

Edmonton's Example: District Energy Sharing System in Blatchford

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Once in a lifetime opportunity



Blatchford will be home to 30,000 residents all living sustainably together on 536 acres in the heart of the city



Vision

Blatchford will be home to up to 30,000 Edmontonians living, working and learning in a sustainable community that uses 100 percent renewable energy, is carbon neutral, significantly reduces its ecological footprint, and empowers residents to pursue a range of sustainable lifestyle choices.



Community Overview



Energy for Homes and Buildings

Heating, Cooling
and Domestic Hot Water

Plug Loads
(energy for anything
plugged in - lights,
computers, appliances)



Blatchford Energy Strategy

How did we design a community the size of Blatchford to set us on the path to being a 100% renewable energy, carbon neutral community for 30,000 people?

Step 1

Conservation

High Performance Buildings

Build energy-efficient buildings to first reduce the amount of energy needed for heating, cooling (air conditioning) and hot water.



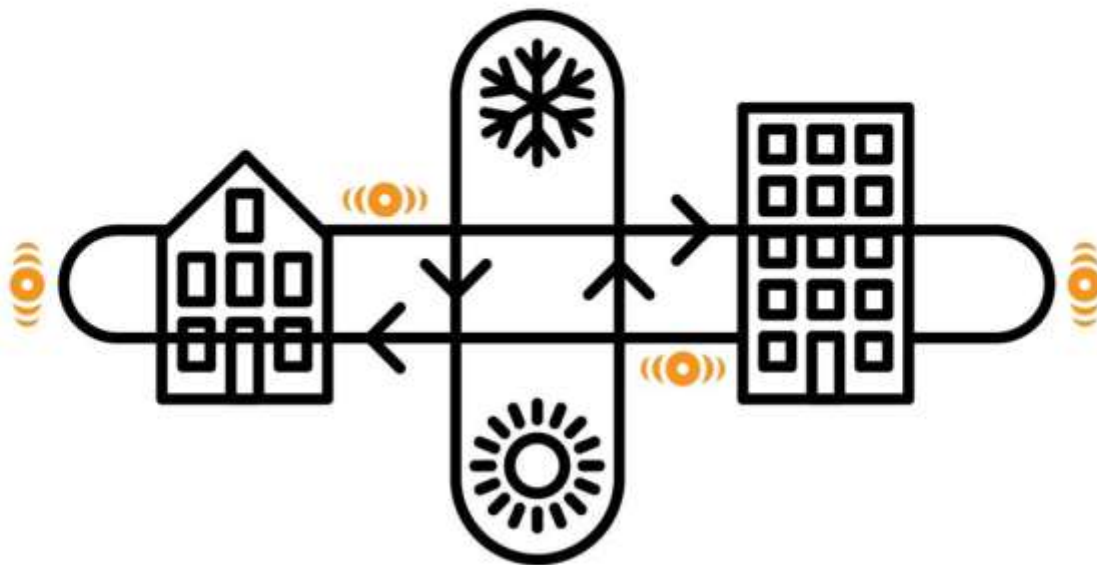
Step 2

Efficiency

District Energy Sharing System

Make sure that the energy you still need is used as efficiently as possible by using a District Energy Sharing System (DESS).

Very simply, a DESS allows the same unit of energy to be re-used multiple times between buildings and between seasons.

