



Energy Use Reductions in 21 Rural and Urban Eastern Zone Facilities in Newfoundland and Labrador

Objective

To reduce the overall environmental footprint associated with the energy consumption of our health care facilities in Eastern Zone, Newfoundland and Labrador (NL).

Practice Points

1. Energy use has a profound impact on the environment, influencing factors such as climate change and air and water quality.
2. The consumption of energy resources – particularly fossil fuels – contributes to air pollution through the release of greenhouse gases and other pollutants, leading to climate change and adverse health effects.
3. Transitioning to cleaner, more sustainable energy sources is essential to mitigate environmental harm and promote a more eco-friendly health care system.
4. Energy efficiency measures and conservation efforts play a crucial role in reducing the overall environmental footprint associated with the energy consumption of our health care system.

Data

1. Over the past 5 years (Oct 2019–Sept 2023), NL Health Services (NLHS), in partnership with the Government of NL, has overseen the development and implementation of an energy use improvement strategy in the Eastern Zone.
2. Energy audits were conducted in 21 Eastern Zone health care facilities (table 1) through a contract with Honeywell.
3. NLHS and Honeywell made energy upgrades and improvement measures totaling approximately \$30 million. Funding was provided by the Government of NL with a pay back period scheduled for 19 years (to be funded by the cost savings of the project). Measures included replacing halogen lights with LEDs, updating air handling units, and automating aspects of buildings based on usage.

4. Energy upgrades and reduction measures were classified into the following five categories: lighting and electrical measures; control system measures; mechanical system measures; building envelope measures; and other measures (ultraviolet light and ozone).
5. Annual carbon dioxide (CO₂) emission savings have been calculated by totaling annual electricity, fuel oil, propane, and steam savings from all facilities.

Table 1. Eastern Zone Health Facilities Included in Energy Audits and Updates

Health Care Facility
Health Sciences Centre
St. Clare's Hospital
Dr. Walter Templeman Hospital
Glenbrook Lodge
Saint Luke's Home
St. Patrick's Mercy Home
Agnes Pratt Home
Pleasant View Towers
Dr. L.A. Miller Centre
Central Laundry
Bonavista Peninsula Health Centre
Golden Heights Manor
Dr. G.B. Cross Memorial Hospital
Dr. Albert O'Mahony Memorial Manor
Burin Peninsula Health Centre
U.S. Memorial Health Centre
Grand Bank Community Health Centre
Blue Crest Nursing Home
Dr. Wm. H. Newhook Community Health Centre
Dr. A.A. Wilkinson Medical Centre
Placentia Health Centre
Carbonear General Hospital

Results

- Honeywell's Construction Phase was completed in September 2023. They have provided Energy Savings Reports for each of the five years of the contracted project, as compared to baseline energy use in 2016/17. These reports are summarized in Figure 1. Honeywell has guaranteed that the energy saving measures described in the agreed upon technical plan will generate annual savings of approximately \$1.8 million. The bar graphs below display year over year energy savings as the construction phase was rolled out and energy saving measures/upgrades were completed. CO₂ emission savings have been calculated from each of the four energy sources displayed in the bar graphs in Figure 1. The CO₂ emission savings from 2019 to 2022 are displayed in Figure 2.

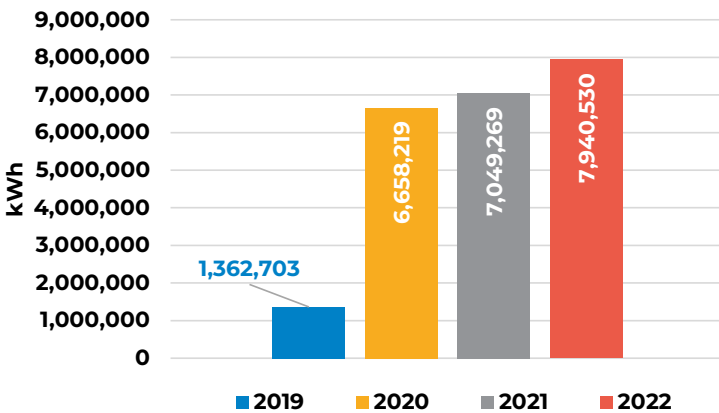


Figure 1. Electricity Savings in Eastern Zone Health Care Facilities in Kilowatt-Hours (kWh), 2019–2022

- From 2019 to 2022, there has been an increase in savings of 6,577,827 kWh of electricity.

