



City of Richmond

Report to Committee

To: General Purposes Committee **Date:** November 16, 2012
From: Cecilia Achiam, MCIP, BCSLA **File:** 10-6600-10-01/2012-
 Interim Director, Sustainability and District Energy Vol 01
Re: Alexandra District Energy Utility Bylaw No 8641 Amendment Bylaw No 8980

Staff Recommendation

That the Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 8980 be introduced and given first, second and third reading.

Cecilia Achiam, MCIP, BCSLA
 Interim Director, Sustainability and District Energy
 (604-276-4122)

Att. 1

REPORT CONCURRENCE			
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER	
Finance Division	<input checked="" type="checkbox"/>		
REVIEWED BY SMT SUBCOMMITTEE	INITIALS: 	REVIEWED BY CAO 	INITIALS:

Staff Report

Origin

In 2010, Council adopted the Alexandra District Energy Utility Bylaw No. 8641 establishing the charges that constitute the rate for the service of delivering the energy for space heating and cooling and domestic hot water within the Alexandra District Energy Utility (ADEU) service area.

In May 2012, Council adopted the Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 8892, which amended the rate structure that encourages energy conservation and efficiency.

The purpose of this report is to recommend the 2013 ADEU service rate.

This initiative aligns with Council Term Goal # 8.1, which states:

“Sustainability – Continued implementation and significant progress towards achieving the City’s Sustainability Framework, and associated targets.”

Background

The ADEU Phases 1 and 2 which will provide energy to at least three developments (Mayfair Place, Remy and Omega) and approximately 850 units have been in operation since July 2012. The ADEU will potentially service up to 3100 residential units and 1.1 million sq. ft. of commercial uses at built out in approximately 10 to 15 years.

The 2012 rate is comprised of:

1. Capacity Charge - monthly charge of \$0.075 per square foot of the building gross floor area, and a monthly charge of \$1.00 per kilowatt of the annual peak heating load supplied by DEU as shown in the energy modeling report required under Section 21.1.(c); and
2. Volumetric Charge - charge of \$3.20 per megawatt hour of energy consumed by the building.

Analysis

The proposed 2013 rate is a 4% increase from the 2012 rate. The factors that need to be considered when setting up the 2013 ADEU rate include:

- The rate should provide end users with annual energy costs that are less than or equal to conventional system energy costs based on the same level of service.
- The ADEU was established on the basis that all capital and operating costs would ultimately be recovered through revenues from user fees. The financial model included recovery of the capital investment over time and built in a rate increase year over year to cover for the fuel cost increases, inflation, etc. to ensure the financial viability of the system.

- Utility cost (electricity and natural gas) increases are outside of the City's control. Nonetheless, these commodity costs directly impact the operation cost of the ADEU. BC Hydro electricity rates have increased by 3.91% in April 2012. With compounding of 2.5% increase of rate rider, the electricity rate effectively increased 7.1% in 2012. Next April, electricity rates are due to increase by an additional 1.44%. The cost of natural gas is estimated to increase 3% (source: US Energy Information Administration).
- Other factors to consider include various price indexes. For example, the consumer price index (CPI) is estimated by the Finance Department at 2%, while municipal price index is estimated at 3%.

As a comparison to conventional energy utility, the proposed 2013 ADEU rate increase is below electricity cost increase based on the 2012 BC Hydro rate increase of 7.1% and 2013 BC Hydro rate increase of 1.44%.

Taking into consideration the above factors, three options are presented for consideration.

Option 1 – No increase to ADEU rate for services (Not recommended).

The rate under the “status quo” option would not change from the 2012 rate.

Table 1: Status Quo

	2012	2013 PROPOSED	% CHANGE 2012/2013
Capacity Charge One - monthly charge per square foot of the building gross floor area	\$0.075	\$0.075	0%
Capacity Charge Two - monthly charge per kilowatt of the annual peak heating load supplied by DEU	\$1.00	\$1.00	0%
Volumetric Charge - charge per megawatt hour of energy consumed by the building	\$3.20	\$3.20	0%

The ADEU is in early days of its operation, and as a result the utility (electricity and natural gas) operation and maintenance costs are still largely based on projections of the original financial model. Variation from the model will affect the performance of the ADEU. For example, the revenue may vary from the projected revenue in the financial model depending on the speed of development and occupancy. Since the modeling of the ADEU has been taken into consideration, modest rate increases similar to projected increase rates for conventional energy. A status quo approach may have a negative impact on the financial performance of the ADEU if it does not follow market trend. For example, it may cause an extension of the payback period, reduction of internal rate of return, etc.

