

# **The Nuclear Industry – How a Community benefits**



**Dr. Neil Alexander**  
**President**  
**Organization of CANDU Industries**

# Nuclear does other things as well?



**Nuclear Medicine**



**Smoke detectors**



**Sterilizing Medical Equipment**



**Preserving Foods**



**Emergency  
Lighting**



**Quality and Safety Inspections**

# A Canadian Gift to the World: Cancer Therapy and Nuclear Medicine

- 👤 Every day, **76,000 diagnostic procedures** are performed using AECL's supply of short-lived medical isotopes
- 👤 Each year, **12 million cancer treatments** are administered using Cobalt-60 from NRU (~33,000 treatments/day).

**Iodine-131**  
Thyroid imaging and therapy



**Technetium-99m**  
Cancer and heart disease diagnosis



**Xenon-133**  
Lung imaging

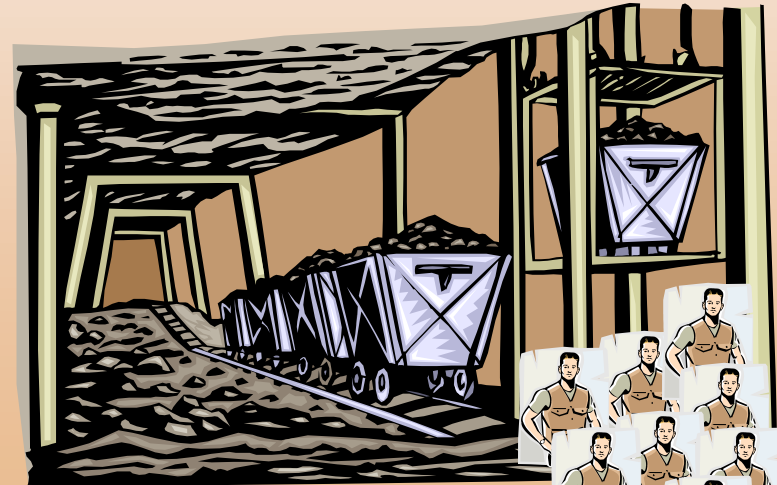
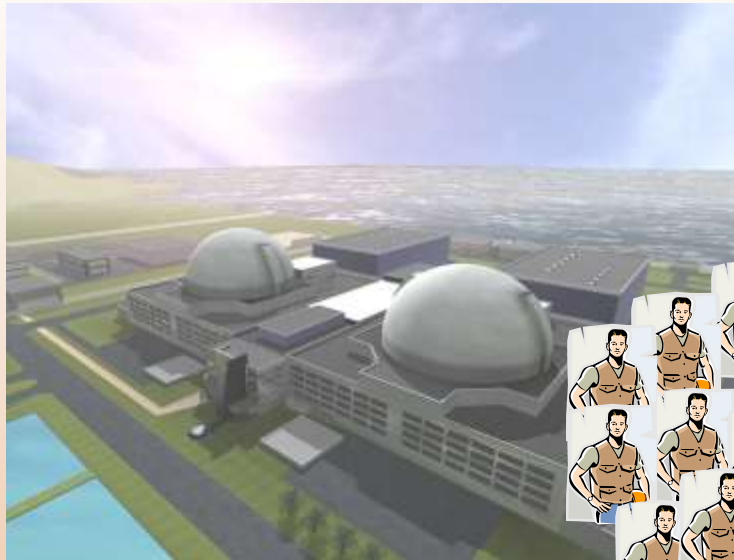


