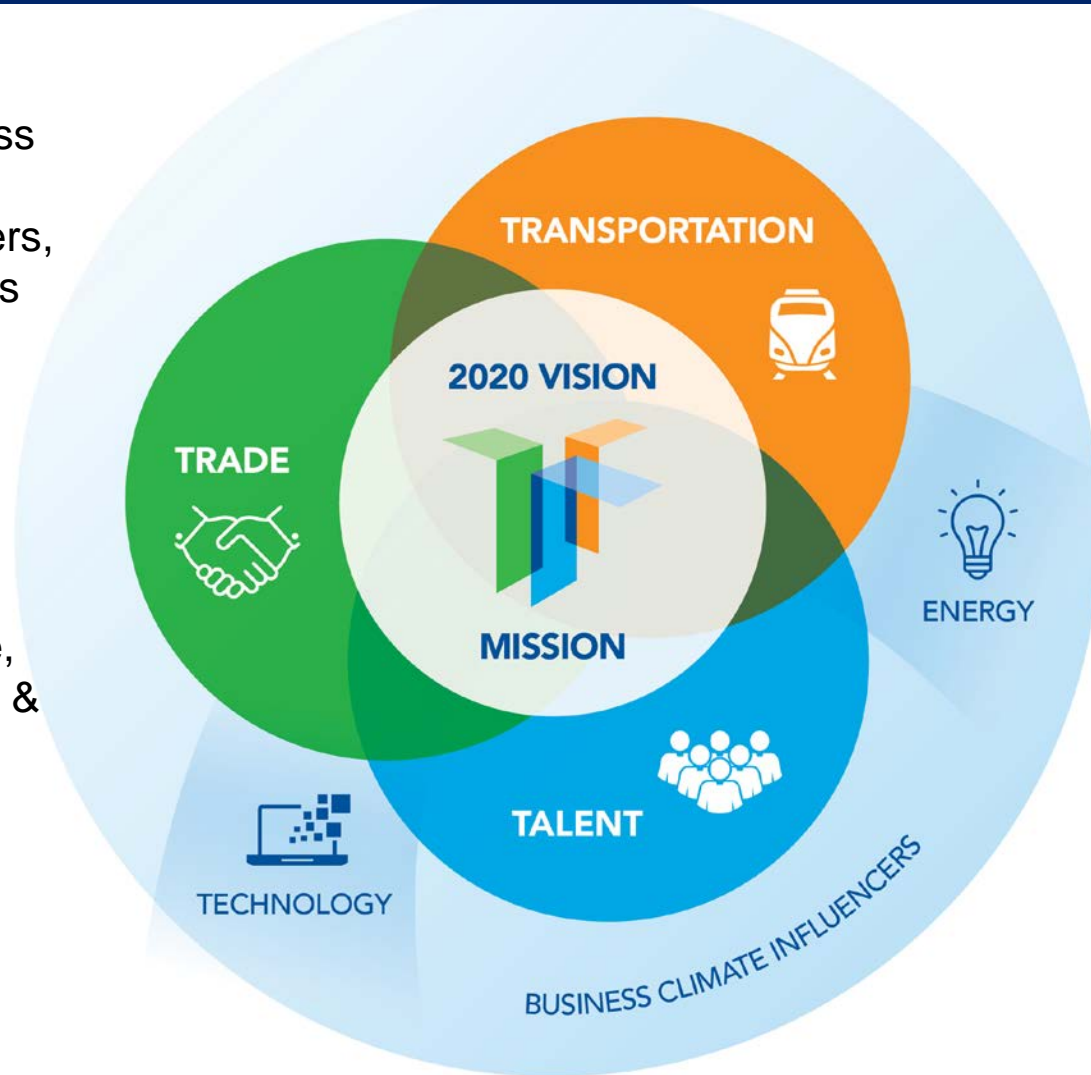
April 13, 2018

# Presentation Overview

- 1. About the Toronto Region Board of Trade**
- 2. The Need for Reliable, Low-Cost Power**
- 3. A Laudable Safety Record**
- 4. Ensuring a Sustainable Environment**
- 5. The Importance of Life Extension**

# About the Toronto Region Board of Trade

- Serving the Toronto Region business community for **+170 years** .
- We collaborate with business leaders, government, educational institutions & community builders.
- Our membership is diverse: **+12,000** business professionals & influencers from established corporations to emerging start-ups.
- The Board offers: podium of choice, policy & advocacy, B2B networking & professional development.



