



Protecting What Matters: Energy Alberta's Commitment to Safety

Energy Alberta is deeply committed to protecting the water, air, land and people around our proposed project. Safety is not just a priority—it is at the core of our values. The use of nuclear power in clean energy production is tightly regulated and monitored to ensure the highest standards of public and environmental safety.

A Legacy of Robust Safety Standards

Canada is a global leader in nuclear safety and has a long history of safe nuclear energy production dating back to the 1960s. The Canadian Nuclear Safety Commission (CNSC) oversees the life cycle of nuclear plants, with technical experts and on-site inspectors monitoring plant operations to ensure compliance with rigorous safety and environmental standards. With stringent regulation at the national and international levels, including oversight from the United Nations' International Atomic Energy Agency (IAEA), nuclear power generation is one of the safest energy technologies.



Multiple Layers of Protection

The safety of workers and nearby communities will be our utmost priority. Canadian nuclear power plants are equipped with robust, independent control systems that ensure safety at all stages of operation. In addition, other systems are designed to perform three fundamental safety functions:

Containment Structures.

Thick concrete walls isolate radioactive materials inside the reactor. In the unlikely event of an incident, these structures prevent radiation from spreading.

Radiation Shielding.

Materials such as water, concrete and lead absorb radiation, ensuring the safety of both workers and the surrounding environment.

Continuous Monitoring.

Radiation levels are continuously monitored both inside and outside the plant. This ensures that radiation exposure remains within the strictest safety limits.

Safe Radiation Practices: Keeping Workers and Communities Safe

Radiation is a natural part of life. We are exposed on a daily basis to radioactive elements like potassium-40 and carbon-14. Radiation exposures from an operating nuclear power plant are very low. A person who lives near a plant could receive a radiation dose that is at least 1,000 times lower than the dose from natural background sources radiation and plant workers are exposed to far less radiation than the average person experiences from a single medical X-ray.

Nuclear power plants are equipped with advanced control and safety systems, as well as highly efficient filters and radiation monitors, designed to minimize any radiation releases. These filters remove more than 99% of radiation from the air before it is released into the environment, ensuring that the public and local ecosystems are protected.

Site Safety and Security

Canada's nuclear facilities are the most protected critical infrastructure in Canada.

Nuclear security is regulated by the CNSC, which sets out detailed security requirements designed to safeguard nuclear facilities against threats, including cyber security, and ensure that nuclear material stays in the right hands. Though security measures have been developed over time in response to potential threats, a breach of the physical, personnel or information security of Canadian nuclear facilities has never happened.

Lessons Learned and Safety Advances

No industry is immune from accidents, but all industries learn from them. With nuclear power, the potential hazards have been factored into the design of nuclear power plants in order to protect the public, the environment and workers. Modern-day facilities contain numerous safety improvements based on operational experience. In addition to engineering and procedures which significantly reduce the risk and severity of incidents, all plants have guidelines for accident management and mitigation.

Managing Used Nuclear Fuel: Safe Storage and Disposal

One of the most critical aspects of nuclear safety is the handling of used nuclear fuel. Fuel storage and handling at the site will be conducted within a designated Exclusion Zone, a 500-metre buffer around each reactor building where access is restricted. After fuel is used in a reactor, it is removed and stored securely in a water-filled pool for 7 to 10 years. This process allows the water to continue cooling the fuel and providing necessary radiation shielding. The pools are built in-ground, designed to withstand earthquakes, and are located in separate buildings on-site to ensure safety.

Once the fuel has sufficiently cooled, it is moved to dry storage containers or vaults for safe on site storage. These storage systems are licensed and regulated by the CNSC, built to withstand seismic events and extreme weather and are carefully monitored to ensure that the fuel remains safely contained. The Nuclear Waste Management Organization has announced their selection of the Wabigoon Lake Ojibway Nation-Ignace area in Ontario as the site for Canada's deep geological repository for used nuclear fuel.

Emergency Management

Although nuclear accidents are very rare, it is still important to prepare should one occur. The Canadian Nuclear Safety Commission (CNSC) mandates that all major nuclear facilities maintain comprehensive emergency preparedness programs, including dedicated response facilities, specialized equipment and trained personnel. The CNSC requires all nuclear facilities to conduct regular tests of their emergency management systems and response organizations. In the unlikely event of an incident, facility staff along with trained and enabled emergency response personnel are prepared to respond quickly, safely and effectively in line with the strict planning, training and testing programs governed by the CNSC. CNSC staff with extensive experience and expertise in nuclear emergency response would oversee the response to ensure that appropriate actions are taken to limit the risk to health, safety, security and the environment.