Cliff Energy Centre Backgrounder

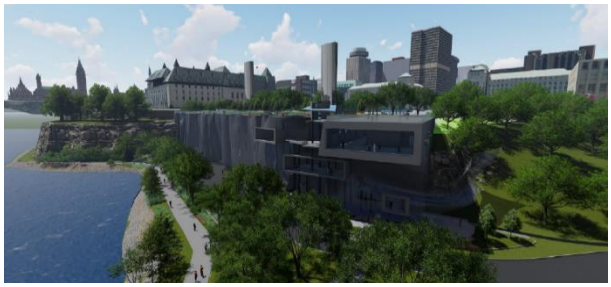
Leading by example in the fight against climate change, the Government of Canada is fundamentally changing how it heats and cools federal buildings in the National Capital Region (NCR). As part of this bold climate action, Public Services and Procurement Canada (PSPC), in partnership with Innovate Energy, is building the Cliff Energy Centre, one of the most cutting-edge public energy centres in North America.

A rendering of the new Cliff Energy Centre's Lower Plateau

An initiative that's part of the Energy Services Acquisition Program (ESAP), the Cliff Energy Centre is one of four energy centres that are being built or retrofitted to provide clean heating and cooling services through the federal government's National Capital Region District Energy System (NCR DES). Work is also underway to expand the system's underground network of pipes to connect the Cliff Energy Centre to new energy centres being built at Tunney's Pasture and in Gatineau, Québec.

From Grey to Green - An Architectural Gem in the Heart of Historic Ottawa

The Cliff Energy Centre is located next to the Supreme Court of Canada and will replace the original Cliff Heating and Cooling Plant. A key challenge for the project was how to design the Cliff Energy Centre given the former plant's historic location, wedged between the Parliamentary and Judicial precints and at the foot of the Ottawa River.



Rendering of Cliff- Birdseye View

Rendering of cantilevered Visitor Education Centre (VEC) and cascading 'theatre boxes'

The project architects came up with an ingenious idea to transform "grey into green" and restore a prime location that was formerly inaccessible to the public. The large energy centre will be below-grade of the upper plateau, allowing for an expansive urban park to be built overtop, with new public realm and lush gardens. In order to preserve and enhance the historic profile of the Ottawa River's south bank, the Cliff Energy Centre's building envelope consists of an organically flowing *'curtain wall'* designed to screen and softly hide the mechanical facility. A new Visitor Education Centre (VEC) will also be strategically concealed below grade to preserve the upper plateau's spectacular views.

Another of the Cliff Energy Centre's architectural features is the cascading public staircase built along the wall of the escarpment. Known as the "Cliff Climb", it connects the new parkland of the upper plateau to the lower NCC multi-use pathway (MUP) along the Ottawa River. Along the 25m vertical drop of the escarpment, a series of cascading "theatre boxes" create new vantage points to view the grand panorama of Gatineau, Québec, the hills of Gatineau Park and the Ottawa River. A large public elevator will also provide access to all spaces.

Bold Climate Action

ESAP represents one of the Government of Canada's most impactful initiatives to reduce greenhouse gas (GHG) emissions from its operations. As North America's first conversion of a large public district energy network from steam to a low-temperature hot water system for heating and electric chillers for cooling, ESAP is fundamentally redefining how heating and cooling is delivered in large-scale networks.

Rendering of the new Cliff Energy Centre's 'curtain wall' design

Rendering of the Cliff Energy Centre Upper Plateau

The Cliff Energy Centre's modernized operations will greatly reduce the consumption of natural gas, while Smart Buildings Technology will provide continuous monitoring of the system's energy efficiency. The result will provide more efficient, reliable, and safer operations.

Once the new energy centres are in operation in 2026, the modernized NCR DES will see a 92 per cent reduction in its GHG emissions compared to the 2005 baseline operations.

History

This system is one of North America's oldest and largest public DESs. Originally built over 100 years ago, the Cliff plant was the first central heating facility of its kind in Canada. In a time when fireplaces or stoves were the main sources of heat, the plant used steam and hot water technology to provide heating to buildings within Ottawa's Parliamentary Precinct.

The Cliff heating and cooling plant in 1920

Designed by architect John A. Pearson, well known for leading the reconstruction of the Parliament buildings destroyed in the fire of February 1916, the original plant was a flat-roofed, rectangular structure with a large brick chimney protruding from the centre. By 2000, the plant was responsible for heating 51 buildings and cooling 41 buildings connected to the DES, including Parliament Hill, the National Gallery, Library and Archives Canada, the Department of National Defence and the National Arts Centre.

Indigenous Commemorative Installations

In collaboration with the Algonquins of Pikwakanagan First Nation (AOPFN), ESAP will be developing commemorative installations at the site of the Cliff Energy Centre that will honour Algonquin history, heritage and culture. The outdoor space of the new energy centre will feature six (6) installations developed by AOPFN community members such as artwork, sacred plants, commemorative bench, engraved walkway stones and more.

Current Status and Next Steps

Construction on the Cliff Energy Centre began in 2020. The gradual demolition of the current Cliff plant began in 2021 for heating, and the next phase of demolition for cooling begun in early 2024. Construction on the new state-of-the-art energy centre is well underway and on track for completion by 2026.

Once in operation in 2026, the energy centre will continue to heat and cool buildings within the Parliamentary Precinct, including the Centre Block, the Supreme Court of Canada, the West Memorial Building, and many others.

To learn more about ESAP and the National Capital Region's District Energy System, visit: https://nationalcapitaldistrictenergy.ca/en/

Photograph of construction at the Cliff Energy Centre, February 2024