



City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** September 25, 2015
From: John Irving, P.Eng. MPA **File:** 10-6600-10-01/2015-
Director, Engineering Vol 01
Re: **Alexandra District Energy Utility Bylaw No. 8641 Amendment Bylaw No. 9298**

Staff Recommendation

That the Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9298 be introduced and given first, second and third readings.

John Irving, P.Eng. MPA
Director, Engineering
(604-276-4140)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance Department	<input checked="" type="checkbox"/>	
Law	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS:	APPROVED BY CAO

Staff Report

Origin

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

The purpose of this report is to recommend 2016 ADEU service rates.

This report supports Council's 2014-2018 Term Goal #4 Leadership in Sustainability:

Continue advancement of the City's sustainability framework and initiatives to improve the short and long term livability of our City, and that maintain Richmond's position as a leader in sustainable programs, practices and innovations.

4.1. Continued implementation of the sustainability framework.

4.2. Innovative projects and initiatives to advance sustainability.

Analysis

2015 Rates

The 2015 rate was developed on the basis of delivering energy to residential customers and is in effect for most of the ADEU service area. This is comprised of:

1. Capacity Charge (Fixed) - monthly charge of \$0.084 per square foot of the building gross floor area, and a monthly charge of \$1.125 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 (Variable) - charge of \$3.599 per megawatt hour of energy consumed by the building.

In July 2014, Council adopted a separate rate for large format retail buildings (defined as the Area A in the Bylaw). The current 2015 rate in effect for Area A of the service area is comprised of:

1. Capacity Charge (Fixed) - monthly charge of \$0.0452 per square foot of the building gross floor area; and
2. Volumetric Charge (Variable) - charge of \$0.00 per megawatt hour of energy consumed by the building.

When the detailed design of the energy delivery system for Area A is complete, staff will bring forward recommendations to Council on how this rate should be divided into fixed and variable charges, as is the case with the residential rate.

Factors Considered in Creating the Rates

Factors that were considered when developing the 2016 ADEU rate options include:

- **Competitive Rate:** 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.
- **Cost Recovery:** 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 the fuel cost increases, inflation, etc. to ensure the financial viability of the system.
- **Forecasted Utility Costs:** Utility cost (electricity and natural gas) increases are outside the City's control. Nonetheless, these commodity costs directly impact the operation cost of the ADEU. BC Hydro's 10 year plan projects an electricity rate increase of 6% in 2016. Natural gas costs are expected to increase by 5.4% (residential and Lower Mainland) according to the Multi-Year Performance Based Ratemaking Plan for 2014-2019.
- **Consumer and Municipal Price Indexes:** Other factors to consider include various price indexes. For example, the Consumer Price Index (CPI) is estimated by the Finance Department at 2.2% based on the average of recent BC forecasts, while the Municipal Price Index (MPI) is estimated at 2.7%.

Proposed 2016 ADEU Rates

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

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

Under the Option 1, the rate would not change from the 2015 rate.

The ADEU remains in its early days of operation and the expansion to its full capacity is still under construction. As a result, the utility (electricity and natural gas), operation, and maintenance costs are still largely based on projections of the financial model. Variation from the model will affect the long term performance of the ADEU. For example, the revenue may vary from the projected revenue in the financial model depending on the speed of the neighbourhood's development and occupancy. The financial modeling of the ADEU has 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. 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)

Under this option, the rate would increase modestly to slightly less than the Consumer Price Index (CPI – projected at 2.2%). While a 2% rate increase will partially cover the estimated utility (electricity and natural gas), operation, and maintenance cost increases, it is below the estimated

“business as usual” (BAU) cost of energy commodity (electricity and natural gas) increases that customers not serviced by a DEU would face and is below the increase projected in the ADEU financial business model. Since BAU costs are expected to increase over the CPI, this option is not recommended.

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

The proposed 4% rate increase under this option follows the ADEU financial model and is below the estimated BAU rates increase that customers would pay based on projected conventional utility costs, which are 6% and 5.4% respectively for electricity and natural gas.

