Energy Savings Program Webinar

Hand in Hand: Dollars & Energy Savings

March 28, 2022

BC Care Providers Association

ENGAGEBC

Energy Savings Program In Partnership with

FORTIS BC™

Energy at work

Educational Partner

Kenneth McNamee
P. Eng., MSc., CEM, CMVP

Principal

Impact ENGINEERING

A native of Ireland, Kenneth has practiced in Canada for the past 12 years.

He understands how to leverage incentive funding streams to design and implement low carbon, energy efficient building systems.

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Agenda

- Brief about CleanBC Road Map 2030
- Impact of CleanBC Road Map on Building Infrastructure
- New Building Construction Design
- Ways To Improve building efficiency (Gas & Electric)
- Success stories of 2021 BCCPA member (Case Study)

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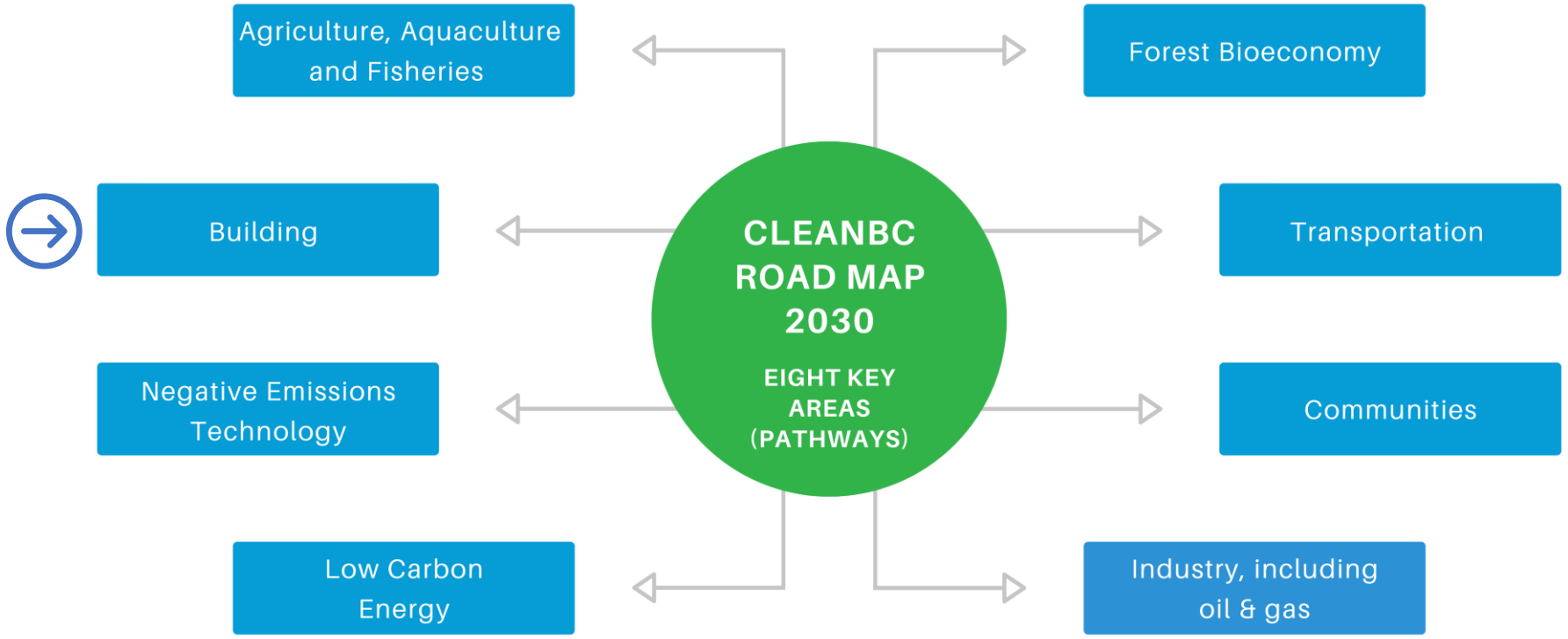
CleanBC Road Map 2030

The Original CLeanBC Plan

- Launched in late 2018 with over 40 initiatives to reduce GHG emissions and move to cleaner energy in transportation, industry and buildings
- Initiatives were projected to achieve 75% of the 2030 climate target (of reducing emissions by 40% below 2007 levels

The Roadmap Approach

- Examines the eight key areas (pathways) across B.C.'s economy that generate emissions or can create solutions



