



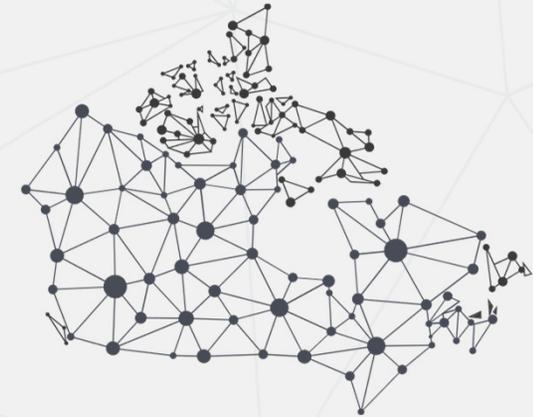
IDEA 2021

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
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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

NCC review &
initial feedback

Concern that P3
would deliver
mediocre design

Iterative Design
– a four-month
process for
developing/provi
ding instruction
to bidders

NCC Employee-
A part of bid
evaluation

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
-

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.



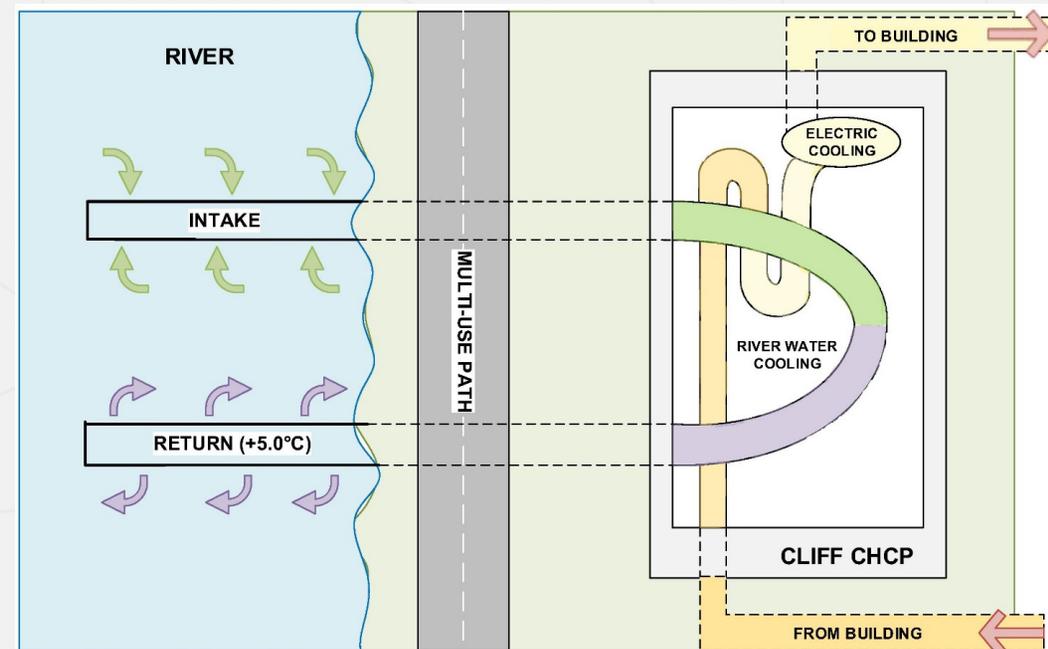
River Water Intake

- ◆ 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.

