CITY OF **VANCOUVER**

ADMINISTRATIVE REPORT

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TO: Standing Committee on City Services and Budgets

FROM: General Manager of Engineering Services, in consultation with the Director of Financial Planning and Treasury, the Project Manager of Southeast False Creek and Olympic Village, and the Manager of the Sustainability Group

SUBJECT: Neighbourhood Energy Utility – Evaluation of Ownership and Operating Options for the City of Vancouver

RECOMMENDATION

A. *THAT Council approve continued ownership and operation of the Neighbourhood Energy Utility (NEU) by the City, and that:*

   i. *the NEU be integrated into the Engineering Services Department;*

   ii. *ongoing governance, operational and financial responsibilities related to the NEU be shared by the General Manager of Engineering Services and the Director of Finance; and*

   iii. *the merits of continued ownership to be reviewed before any significant expansion of the NEU; and, in any event, within three years of the commencement of commercial operations.*

B. *THAT Council adopt as policy the following governance principles for the NEU:*

   1. *That the utility will seek to minimize greenhouse gas emissions, consistent with the directions established in the Community Climate Change Action Plan.*

   2. *That the utility will be operated to ensure long-term financial viability based on a commercial model.*

3. *That the utility will strive to establish and maintain customer rates that are competitive with the long-term capital and operating costs of other heating options available to customers.*
4. *That the City, where feasible, will support the development and demonstration of flexible, innovative and local technologies through the NEU.*
5. *That the City will consider and evaluate the potential to expand the NEU to other neighbourhoods and developments, with the merits and feasibility of each expansion phase to be determined separately.*

C. *THAT Council adopt as policy the following principles for the NEU when enacting by-laws respecting NEU rates and terms of service:*

1. *That NEU rates are structured so as to recover the following costs incurred by the City, based on forecasted costs:*
   i. *all direct operating costs associated with the NEU;*
   ii. *all debt service and repayment costs associated with the NEU;*
   iii. *the share of City administrative overheads that are attributable to the NEU;*
   iv. *property taxes and/or payments-in-lieu of property taxes, as appropriate;*
   v. *a reserve fund for NEU rate stabilization;*
   vi. *an appropriate level of compensation for the risks and liabilities assumed by the City associated with the ownership and operation of the NEU; and*
   vii. *credits for any benefits provided by the NEU to City taxpayers (e.g., contribution to corporate GHG reductions goals), as determined by Council.*
2. *That NEU rates fairly apportion the aforementioned costs among customers of the NEU.*
3. *That NEU rates be understandable to customers, practical and cost-effective to implement.*
4. *That at least two separate rate classes (commercial and residential) be established to distinguish different types of NEU customers, with rates reflecting each class's proportional contribution to total costs.*
5. *That, where feasible, NEU rates provide price signals that encourage energy conservation by NEU customers.*
6. *That the methodology for calculating NEU rates provide year-to-year rate stability for NEU customers to the greatest extent possible.*
7. *That the methodology for calculating NEU rates provide year-to-year revenue stability for the City to the greatest extent possible, and include the use of a rate stabilisation reserve similar to that used by the City for other utility operations.*

8. *That rates be updated by Council annually based on forecasted costs, and adjusted to reflect any deviation from target levels of reserves, with annual rate changes requiring review and approval by Council followed by enactment of the necessary amendments to the NEU by-law.*

D. *THAT the financing arrangement for the NEU approved by Council in the March NEU Report (being the March 2, 2006 Administrative Report, RTS No.: 5706) be continued, AND THAT once amendments to the Vancouver Charter are enacted, the General Manager of Engineering Services, in consultation with the Director of Legal Services and the Director of Financial Planning and Treasury report back on:*

1. *a bylaw for the regulation and operation of the NEU,*

2. *a long term financing strategy for the NEU, and*

3. *a recommended operating plan for the NEU that includes budget, staffing and supporting utility rates.*

E. *THAT Council authorize a contract with FVB Energy Inc., (without a competitive procurement process) for energy transfer station design services and to provide staff with technical advice on integrating each building owner's/developer's mechanical system with the NEU for the reasons and purposes described in this report, up to a maximum total of $700,000; this cost to be financed from the $14.0 million interim financing approved by Council pursuant to the March NEU Report (the "NEU Interim Budget");*

AND THAT, the contract be on terms satisfactory to and approved by the City Manager and Director of Legal Services and that the City Manager and Director of Legal Services be authorized to sign such contract on behalf of the City;

AND THAT no legal rights or obligations will be created or arise by Council's approval unless and until a contract is signed and delivered.