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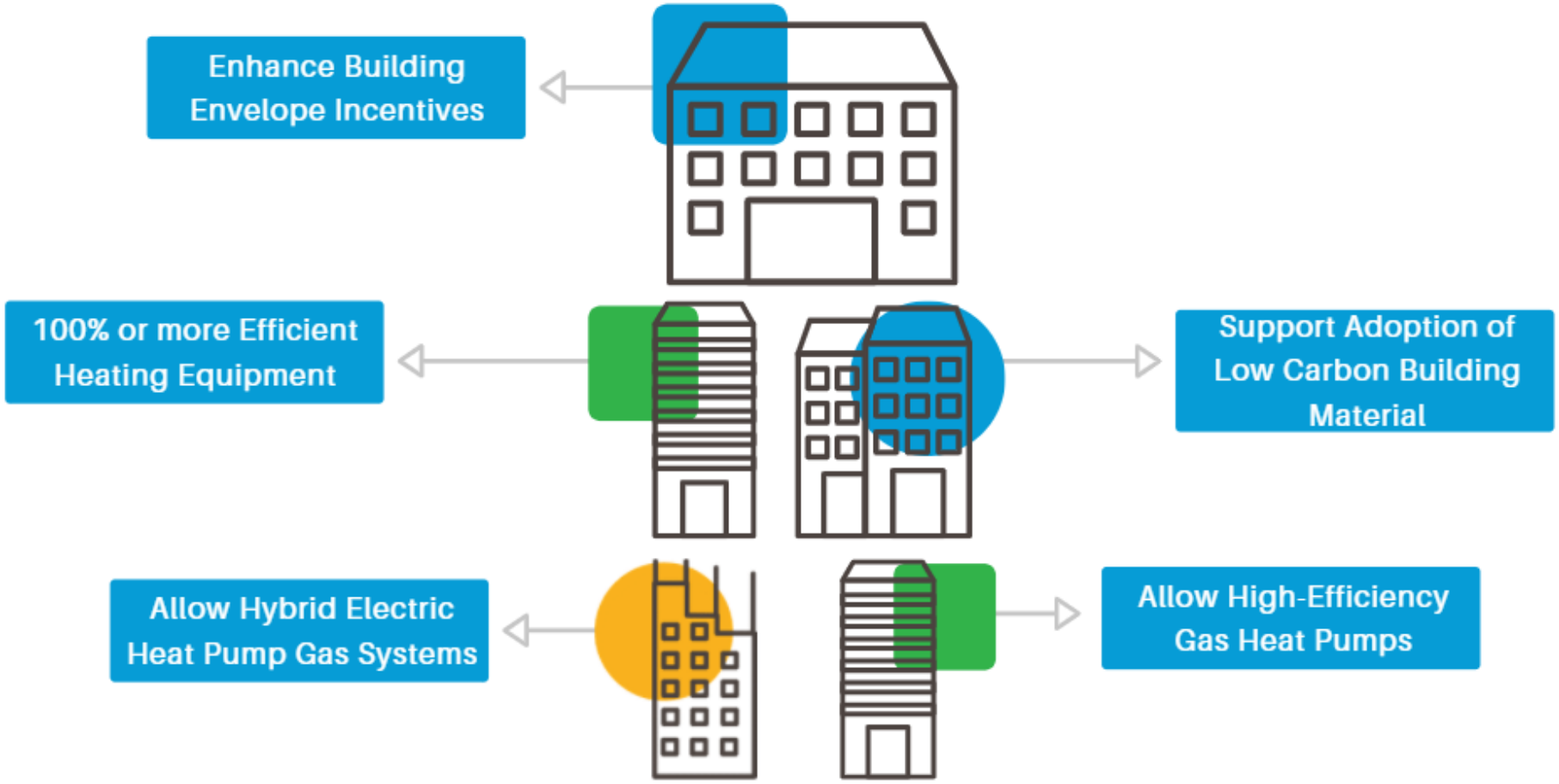
CleanBC Road Map 2030: Buildings

Building Emission Facts:-

- Buildings in British Columbia account for about 10% of the province's GHG emissions.
- The primary source of emissions is space heating and hot water production.

New Construction

- B.C. will add a new carbon pollution standard to the BC Building Code, to make all new buildings zero carbon by 2030
- May be there will be incented for conventional gas-fired heating equipment.



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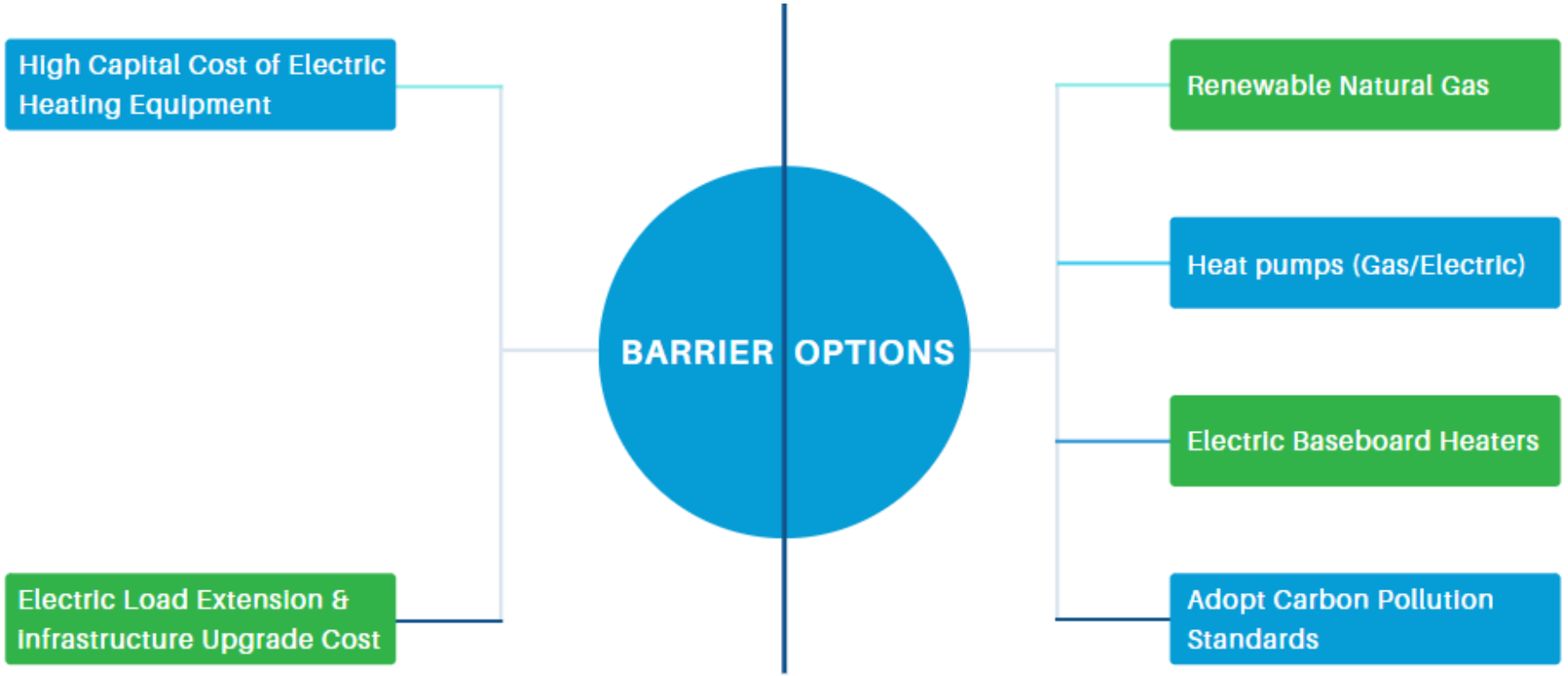
Barriers & Options

