



# IDEA2021

Powering the Future: District Energy/CHP/Microgrids  
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# ESAP: Exceptional Design and Environmental Excellence

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Public Services and  
Procurement Canada

Services publics et  
Approvisionnement Canada

Canada



# Presentation Overview

- ◆ Review of the steps taken to ensure that the design was not simply a 'giant concrete box'
- ◆ Discussion about environmental innovation and how it was integrated into the bid
- ◆ Update on the progress to date

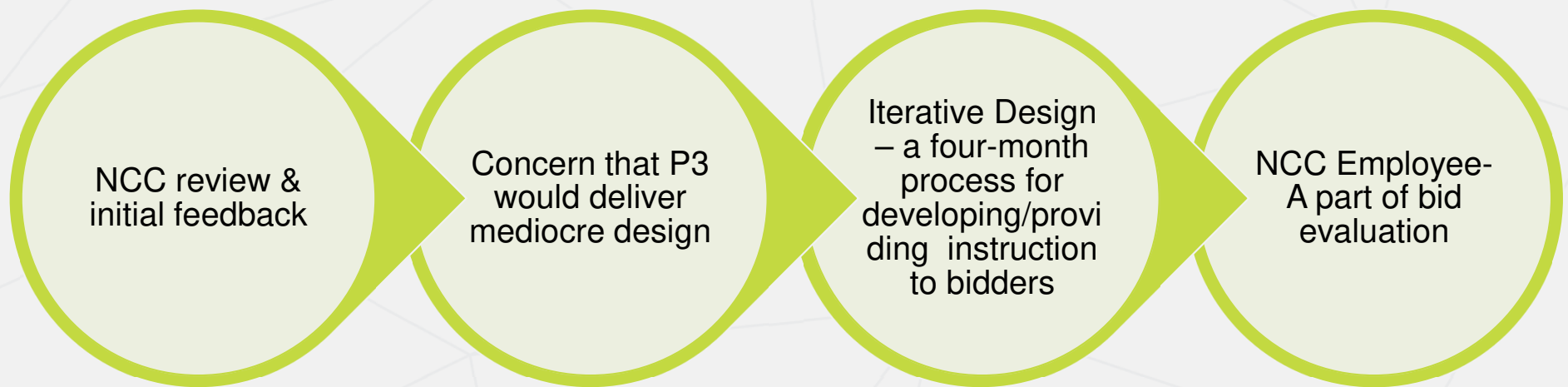


*View of the Cliff Visitors Education Centre*

# Primacy of the National Symbols



# Getting Internal Approval





# Design Features – Cliff Plant





# Design Features – Tunney's Pasture Plant





# Process of Indigenous Commemorative Installations – Cliff

- ◆ PSPC hired the Algonquins of Pikwakanagan (AOPFN) to engage with a committee of five community members on the design of the upper and lower plateaus and the creation of commemorative installations
- ◆ The committee participated in a series of three meetings where we received their input and discussed their ideas
- ◆ Three reports were produced by the community to summarize their input
- ◆ PSPC is currently in the process of developing these ideas with the help of AOPFN and the PP





# Environmental Excellence

Turning our attention to environmental excellence, we need to start with the request for proposal (RFP)

- ◆ GhG emissions: \$150 per additional ton (beyond minimum requirements) of guaranteed GhG savings over the contract term
  - ◆ Sustainability Adjustment in the proposals: Using the Athena Institute Impact Estimator, ESAP set a maximum carbon impact due to construction and the PP has to achieve lower carbon impact > If not, penalties will be imposed
  - ◆ At RFP submission proponents provided in a separate package, the Innovation Submission for sustainable solutions & technologies and associated price premium for each Innovation
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# Technological Solutions & Innovations

## Level 1- Standalone & Self-Controlled Equipment

- Chillers, Boilers, Pumps/speed, Chemical treatments, etc. have their own controllers and associated sensors.

## Level 2- Digital Control System (DCS)

- The DCS becomes “Le Chef D’Orchestre” for each Energy Centre and associated District System.
- It also manages the daily, monthly and annual historical information

## Level 3- Cloud Based System SDS (Smart Digital Solution) & NEMO (Network Modelization)

- Big Data and all of its 5 -10 GB of annual data being analyzed on a daily basis to calculate KPI's, forecast the upcoming load, procurement, dispatching needs and Maintenance Management.

## Integration

- Level 1 Controllers are integrated with the Level 2 DCS and Level 2 DCS Data is pushed to the Level 3 Cloud Based System.