F. *THAT Council approve a temporary mechanical engineer in Engineering Services to assist in activities related to NEU building interface work, energy centre design and customer development for a temporary two year period at a cost of $181,936; this cost to be financed from the NEU Interim Budget.*

CITY MANAGER'S COMMENTS

The City Manager recommends approval of A through F.

COUNCIL POLICY

On March 1, 2005, Vancouver City Council approved the Southeast False Creek Official Development Plan (ODP) at Public Hearing. The ODP provides a framework for the environmental, social and economic sustainability objectives, intent and policies in the Southeast False Creek Policy Statement. It set out that "a neighbourhood energy system be developed for False Creek, starting with the 2010 Olympic Village sub-area, that advances district energy production through sustainable technologies and measures, with the goal of creating a GHG neutral energy system that has the capacity to grow incrementally over time, both throughout Southeast False Creek and to neighbourhoods adjacent to Southeast False Creek."

On March 29, 2005, Council approved the *Community Climate Change Action Plan* to reduce greenhouse gas emissions by 6 percent below 1990 levels by 2010. The Plan contains specific elements related to creating community energy systems that provide energy without contributing to GHG emissions.

On March 2, 2006, Council approved in principle the creation of a False Creek Neighbourhood Energy Utility (NEU) to provide for space heating and domestic hot water to multi-family residential, commercial, institutional and industrial buildings, with interim development financing of a maximum of $14.0 million provided by the Capital Financing Fund, and requested that the Director of Legal Services seek amendments to the *Vancouver Charter* in support of the NEU objectives.

SUMMARY

This staff report is a follow-up to the March NEU Report to Council that approved the creation of the False Creek Neighbourhood Energy Utility (NEU). The decision to develop the NEU was based on its anticipated contribution towards meeting community GHG emission targets while and achieving a positive return on investment.

This report recommends that the NEU be owned and operated by the City from within the Engineering Services Department. The City staff NEU Steering Committee conducted a comprehensive ownership and operations analysis that identified the City ownership recommendation as the one that best meets the City's sustainability goals for the utility, while also providing the greatest flexibility to expand or exit the utility business, and/or to change the governance model at a future date, should corporate priorities or business conditions change.

To guide the long term development and operations of the NEU, a set of governance principles that reinforce the environmental and economic performance objectives of the utility, and a set of rate-setting principles to guide the future development of NEU bylaws are recommended.

To deliver appropriate integration between the NEU and the SEFC building developers, it is recommended that the City proceed with design activities for the in-building energy transfer stations. In addition, it is recommended that the City retain technical advisors to ensure that the City and SEFC developers achieve maximum efficiency and optimization of in-building mechanical systems with the NEU. To meet the aggressive building schedules of SEFC developers, it is recommended that this work proceed immediately.

PURPOSE

This report addresses the March NEU Report requirement to report back on the long-term ownership, operations and governance strategy for the NEU. This report provides Council with an evaluation of four different ownership and operation options, and recommends a City-owned and operated NEU based on this evaluation.

In addition, this report provides Council with a recommended set of governance principles and rate-setting principles to be used in the ongoing development of the NEU. This report also seeks Council approval for the next steps of work that are required for the NEU to interface with buildings in SEFC.

BACKGROUND

On April 12, 2005, Council received a report from staff that outlined a concept for the development of a Neighbourhood Energy Utility (NEU) in the vicinity Southeast False Creek (SEFC). Council directed staff to undertake a comprehensive study to define technology options, capital costs, operational parameters, partnership strategies, and a business case for the development and operation of a community energy system to meet City sustainability and greenhouse gas (GHG) reduction goals. These goals include, but are not limited to, the Southeast False Creek ODP sustainability goals.

The March NEU Report described the detailed feasibility analysis for a community energy system for the False Creek neighbourhood, pursuant to which Council approved the creation of the NEU. The NEU will provide space heating and domestic hot water services to multi-family residential, commercial and institutional and industrial buildings within its service area. There are three main components to the NEU business: development of the capital infrastructure, ongoing technical operations and ongoing customer service.

Development of the NEU was considered to be an economically and technically viable contribution toward the GHG reduction objectives identified in the Southeast False Creek Official Development Plan. Creation of the NEU would also contribute toward the achievement of the City's community GHG targets and do so while providing a financial return on the City's investment.

Pursuant to the March NEU Report, Council approved (1) the development of Phase 1 of the NEU, which includes the Olympic Village and certain private property scheduled to be developed prior to the 2010 Winter Games as well as (2) the design work for the distribution piping system, the assignment of a temporary project manager, preliminary design work for a sewer heat recovery energy plant, further investigation of the feasibility of biomass heat as an alternative energy source and business development activities. On June 27, 2006, Council authorized the contract award for the supply and installation of NEU distribution piping for the Olympic Village to BelPacific Shoring and Excavation LLP, at an estimated value of $1,249,460 plus GST.