Info on Renewable Natural Gas:-

- The emission factor for Hydro Electricity is 3 Kg/GJ and RNG .3 Kg/GJ
- For using RNG instead of Natural Gas no upgrade of infrastructure or appliances are required as RNG has the same properties without the carbon footprint
- Cost of Natural Gas .0502 $/kWh, 100% RNG .0745 $/kWh and BC Electricity .0945 $/kWh



Reference: 2020 B.C. Best Practices Methodology For Quantifying Greenhouse Gas Emissions and FortisBC Public sector organizations: reducing GHG emissions with RNG

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Care Facilities

Energy Savings Opportunities

March 28th, 2022

Kenneth McNamee
P. Eng., MSc., CEM, CMVP Principal
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Aspirational Ideas,
Practical Implementation

Impact ENGINEERING

Table of Contents

Introduction

Ben Mills
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Mechanical Engineer

Natasha Samson
P. Eng., LEED AP
Sustainability Specialist

Nathan Trang
Dipl. Mech Eng., CPHD
Mechanical Technologist

New Construction

Existing Buildings

Our Approach

Our Approach

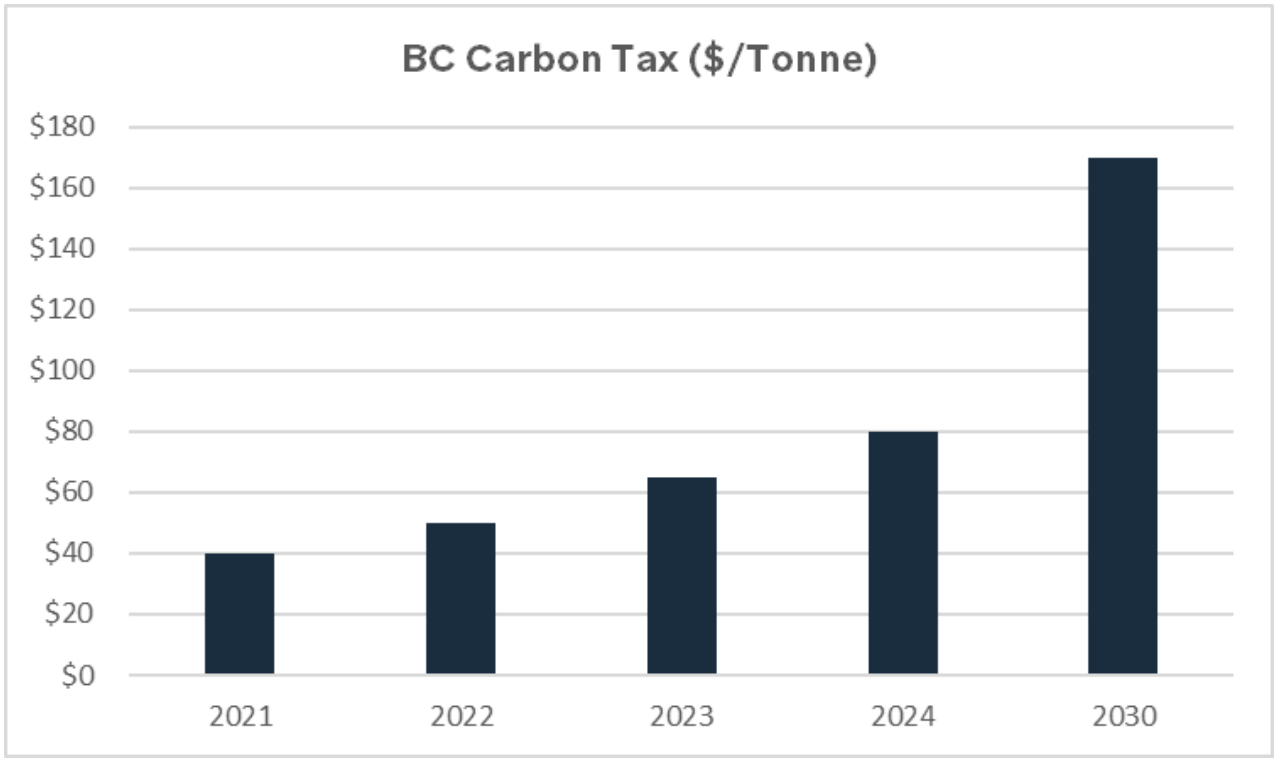
Decarbonize Building Operations

Reduce Operating Costs

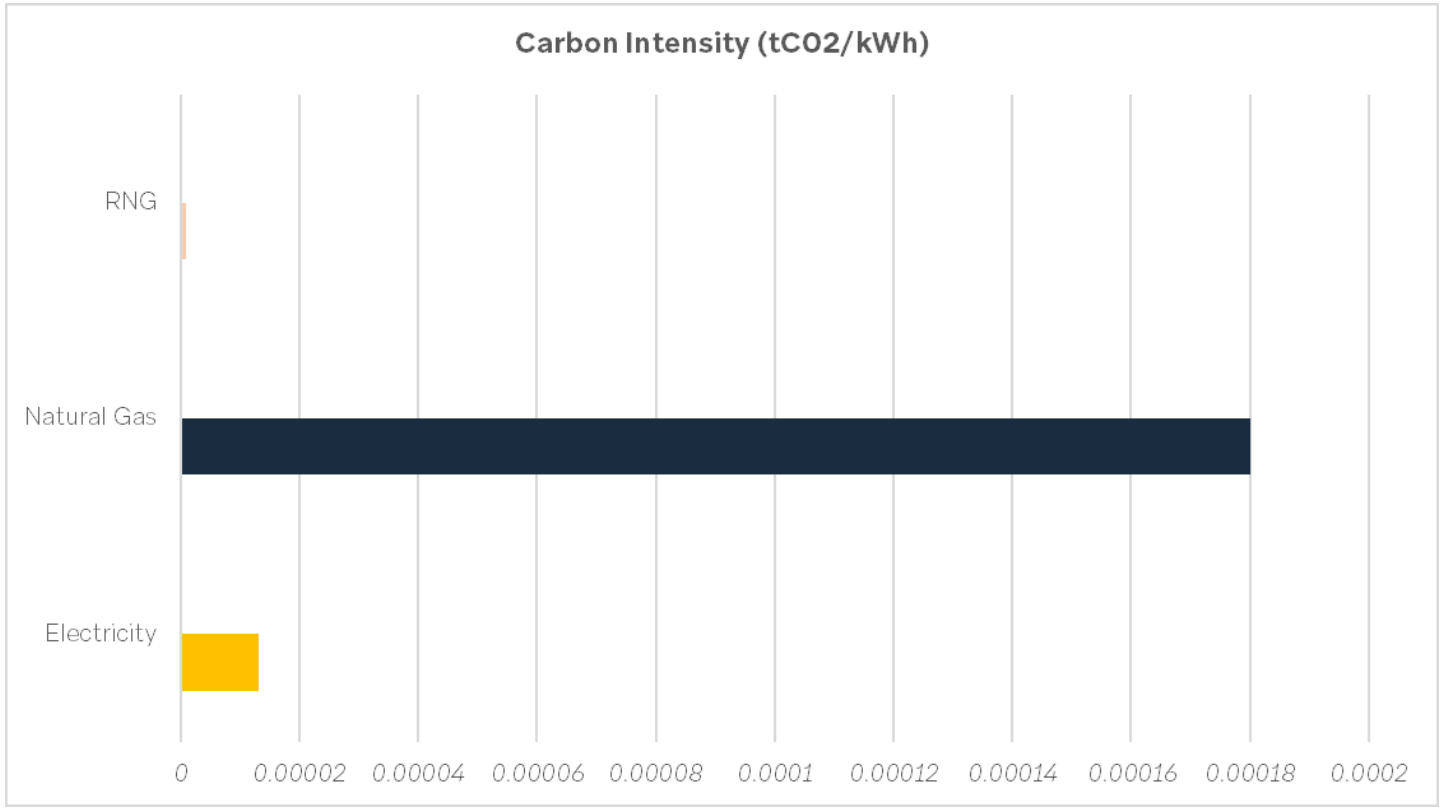
Improve Comfort

BC Carbon Tax

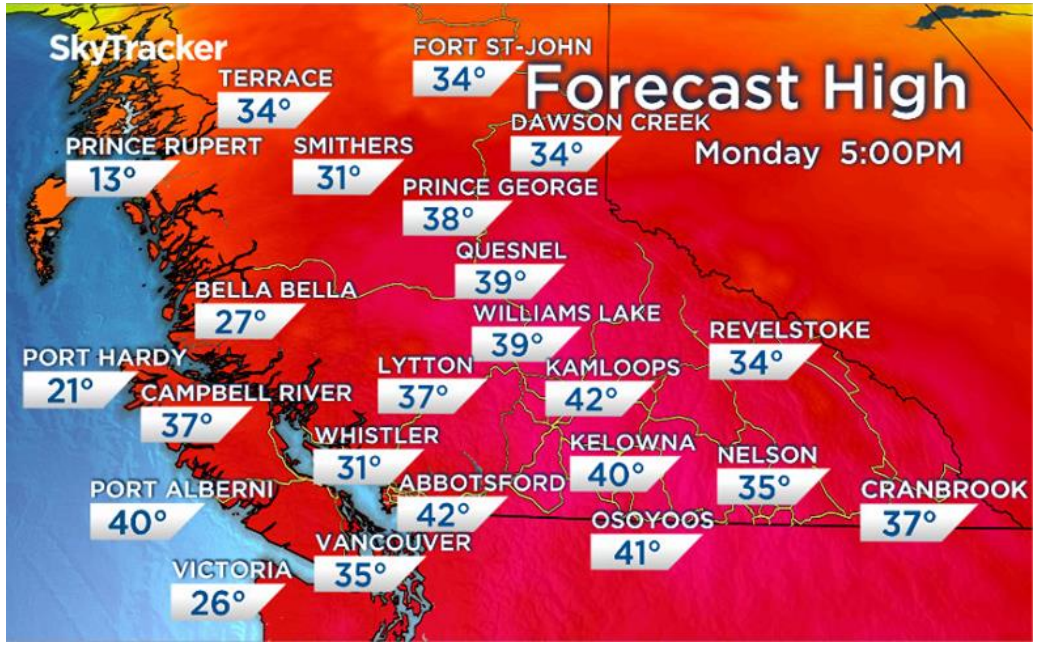
- Carbon Tax to add $8.50/GJ by 2030
- Carbon Tax alone will double the average cost of Nat. Gas.