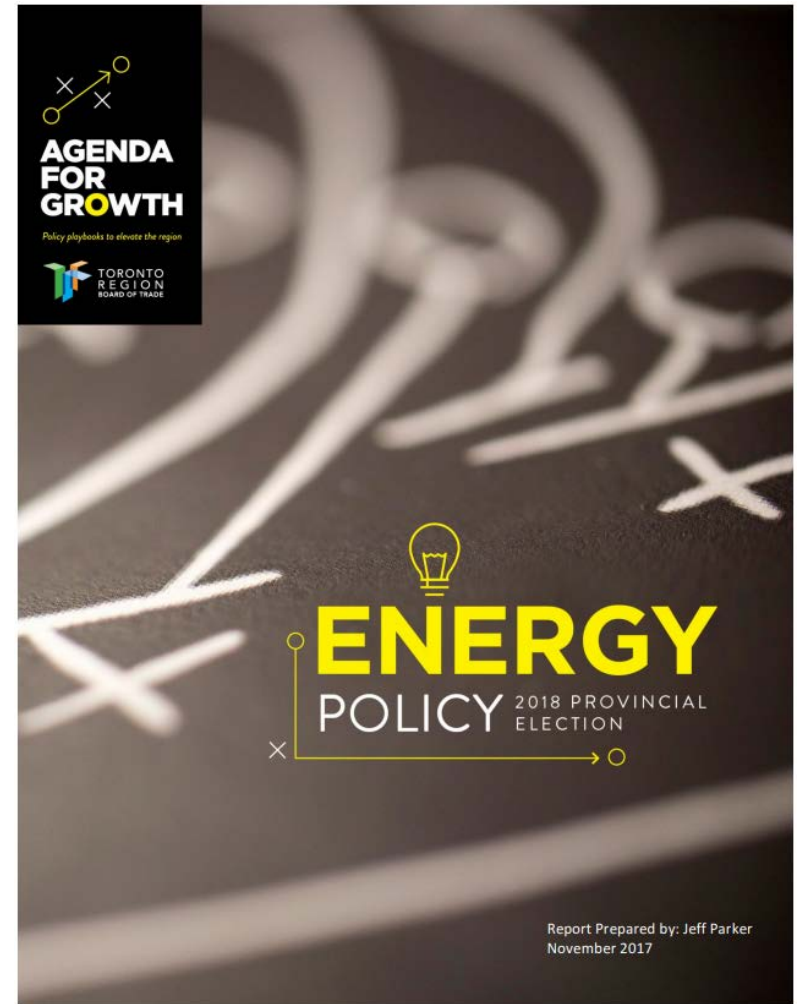
# Energy Policy at the Board of Trade

Sound energy policy is founded on balancing three objectives:

- **Affordability**
- **Reliability**
- **Sustainability**

Energy is a priority area for the Board and we advocate to all three levels of government to make smart energy decisions.

Nuclear power is the rare technology that can achieve all three objectives.



# The Need for Reliable, Low-Cost Power

Bruce Power has been a leader in providing reliable, low-cost power to Ontario for the past few decades. This is crucial to consumers, including our members.

Our nuclear power plants also provide the foundation for a robust domestic nuclear industry, ensuring that Canada can remain a leader in the peaceful deployment of nuclear technology. In a period of global uncertainty, a strong Canadian nuclear industry, including Bruce Power, is important to supporting international development and treaty commitments.

