



UBC and Corix Presentation to UNA

CORIX[®]



**UBC Neighbourhood District Energy System
UNA Board Presentation
July 8, 2014**

- UBC
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- Corix
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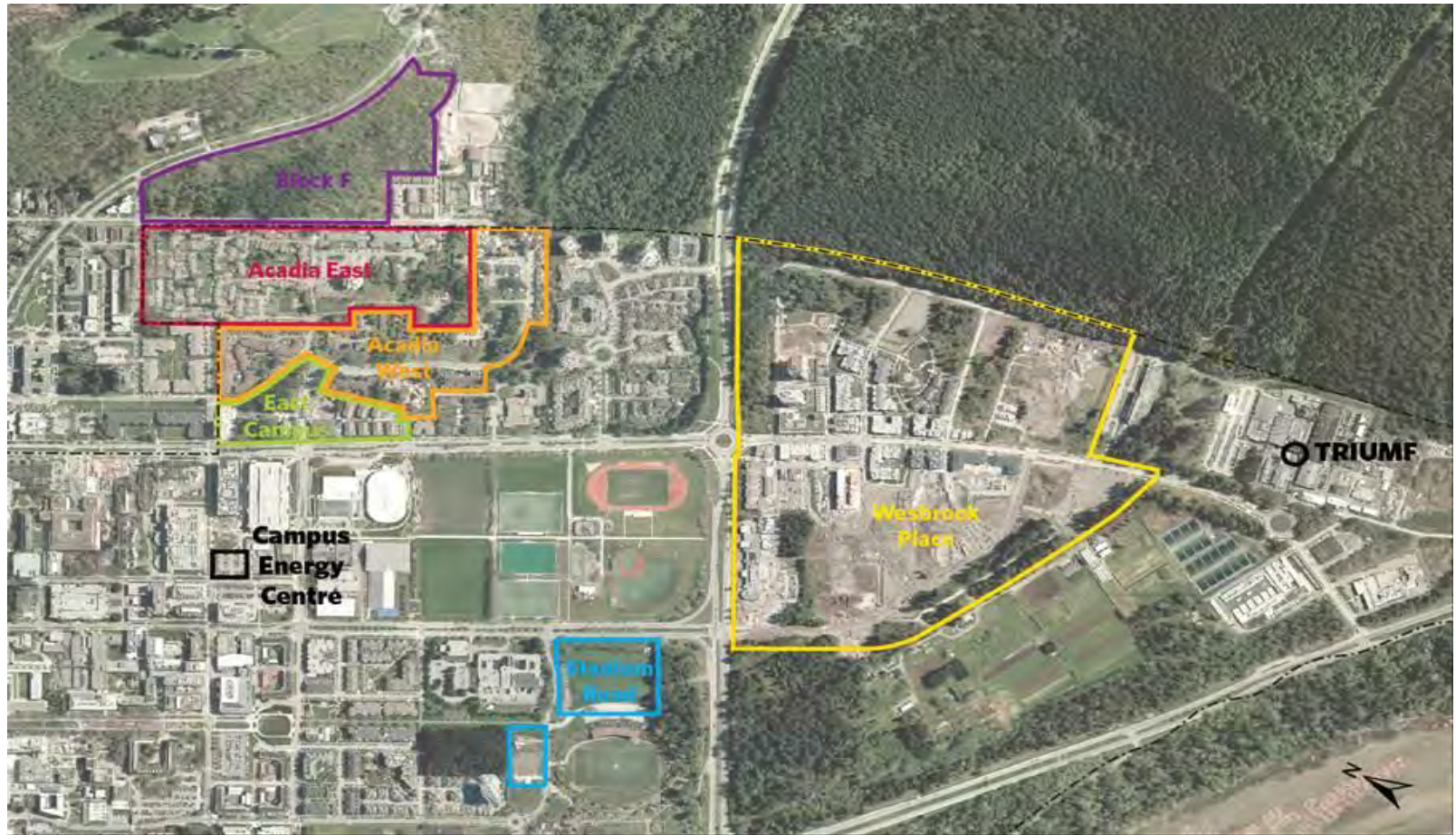
- UBC's vision is for a complete live, work, learn community that demonstrates its commitment to sustainable development
- In 2010, UBC committed to aggressive greenhouse gas (GHG) reduction targets for the Vancouver campus. The Climate Action Plan targets a 33% reduction in GHG emissions by 2015, and the elimination of fossil fuel consumption by 2050.
- In 2013, the University Neighbourhoods Association and UBC completed a Community Energy and Emissions Plan (CEEP).
- The CEEP identified District Energy as a key action for achieving the low carbon vision and targets set out in the CEEP.