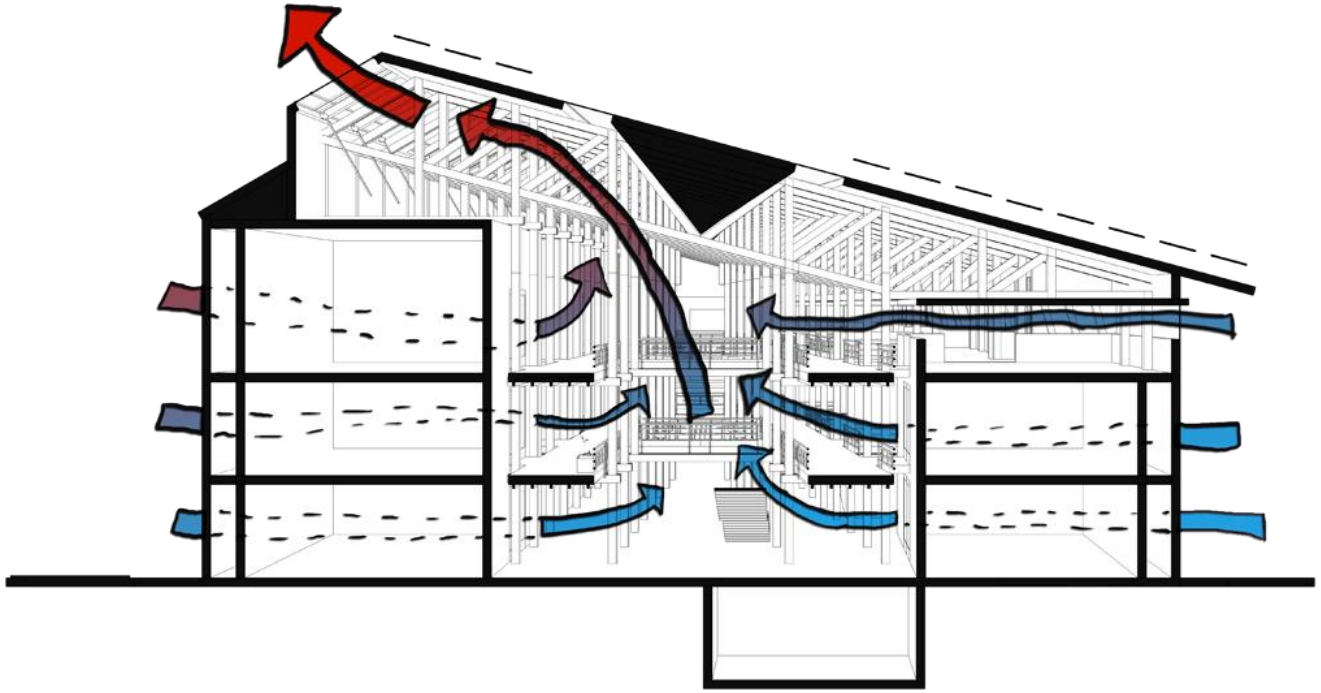
Fuel Options



Building Overheating & Cooling Options



Passive Design & Heat Recovery



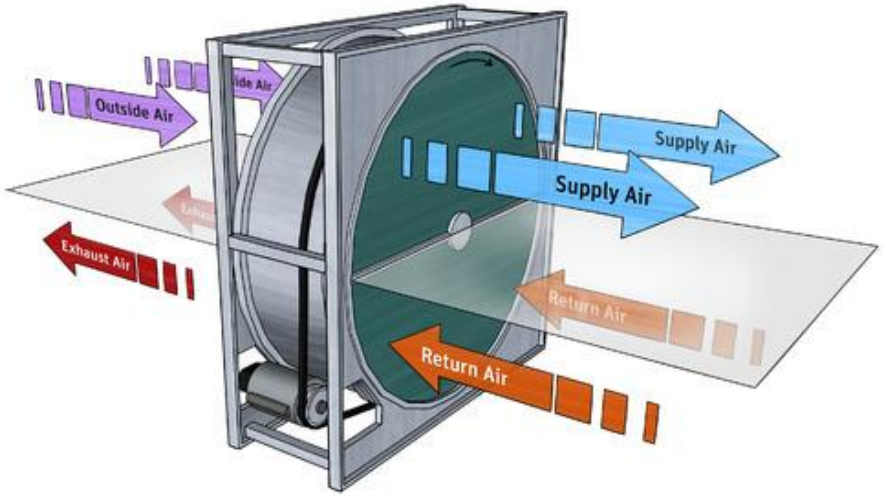
Retrofit Technologies

Condensing Gas Boilers

Natural Gas Heat Pump

Air Source Heat Pump (Electric)

Heating & Cooling System(s)