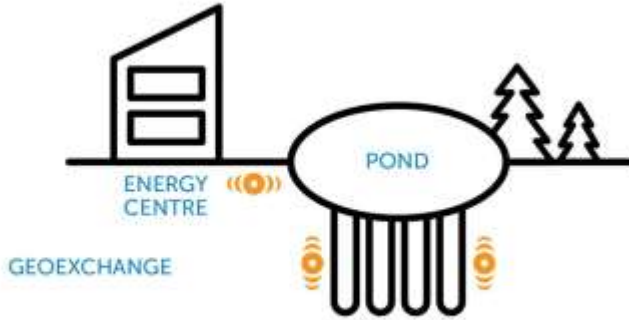


Step 3

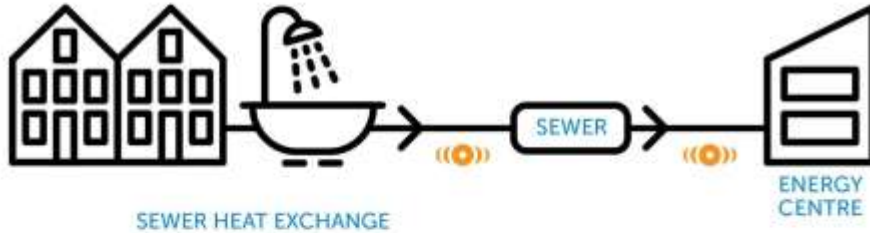
Use renewable energy sources with the DESS

Renewables

- Geo-exchange
- Sewer Heat Exchange
- Solar PV



GEOEXCHANGE



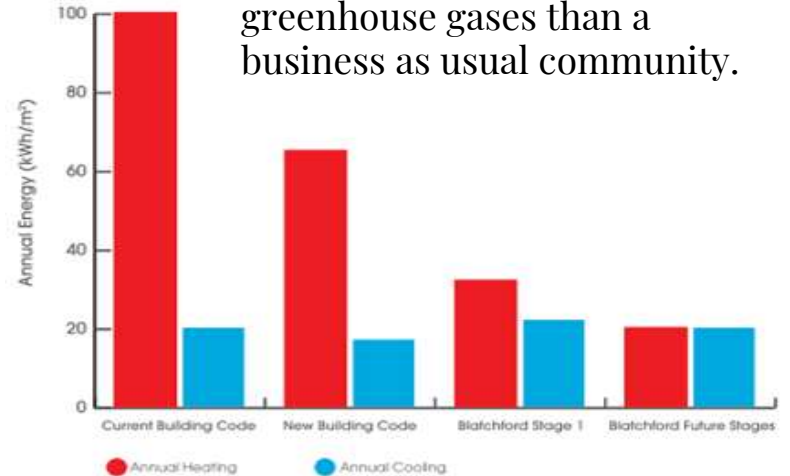
SEWER HEAT EXCHANGE



SOLAR PV



The result? 74% fewer greenhouse gases than a business as usual community.



Blatchford Renewable Energy Utility

- New Utility was established to:
 - Achieve Council's vision of a sustainable development
 - Carbon neutral, being powered by 100% Renewable Energy
 - Initially build around the District Energy Sharing System
 - Consider other emerging renewable energy technologies