Council also approved interim financing to a maximum of $14.0 million for the development of the NEU in the False Creek area to be provided from the Capital Financing Fund (CFF). Staff was instructed to report back with a strategy for the long term recovery of this funding through utility operations or the sale of the assets to a private operator. Council also

requested that the Director of Legal Services seek an amendment to the *Vancouver Charter* in support of the NEU.

DISCUSSION

1. LEGISLATIVE CONSIDERATIONS: AMENDMENTS TO THE *VANCOUVER CHARTER*

The Director of Legal Services has submitted a formal request to the Province for amendments to the *Vancouver Charter* in support of NEU objectives. A further report back to Council on the status of this request will be submitted once a formal response from the Province has been received.

2. OWNERSHIP AND OPERATING OPTIONS EVALUATION CRITERIA

The City has two main objectives that underlie the establishment of an NEU:

1. CONTRIBUTE TO GHG EMISSION REDUCTIONS: The primary objective of the NEU is to help the City achieve its greenhouse gas reduction targets, as defined in the *Community Climate Change Action Plan* that was approved by Council on March 29, 2005.

2. FINANCIAL VIABILITY: Within the context of this objective, the NEU should be established and operated in a manner that ensures its long-term financial sustainability, based on a commercial model and without the use of City subsidies.

For the purposes of assessing ownership and operating options, staff have translated these two objectives into ten evaluation criteria in two categories: those that evaluate the options from the City's point of view, and those that evaluate the options from the NEU's point of view (see Table 1). This distinction is important because, unlike the City's other utilities, the NEU will draw on city-wide financial resources but will offer its services to a unique set of customers, initially limited to the False Creek area.

TABLE 1. NEU OWNERSHIP & OPERATING OPTIONS EVALUATION CRITERIA

Impact on the City of Vancouver	The following six criteria assess the impact of the various options from the City of Vancouver's perspective.
1. CITY'S GHG REDUCTION OBJECTIVES:	Evaluation of the potential for the NEU to contribute to the City's GHG reduction goals identified in the *Community Climate Change Action Plan*.
2. CITY'S FINANCING COMMITMENT:	Evaluation of the estimated financing the City would provide to the NEU under each of the four options, taking into consideration the potential for offsetting grants as well as cash flow generated by the NEU that can be used toward capital and/or operating funding for the NEU.
3. CITY'S RISK & LIABILITY EXPOSURE:	Evaluation of the City's risk and liability exposure under each of the four ownership and operating options, including financial risk.
4. IMPLEMENTATION ISSUES & COSTS:	Evaluation of significant implementation issues, timing and costs associated with each ownership and operating model. These are important considerations, given the critical timelines associated with providing service in time for the 2010 Winter Games.
5. GOVERNANCE:	Evaluation of how the utility would be governed and degree of City regulatory authority, under each of the four ownership and operations options.
6. EASE OF EXIT:	Consideration of the ease of exit for the City under each of the four ownership and operation models.
Impact on the NEU	The following four criteria evaluate the impact of the various options from the NEU's perspective.
7. NEU COST OF CAPITAL:	Evaluation of the differences in the cost of capital for the NEU, among the different ownership and operating options considered, noting that the cost of capital ultimately affects the NEU's customer rates.
8. NEU OPERATING COSTS:	Evaluation of the estimated operating funding required by the NEU under each of the four ownership and operating options, taking into consideration the potential for offsetting grants and cash flow generated by the NEU to comprise part of the capital and/or operating funding of the NEU.
9. CUSTOMER SERVICE:	Evaluation of the anticipated quality and reliability of customer service under each of the four options assessed.
10. ACCESS TO SENIOR GOVERNMENT FUNDING:	Evaluation of the potential for the NEU to access senior government funding and/or grants under each of the four options.

3. ASSESSMENT OF THE OWNERSHIP AND OPERATING OPTIONS

Four options for the Neighbourhood Energy Utility were evaluated by staff to determine the optimum ownership and operations structure for the NEU. For all four options, the analysis assumed that the City will own and develop the NEU until its commercial operation date; these four options therefore address ownership and operations after this.

The NEU Steering Team, made up of staff from the Engineering, Sustainability, Financial Planning, Legal Services and Human Resources departments participated in this evaluation process, with consultant support provided by Compass Resource Management.

The four ownership and operating options that were considered are summarised in Table 2 below.

