



Protecting Water Resources

Energy Alberta cares deeply about environmental stewardship and promoting sustainable water management practices to minimize the impact of its proposed operations on local water resources and protect the Peace River watershed.

Energy Alberta's Commitment to Water Management

Energy Alberta is proposing to build a nuclear power generating station on the shoreline of the Peace River, one of the largest rivers in Alberta. Water from the Peace River would be used for cooling and other processes required for safe operations. Advanced technology will be utilized to recycle the cooling water and reduce the amount of water needed.

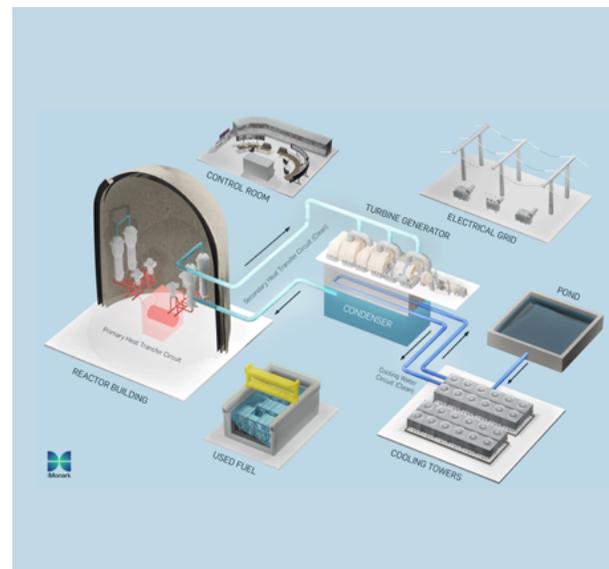
The expected volume of water required for each 1000 MW operating reactor and turbine unit when producing power, will be between 1.03 and 1.35 cubic metres per second.

With all four units operating, the facility would use approximately 0.2% of the river's medium annual flow to make up for water that evaporates as part of the power generation cooling system.

The water management process in nuclear power plants is highly regulated, including permits and mitigation requirements put in place by local, provincial and federal governing bodies to ensure effective conservation and stewardship. Significant efforts are undertaken to protect the habitat of the local watershed, including rigorous environmental programs that monitor, track and analyze surrounding ecosystems to safeguard the health of people and the environment.

Understanding the Water Cooling System

A consistent supply of water from the Peace River, primarily used for the steam cycle power generation cooling, will be an integral part of the Peace River Nuclear Power Project. No heated water will be discharged directly back into the river. Nuclear power plants use multiple, and separate water systems to safely transfer heat, generate steam and cool equipment. In this process, heat from the reactor is used to produce steam, which drives turbines to generate electricity. Afterward, the steam is cooled back into water so it can be used again. These water systems are kept completely separate, with heat transferred across sealed pipes and barriers to ensure safety and prevent any mixing.



3D Rendering of Elevated Water Reserve Tank

Cooling Water Infrastructure

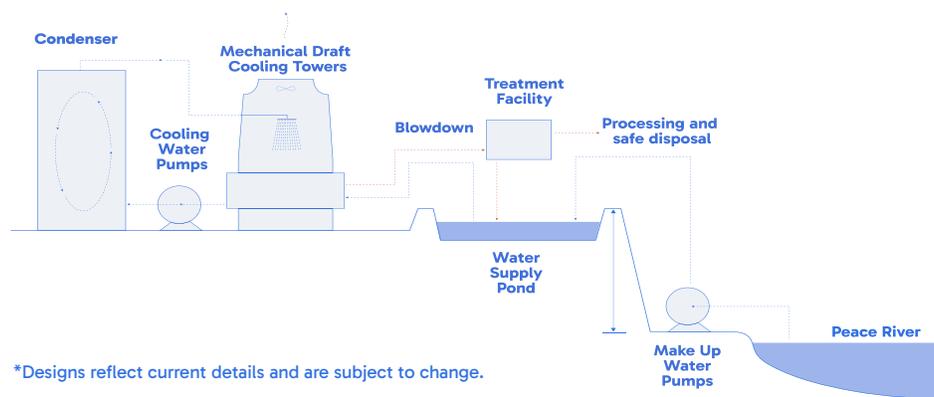
The proposed project plans to utilize a mechanical draft cooling system to remove the leftover heat from the steam circulating through the turbine system after the electricity is generated. This method allows less water to be pumped from the river and prevents heated water being released back into the Peace River. Instead, the water is evaporated, or consumed, in the heat removal process.

Key components of the plant's cooling water infrastructure include:

- Water intake, pipeline and access road to the river.

- Water storage ponds to hold a reserve of water for power production if the amount of water coming from the river is reduced because of ice conditions or low water levels.

Mechanical draft cooling towers which use fans to move all the air required to transfer heat from the steam driving the turbines to the air. Water is consumed and evaporated as a result of the warm circulating water interacting with relatively dry and cool air.



A Safe and Sustainable Future

Nuclear power is one of Canada's safest and cleanest energy sources and offers one of the best ways to meet Alberta's constant and growing electricity demands.

Reliable & Consistent.

Nuclear power plants can operate 24/7 providing a constant, stable and affordable source of electricity that is readily scalable.

Zero Emissions.

Nuclear energy produces virtually zero greenhouse gas emissions during operation, making it a critical tool in combating climate change.

Energy Security.

In an increasingly volatile global energy market, nuclear power offers a path to energy independence by reducing reliance on imported fossil fuels.



Water Act Licence. A licence under the Water Act is required to divert and use surface or groundwater in Alberta for a specified purpose such as irrigation, a municipal water system or energy production. A licence identifies the water source as well as the location of the diversion site, quantity, rate, and timing of withdrawal as well as the conditions of the licence. Energy Alberta is currently studying the area of the Peace River that would require the withdrawal of water for the Project as the initial step in the process to apply to the Government of Alberta for a water licence.