## Total Electricity Supply Cost, 2017

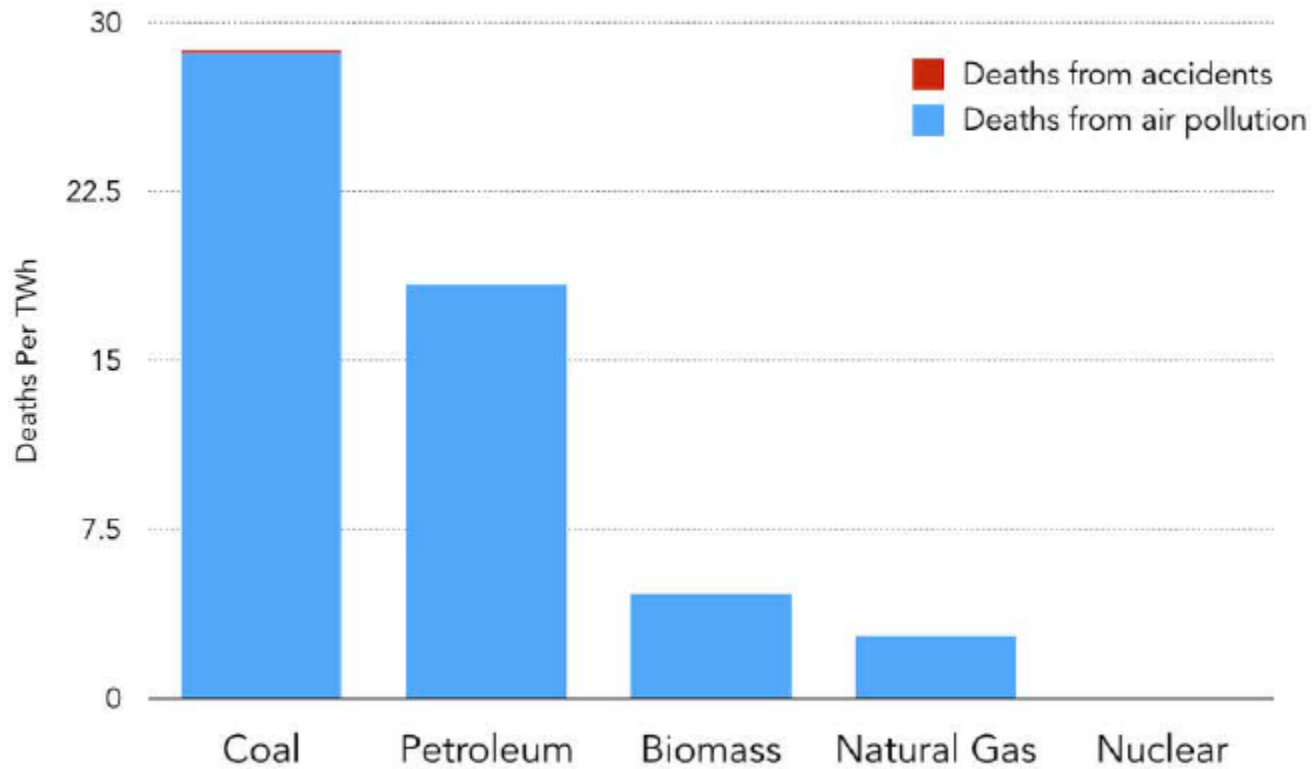
	% of Total Supply	% of Total Global Adjustment	Total Unit Cost (Cents/kWh)
<b>Nuclear</b>	60%	40%	6.9
<b>Hydro</b>	24%	12%	5.8
<b>Gas</b>	6%	15%	20.5
<b>Wind</b>	8%	18%	17.3
<b>Solar</b>	2%	14%	48.0
<b>Bio Energy</b>	0%	0%	13.1

Source: [Ontario Energy Board](#)



# A Laudable Safety Record

Nuclear is already the safest way to make reliable electricity.



Source: Markandya, A., & Wilkinson, P. 2007. Electricity generation and health. *The Lancet*, 370(9591), 979-990.