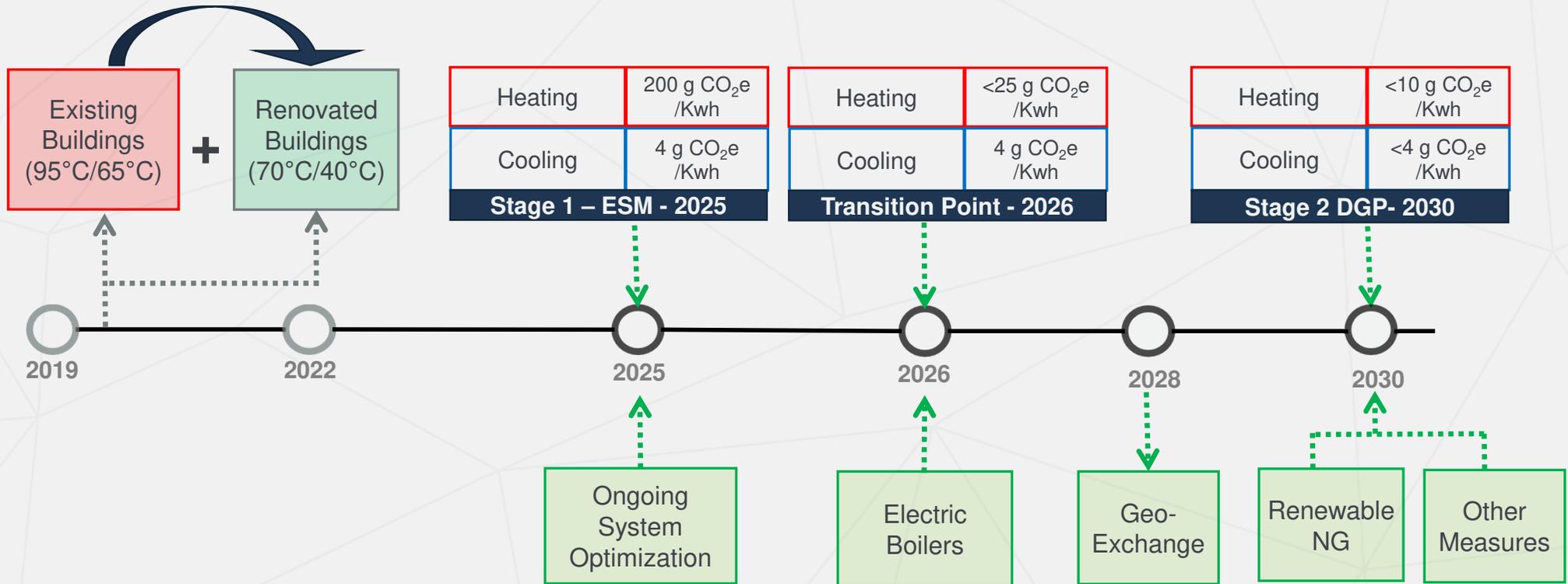


River Water Intake Process & Benefits

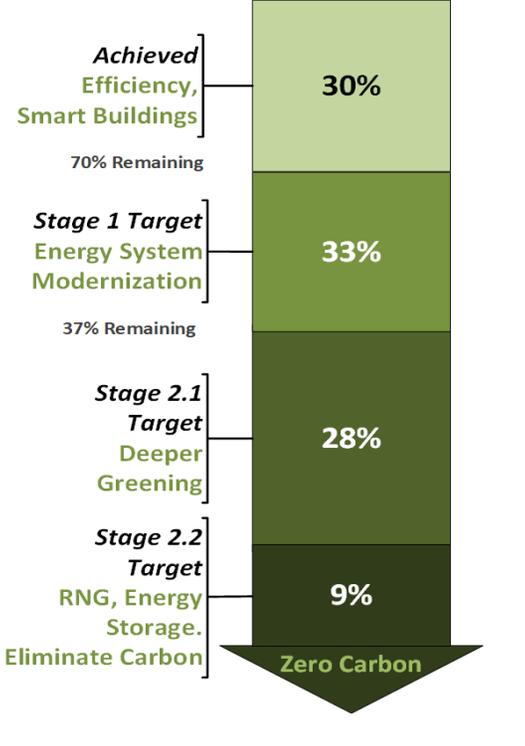
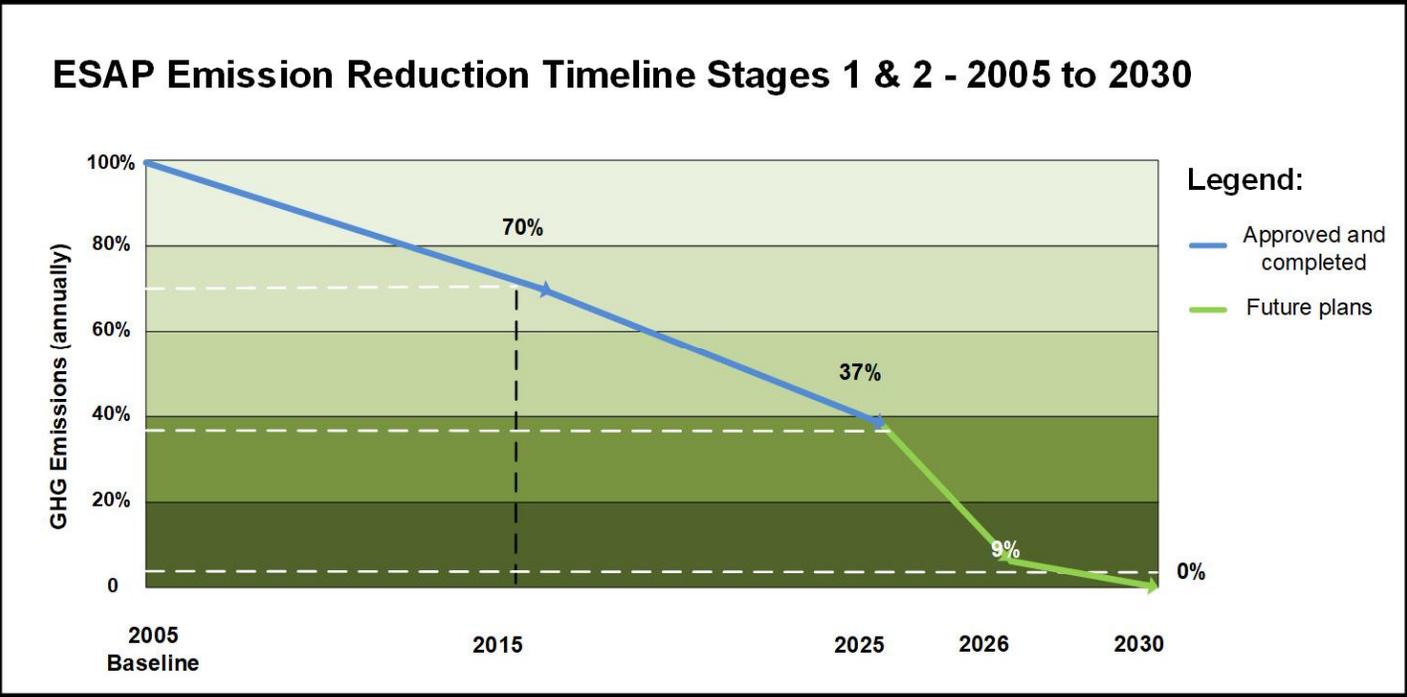
- Sustainable, low-carbon, energy-sharing system
- Provides more predictable energy costs
- Improves building resilience
- Uses up to 80% less energy
- Significantly reduces water consumption and operating costs
- As a thermal “battery,” the ingenious system can store energy at night during off-peak 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



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

Q&A

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Environmental Excellence



Thank you

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