What is the UBC Neighbourhood District Energy System (NDES) Project?

- Key infrastructure system to help achieve aggressive community GHG reduction targets, through use of waste heat recovered from cooling towers at TRIUMF, Canada's national laboratory for particle and nuclear physics.
- If approved by the BC Utility Commission, the UBC Neighbourhood District Energy System will provide cost effective, low carbon energy for UBC residential areas.
- The project will serve new developments on UBC lands including:
 - Wesbrook Place
 - Stadium
 - East Campus
 - Acadia
 - And potentially Musqueam Block F



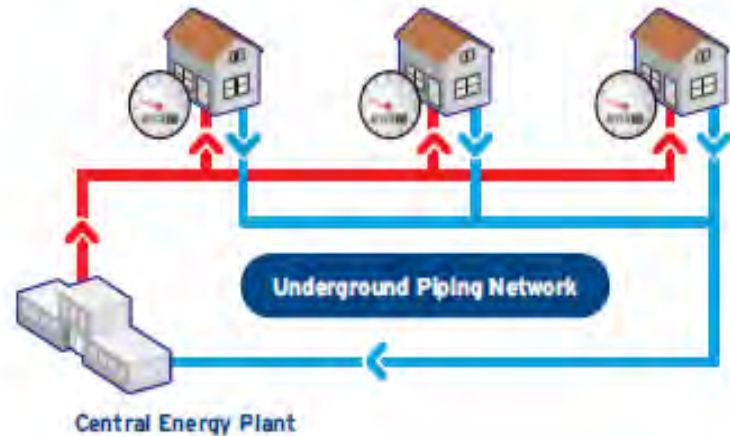


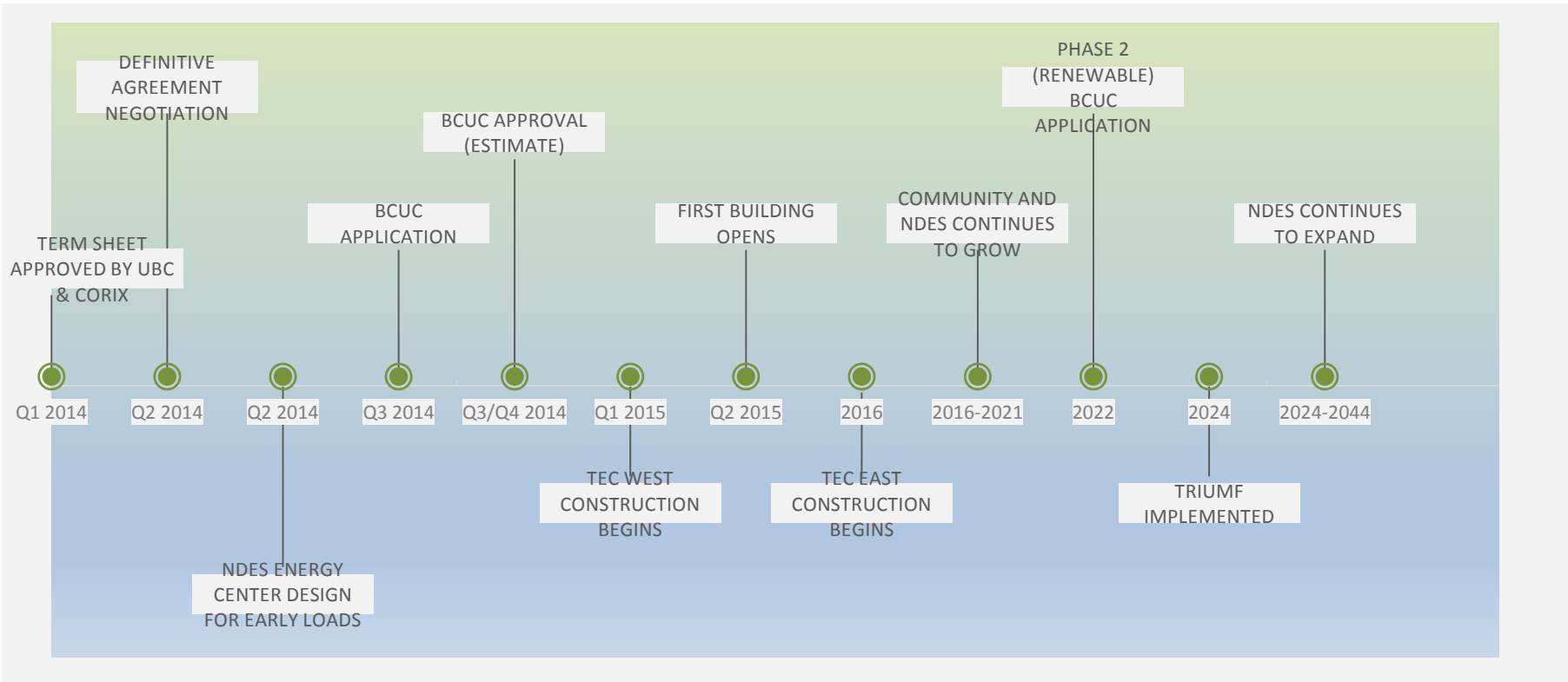
- Based locally in Vancouver, BC.
- Extensive experience in the design, construction and operation of energy, water and wastewater systems.
- Delivers cost effective utility infrastructure products, services and systems for water, wastewater and sustainable energy.

UBC Partnership with CORIX

- CORIX chosen in a competitive bid process.
- CORIX will design, construct, own and operate the district energy system with oversight by UBC and the BC Utilities Commission (BCUC).
- The BCUC regulates all energy utilities in BC, and approves rate structures and customer billing models to ensure transparency.

- A way of sharing energy efficiently across a community.
- Central energy plant produces hot water, which is then distributed to heat exchangers located in each building. The heat exchangers, in turn, provide space heating and domestic hot water for residents.
- A way to substantially reduce greenhouse gas emissions through higher efficiencies
- Ability to use a variety of alternative energy sources including biomass, GeoExchange, solar and waste heat recovery.

