



Award of Excellence

Nanaimo Reservoir No. 1 and Energy Recovery Facility



Consultant

Associated Engineering

Owner/Client

City of Nanaimo

Category

Energy & Industry

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The Nanaimo Reservoir No. 1 and Energy Recover Facility together express the City of Nanaimo's desire to serve its community with high quality drinking water while realizing its goals of sustainability. The City has long recognized the potential to recover energy from its water supply system, and the commissioning of the new South Fork Water Treatment Plant and resulting Reservoir No. 1 provided this opportunity.

The design team developed a low cost and effective energy recovery system using Pump as Turbine technology and other standard water supply equipment. In contrast to the usual approach, the energy recovery facility was the centrepiece of the project, meant to showcase innovation and environmental benefit. The energy recovery facility, piping systems and reservoir work together to provide an optimal functional layout while at the same time fitting inside a constrained site. The energy recovery system produces enough clean electrical energy to power 100 homes, providing additional revenue to fund the City's water supply system through BC Hydro's Standing Offer Program. With a payback period of 3.5 years and a return on investment of 21.1% over 25 years, this project is very attractive economically.

The combined facility incorporates sustainable design and architectural features consistent with the City's sustainability vision for the project. In addition to reducing greenhouse gasses through clean energy recovery, the building is heated and cooled through water-based geexchange, clerestory windows provide natural light to the interior, and the roof trusses comprise wood, an aesthetic and sustainable material consistent with BC's Wood First Initiative.