STAGE ONE PLAN



Bike Lane

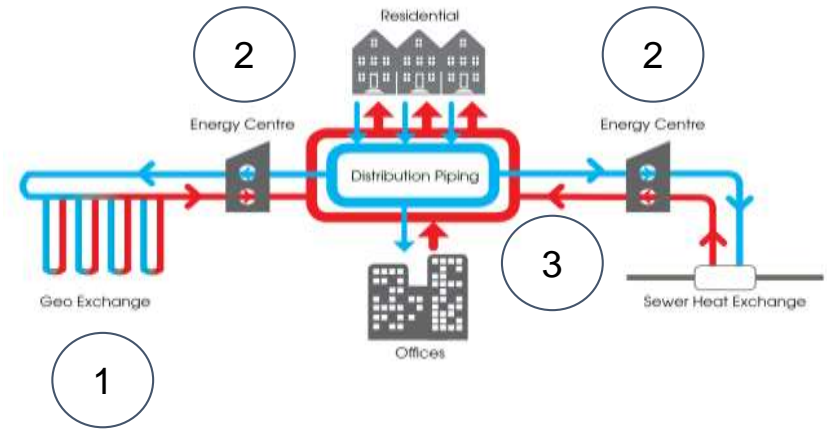
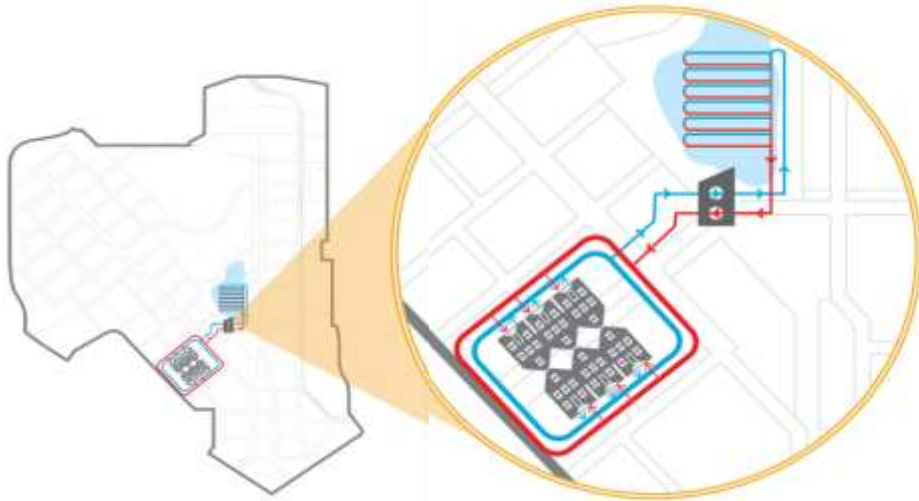


Bus Stop

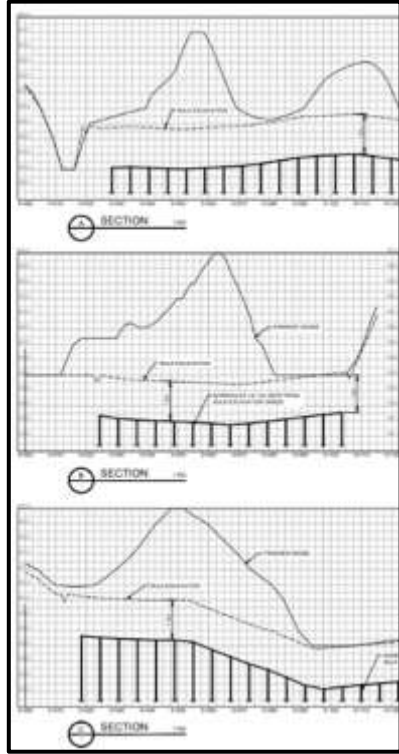
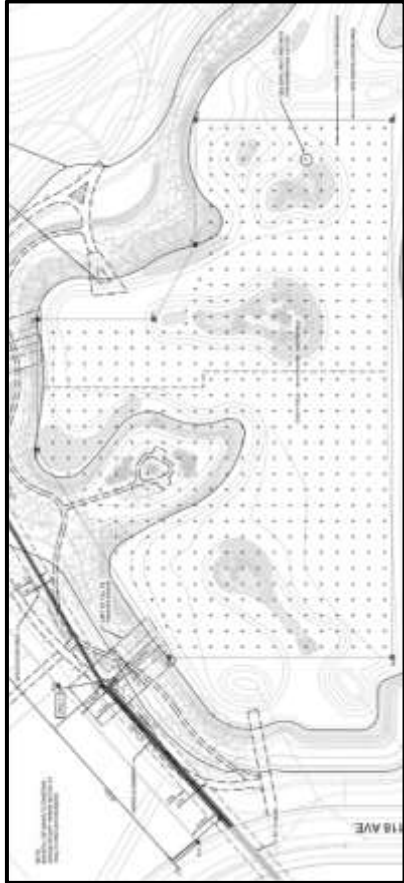