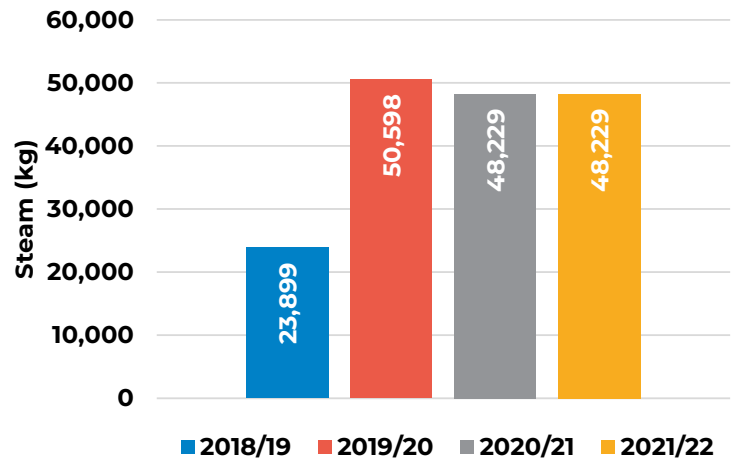


Figure 2. Fuel Oil Savings in Eastern Zone Health Care Facilities in Litres (L), 2019–2022

- From 2019 to 2022, there has been an increase in savings of 246,541 L of fuel oil.

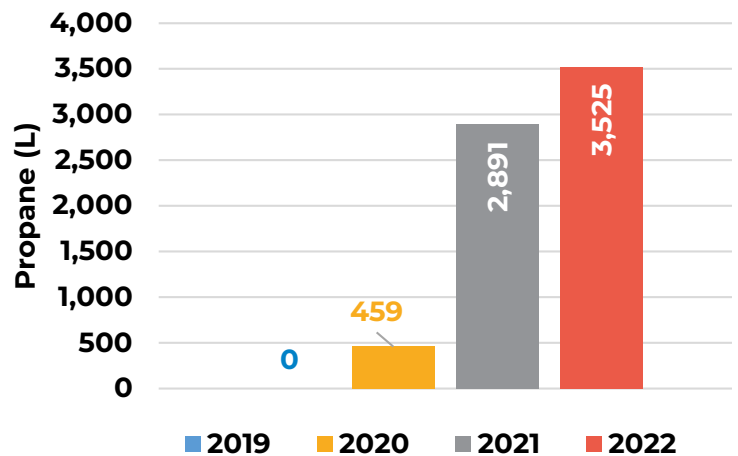


Figure 3. Propane Savings in Eastern Zone Health Care Facilities in Litres (L), 2020–2022

- From 2020 to 2022, there has been an increase in savings of 3,066 L of propane.

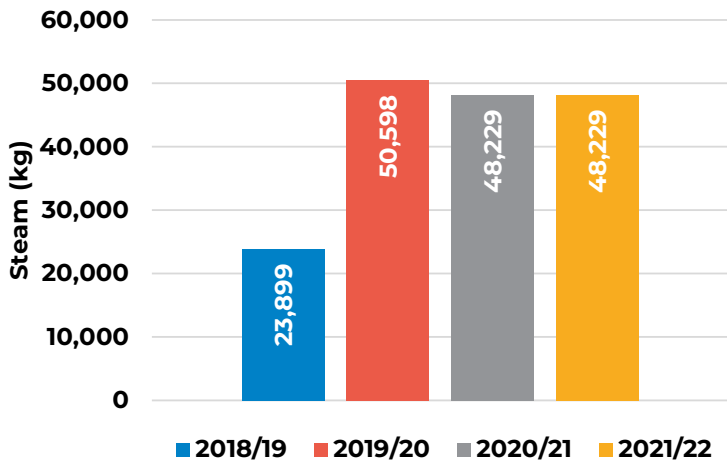


Figure 4. Steam Savings in Eastern Zone Health Care Facilities in Kilograms (kg), 2019–2022

- From 2019 to 2022, there has been an increase in savings of 24,330 kg of steam.

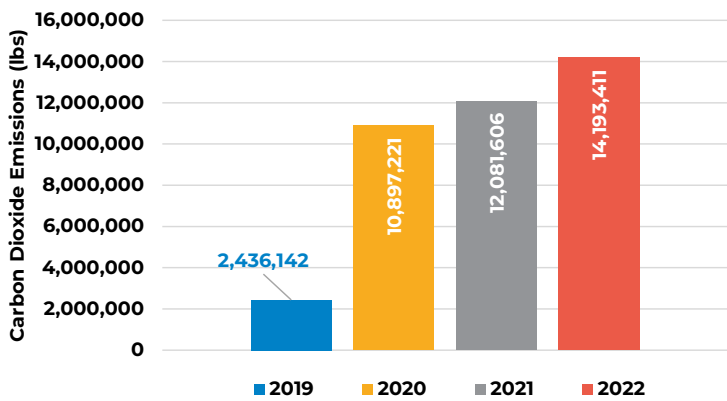


Figure 5. Total Carbon Dioxide Emission Savings from 21 Eastern Zone Health Care Facilities in Pounds (lbs)

- From 2019 to 2022, there has been an increase in savings of 11,767,269 lbs of CO₂ emissions.

Conclusions

- By the end of this project, the total energy savings for the 21 Eastern Zone facilities is estimated to be approximately \$2 million/year which includes approximately: 8 million kWh/year in electricity; 300,000 L/year of fuel oil; 3,500 L/year of propane; and 48,000 kg/year of steam.
- The total of each of these energy sources combined and converted to CO₂ emissions amounts to approximately 14 million lbs of CO₂ emissions saved per year going forward.