Heat Recovery

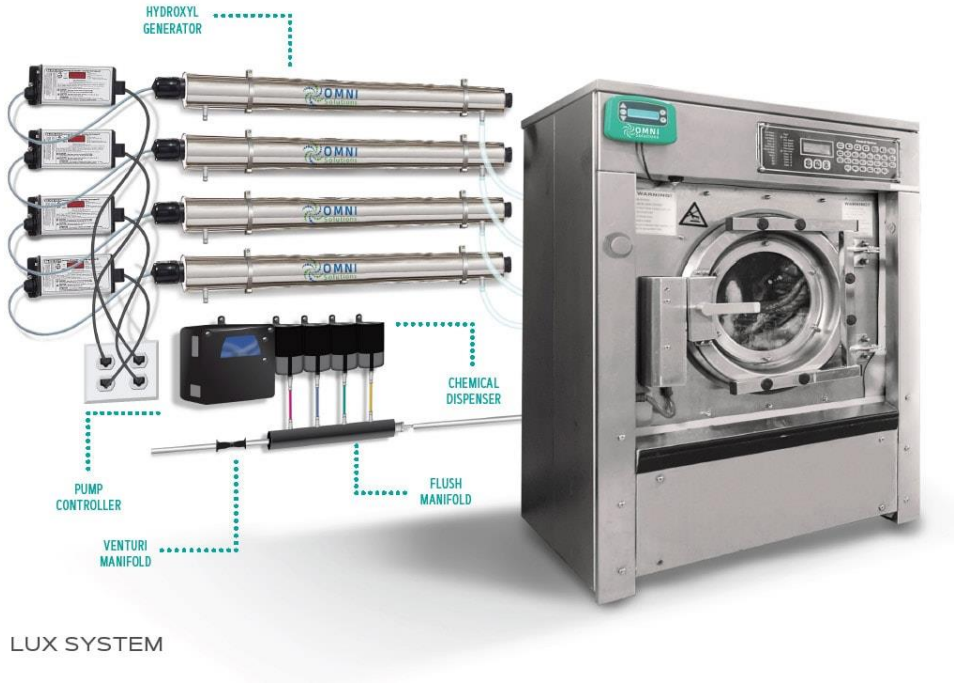
Heat Pump Ventilation

Ventilation System(s)

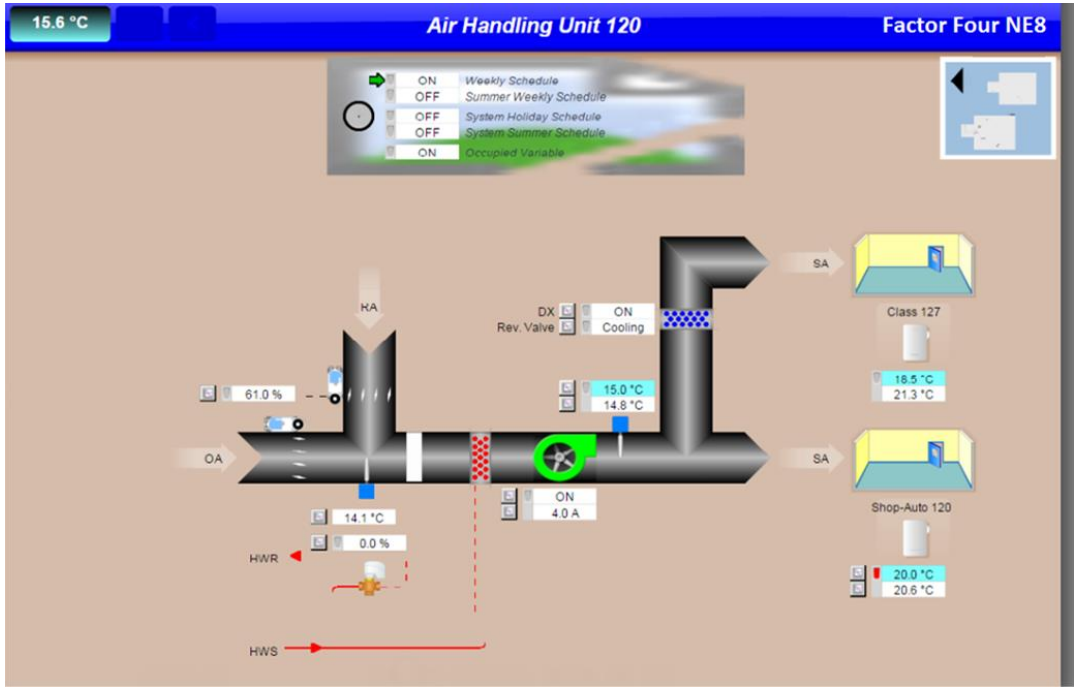
Condensing Gas

Air Source Heat Pumps

DHW System(s)



LUX Laundry System



Building Recommissioning

Miscellaneous System(s)

Funding

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Project Funding

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Energy at work

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cleanBC

our nature. our power. our future.

BC Hydro

Case Study

George Derby Centre

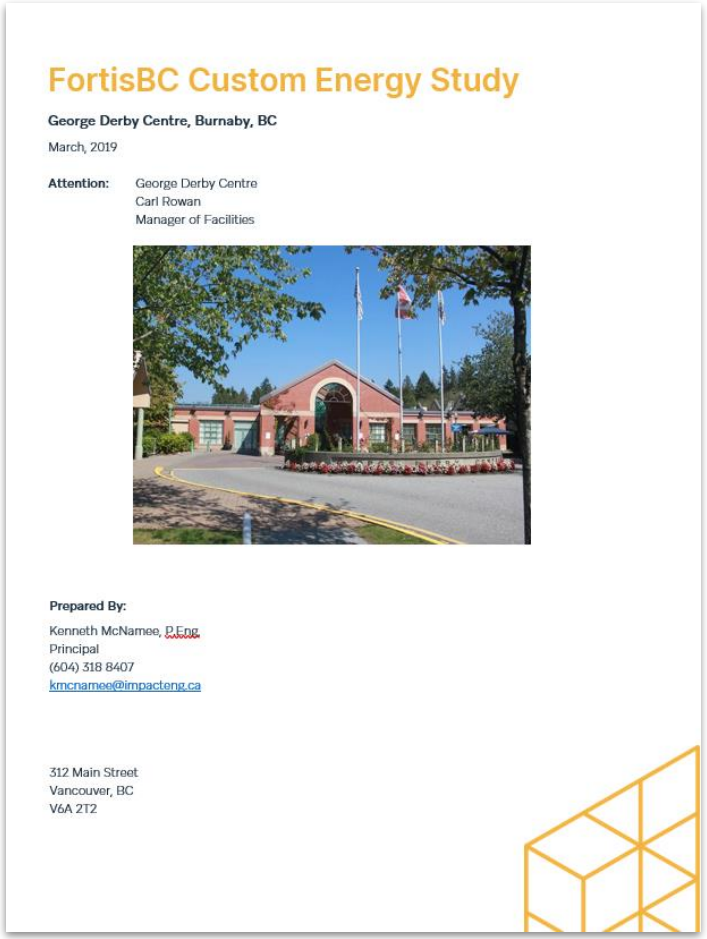
Burnaby, BC

Facility Description:

- Two-Storey Long Term Care Facility
- 130,000 Sq.ft. Constructed in 1988
- 300 Beds

Our Challenge:

- Improve Building Energy Performance & Costs
- Replace Older Equipment with Modern Alternatives
- Limit Equipment Down Time
- Recommission Building Systems for Optimal Performance



FortisBC Custom Energy Study

George Derby Centre, Burnaby, BC

March, 2019

Attention: George Derby Centre
Carl Rowan
Manager of Facilities

Step 1 - Energy Study

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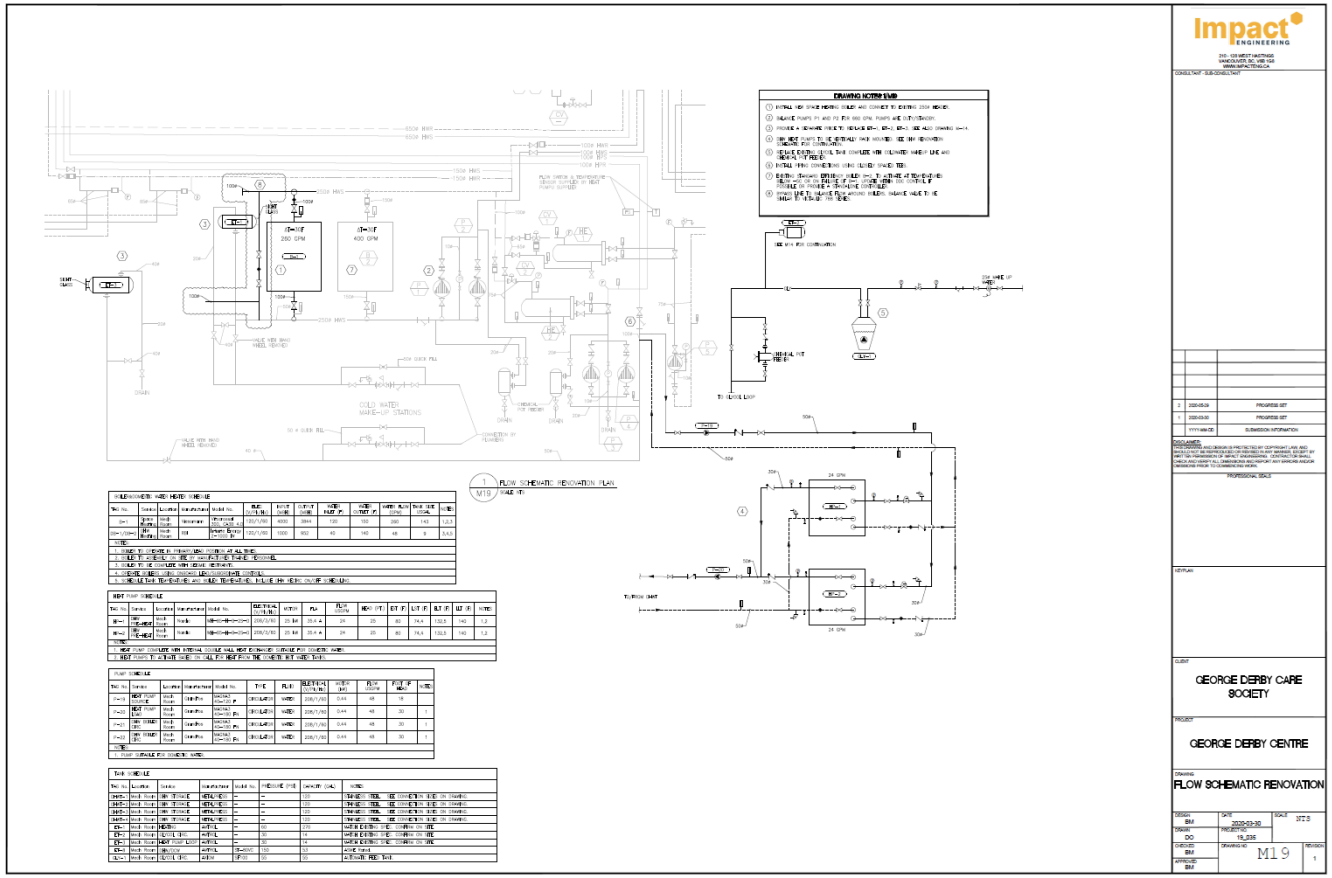
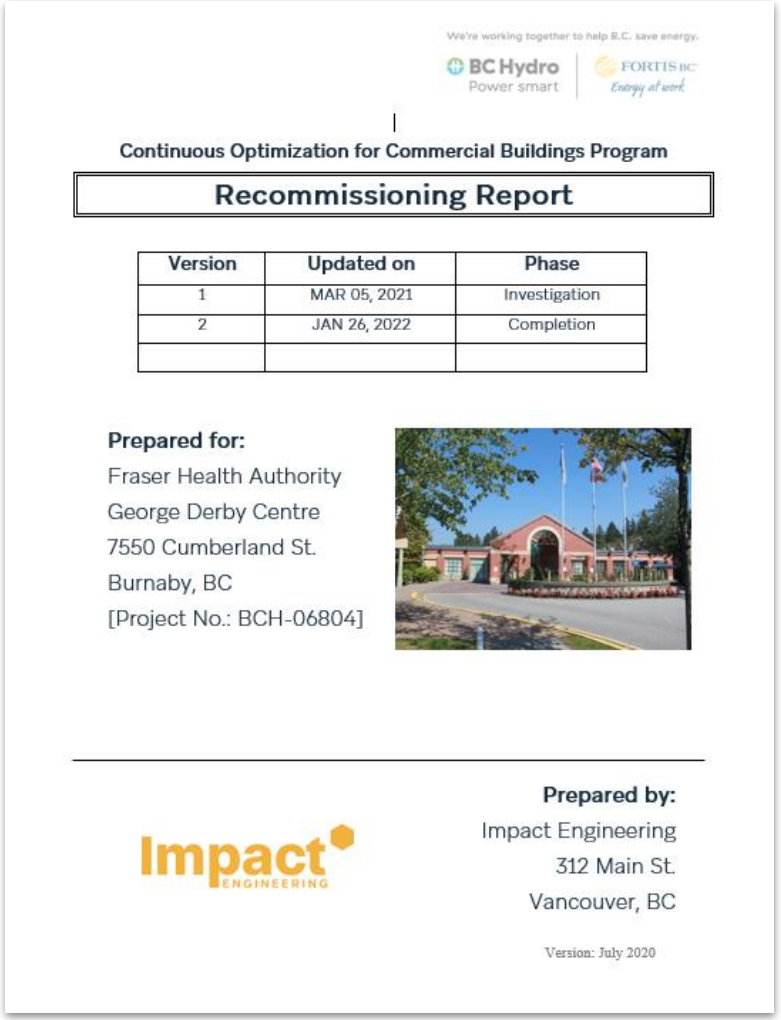
Energy at work