- 1 Landscaped Lane
- 2 Bioswale
- 3 Heritage Feature
- 4 Twelve-Thirty Plaza
- 5 Separated Bike Lane
- 6 Walk and Cycle Route to LRT
- 7 Mixed-use Buildings
- 8 Community Gardens
- 9 Townhouses
- 10 Mid-block Walkways
- 11 Control Tower
- 12 Summer Lawn & Event Area/
Winter Skating Area
- 13 Pedestrian Gateway
- 14 Urban Walking Trail
- 15 Garage Suites
- 16 Yorke Mews Walkway
- 17 Tree Planting Cells
- 18 Local Shops
- 19 Custom Street Signs
- 20 Fane Mews Walkway
- 21 Garden Rainwater Collector
- 22 Community Firepit
and Warming Hut
- 23 Fruit Orchard
- 24 Garden Sculpture
- 25 Playground
- 26 Children's Garden
- 27 Recycled Runway Benches
- 28 Front Porches
- 29 Tree-lined Streets

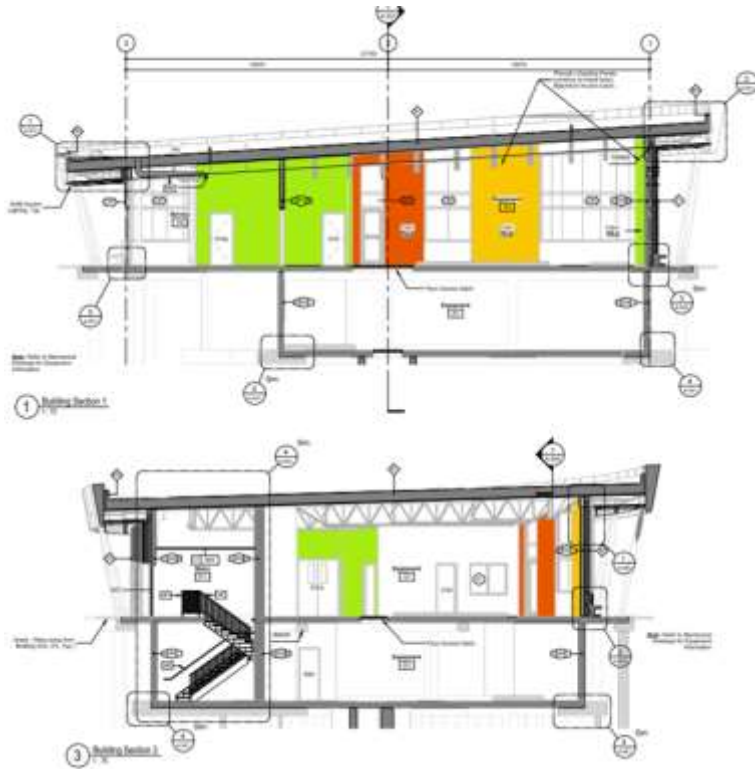
DESS - Phase 1



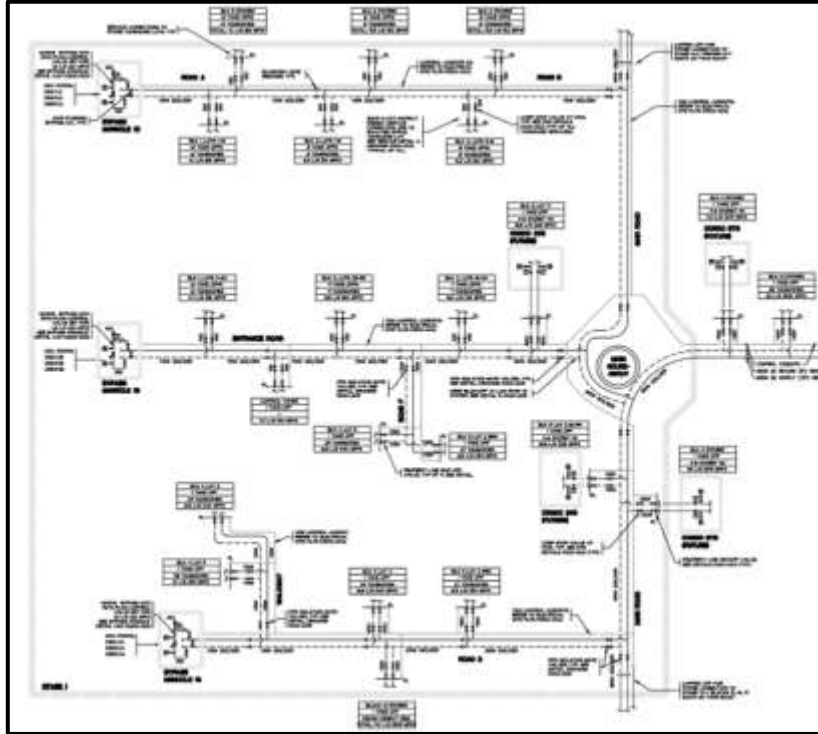
Geo Exchange Field under SWMF

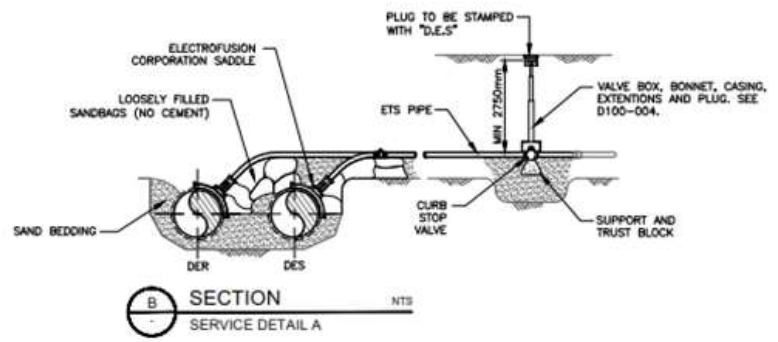
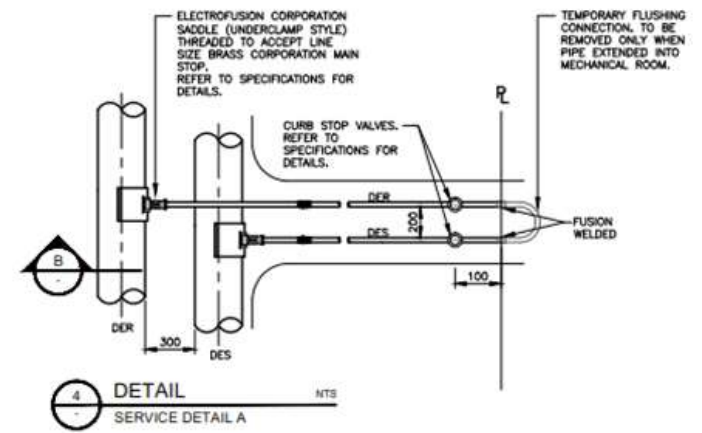
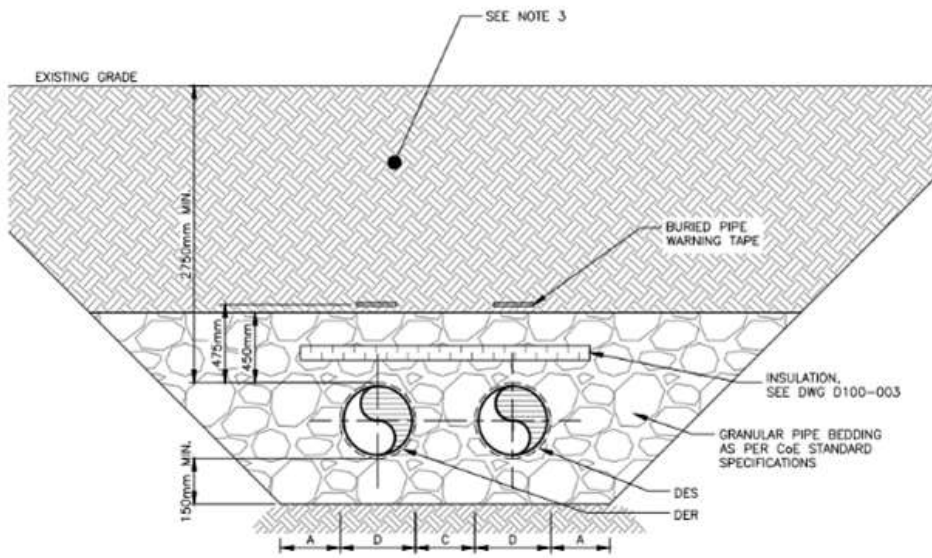


