



CITY OF VANCOUVER

A19

ADMINISTRATIVE REPORT

Report Date: October 16, 2008  
Contact: Brian Crowe  
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Meeting Date: October 28, 2008

TO: Vancouver City Council

FROM: General Manager of Engineering Services

SUBJECT: Neighbourhood Energy Utility ("NEU") - Amendments to Energy Utility System By-law No. 9552 for pre-occupancy heat services

*RECOMMENDATION*

THAT Council approve amendments to the Energy Utility System By-law (the "By-law"), generally as set out in Appendix A, including enabling the Neighbourhood Energy Utility ("NEU") to recover costs associated with pre-occupancy heat services in Southeast False Creek ("SEFC"), and basing the monthly levy on net floor area rather than estimated peak heat energy demand; and

FURTHER THAT Council instruct the Director of Legal Services to bring the By-law amendment, generally as set out in Appendix A, forward for enactment.

*CITY MANAGER'S COMMENTS*

The City Manager RECOMMENDS approval of the above recommendation to proceed with the recovery of costs associated with pre-occupancy heat services, basing the monthly levy on floor area, and other proposed amendments.

*COUNCIL POLICY*

On November 15, 2007, Council approved the creation of the By-law. At that time, Council also directed the General Manager of Engineering Services and Director of Finance to report back, prior to the NEU beginning to operate, with a schedule of levies and charges to be appended to the By-law.

## *PURPOSE*

The recommendation contained in this report is necessary primarily to enable the NEU to recover costs associated with the supply of pre-occupancy heat services to the Olympic Village, and to base the monthly levy on floor area. This report also provides information to Council regarding the contract award for the supply and maintenance services for a sewage heat pump system and the contract award for the construction of the SEFC Community Energy Centre and Sewage Pump Station (“CECSPS”).

## *BACKGROUND*

On March 2, 2006, Council approved in principle the creation of the NEU to provide space heating and domestic hot water services to SEFC buildings. Construction began in September 2008 for the CECSPS, which will supply thermal energy for space heating and domestic hot water to all SEFC buildings and will also include an integrated sewage pump station. CECSPS construction is expected to be completed in October 2009. Construction of the NEU distribution system is underway.

On December 13, 2007, a Request for Expressions of Interest (“RFEOI”) was issued for the supply, delivery, commissioning support and maintenance services for a sewage heat pump system. This RFEOI closed on January 13, 2008 with applications received from Trane, Friotherm and HVAC Systems and Solutions Ltd. The subsequent Request for Proposals (“RFP”) was issued on February 25, 2008 and closed on March 18, 2008. Proposals were received from each of the three vendors listed above.

On April 15, 2008, Council authorized In Camera a contract with Trane Canada Co. (“Trane”) for the supply and maintenance services for a sewage heat pump system, in accordance with RFP PS08013. Upon the execution and delivery of the contract, the General Manager of Engineering Services was directed to report back to Council on the award of such contract, as a matter of public record on the outcome of RFP PS08013. Technical and business related negotiations continued with Trane through to August 2008.

On July 8, 2008, Council delegated authority In Camera to the General Manager of Engineering Services to award a contract for the construction of the CECSPS to the successful tenderer, to be selected in accordance with applicable purchasing policies, at an estimated cost of \$20.14 million. Council also directed staff to report back on the selection of the successful tenderer and the value of the contract awarded for the construction of the CECSPS before the end of 2008.

## *DISCUSSION*

### **1. By-law Amendments**

To maintain interior finishes and to commission building mechanical systems in the Olympic Village, it is necessary for the NEU to supply pre-occupancy heat service. This service will be supplied using a temporary natural gas boiler system located at 301 West 1<sup>st</sup> Avenue for the interim period beginning December 2008 and ending when the CECSPS is completed in October 2009. This temporary natural gas boiler system will also supply heat to at least one SEFC private lands building, which will require NEU services for both pre-occupancy and post-occupancy prior to completion of the CECSPS. In order to meet the construction schedule for Olympic Village buildings, It is appropriate to establish pre-occupancy rates now.

The proposed amendments to the By-law are attached as Appendix A. Included in the amendments are:

(a) provisions to base the NEU levy on the net floor area of the designated building rather than on estimated peak heat energy demand based on the objective of ensuring equitable billing for buildings. The current levy, based on peak energy demand, is typically calculated by the engineering consultant responsible for the design of the building mechanical system. Because different engineering consultants use different methods for calculation of the peak heat energy demand, the current levy could result in substantially different levies for similar buildings. By basing the levy on net floor area, customers who occupy comparably sized suites in different buildings will pay a similar monthly levy. In addition, customers will pay monthly consumption charges for the amount of energy they use;

(b) modification of the rate table to include a separate rate for pre-occupancy heat. The utility has the authority to establish different rates for different customer classes. Heat demand profiles during building construction are expected to be significantly different than for occupied buildings; for example, they will exclude domestic hot water and will likely be highly variable with regard to space heating. It is expected that a separate pre-occupancy rate, designed to recover these costs, will be retained in the by-law for the long term. The specific pre-occupancy rates will change in accordance with the heat source in use at that time, and its associated costs.