The ADEU financial model follows the principle of full cost recovery. To mitigate potential financial risks, it is recommended that the City follow the financial model in the early years of the utility operation and annually adjust the rates accordingly. As more data is collected about the connected building’s energy loads and consumption and operation and maintenance costs, the model will be 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 1: Proposed Rates for Services, excluding Area A

	2015	2016 Option 1 0% Increase	2016 Option 2 2% Increase	2016 Option 3 4% Increase
Capacity Charge One: Monthly charge per square foot of the building gross floor area	\$0.084	\$0.084	\$0.086	\$0.087
Capacity Charge Two: Monthly charge per kilowatt of the annual peak heating load supplied by DEU	\$1.125	\$1.125	\$1.148	\$1.170
Volumetric Charge: Charge per megawatt hour of energy consumed by the building	\$3.599	\$3.599	\$3.671	\$3.743

Table 2: Proposed Rates for Services, Applicable to Area A

	2015	2016 Option 1 0% Increase	2016 Option 2 2% Increase	2016 Option 3 4% Increase
Capacity Charge: Monthly charge per square foot of the building gross floor area	\$0.0452	\$0.0452	\$0.0461	\$0.0470
Volumetric Charge: Charge per megawatt hour of energy consumed by the building	\$0.00	\$0.00	\$0.00	\$0.00

The recommended rate outlined in the proposed Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9298 (Attachment 1), represents full cost recovery for the delivery of energy within the ADEU service area.

Proposed Housekeeping Amendments to Bylaw

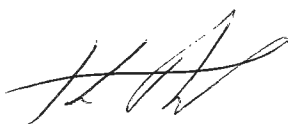
The Alexandra District Energy Utility Bylaw No. 8641 uses the term “Services Agreement” to define the agreement between the Service Provider and Customer. This term is also used in documents related to other City infrastructure, such as sanitary sewer, water, and storm sewer, and as a result there have been instances of confusion among parties working with the Bylaw. It is proposed that the term “Service Agreement” is replaced with “Energy Services Agreement” to ensure clarity. Additional proposed changes include minor housekeeping items within the Bylaw to further ensure clarity. These proposed changes are outlined in Attachment 1.

Financial Impact

None at this time.

Conclusion

The recommended 4% increase (Option 3) for the 2016 ADEU service rate supports Council’s objective to keep the annual energy costs for ADEU customers competitive with conventional energy costs, based on the same level of service. As a comparison to conventional system energy costs, the 4% rate increase is below the estimated rate increase for BC Hydro and Fortis. The rate increase also ensures cost recovery to offset the City’s capital investment and operating costs. Staff will continuously monitor energy costs and review the rate to ensure rate fairness for consumers and cost recovery for the City. The proposed housekeeping amendments will provide greater clarity when working with Alexandra District Energy Utility Bylaw No. 8641 in the future.



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Att.1: Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9298



**Alexandra District Energy Utility Bylaw No. 8641,
Amendment Bylaw No. 9298**

The Council of the City of Richmond enacts as follows:

1. The **Alexandra District Energy Utility Bylaw No. 8641**, as amended, is further amended:

(a) by revising Section 1.2(w) containing the defined term “Service Related Charges” by deleting the word “HST” and replacing it with the words “GST, PST” so that Section 1.2(w) now reads as follows:

“(w) **“Service Related Charges”** include, but are not limited to, the fees specified in Schedule B (Fees), the rates and charges specified in Schedule C (Rates and Charges), GST, PST and all other taxes applicable to the Services;”

(b) by adding a new Section 1.2(o) to read as follows:

1.2(o) **“Energy Services Agreement”** has the meaning given in Section 5.1 of this Bylaw;

(c) by deleting in its entirety the existing Section 1.2(y) containing the defined term “Services Agreement;

(d) by re-numbering all sub-sections in Section 1.2 as necessary so that they maintain sequential numerical order;

(e) by replacing the capitalized term “Services Agreement” with the new defined term “Energy Services Agreement” in each instance the capitalized term “Services Agreement” is used in **Alexandra District Energy Utility Bylaw No. 8641**, namely in the following Sections:

Section 4.2

Section 5.1

Section 5.2

Section 5.3
Section 5.4
Section 9.1
Section 13.1
Section 13.6
Section 14.3
Section 14.7
Section 17.2
Section 18.1
Section 18.2
Section 18.3
Section 23.3
Section 23.5
Section 23.6

- (f) by revising Section 6.2(b) by adding the words “supply and” before the word “install” so that Section 6.2(b) now reads as follows:

