

District energy systems like Alexandra DEU increase energy use efficiency by matching the energy source with the use. They also increase community energy resiliency by reducing reliance on external energy sources. Hydronic heating and cooling is generally considered more comfortable than conventional in-building energy systems such as electrical baseboard and natural gas make up air units.

The table below shows the overall energy efficiency for the Alexandra District Energy system. The high efficiency percentages indicate that the majority of the deliverable energy comes from the two geo-exchange fields that produce natural renewable energy from the ground.

	(Output) Deliverable Energy MWh	(Input) ADEU Energy Input MWh	Efficiency %
2013 Total	2030.90	216.74	937.03%
2014 Total	2092.60	238.16	878.67%
2015 Total	2930.10	309.79	945.82%
2016 Total	3254.74	296.55	1097.53%

A district energy utility is a good candidate for municipal investment. Energy utilities are characterized by high up-front capital costs, generally low operating costs, and long term stable revenue. Once built, a utility provides a long term income stream to pay back capital and on-going operating costs. With regular maintenance and mechanical replacements, the installed DEU infrastructure could be expected to outlast the buildings it services. The district energy systems in Richmond are generating revenue and have a positive rate of return, and therefore they are not a financial burden on taxpayers. In addition, by incorporating the Lulu Island Energy Company, the City has created a non-tax base revenue that can be invested in alternative investments.

The use of renewable geothermal energy for space heating, cooling and domestic hot water heating avoids atmospheric changes caused by greenhouse gas emissions. By reducing the need to burn natural gas, ADEU significantly reduces air pollutants.

Richmond Council is the regulator of the district energy system, making decisions on district energy development and customer rates. Council’s main objective to support district energy initiatives is that utility costs to customers have to be comparable to conventional energy systems costs for the same level of service.

In 2007, City Council advanced sustainability as a corporate priority and adopted an Enhanced Corporate Sustainability Initiative. The initiative has resulted in the City adopted key performance targets including:

- 10% reduction in community energy use from 2007 levels by 2020
- 33% reduction in community greenhouse gas emission levels from 2007 by 2020 and 80% reduction by 2050.