Energy Centre



Distribution Piping System





Financial Model and Rate Setting

Detailed financial model tailored to Utility's needs

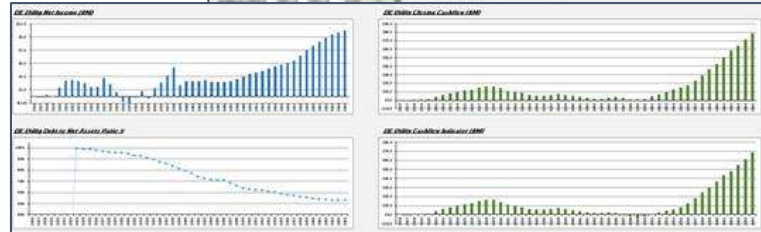
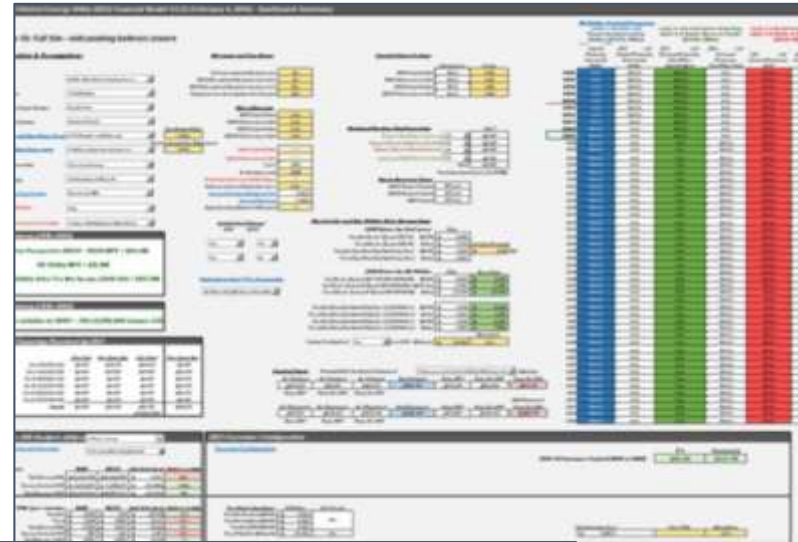
Key objectives:

1. Business as usual / customer business case (bills comparison and NPV)

2. Long-term utility cash flow using

City's performance metrics

3. GHG emissions reduction



DESS - Full Build Out

The Blatchford energy strategy will lead to approximately a **74% reduction** in greenhouse gas emissions generated from heating, cooling and producing hot water for buildings compared to a typical community.



Next Steps...Sewer Heat Exchange



Currently in Planning and Design Phase

Where are we today....

Construction on site including installation of storm, sanitary and water services and DESS piping

Planned construction of the first residential buildings

Municipal Utility is formed to provide heating, cooling and domestic hot water through DESS System

Construction start for Phase 1 of the District Energy Sharing System

2016

2017

2018

2019



Thank you



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