“6.2(b) supply and install the Heat Exchanger and Meter Set upon payment of the applicable installation fees set out in Schedule B (Fees) to this Bylaw; and”

- (g) by revising Section 6.2(c) by adding the words “supply and” before the word “install” and by adding a comma and the words “upon payment of the applicable installation fees set out in Schedule B (Fees) to this Bylaw” after the words “Service Provider” at the end of the section so that Section 6.2(c) now reads as follows:

“6.2(c) supply and install the Service Connection from the DEU to the Delivery Point on the Designated Property using the route which is the most suitable to the Service Provider, upon payment of the applicable installation fees set out in Schedule B (Fees) to this Bylaw.”

- (h) by revising Section 6.3 (c) by deleting the duplication of the words “for all” in the first line so that section 6.3(c) now reads as follows:

“6.3(c) the Customer pays the Service Provider in advance for all additional costs as determined by the Service Provider to install the Heat Exchanger, Meter Set and Service Connection in accordance with the Customer’s request; and”

- (i) by revising Section 6.8(b) by deleting the word “water” and replacing it with the word “fluid” so that Section 6.8(b) now reads as follows:

“(b) treating all fluid in the building mechanical system sufficiently to prevent corrosion of the Heat Exchangers.”

- (j) by revising Section 6.11 by adding the words “or permit to be constructed” after the words “A Customer must not construct” so that Section 6.11 now reads as follows:

“6.11 A Customer must not construct or permit to be constructed any permanent structure which, in the sole opinion of the Service Provider, obstructs access to a Service Connection, Heat Exchanger or Meter Set.”

- (k) by revising Section 7.2 by deleting each use of the word “kilowatt” and replacing it with the words “megawatt hours” so that Section 7.2 now reads as follows:

“7.2 The quantity of Energy delivered to a Designated Property will be metered using apparatus approved by the Service Provider. The amount of Energy registered by the Meter Set during each billing period will be converted to megawatt hours and rounded to the nearest one-tenth of a megawatt hour.”

- (l) by revising Sections 13.2(c) and (d) by deleting each use of the word “kilowatt” and replacing it with the word “megawatt” so that Sections 13.2(c) and (d) now read as follows

“(c) the number of megawatt hours of heat energy supplied to the Heat Exchanger and Meter Set; and

(d) the number of megawatt hours of heat energy returned from the Heat Exchanger and Meter Set.”

- (m) by revising the heading to Part 18 so that it reads as follows:

PART 18: TERMINATION OF ENERGY SERVICES AGREEMENT

- (n) by inserting a new Section 21.1(c) to read as follows:

“21.1(c) a duly signed Energy Services Agreement;”

- (o) by re-numbering all sub-sections in Section 21.1 as necessary so that they maintain sequential numerical order;

(p) by deleting Schedule C (Rates and Charges) in its entirety and replacing with a new Schedule C as attached as the Schedule A to this Amendment Bylaw

2. This Bylaw is cited as "Alexandra District Energy Utility Bylaw No. 8641, Amendment Bylaw No. 9298".

FIRST READING

SECOND READING

THIRD READING

ADOPTED

CITY OF RICHMOND
APPROVED for content by originating dept. <i>KR</i>
APPROVED for legality by Solicitor <i>TZ</i>

MAYOR

CORPORATE OFFICER

Schedule A to Amendment Bylaw No. 9298**SCHEDULE C to BYLAW NO. 8641****Rates and Charges****PART 1 - RATES FOR SERVICES**

The following charges will constitute the Rates for Services for the Service Area excluding shaded Area A as shown in Schedule A to this Bylaw:

- (a) Capacity charge – a monthly charge of \$0.087 per square foot of gross floor area, and a monthly charge of \$1.170 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 \$3.743 per megawatt hour of Energy returned from the Heat Exchanger and Meter Set at the Designated Property.

PART 2 - RATES FOR SERVICES APPLICABLE TO AREA A

The following charges will constitute the Rates for Services applicable only to the Designated Properties identified within the shaded area (Area A) shown in Schedule A to this bylaw:

- (a) Capacity charge – a monthly charge of \$0.0470 per square foot of gross floor area; and
- (b) Volumetric charge – a charge of \$0.00 per megawatt hour of Energy returned from the Heat Exchangers and Meter Sets at the Designated Property.