

Community Energy Leadership Program (CELP)

Stories of Success

Regional District of Nanaimo

OCEANSIDE ARENA HEAT RECOVERY

Total Project Cost: \$65,655

Total CELP funding support: \$20,000

Energy savings: 924 GJ/year

GHG reductions: 45.95 tCO₂e

Summary of Project: *The project involved the installation of a heat recovery system that uses waste heat from refrigeration to pre heat domestic water supply.*

Partners:

The project involved the Regional District of Nanaimo (RDN), Rocky Point Engineering Ltd. (RPE) and Way West Mechanical Ltd. The RDN is the owner of Oceanside Place and operates the facility year round to provide on ice and dry floor programs, events and activities for the communities for Parksville and Qualicum Beach and the associated electoral areas.

The RDN, as per the cost sharing agreement with the Province, is providing the balance of funding for the project. RPE is the engineering firm handling the contract and administering the project for the RDN. Way West Mechanical Ltd. was the successful contractor who completed the mechanical installation of piping and equipment as per the tender and specifications provided by RPE. They worked cooperatively with Fraser Valley Refrigeration Ltd. to complete the work for the refrigeration installation.

Background: The project was undertaken with the intention of improving energy efficiency and to lower the operational costs of the Oceanside Place Arena, which is situated in Parksville. The RDN's Strategic Energy Management Plan has identified recreational facilities as being energy intensive and set targets to improve energy efficiency in these facilities and in 2009 there were opportunities or projects identified for

Oceanside Place Arena which would assist in achieving the targets. Over the last 5 years some of these projects have been completed which saw a total energy consumption decrease in 2014 by approximately 11%.

The Heat Recovery project was the next project identified as a major energy efficiency measure. Various departments of the RDN, including operations staff at Oceanside Place, energy and sustainability, finance, management and the RDN Board of directors were involved with the application for the Province's CELP funding and in providing funds from the RDN Corporate Climate Action Fund to ensure the project was financed.

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Innovation: The project will assist and support efforts to build energy efficiency expertise and reputation of local companies. With this experience, they are likely to be more competitive on the energy retrofit market. The success of this project should inspire other organizations to invest in heat recovery projects, which should further develop an increased demand for a stronger energy efficiency economy.



Outcomes: An energy study, conducted by RPE in March 2015 into the effect of the Heat Recovery project identified an annual savings of 924 GJ/year, a reduction of 45.95 tCO₂e and a savings of approximately \$8,800 in operation and maintenance costs. During the project, the involvement of personnel employed included 18 hours of engineering design, documentation and contract administration; 90 hours of contractor installation, and 28 hours of project management. It is anticipated that 8 hours of ongoing operation and maintenance will be required annually. The

RDN has been actively promoting green buildings to the public since 2010 through an annual Green Building Series program showcasing local examples and expertise.

The Oceanside Place Arena is a highly valued and popular destination and public facility serving residents in the surrounding areas and has become a great example to be integrated into the green building education and public outreach program that helps the general public understand the environmental impact of building construction and operation over its lifetime.

Project Reflections: The contractor and engineering firm worked very cooperatively with the RDN to complete the project. A change order for the project increased the overall budget by \$7,505 which was covered financially by the RDN. This change involved a revision in the planned refrigerant piping installation which was recommended to further increase the efficiency of the collection of waste heat from the refrigeration plant. This work involved increasing the size of the refrigeration piping to handle full flow and also offer an ammonia bypass to avoid unnecessary relief discharges.

While this was easy to incorporate, it did extend the timeline of the project due to required inspections and approval from the BC Safety Authority. It was a definite advantage to have the refrigeration contractor work under the scope of the mechanical contractor and having the project administered by the engineering firm of RPE.

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