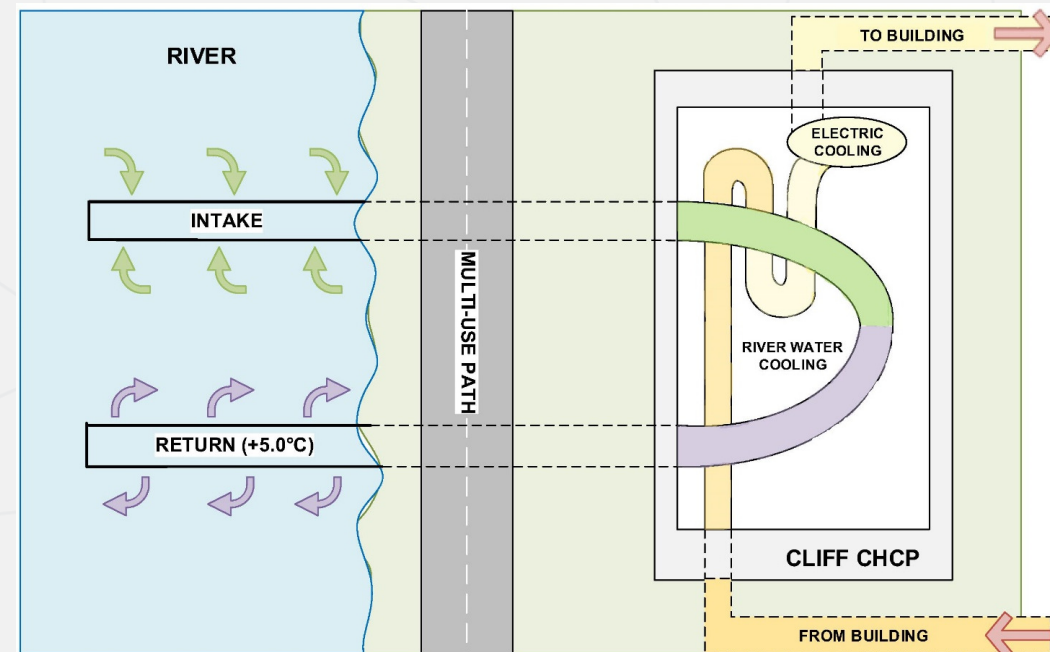
# River Water Intake

- ◆ Chilled water is used by buildings for cooling. It never mixes with river water
- ◆ This reduces the energy required to cool the chilled water which will be used to cool buildings connected to the network
- ◆ Combined with the use of electric chillers, this is a more sustainable alternative to the system presently in place.



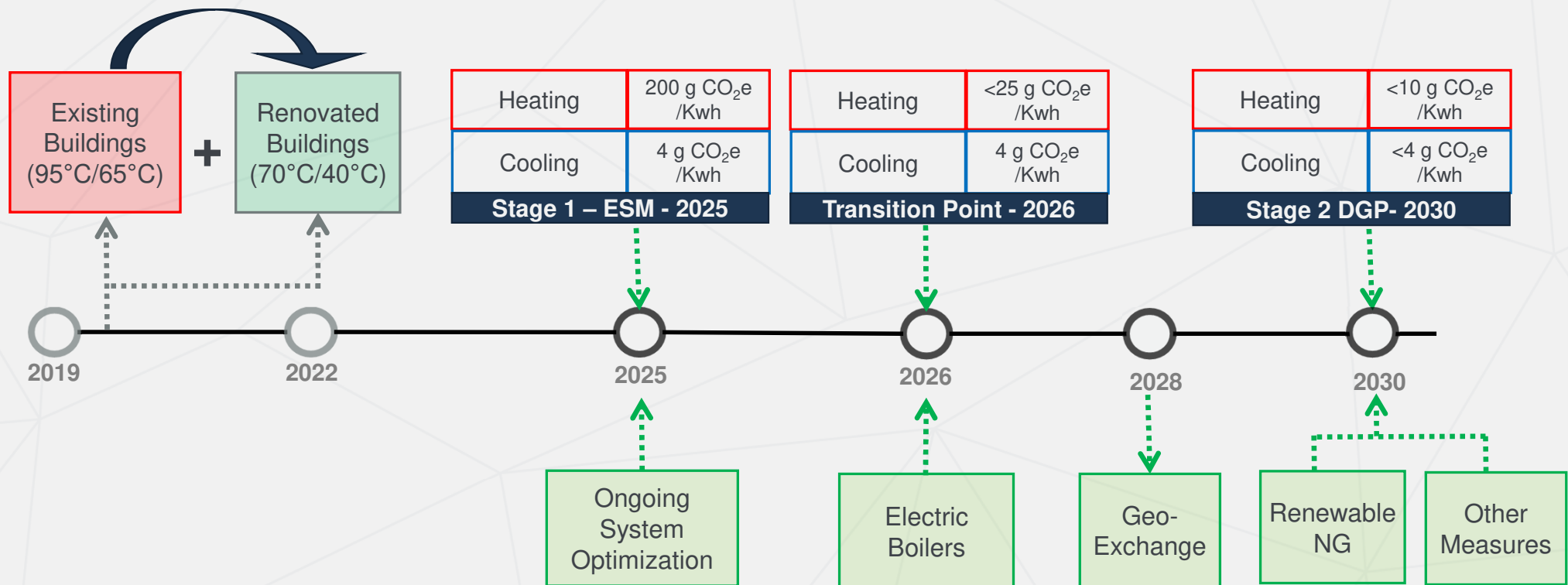
# River Water Intake Process & Benefits

- Sustainable, low-carbon, energy-sharing system
- Provides more predictable energy costs
- Improves building resilience
- Uses up to 80% less energy
- Significantly reduces water consumption and operating costs
- As a thermal “battery,” the ingenious system can store energy at night during off-peak times, easing strain on the electricity grid and reducing costs
- The cooling will offset building cooling requirements while also reducing amount of electricity used