Did you know?  
More than **50,000**  
nuclear medicine

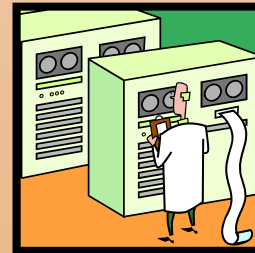
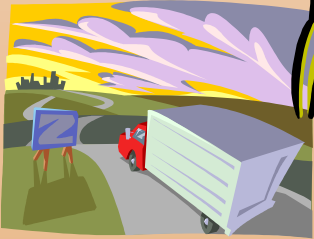
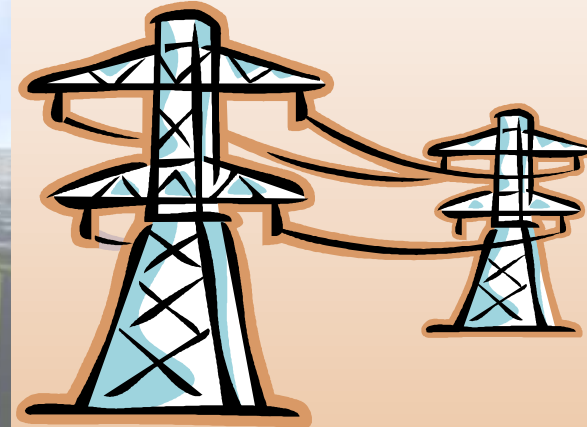
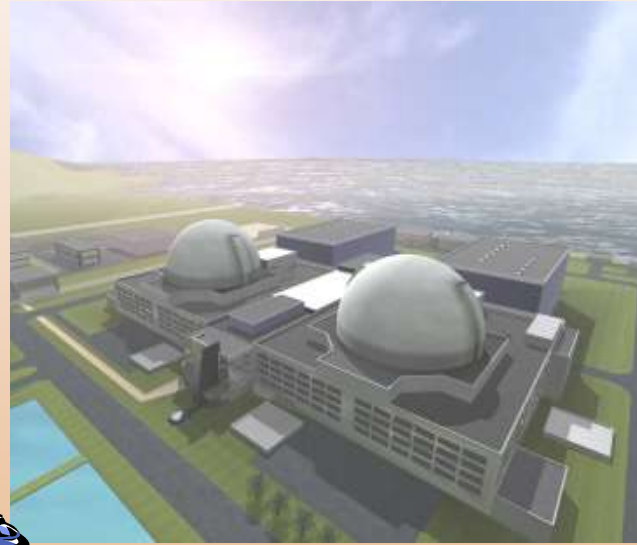
[www.mds.nordion.com](http://www.mds.nordion.com)



# Where the jobs are



# 60 Years



# Is it safe?

- In almost four decades of operation no member of the public has ever been harmed as a result of a radiation emission from a Canadian nuclear power plant or waste storage facility.



**Nuclear Workplace Safety**

**over 8 million hours**  
Darlington and Pickering A & B reach milestones - total hours without a last time injury

**Restart workers celebrate 10 million hours without a last-time injury**

**TIVERTON, ON – June 11, 2008** – Employees performing work on the Bruce A Restart Project have surpassed 10 million hours without an acute last-time injury, an industry record, said John Sauger, Vice President, Base Operations, Bruce Nuclear Generating Station. “I’ve worked on large projects around the world for a long time and this is a major accomplishment.”

**SAFETY ACHIEVEMENTS**

- In 2007, OPG Nuclear achieved milestones in safety, announced without a last-time accident, while Pickering B and Darlington both surpassed a million hours without a last-time injury.
- OPG’s safety record in 2006 and 2007 was recognized with a stretch of nearly 1,000 days.
- Pickering B and Darlington also achieved milestones in safety, announced without a last-time accident.
- OPG’s safety record in 2006 and 2007 was recognized with a stretch of nearly 1,000 days.

For immediate release

Association’s President’s Silver Award of Excellence. “I applaud everyone involved in this

# But what about all that used fuel ....how horrible is that?

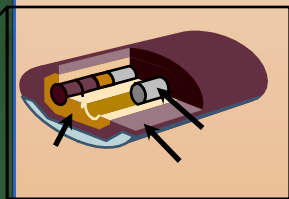
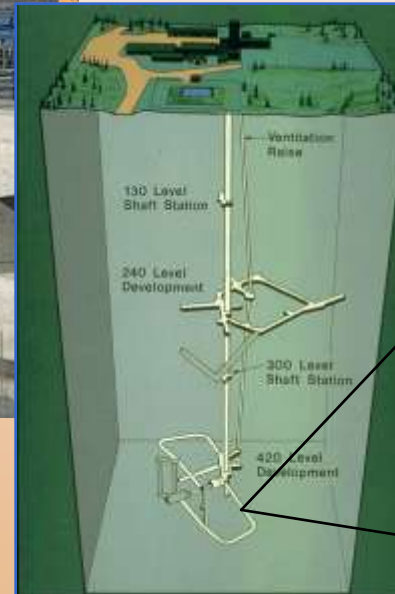


Up to 100 years in dry storage



10 years in a pool

- In almost four decades of operation no member of the public has ever been harmed as a result of a radiation emission from a Canadian nuclear power plant or waste storage facility.