Step 2 - Secure Incentives



Step 3 - Detailed Design + Implementation



Step 4 - Recommissioning

Retrofit(s)

Condensing Boiler Upgrade (Heating) - New Viessmann Condensing Gas Boilers (~95% eff.)

Retrofit(s)

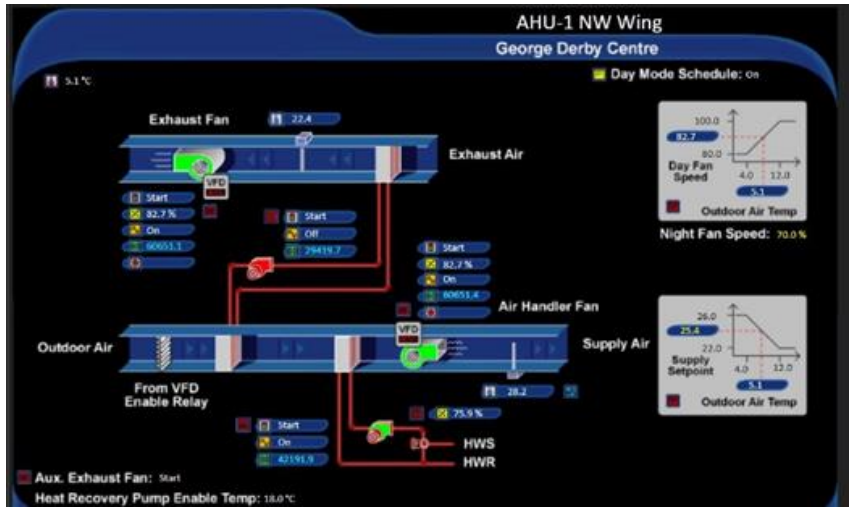
Condensing Boiler + Heat Pump Upgrade (DHW) - New Viessmann Condensing Gas Boilers (~95% eff.)

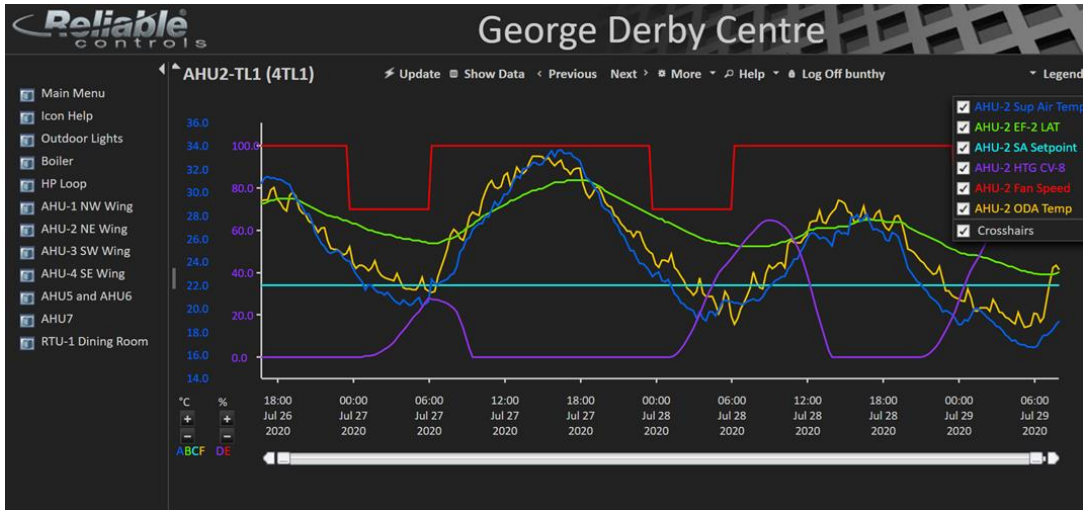
Retrofit(s)

Ventilation & Cooling Upgrades - New HRV & Heat Pump System

Retrofit(s)

Controls Upgrades - New Electronic Controls System + Recommissioning





Outcome(s)

$425,000 in Incentive Funding

20% Reduction in Natural Gas Consumption

$30,000 Reduction in Utilities Per Year

Improved Resiliency + Comfort

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Questions?