

Using Technology & Employee Engagement to Save Energy

AT A VANCOUVER AIRPORT AUTHORITY OFFICE BUILDING

About the Location

The Vancouver Airport Authority opened a single-story office building for its own operations on Sea Island in 2014. It is considered an energy efficient building, making use of energy conservation measures such as LED lights, Energy Star computer monitors, and an optimized Heating, Ventilation, and Air Conditioning (HVAC) system.

Using Change to Influence Change

During the summer of 2018, the Vancouver Airport Authority saw an opportunity: uncovering energy savings at an already efficient and engaged location could demonstrate the conservation possibilities available across all of YVR's operations, and engage office employees to consider these initiatives when working on their own projects.

Changing Technology Only < Changing Technology + Behaviour

Knowing that both customizing technology and engaging people in behaviour change lead to energy conservation, the Vancouver Airport Authority implemented three measures:

1

Installing motion detectors

While an automated schedule can turn the lights on and off at the office each day, people sometimes forget to turn the lights off within that time period. The Vancouver Airport Authority installed motion sensors in all offices and boardrooms, ensuring that lights are only turned on when people occupy a space.

2

Integrating lighting and HVAC control systems

By integrating these two systems, the lighting control system is able to send the occupancy status from the motion sensors to the HVAC system. This allows it to reduce air flow in unoccupied areas, further conserving energy.

3

Engaging occupants in the 'Energy Vampires' campaign

Knowing that people are behind technology, a campaign was launched to educate staff about office equipment that 'sucks' power. Using an email newsletter, information was shared about turning off monitors and computers when not in use, unplugging items that contribute to phantom power, changing printer settings, as well as providing updates about the building's total energy usage and conservation over the course of the campaign.



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RESULTS

A 25% reduction in total greenhouse gas emissions

The results are consistent with the Vancouver Airport Authority's prediction; for an already energy efficient and optimized building, additional technology and behavior change measures saved more energy. These savings are described below and in the figures to the right.

In the boardrooms, adding motion sensors delivered energy savings of 55 percent over the campaign period – despite a 25 percent increase in meetings and boardroom usage!

Overall, the office building's annual energy consumption was reduced by ten percent, with savings of over 44,500ekWh, enough to power 5 homes for a year. Greenhouse gas emissions exceeded projections with a 25 percent reduction in emissions from natural gas and electricity combined.

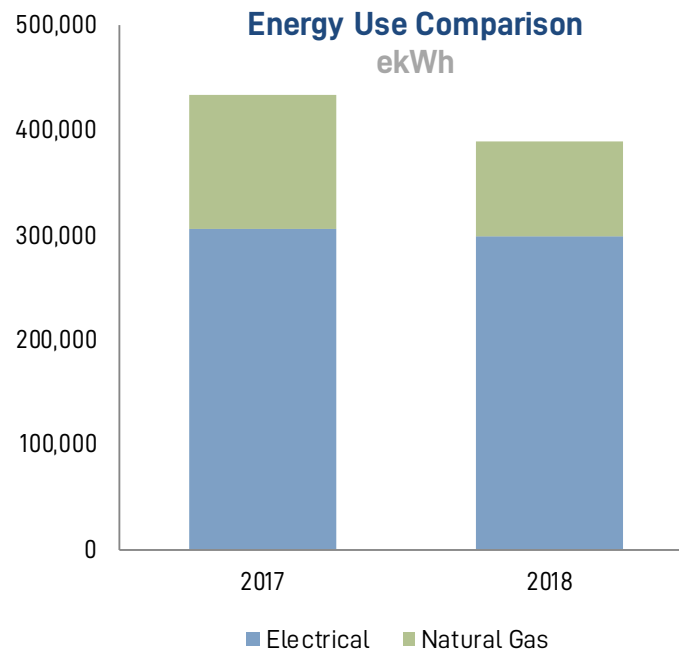


Figure 1: Annual Total Energy Consumption

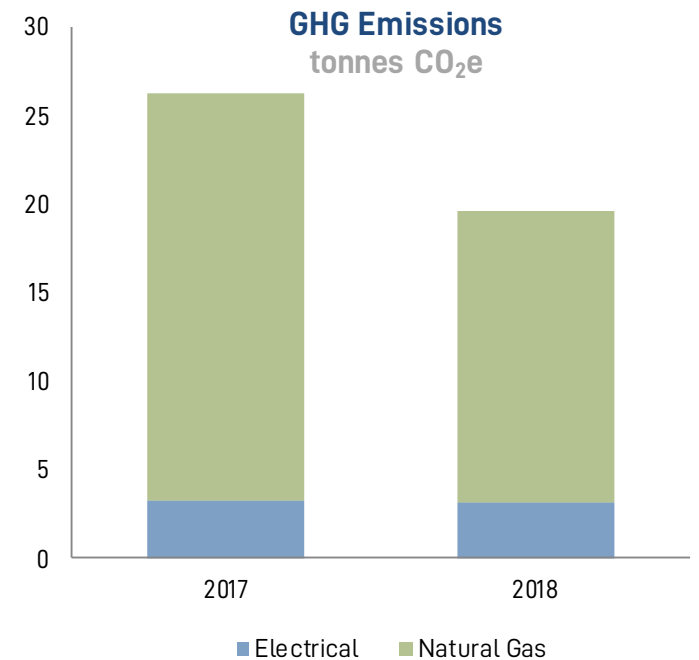


Figure 2: Annual Greenhouse Gas Emissions