Isolated from the biosphere in a deep geological repository

# The battle for Ontario!





# How important is Canada?

## Leader since 1940s


- *Invented CANDU power reactor*
- *First sustained fission reaction outside of U.S.A*
- *Invented cancer therapy*
- *Largest exporter of medical isotopes & uranium*

## \$ 6 B / year industry

- *30,000 workers*
- *150 companies*

## 22 CANDUs in Canada

- *51% nuclear in Ontario Province*
- *16% of Canada's total electricity*




1944 CRL



1945 ZEEP  
1947 NRX



1957 NRU  
1958 NPD started construction



1962 NPD



1965 Douglas Point

Export: 1965 Kannup first coner.  
1966 Rajsthan first coner.



1971 Pickering, ON



1977 Bruce, ON

Export: 1974, Embalse  
1977, Wolsong 1



1990 Darlington, ON  
1993 CANDU 9 Dev

Export: 1990/91, W2/3/4  
1998, Qinshan 3



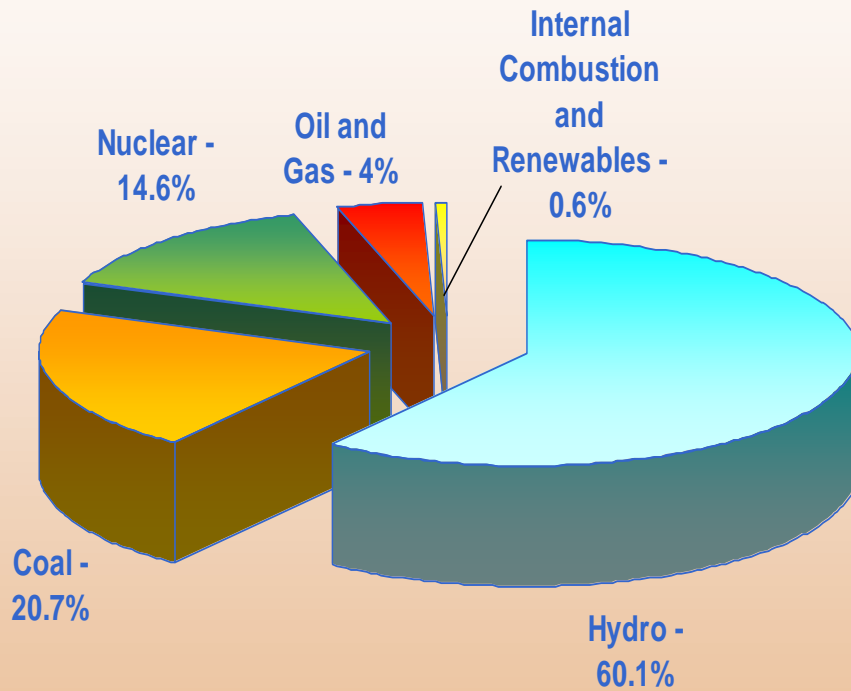
1982 G2, QB



1982 Pt. Lep, NB

Export: 1982, Cernavoda 1

# Electricity Sources in Canada (2007)



50%

Source: National Resources Canada (NRCan), 2008



Don't Believe me?

THE INDEPENDENT

Jeremy Warner:

Suez wants slice of UK nuclear

# The Calgary Herald

## Italy to build 8-10 nuclear reactors

Fri 17 Oct 2008  
Page: B9  
Section: Calgary Business  
Column: World in Brief  
Source: Compiled from Herald News Services

Italy may start work by 2013 to build as many as 10 nuclear reactors over the next decades, Industry Minister Ciriaco De Sita said Thursday.

Agence France Presse English  
China eyes massive hike in atomic energy target: state media

China plans to nearly double its target for nuclear energy by 2020, state media said Wednesday, a move likely to reaffirm the nation's position as a prime market for the global atomic industry.

back off inland nuclear power projects

Construction of an 8.7 billion dollar nuclear power plant in eastern China is set to begin soon, as part of ambitious plans for more atomic energy in the nation's interior, state press said Thursday.