# A Laudable Safety Record

## CANADIAN NPP SAFETY PERFORMANCE RATINGS FOR 2016

Safety and control area	Bruce A	Bruce B	Darlington	Pickering	Point Lepreau	Industry average*
Management system	SA	SA	SA	SA	SA	SA
Human performance management	SA	SA	SA	SA	SA	SA
Operating performance	FS	FS	FS	FS	SA	FS
Safety analysis	FS	FS	FS	FS	FS	FS
Physical design	SA	SA	SA	SA	SA	SA
Fitness for service	SA	SA	SA	SA	SA	SA
Radiation protection	FS	FS	FS	SA	SA	SA
Conventional health and safety	FS	SA	SA	FS	FS	FS
Environmental protection	SA	SA	SA	SA	SA	SA
Emergency management and fire protection	SA	SA	SA	SA	SA	SA
Waste management	FS	FS	FS	FS	SA	FS
Security	SA	SA	SA	SA	SA	SA
Safeguards and non-proliferation	SA	SA	SA	SA	SA	SA
Packaging and transport	SA	SA	SA	SA	SA	SA
Integrated plant rating	FS	SA	FS	FS	SA	SA

FS Fully satisfactory SA Satisfactory BE Below expectations



## A Laudable Safety Record

The CNSC's own assessment indicates that both Bruce A and B meet or exceed nuclear industry safety standards.

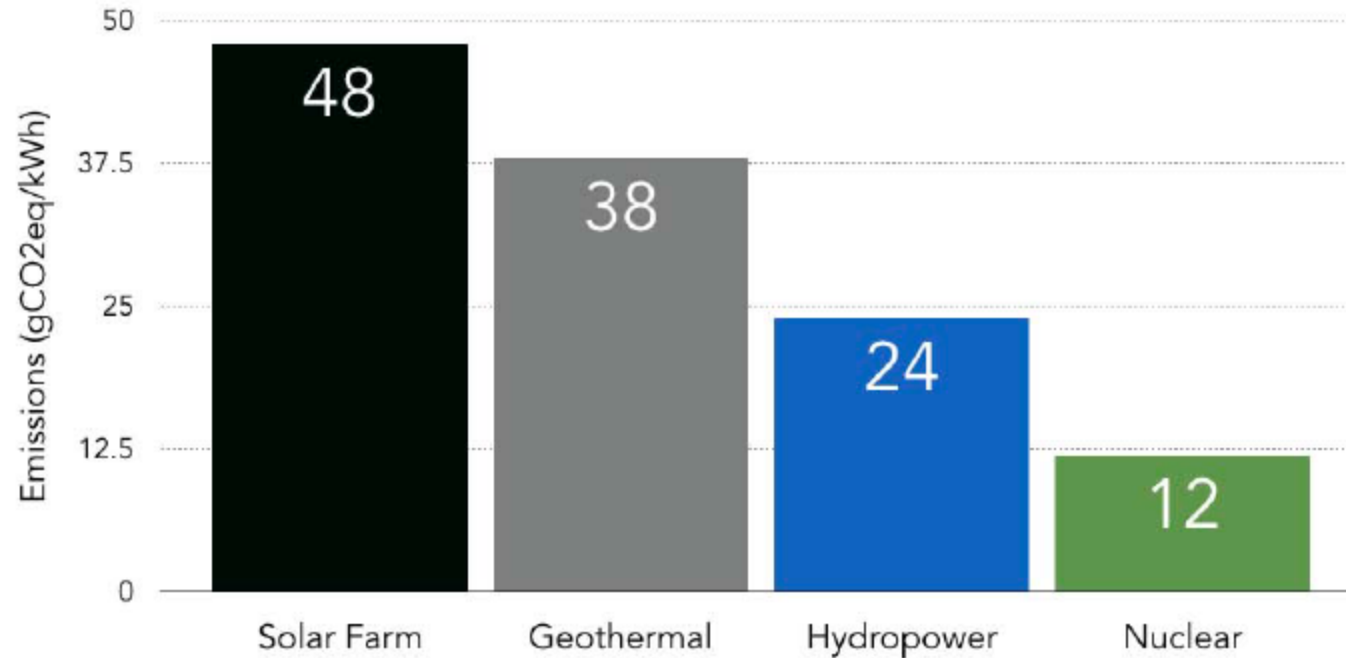
This continued record of excellence provides the Toronto Region Board of Trade with a high level of confidence in Bruce's high safety standards, both now and in the future.

