leləm̓
Master-planned Community
Vancouver, B.C.

SHARC ENERGY
DISTRICT ENERGY

leləm̓ Village embraces Sustainability with Wastewater Energy

leləm̓ Village (www.lelemliving.com) has a low carbon District Energy System: the SHARC Wastewater Energy Transfer (WET) system redistributes heat from buildings' wastewater, increasing heating efficiency and reducing energy costs.

The ambient energy loop will connect about 20 buildings, which will have the majority of their heating and cooling needs met by the SHARC waste-heat recovery system.

The leləm̓ development will include:
- 1,200+ residential units (~1.2 million ft²)
- 30,000 ft² of retail
- 10,000 ft² day care
- 15,000 ft² community centre

The leləm̓ development is consistent with the recommendations of the United Nations Environment Programme which has identified low carbon district energy systems as a best practice for addressing climate change.

"We are keepers of the river, keepers of the lands, and the waters that continue to sustain us. We intend to care for our territory so that our future generations can enjoy the abundance of our predecessors. Perhaps more than ever we value Community."

– Musqueam elders

"The Passive Energy Loop district energy and utilization of WET technology provides sustainable energy to leləm̓ development and comfortable living for its residence."

– Joseph Bros, Musqueam Capital Corp.

Clean 50 TOP PROJECT 2024
exceptional contributors to the clean economy
contributeurs exceptionnels à l'économie propre

54% GHG Savings compared to a code-minimum 2015 NECB building	**20% GHG Savings** compared to a code-minimum 2015 NECB building	**Yearly GHG reduction of 117 tonnes of CO_2e**	**%0.05/kWh** half the cost of electricity

How Waste Heat Recovery Works

Consider all the heated water that goes down the drain. Residential water has an average exiting temperature of 20°C (68°F). The SHARC WET system captures enough of that energy to heat the buildings it's coming from.

Wastewater coming out of all connected buildings is directed into the district energy facility. There, it meets the SHARC.

The SHARC is a filter that temporarily separates solids so that liquid wastewater can reliably pass through the heat exchanger. The heat exchanger is designed with wide gaps between the plates so small particulate can pass through with no concerns, while providing surface area for heat exchange.

The heat transfers into clean water that flows in an "ambient energy loop", which is an ~1 km long closed loop pipe from the facility to the connected buildings. The wastewater never mixes with the clean water, only the heat is transferred.

The buildings contain heat pumps that extract heat from or deposit heat into the ambient energy loop to meet the majority of their heating and cooling needs. This system showcases the strengths of recovering waste-heat in a mixed-use community.

Each building can choose to use the loop as a heat source or sink, depending on whether cooling or heating is desired. Buildings may choose the same option at the same time, so there is supplementary infrastructure to ensure demand is met at peak times.

Since wastewater flow varies throughout the day, large tanks store excess wastewater from high flow times for use during low flow periods.

The ground surrounding the loop acts as a thermal battery. If the loop gets much warmer than the ground then it rejects heat into the ground, and if it gets much colder than the ground then it takes in "free heat".
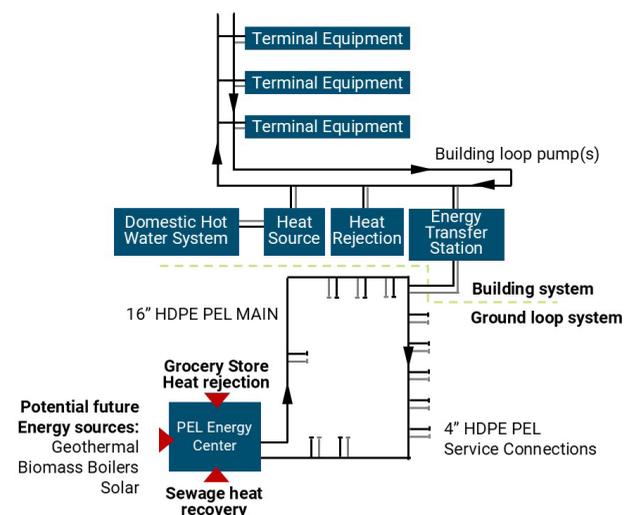

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Building heating/cooling coefficient of performance (COP):
- With coincident heating and cooling loads: 6–7
- Worst case scenario: 2.5

leləm̓ Passive Energy Loop
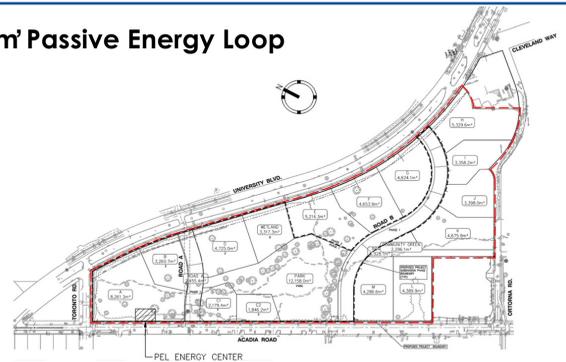
The SHARC is designed to transfer energy during peak conditions on a scale of hundreds of kW of thermal energy, while consuming only low tens of kW of electrical energy to operate.

WET-ENABLE YOUR DISTRICT/TEN TODAY

Call +1 (604) 475–7710
or visit SHARCenergy.com

Visit the leləm̓ page