

FREQUENTLY ASKED QUESTIONS

District Energy Systems

What is District Energy?

Richmond's district energy systems centralize heating, and cooling equipment in the case of the Alexandra District Energy Utility, to serve a defined service area.

District Energy systems are defined by the following components:

- A Central Energy Plant: Located near the buildings it serves, central energy plants generate thermal energy using boilers or heat pumps. Energy is then transferred to water which before it enters the distribution system.
- A Distribution System: A closed loop network of underground pipes delivering thermal energy to buildings and returns
- Energy Transfer Station: Systems of underground pipes convey energy to buildings that is stored in water from central energy plants. Providing heating and cooling from these central plants requires less fuel and displaces the need to install separate space heating and cooling and hot water systems in each building. District energy systems are viable in densely developed areas such as City Centre.

Why District Energy in Richmond?

District Energy has many benefits such as:

1. Low-carbon, sustainable energy: District energy can allow multiple buildings to connect to system that uses more sustainable energy solutions, such as capturing heat from the ground, water bodies, and waste heat.
2. Affordable energy: Richmond's district energy systems can deliver energy at cost competitive rates when compared to conventional energy sources (e.g. electricity and natural gas systems).



3. **Decreased building costs:** Buildings connected to a district energy system need invest less in heating, ventilation, and cooling equipment such as boilers or chillers, reducing building costs.
4. **Fuel Flexibility:** District energy systems can switch to different fuel systems, taking advantage of future opportunities for affordable and renewable fuel.

Additional Benefits

- Expert and local customer service
- Eliminates building investment in boilers and chillers (if cooling is provided) in most buildings
- Eliminates the need to manage fuel purchases
- Minimizes building operations and maintenance costs
- Delivers increased reliability and resiliency
- Allows more building space to be used for usable, sometimes profit generating space
- Reduces environmental risk
- Stable billing
- Benefits from environmental performance of building
- Higher value service and a competitive cost

Alexandra District Energy Utility (ADEU)

What renewable energy sources does Alexandra District Energy Utility use?

The ADEU uses ground source heat pump technology to extract heat (geothermal energy) from the ground via a network of vertical pipes.

How does it provide heating and cooling for the connected buildings?

Heating or cooling is provided to residential and commercial spaces through a hydronic energy delivery system, wherein a pipe system is placed deep within the earth. Using this system, water is pumped through the network of pipes and picks up ambient heat from within the earth; the heated water is then distributed to the heat exchangers located within the customer buildings which transfer the energy as needed. In cooling mode, the system works in reverse and pumps the heat back into the ground.

Who is the Lulu Island Energy Company?

Lulu Island Energy Company is a wholly-owned municipal corporation, established to operate district energy utility systems in the City of Richmond.