Option 2 – 2% increase to ADEU rate for services (Not recommended).

The rate under this option would increase modestly to follow consumer price index (CPI). While a 2% rate increase will partially cover the estimated fuel (electricity and natural gas) and O&M cost increases, it is below the increase projected in the ADEU financial business model. It will take at least one full heating and one full cooling season to have some information about the connected building's energy consumption. The buildings are being occupied in phases, which also affect the collection of actual building's energy consumption. Because of these uncertainties, this option is also not recommended.

Table 2: 2% Increase

	2012	2013 PROPOSED	% CHANGE 2012/2013
Capacity Charge One - monthly charge per square foot of the building gross floor area	\$0.075	\$0.0765	2.00%
Capacity Charge Two - monthly charge per kilowatt of the annual peak heating load supplied by DEU	\$1.00	\$1.02	2.00%
Volumetric Charge - charge per megawatt hour of energy consumed by the building	\$3.20	\$3.264	2.00%

Option 3 – 4% increase to ADEU rate for services (Recommended).

The 4% rate increase under this option follows the ADEU financial model. This rate will cover estimated increases in fuel (electricity and natural gas) cost and operation and maintenance costs.

The ADEU financial model follows the principle of full cost recovery. As a new utility service, with the limited information about the connected building's energy loads and consumption and only estimated operation and maintenance costs projections, ADEU business cases heavily relies on the developed financial model. Inevitably, there are inherent business and financial risks with the ADEU business model that uses advanced capital financing. One of the ways to mitigate these risks is to follow the financial model as much as possible in the early years of the utility operation and annually adjust the rates as per model. As the utility collects more actual data about the connected building's energy loads and consumption, operation and maintenance costs, the model will be continuously updated and annual rate adjustment may follow more judicious year to year financial indicators to ensure that the financial performance continues to meet its obligations.

Table 3: 4% Increase

	2012	2013 PROPOSED	% CHANGE 2012/2013
Capacity Charge One - monthly charge per square foot of the building gross floor area	\$0.075	\$0.078	4.00%
Capacity Charge Two - monthly charge per kilowatt of the annual peak heating load supplied by DEU	\$1.00	\$1.04	4.00%
Volumetric Charge - charge per megawatt hour of energy consumed by the building	\$3.20	\$3.328	4.00%

The recommended rate outlined in the proposed Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 8980 (**Attachment 1**), represents full cost recovery for the delivery of energy within the ADEU service area.

Financial Impact

None.

Conclusion

The recommended 2013 ADEU rate for services 4% increase (Option 3) supports Council's objective to keep the annual energy costs for ADEU customers at less than or equal to conventional system energy costs based on the same level of service. At the same time, the proposed rate ensures cost recovery to offset the City's capital investment and ongoing operating costs. Staff will continuously monitor energy costs and review the rate to ensure rate fairness for the consumers and cost recovery for the City.



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District Energy Manager
(604-276-4283)



**Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw
No. 8980**

The Council of the City of Richmond enacts as follows:

1. **Alexandra District Energy Utility Bylaw No. 8641** is amended by deleting Schedule C in its entirety and substituting Schedule C attached to and forming part of this bylaw.
2. This Bylaw is cited as “**Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 8980**”.

FIRST READING

SECOND READING

THIRD READING

ADOPTED



MAYOR

CORPORATE OFFICER

SCHEDULE C to BYLAW NO. 8641

Rates and Charges

RATES FOR SERVICES

The following charges will constitute the Rates for Services:

- (a) Capacity charge – a monthly charge of \$0.078 per square foot of gross floor area, and a monthly charge of \$1.04 per kilowatt of the annual peak heating load supplied by DEU as shown in the energy modeling report required under Section 21.1.(c); and
- (b) Volumetric charge – a charge of \$3.328 per megawatt hour of Energy returned from the Heat Exchanger and Meter Set at the Designated Property.