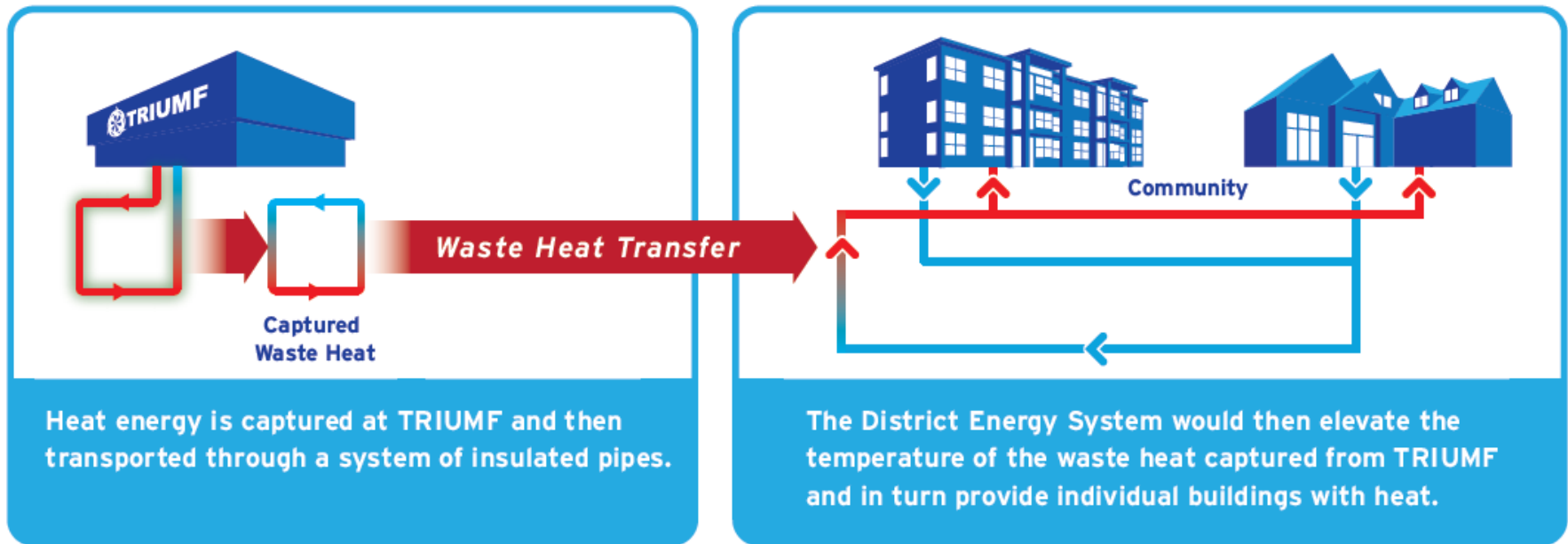




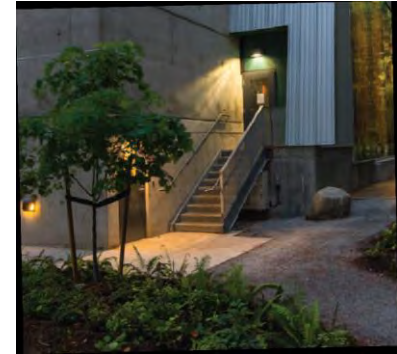
- Future phases of the NDES project will integrate alternative energy sources (minimum 60%) into the district energy system.
- TRIUMF, Canada's national laboratory for particle and nuclear physics, has been identified as the preferred alternative energy source
 - Other sources such as biomass are also being considered.
- TRIUMF is one of the single largest users of electricity in the Province of BC, the majority of which is rejected as waste heat that is released into the atmosphere as hot, moist air via cooling towers.



- Approximately 12 MW of waste heat from TRIUMF could be available to serve the district energy system.



- Energy Efficiency and Reduced Carbon
- Price Stability and Cost Management
- Reliability
- Resilience
- Customer Service
- Simplicity
- Competitive Rates



Southeast False Creek in Vancouver

- Hot water is delivered for space heating and domestic hot water to all buildings
- Sewer heat recovery used as the primary source of energy
- Boilers for backup and heat collected from solar thermal arrays located on roof-top

UniverCity, Burnaby, BC

- Mixed-use community, located adjacent to SFU, utilizing a biomass-based district energy system that provides heat and hot water
- The temporary district energy system began serving the first buildings in 2011



Sustainable energy systems in other CORIX communities:

Sun Rivers Golf Resort Community, Kamloops, BC

- A comprehensive range of utilities including ground source heating and cooling, making Sun Rivers Canada's first GeoExchange community.



Beaver Barracks, Ottawa, ON

- GeoExchange loop field system and central energy plant which provides heating, cooling and domestic hot water to 247 low-cost rental units managed by a private non-profit housing organization.



- If approved, construction on the first TEC-West would begin in early 2015, and is scheduled to complete in May, 2015.
- If approved, construction on the second TEC-East would begin in 2016, located near the currently un-subdivided area near Binning Road and Gray Avenue.
- Traffic impacts would be minimized whenever possible.
- As part of the permitting process, a Traffic Management Plan (TMP) must be approved by UBC.
- Following approval of all required permits, the project will communicate any traffic impacts via appropriate road signage and on the Campus and Community Planning website, under “Construction and Detours”.

- If approved, would be located near Ross Street in Wesbrook.

