

# FREQUENTLY ASKED QUESTIONS



Canadian Nuclear Association  
Association nucléaire canadienne

## CANADA'S RESPONSE TO THE JAPAN

### EARTHQUAKE / FUKUSHIMA

May 18th, 2011

#### FREQUENTLY ASKED QUESTIONS

#### Q1) WHAT IS THE CANADIAN NUCLEAR INDUSTRY'S RESPONSE TO THE FUKUSHIMA SITUATION IN JAPAN?

Our thoughts remain with the people of Japan and their relatives in Canada as they continue on the path to recovery following the tragic earthquake and tsunami that struck Japan's Sendai region on March 11, 2011. The tsunami caused vast destruction in coastal areas, including to the back-up power systems serving the Fukushima nuclear power plant.

To help those whose lives were and continue to be affected by the tragedy, the Canadian Nuclear Association (CNA) has added a button to its website where visitors can donate to Japan's recovery efforts through the Red Cross. To donate, please visit: [www.cna.ca](http://www.cna.ca)

Since the tragedy, the nuclear industry – at home and around the world – has been working tirelessly to share valuable lessons learned from the tragedy to ensure safety standards and policies reflect current findings.

To date, Canada's nuclear industry has:

- Participated as a nuclear community to review and respond to the situation in Japan;
- Has outlined to the CNSC a series of actions to verify the safety of our nuclear generating stations;
- Is in regular communication with nuclear organizations around the world and has launched extensive fact-based communication initiatives to keep Canadians informed and assured about the safety of our own nuclear facilities; and
- Ontario Power Generation's (OPG) CEO – Tom Mitchell – was appointed by The World Association of Nuclear Operators (WANO) to chair a special 14-member, "Post-Fukushima" commission to review the lessons of this event and develop recommendations on an appropriate industry response.

In addition, OPG released a preliminary report to the Canadian Nuclear Safety Commission (CNSC) on lessons learned to date from the Fukushima event. Over 80 OPG staff members were involved in this assessment. Nuclear plants were re-examined with respect to the following areas:

- External hazards such as earthquakes, flooding and extreme weather events;
- Measures to prevent or mitigate severe accidents; and
- Emergency preparedness.

OPG's overall conclusion is that its nuclear plant systems are robust enough to withstand significant emergencies. They looked carefully at Japan and identified opportunities where our industry can improve. For example, they saw that irradiated fuel bays were an issue in Japan. They caught fire. OPG confirmed that our fuel bays for used nuclear fuel are safe.

Nevertheless, our industry is looking at ways to address even the most UNLIKELY and IMPROBABLE events – like major flooding and major earthquakes and ensuing emergencies in their aftermath. We will continue to be open and transparent about our safety measures.

We are also broadening the sharing of information and expertise with the rest of the industry worldwide – and support organizations like WANO, which are dedicated to this goal. The nuclear energy industry is an international community. All it takes is a major problem at just one plant, and we all feel the impact. The more members we can get to share and communicate, the better it will be.

Please visit the Canadian Nuclear Association website at [www.cna.ca](http://www.cna.ca) for links to more information related to the safety of the nuclear reactor system in Canada.

## Q2) WILL THIS INCIDENT HURT CANADA'S NUCLEAR INDUSTRY?

While it's premature to address that question in any detail, we believe that support for nuclear energy will continue in the long term. The Governments of Ontario and Saskatchewan have both reiterated their commitments to nuclear energy and research since the events of March 11 in Japan. In fact, Japan's Prime Minister Naoto Kan will declare at the upcoming G8 summit meeting Japan's intention to continue using nuclear power, based on the premise of enhancing the safety of nuclear power plants.

Canada's nuclear industry has a strong safety record that spans almost 50 years. Nuclear has a role to play in Canada as part of our energy mix because of its ability to supply continuous, baseload power with virtually no GHGs, but it also plays an important role in medicine, research, food safety, highly-skilled jobs, as well as contributions to other industries across the Canadian economy.

There have been no significant incidents in Canada and our nuclear power plants are among the most robust designs in the world with multiple, redundant safety systems. Our facilities are located in stable areas - both seismically and in terms of severe weather. However, this doesn't allow us to be complacent. All Canadian nuclear facilities are in the midst of conducting a thorough review of the lessons learned from Japan and how we might apply that to our own operations and emergency planning. We will continue to review our operations as we learn more.

We are active members of WANO and the Institute of Nuclear Power Operations (INPO). Our stations are vigorously regulated by the CNSC and regularly assessed through its annual report card on nuclear safety, through licensing hearings and through the presence of CNSC staff on site at all of our nuclear plants.

### Q3) WHAT KIND OF SAFETY SYSTEMS EXIST AT CANADA'S NUCLEAR POWER PLANTS?

Canadian nuclear power plants are among the most robust designs in the world – they have built-in, multiple redundant safety systems to prevent damage in the event of an earthquake. Both the actual structures that form containment and the systems important to safety have been seismically qualified – that means they are designed and built or refurbished to meet strict seismic standards.

CANDU reactors are different from the Japanese plants in a number of ways: nuclear power plants in Canada are located in areas without a history of major earthquakes or tsunamis. The Canadian Nuclear Safety Commission (CNSC) has reviewed and inspected these installations and confirms their robustness with regards to potential earthquakes.

All of Canada's nuclear power plant operators have well-established and practiced emergency procedures that include emergency shutdown of the reactors.

Several changes to safety rules in the last decade have added even more redundancies to Canadian reactor safety systems. Now, two onsite backup power systems are mandatory, each self-sufficient and separate from the other. (The Japanese plants had only one.)