## Ensuring a Sustainable Environment

- Nuclear power's environmental impact must be about more than site safety, radiation and waste management
- While these are important, and central to the CNSC's mandate, environmental considerations should also include nuclear power's role in combating climate change.
- By providing large amounts of virtually emission-free energy, Bruce A and B are crucial to Ontario and Canada's efforts to meet international commitments, such as the Paris Agreement.

# Ensuring a Sustainable Environment

## Nuclear produces four times less carbon pollution than solar farms



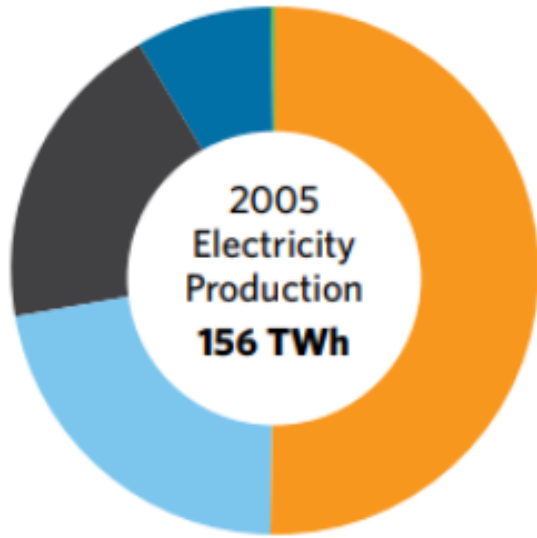
### Source: Intergovernmental Panel on Climate Change (IPCC) 2014

Annex III Table A III.2 :: Schlömer S., T. Bruckner, L. Fulton, E. Hertwich, A. McKinnon, D. Perczyk, J. Roy, R. Schaeffer, R. Sims, P. Smith, and R. Wiser, 2014. "Annex III: Technology-specific cost and performance parameters." In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

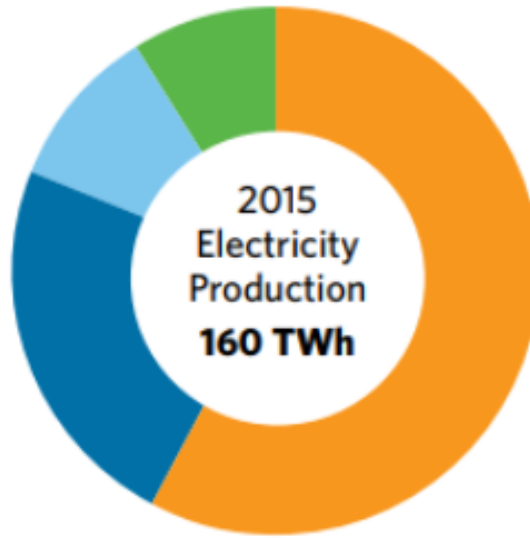


# Ensuring a Sustainable Environment

Ontario Electricity Production in 2005 and 2015



<span style="color: orange;">■</span> Nuclear	51%
<span style="color: lightblue;">■</span> Water	22%
<span style="color: darkgrey;">■</span> Coal	19%
<span style="color: darkblue;">■</span> Natural Gas	8%
<span style="color: green;">■</span> Solar/Wind/Bioenergy	<1%



<span style="color: orange;">■</span> Nuclear	58%
<span style="color: darkblue;">■</span> Water	23%
<span style="color: lightblue;">■</span> Natural Gas	10%
<span style="color: green;">■</span> Solar/Wind/Bioenergy	9%

Ontario's landmark environmental achievement, eliminating coal, was only possible because of increased generation from nuclear power. Approximately half of the power from coal generation was replaced by nuclear.

