

GETTING THE FACTS ON

Bruce Power and the Thermal Footprint in Lake Huron

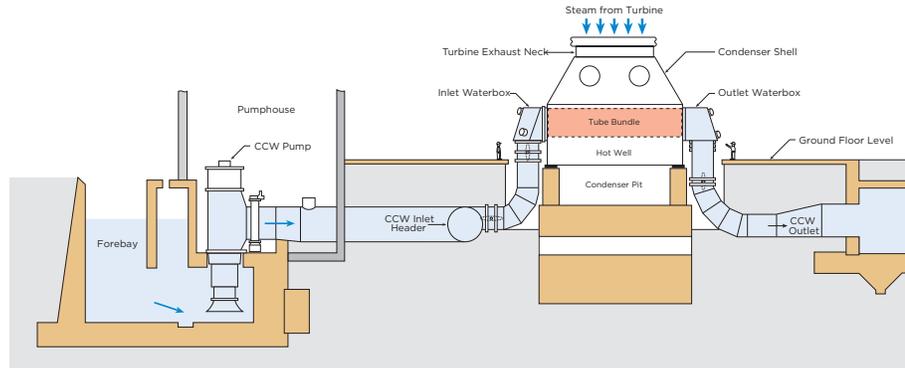


Innovation at work

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COOLING THE STEAM

Because of the normal operation of the plant, water is taken in and returned to Lake Huron from the stations, creating a thermal footprint.



- There are **8 CANDU nuclear reactors** operating on site
- Each reactor generates heat from nuclear fission, which is used to **turn water into steam to power turbines** that make electricity
- The steam is recovered and recycled using condensers, which are **cooled by lake water**.

Lake Temperatures

- Bruce Power complies with the Ministry of Environment and Climate Change on water temperatures limits.
- Over the last decade lake temperatures have been observed to be rising and Bruce Power has implemented a continuous monitoring network of loggers in the lake since 2012.
- Understanding how climate change is impacting the local lake environment will ensure Bruce Power can keep operations safe and reliable for future generations.
- In response to warming lake temperatures Bruce Power is applying for an amendment to its effluent water temperature limit during a set period of time. The existing limit doesn't take climate change into account and forces Bruce Power to reduce reactor power on the hottest days, when that power is most-needed by Ontarians.

Thermal Footprint

Monitoring of temperatures and water currents year round allows Bruce Power to understand the dynamic shape of the thermal footprint.

The thermal footprint is
1.4 km²
or

0.03%
of the surface area
of Lake Huron

this is comparable in size
to one 350 acre farm



25-38

loggers track temperatures and currents around the Bruce site

OUTFALL CHANNELS

- The outfall channels were designed to be at the surface; this helps distribute water flow and temperature, minimizing impact on aquatic life.
- The thermal footprint dissipates quickly with increasing distance from site.
- Bruce Power has examined 16 alternate thermal mitigation technologies, but found the current system remains as effective as newer technologies. The site will continue to study new technologies as they become available.



Fisheries

Healthy fisheries are an important part of the local environment, culture and economy, and Bruce Power has devoted resources to sustaining and improving the health of these fisheries. Investigating the impact of the thermal footprint on aquatic life is part of those efforts, including but not limited to:

- Smallmouth bass nest monitoring in the Bruce A and Bruce B outfall channels in Baie du Doré.
- Creel surveys at Baie du Doré and Inverhuron Park boat launches.
- A thermal risk assessment using years of data concluded that thermal effluents had minimal impact on fish.



WHITEFISH

- Because whitefish are a cold water species, Bruce Power wants to understand if the thermal footprint has had an impact on lake and round whitefish. Findings show that temperatures are within a good range.
- Research on thermal cycles and whitefish shows that local conditions are protective of sensitive life stages (embryos incubating in the nearshore).