(c) establishment of standards for requiring building owners to treat water in the building mechanical system sufficiently to prevent corrosion of the heat exchangers at the energy transfer station, and imposition of a \$2,000 fine if failure to do so results in the city being obliged to repair or replace the energy transfer system; and

(d) minor housekeeping items.

Staff are currently working to develop a final rate schedule for post-occupancy NEU services. It is anticipated that a subsequent By-law amendment will be brought to Council in December 2008. At that time, the “zero values” shown in the attached Schedules C and D will be revised.

## 2. NEU Contract Awards

Subsequent to the April 15, 2008 In Camera Council Report, staff conducted technical and business related negotiations with Trane through to August 2008. On August 27, 2008, a contract was executed with Trane for the supply and maintenance services for a sewage heat pump system. This contract amount for the sewage heat pump system supply is \$2,638,000, to be charged to the NEU interim budget. Included in this contract is a comprehensive maintenance services agreement, which will be charged to the NEU operating budget after completion of the CECSPS, with an annual charge of \$44,200 over a ten year term.

On June 27, 2008, an Invitation to Tender (“ITT”) PS08037 was issued for the construction of the CECSPS. This ITT closed on August 19, 2008, with tender submissions received from Graham Infrastructure JV, Kenaiden Contracting Ltd., Ledcor Construction Ltd., PCL, PCL Constructors Westcoast Inc., Tyam Construction Ltd., and Westpro Constructors Group Ltd.

Prices listed in Table 1 are based on lump sum amounts and unit rates (as applicable) for the construction of the CECSPS.

Table 1: CECSPS Construction Tender Prices

Tenderer	Tender Price (not including GST)
Graham Infrastructure JV	\$20,664,000.00
Kenaiden Contracting Ltd.	\$21,359,600.00
Ledcor Construction Ltd.	\$21,300,002.00
PCL Constructors Westcoast Inc.	\$25,180,000.00
Tyam Construction Ltd.	\$25,941,761.10
Westpro Constructors Group Ltd.	\$20,233,485.00

Upon close of this ITT, the Evaluation Team, with representatives from the City and Sandwell Engineering Inc. assessed the tender submissions. Tender submissions were evaluated on the basis of overall best value for the City. Westpro Constructors Group Ltd.'s tender submission met the requirements and was considered to provide the best overall value. On this basis, the low bid, Westpro Constructors Group Ltd., was awarded the contract for the construction of the CECSPS on August 22, 2008.

#### *FINANCIAL IMPLICATIONS*

By enacting the proposed By-law amendments as per Appendix A, the NEU will be able to recover costs associated with providing pre-occupancy heat services for the term December 1, 2008 to October 31, 2009. Table 2 summarizes the estimated costs associated with pre-occupancy heat supply, and the required rate to recover such costs. The Fixed NEU Costs include costs associated with the installation, supervision and rental of the temporary boiler system. The Variable NEU Costs include NEU electricity and natural gas purchase costs associated with the temporary boiler system. The intent of the Monthly Levy is to recover the Fixed NEU Costs, and the Monthly Charge will recover the Variable NEU Costs.

Table 2: Pre-occupancy Rate Financial Summary

	Value
<b>Estimated NEU Costs: Pre-Occupancy Heat Supply</b>	
Fixed NEU Costs	\$419,000
Variable NEU Costs	\$357,000
<b>NEU Pre-occupancy Rates to Recover Costs</b>	
Monthly Levy (based on Building Net Floor Area)	\$0.30 per m <sup>2</sup>
Monthly Charge (based on energy consumption)	\$58.00 per MW-hr

It should be noted that the above rates are higher than anticipated for the rates that will apply post-occupancy. This is because energy costs for the temporary natural gas boiler are significantly more than for the sewage-heat-recovery system in the CECSPS.

*CONCLUSION*

The proposed amendments to the By-law will enable the recovery of costs associated with NEU pre-occupancy heat services provided to Olympic Village buildings, make the imposition of levies more equitable, and impose financial responsibility on building owners to keep the water in their building mechanical systems clean. In addition, contracts have been executed for the supply and maintenance services for a sewage heat pump system and the construction of the CECSPS.

