Whistler Meadow Park Sports Recreation Centre: Energy Conservation Retrofit

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BY THE NUMBERS

Project type: Solar hot water /geothermal system
Year of implementation: 2009
Project Lifespan: 25 years
Cost: $900,000
GHG savings: 300-350 tonnes of CO_2e per year at the sports centre
Financial Savings: $125,000 per year in natural gas savings

Solar array system at Whistler's Meadow Park Sports Reacreation Centre. Source: Resort Municipality of Whistler.

The Project

In 2009, the Resort Municipality of Whistler (RMOW) (population 9,824) installed a solar hot water system for domestic water for the pool and fitness side of the Meadow Park Sports Recreation Centre, and a geothermal system for heating the pool water. This was the most significant project implemented to date to reduce greenhouse gas (GHGs) emissions from Whistler's corporate operations.

The geothermal system provides all of the heat for the pools at the sports centre, and the 90-kilowatt solar array handles domestic hot water in the building. Both energy conservation retrofits are designed to significantly reduce the primary energy load on the building.

Project Motivation

Whistler was initially motivated to pursue the energy retrofit to reduce a significant portion of their GHG emissions. However, in order to get Council buy-in for the project, Whistler staff also needed to demonstrate the financial benefits of the project.

According to Ted Battiston, manager of special projects at RMOW, "Getting out there with the financial message year after year — and having those financial numbers be strong — is critical. With energy prices only increasing over time, the message becomes even more compelling."

Demonstrating strong financial payback, which including the avoided cost of the carbon tax and carbon offset purchases, was critical in securing Council support for the project.

Overcoming Barriers

Accessing certified contractors was a key barrier for this project. Whistler had the initial challenge of accessing contractors in the marketplace who could service these types of energy conservation retrofits. They reported that unlike straight construction of a typical building, in which you have hundreds of contractors who are familiar with the technologies and approaches, there is a far smaller pool of professionals who drill geothermal wells, or install evacuated tube solar collectors. Further still, there is a smaller pool of engineers who have designed hybrid, solar and geo-systems.

As the project was being developed, and finally implemented, Whistler gained a better idea of what kind of technical constraints accompany these types of projects. While the knowledge base for these types of projects is presently limited, the interviewee explained that demand will only increase in the future given the province's focus on climate action.

Building Community Support for Projects

The savings from the energy retrofit have been shared through newsletters and recreation guides, but Whistler is contemplating other ways to get the message out. For example, interactive screens that display the energy consumption of the building, and the energy and GHG savings as a result of the retrofit has been suggested as an effective and engaging way to communicate the project's benefits.

Impact of Provincial Policies, Programs and Grants

The carbon tax was critical in making the financial case for this project. The carbon tax allowed Whistler to integrate carbon costs into the capital and operating budgets for the project, and to continue demonstrating that reducing energy use and GHG emissions would save the taxpayers money in the long run. It was valuable to demonstrate to operations staff that reducing energy use and GHGs through the retrofit, and through ongoing operations, would have a clear impact on their budgets.

“At the end of the day, the more that cost on carbon is clearly understood by staff and clearly linked to operations, the better the job staff will do to reduce those costs,” said Battiston. “Furthermore, there is no question that the bigger the carbon tax value, the stronger case for the low carbon solution.”

The carbon neutral requirements in the Climate Action Charter also helped to provide a financial signal that the low-carbon solution will save Whistler money in the long-run. Whistler accounted for the avoided cost of purchasing offsets as part of the business case for the retrofit.

The Climate Action Revenue Incentive Program (CARIP) has also helped Whistler pursue projects that will reduce emissions. Whistler puts its CARIP funding into a Climate Action Innovation Fund. Half of the fund is used to implement projects that reduce Whistler’s corporate emissions (such as the retrofit project), and the other half is used to provide grants to not-for-profits in the community that build energy and GHG management capacity in the commercial sector (e.g., Climate Smart training).

“If there was no CARIP, [we] would not have $35,000 each year to drive innovation. The way it is structured right now works well… provided you use those funds to drive change,” said Battiston.

Summary

The energy conservation retrofit at Whistler's Meadow Park Sports Recreation Centre is one of many climate action projects the municipality has implemented. It continues to show leadership on climate action in the province, setting an example for other communities in the process.