Without Bruce Power, Ontario would be required to rely on sources of power with greater emissions.

Source: [Ontario Planning Outlook](#)

# The Importance of Life Extension

- Nuclear power manages to achieve the three objectives of an ideal energy system by providing affordable, reliable and environmentally sustainable electricity
- Ontario's nuclear generating stations are central to current and future plans to combat climate change and create a more environmentally sustainable future
- However, nuclear power is capital intensive and siting new plants can be difficult making refurbishment the logical choice
- If Canada is to remain a leader in the peaceful deployment of nuclear technology and hope to meet its climate commitments, nuclear power and the generating stations of Bruce A and B will play a key role.

# The Importance of Life Extension

The CNSC has a successful track record in licensing life extension projects to ensure the highest standards in safety, security and environmental protection. Past projects at Pickering, Bruce A and the ongoing work at Darlington have set a clear and effective benchmark that should be applied here.



## For Further Information

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April 17, 2018

Canadian Nuclear Safety Commission  
280 Slater Street  
P.O. Box 1046, Station B  
Ottawa, ON K1P 5S9

Dear Members of the Canadian Nuclear Safety Commission,

I am writing to you to express the Toronto Region Board of Trade's desire to intervene in the public hearings regarding Bruce Power's licence renewal on May 30-31, 2018. The Board supports Bruce's application for a 10-year licence renewal, including the proposed life extension activities and we request permission to present our position at the next available hearing.

The Board is one of the oldest and largest chambers of commerce in North America, serving the Toronto region's business community for the past 170 years. We have a diverse membership, with more than 12,000 members from across many sectors. We have a robust policy department that provides thought leadership and advocates to all levels of government for policies that encourage growth and prosperity.

In particular, we support sound energy policy founded on balancing the three objectives of affordability, reliability and environmental sustainability. Nuclear is the rare technology that fulfills all three criteria. Our 2017 energy policy, lays out a framework towards a better energy future in Ontario, which includes a strong role for nuclear power.

We argue that the CNSC should approve Bruce Power's licence renewal for three reasons. First, Bruce's nuclear generating stations provide reliable, low cost power which brings a significant benefit to Ontario's consumers, particularly businesses facing global competition. But beyond the economic benefits, having a robust domestic nuclear industry provides the foundation for Canada to remain a leader in the peaceful deployment of nuclear technology around the world. In a period of global uncertainty, Canada's leadership is more necessary than ever.

Second, nuclear power continues to have a strong safety record. Despite the oft-mentioned risks, nuclear power has led to far fewer deaths than competing reliable power sources, such as fossil fuels. In its own safety review, the CNSC has given Bruce A and B satisfactory and fully satisfactory grades in 2016, meeting or exceeding industry averages.

Finally, Bruce Power's nuclear generation provides significant environmental benefits, for Ontario and Canada. Ontario was only able to eliminate coal generation, and the harms that come from smog, by increased generation from its nuclear fleet. Moreover, by delivering a large amount of virtually emission-free energy, Bruce A and B are crucial to Ontario and Canada's efforts to meet international environmental commitments, including the Paris Agreement.

Life extension would see these benefits preserved for decades into the future. The CNSC has already effectively regulated similar efforts at Bruce A, Pickering and, more recently, Darlington. These processes have ensured the highest standards in safety, security and environmental protection and we are certain that Bruce Power will meet these standards as well.



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In closing, Bruce Power's nuclear facilities serve a crucial role in the economic and environmental wellbeing of our province and our country. We are strongly supportive of their licence renewal and look forward to the opportunity to speak with you further about this.

Yours sincerely,

A handwritten signature in blue ink that reads "J D Goold".

Douglas Goold, PhD  
Vice President, Policy  
Toronto Region Board of Trade