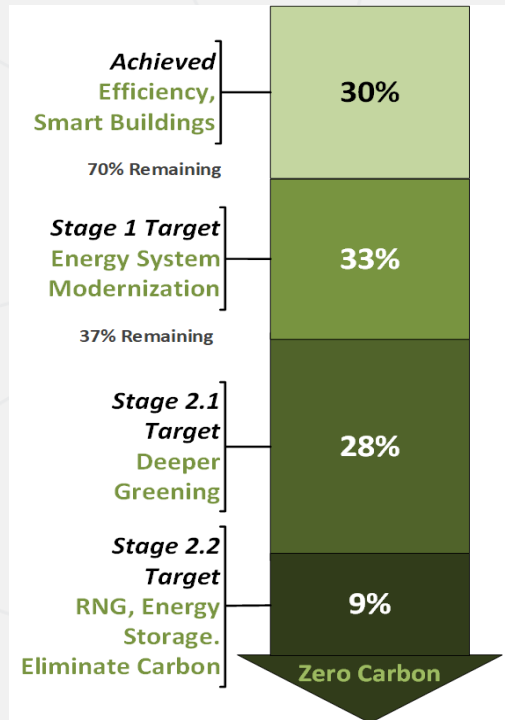
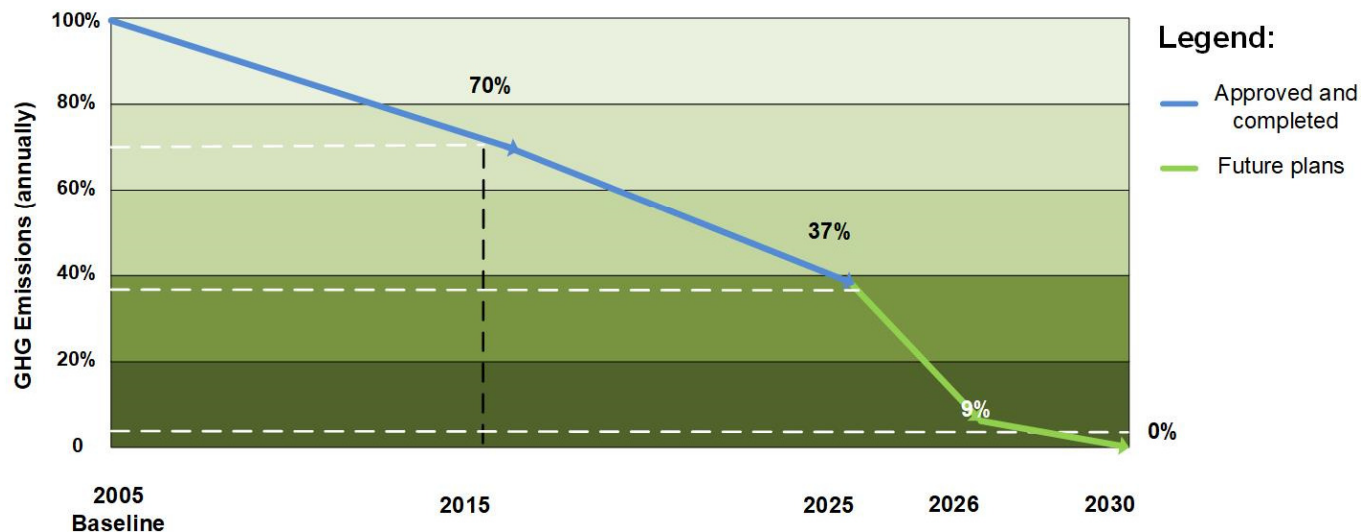


# Summary of Stages: Pathway to Net Zero DES



# GHG Reduction Targets

ESAP Emission Reduction Timeline Stages 1 & 2 - 2005 to 2030



By 2030, we **will** achieve net zero carbon energy service operations.



A scenic view of a city skyline at dusk, featuring a river with a bridge and several boats. The sky is a clear, deep blue, and the city lights are beginning to glow. The river is calm, reflecting the lights from the buildings and the bridge. A large bridge with multiple arches spans the river in the middle ground. In the foreground, several small boats are visible on the water, including a larger one with many people and a few smaller kayaks. The city skyline is composed of various high-rise buildings, some with distinctive architectural features like a tall, thin tower and a building with a curved facade. The overall atmosphere is peaceful and urban.

Q&A

ESAP: Exceptional Design and  
Environmental Excellence

# Thank you

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