Larger inventories of on-site water must be maintained as an emergency coolant. And before any Canadian plant can be licensed or re-licensed, the CNSC requires it to have "two fully capable, independent shutdown systems that will assure that reactors are placed in a safe shutdown state in case of an earthquake."

It must also be noted that Canada's nuclear reactors use a technology very different from that employed in Japan and most other Western countries. Our reactors use natural - rather than enriched uranium, and are cooled with heavy water. This makes Canadian reactors more expensive to start, but much safer in the long run.

We encourage you to contact the CNSC for details about the industry's regulatory oversight related to safety.

### Q4) WHAT HAS CANADA'S NUCLEAR COMMUNITY LEARNED FROM PAST INCIDENTS?

In the wake of Chernobyl, WANO was created to maintain and ensure high safety standards for nuclear plants worldwide. New operating practices were adopted. Information sharing procedures were instituted. Benchmarking became more common. Performance gradually and steadily improved – first in the U.S. and then in Canada.

Our industry was part of this renewal. We launched a major effort to improve our nuclear performance throughout the first decade of the century. Our focus included:

- Benchmarking against best practices;
- Improving plant condition and equipment;
- Improving our project execution;
- Reducing backlogs;
- Strengthening our maintenance and inspections;
- Adopting a rigorous commercial focus; and
- Building a comprehensive safety culture embraced by all employees.

Currently, WANO is assisting its Japan members through peer support and technical assistance as required. WANO has established a strategy to manage the information coming from Japan and to coordinate the best possible support from utilities around the world as it is needed.

Since the tragedy, the CNA has launched several social media tools to communicate with stakeholders and promote dialogue about the industry. These tools include Facebook and Twitter pages, a YouTube channel and a blog. You can access all of these sites at: [www.cna.ca](http://www.cna.ca)

You can also donate to ongoing Red Cross relief efforts in Japan at: [www.cna.ca](http://www.cna.ca)

Q5) COULD THIS INCIDENT STALL A NUCLEAR RENAISSANCE IN CANADA?

The Governments of Ontario and Saskatchewan have both reiterated their commitments to nuclear energy and research since the Japanese earthquake and tsunami struck the Sendai region. Nuclear has a role to play in Canada as part of our energy mix because of its very small carbon footprint, and its important role in medical research and applications, and food safety, and its contributions to other industries, and the Canadian economy.

The Canadian nuclear industry has an excellent record of providing a broad spectrum of products and services that benefit all Canadians. We are committed to ensuring safety throughout all aspects of our industry and being responsible environmental stewards.

Nuclear brings great value to Canadians, including:

**Medical Value:** Medical isotopes produced in Canada are used in over 50,000 medical procedures each day in over 65 countries; Cobalt 60 is used to sterilize medical supplies and devices; and nuclear R&D supports materials testing and product improvements.

**Environmental Value:** Excluding hydroelectric, no other source of energy can produce so much clean, baseload power at such sustained levels as nuclear. In addition, along with our hydroelectric fleet, nuclear plants provide a solid, environmentally sound platform on which Canada can build and expand its green energy capability.

**Economic Value:** There's also the economic value of nuclear. In terms of operational costs, nuclear is one of the most cost-effective large-scale forms of energy. Nuclear also helps create jobs and contributes to GDP. Throughout Canada, over 71,000 jobs are directly or indirectly related to nuclear. Darlington has also been selected as the site for new nuclear units. These projects could create thousands of jobs during their construction and add billions of dollars to Ontario's GDP.

**Operational Value:** Nuclear also has significant operational value, meaning value that is based on improved ability to operate and manage nuclear assets. Improvements in such areas as plant and equipment maintenance, plant condition, efficiency and production translate into more predictable performance. This in turn enhances the value of nuclear to do what it does best -- generate reliable, economical baseload power for Canada's homes, businesses and industry.

**Q6) WHAT VALUE DOES NUCLEAR TECHNOLOGY BRING TO CANADA?**

The Canadian nuclear industry has an excellent record of providing a broad spectrum of products and services that benefit all Canadians. We are committed to ensuring safety throughout all aspects of our industry and being responsible environmental stewards.

Nuclear energy provides a clean and reliable source of power and is an important part of Canada's clean energy portfolio. The application of nuclear science improves the health and well-being of Canadians through nuclear medicine and food safety technologies. Innovation in nuclear science is also being applied to address a number of societal challenges such as public health and transportation.

The Canadian nuclear industry is made up of over 71,000 Canadians employed directly or indirectly in exploring and mining uranium, generating electricity, advancing nuclear medicine, and promoting Canada's worldwide leadership in science and technology innovation.

Through the efforts of our people, the Canadian nuclear industry is a \$6.6 billion per year industry, contributing \$1.5 billion in tax revenues and \$1.2 billion in export revenues.

**Q7) HOW WILL THIS IMPACT ONTARIO'S PLANS TO BUILD NEW REACTORS?**

The Joint Review Panel for the Darlington New Nuclear Project took place in March and April 2011.

The CNA was proud to be a positive intervener at the hearings. Denise Carpenter, President & CEO, CNA, spoke about the Canadian nuclear industry's strong record of safety, and the many economic benefits the project will bring to both Ontario and Canada.

During the hearings, more than 120 oral and written submissions were made in support of the project. Most of these came from the local community.

**Q8) WILL THIS HAVE AN EFFECT ON THE SALE OF ATOMIC ENERGY OF CANADA LIMITED?**

This is a question best directed at the Government of Canada as they proceed with plans to restructure AECL.

We have been clear that we support a structure that will advance the industry and the hundreds of Canadian companies that are part of the CANDU supply chain, to make it more competitive.

We also must emphasize that research is at the heart of our industry. For Canada to remain a competitive player in the global nuclear industry we need investments in R&D to maintain our expertise which is known around the world.