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## APPENDIX A

BY-LAW NO. \_\_\_\_\_

A By-law to amend Energy Utility System By-law No. 9552  
regarding pre-occupancy heat service and other matters

THE COUNCIL OF THE CITY OF VANCOUVER, in public meeting, enacts as follows:

1. This By-law amends the indicated provisions and schedules of the Energy Utility System By-law.
2. From section 1.2, Council repeals the definition of “levy”, and substitutes:  
  
‘ “levy” means a fixed capacity fee based on the net floor area of a designated building determined by the city at the time of issuance of the building permit for that building;’.
3. In section 3.2, Council:
  - (a) re-letters subsections (c) and (d) as (d) and (e) respectively; and
  - (b) after subsection (b), adds:  
  
“(c) data network in streets in locations approved by the City Engineer;”.
4. Council repeals section 7.5, and substitutes:  
  
“7.5 An owner must maintain and repair the building mechanical system to the points of delivery including:
  - (a) keeping the building mechanical system free of foreign material so as to prevent fouling of the heat exchangers at the energy transfer station; and
  - (b) treating water in the building mechanical system sufficiently to prevent corrosion of the heat exchangers at the energy transfer station, and in accordance with the minimum criteria set out in Schedule B;  
to the extent that the city does not need to clean any heat exchanger in the energy transfer station more often than once in each calendar year.”

5. Council:
  - (a) repeals section 7.6;
  - (b) re-numbers sections 7.7, 7.8, 7.9, 7.10, 7.11, 7.12, and 7.13 as sections 7.6, 7.7, 7.8, 7.9, 7.10, 7.11, and 7.12 respectively;
  - (c) in the new section 7.8, changes the reference to “section 7.8” to “section 7.7”; and
  - (d) in the new section 7.12, changes the reference to “section 7.12” to “section 7.11”.
6. Council repeals the new section 7.6, and substitutes:

“7.6 An owner must apply to the City Engineer to commence service to a designated building at least 60 days before the earlier of:

  - (a) the date the owner requires service; and
  - (b) the date of issuance of the occupancy permit for the building.
7. Council repeals section 8.1, and substitutes:

“8.1 From and after the earlier of the date the owner requires service, as indicated in the application referred to in section 7.6(a), and the date of issuance of the occupancy permit for the building, the owner must pay the city the applicable levy set out in Part 1 of Schedule C.
8. From each of sections 8.2 and 8.3, Council strikes out “Schedule B”, and substitutes “Schedule C”.
9. From section 9.2, Council strikes out “Schedule C”, and substitutes “Schedule D”.
10. Council amends the headings to the schedules to the By-law from “Schedule B” and “Schedule C” to “Schedule C” and “Schedule D” respectively.
11. After Schedule A to the By-law, Council adds the schedule attached to this By-law as Schedule B.
12. Council repeals the new Schedule C, and substitutes Schedule C attached to this By-law.
13. Council repeals the new Schedule D, and substitutes Schedule D attached to this By-law.
14. From section 10.4(a), Council strikes out “\$500.00”, and substitutes “\$2,000.00”.

15. A decision by a court that any part of this By-law is illegal, void, or unenforceable severs that part from this By-law, and is not to affect the balance of this By-law.

16. This By-law is to come into force and take effect on the date of its enactment.

ENACTED by Council this                      day of                      ,  
2008

\_\_\_\_\_  
Mayor

\_\_\_\_\_  
City Clerk



SCHEDULE B

STANDARDS FOR TREATING WATER  
IN THE BUILDING MECHANICAL SYSTEM

- Maximum 50 parts per million chloride for 304 stainless steel (heat exchanger plate material)
- Maximum 250 parts per million chloride for 316 stainless steel
- Maximum 5% nitrate for 304 stainless steel and 316 stainless steel
- PH Level 9.5
- Total bacteria count  $\leq$  100 cfu/ml (colony forming units per millilitre)

SCHEDULE C  
LEVIES AND CHARGES

PART 1 - Levy

Monthly levy prior to date of issue of occupancy permit for the building	\$0.30 per m <sup>2</sup>
Monthly levy from and after date of issue of occupancy permit for the building	\$0.00

PART 2 - Charge

Monthly charge prior to date of issue of occupancy permit for the building	\$58.00 per MW-hr
Monthly charge from and after date of issue of occupancy permit for the building	\$0.00

PART 3 - Billing frequency particulars

Each of the levy and charge is billable monthly.

SCHEDULE D  
APPLICATION FEES

Section	Application	Fee
2.2	Application for voluntary use of energy utility system	\$0.00
4.1	Building permit application that includes building mechanical system in addition to building permit application fee under Building By-law	\$0.00
7.6	Application for service to designated building	\$0.00
7.7	Application for meter test	\$0.00
7.8	Service call during city's normal business hours	\$0.00
7.9	Service call outside city's normal business hours	\$0.00
7.10	Application to remove, relocate, or alter energy transfer station or distribution system extension servicing	\$0.00