The New York Times  
French Comparison

# Miami Herald

## Permission sought to build nuclear plant in Finland

Fri 06 Feb 2009  
Page: XX  
Section: Xx

Finnish utility Fortum Corp. on Thursday said it has applied for permission to build the country's sixth nuclear power plant on the southern coast near Helsinki.

Dunnville Chronicle (ON)

Nanticoke Nuclear plant updates mailed out

Recipients of a Nanticoke nuclear plant update received a 170 page brochure will be mailed out next week to a key building site.

Nuclear Plants

# The New York Times

## Sweden Takes Another Look at Nuclear Power

Fri 06 Feb 2009  
Section: Business/Financial  
Byline: JAMES KANTER

The Swedish government on Thursday proposed refreshing its nuclear reactors, making the nation the latest to consider letting the technology play a major role in its energy plans.

Echavarri said

Sweden already produces electricity from

Poland was ordered to build its 61st nuclear reactor in the world, which is expected to open in 2011. Britain decided last year to replace its ageing nuclear reactors and create new sites. France has ordered its first nuclear plant by 2020 and Ukraine last month. There is concern about Russian-supplied fuel after Moscow's first nuclear plant to replace its ageing reactors and create new sites. France has ordered its 61st nuclear reactor in the world, which is expected to open in 2011.

# The Nuclear Difference



# The Nuclear Difference!

## Regular Manufacturing



## Nuclear Manufacturing



# All sorts of companies can join in



The image displays a map of Ontario, Canada, overlaid with a dense collection of logos from various companies and organizations. The logos are arranged in a way that covers most of the map's area, illustrating the diversity of industries and businesses that can be associated with the CANDU sector. The logos include:

- Advanced Manufacturing:** INVAULT, ALFA LAVALE, CROSSBY DEWAR, DURHAM INSTRUMENTS, PATRIOT FORGE CO., CINTUBE, UnTech Services Group, TSSA, FC, ist, Farris, RYERSON, HCI, HENRY CONTROLS INC., The State Group Inc., HSL NUCLEAR, WESTON, NU-TECH, AINSWORTH, Golder Associates, OneCAD, E-Z-BLOW, CCI Thermal Technologies Inc., IndustrialAudit, ADVANCED MEASUREMENT & ANALYSIS, ProMotion.
- Energy & Power:** MDS Nordlon, ABERFOYLE METAL TREATERS LTD., BPR, MARCH Instrumentation, CANADA DYNAMIC, Amidyne, LAKER ENERGY PRODUCTS LTD., invar, MDA, LCS, ABERCON, 3E, LEADER INDUSTRIES, ATLANTIC NUCLEAR, BWM INDUSTRIAL AUTOMATION, CH2MHILL, University of Ontario INSTITUTE OF TECHNOLOGY, canDESCO, RCM Technologies, WOrleyParsons, VELAN, ATCON, PRECISION Nuclear Inc., ETI, CURTISS, Summit, INDUSTRIES INTERNATIONAL INC., Zircotec, Precision Industries Inc., ian martin, communications WAPP, www.vcci.ca.
- Manufacturing & Industrial:** DRESSER, SNC-LAVALIN, MDA, BCI, MACFAB MANUFACTURING, ABERCON, R N TOOLING CORPORATION, HITACHI Inspire the Next, DYLIS, LAKESIDE, PC Forge, GE, VECTOR INTERNATIONAL, Marubeni CANADA LTD., WorleyParsons, WER, POWER & INDUSTRIAL, CANBERRA, Niagara Fasteners, NIAGARA ENERGY PRODUCTS, THORNBURN Flexible Piping Specialist, MERLIN GENERAL CORPORATION, m, www.vcci.ca.
- Other:** BPR, INTERTY AND INAGATOR IN ENGINEERING, Cameco, ATZ, STERN, NSS, Javelin Technologies, PLAN ENERGY, MONSIEUR CO, FOX CONSTRUCTIVE, Numet, Swagelok, imex systems inc., STATE INDUSTRIES LIMITED, NIAGARA ENERGY PRODUCTS, WOrleyParsons resources & energy, WER, POWER & INDUSTRIAL, CANBERRA, Niagara Fasteners, NIAGARA ENERGY PRODUCTS, THORNBURN Flexible Piping Specialist, MERLIN GENERAL CORPORATION, m, www.vcci.ca.



Organization of CANDU Industries  
L'Association des industries CANDU