TABLE 2. SUMMARY OF THE NEU OWNERSHIP & OPERATION OPTIONS EVALUATED

OPTION	OWNERSHIP	OPERATION
A. NEU AS A CITY DEPARTMENT	City of Vancouver	A division of the Engineering Services Group
B. NEU AS A WHOLLY-OWNED SUBSIDIARY OF THE CITY	Wholly-owned subsidiary of the City of Vancouver	Wholly-owned subsidiary of the City of Vancouver
C. NEU OWNED BY THE CITY & OPERATED BY A THIRD PARTY	City of Vancouver	Third-party contract
D. NEU OWNED & OPERATED BY A THIRD PARTY	Private entity	Private entity

The discussion that follows provides a high level evaluation of the four options considered, while Appendix A contains more of the details behind this analysis, presented in a summary matrix.

OPTION A: NEU AS A CITY DEPARTMENT

Under this option, the City would continue to own the NEU after its commercial operations date, and would operate it as a division of the Engineering Services Group. This model is similar to how the City's existing water, sewer and solid waste utilities are owned and operated. The main difference would be the emphasis on a commercial approach to the NEU operations that reflects its limited area (e.g., non-City-wide) benefits to City residents.

There are a number of potential advantages of adopting this model:

- LOWER COST OF CAPITAL: A City-owned utility would be exempt from income taxes, and the City could take advantage of senior government grant funding opportunities for future expansion, that may not be available to a private owner. In the case of City ownership, it is assumed that the utility will be 100% debt financed and have access to the City's long-term borrowing rate (currently approximately 6.0%). A private utility would be required to include equity in its capital structure (as much as 50% equity financing) and the return on equity would include a risk premium and allowance for income taxes. In BC, the capital structure and return on equity of private energy utilities is regulated by the British Columbia Utilities Commission (BCUC). The allowed ROE is established annually based on a formula that considers long-term bond rates, an industry-wide equity risk premium, and a utility-specific risk premium. The weighted average cost of capital (weighted average debt rate and allowed equity return) for a comparable private utility is currently approximately 10%.

- CITY CONTROL OVER RATES: The City would not need authorization from the BC Utilities Commission for rate-setting.
- CITY CONTROL OVER EXPANSION OF UTILITY: This model would allow the City to expand the utility in order to achieve further environmental and economic benefits, as determined on a phase-by-phase evaluation.
- CITY CONTROL OVER TECHNOLOGY DECISIONS: This model would allow the City to select high-performing, environmentally friendly heat technologies for new neighbourhood developments, as a means of contributing toward the City's GHG reduction targets.
- COMPENSATION FOR RISK: Under private ownership, risk and liability associated with the utility is transferred to the private sector. The equity risk premium (after income taxes) provides a useful surrogate for the cost of this risk transfer (i.e., the magnitude of risk assumed by the City). Under the proposed rate-setting principles outlined in this report, the City would recover this premium through customer rates.

Integrating the NEU into an existing City department would be the most efficient option to implement in the near-term, and would still offer considerable flexibility with respect to future operating, governance and exit decisions. Given the relatively small size of the utility, staffing could be integrated with other Engineering Services operations.

Under City ownership, the City will continue to have the ability to maintain, expand or exit the business at a future date. Moreover, assets will likely have a higher value post-commercial operations date (COD), given the established loads and operating history at that point. Flexibility would remain for the City to enter into a third-party operating contract to be established post-COD.

The NEU will be established as a unique entity within the financial system for management and reporting purposes. Staff and administrative functions may be dedicated or shared with other departments through formal cross-charging arrangements, similar to the Water, Sewer and Solid Waste operations. Under this structure, Council would have direct control over staffing, operating and capital budgets and utility rates and Council could, at its discretion, create supplemental governance mechanisms such as an advisory board for the NEU.

OPTION B: NEU AS A WHOLLY-OWNED SUBSIDIARY OF THE CITY

Under this option, the City would create a wholly-owned subsidiary to own and operate the NEU. This model is similar to the relationship between the City and the Downtown Parking Corporation (EasyPark) or the PNE.

Under this option, formal agreements would be established to dictate the relationship between the City and the NEU subsidiary, e.g., for funding arrangements, risk transfer, and access to streets and other City infrastructure such as the sewer pump station. Given these formal arrangements, a wholly-owned subsidiary would likely be more difficult and costly to implement, as compared to a City department model.

As a legally separate entity constituted under the provisions of the Business Corporations Act, the subsidiary would require a Board of Directors. Council could exert direct control over the NEU rates through the NEU by-law, and indirect control over the utility through appointments to the NEU Board of Directors. Council could choose to appoint any combination of staff, Council members and/or external appointees to the NEU Board.

The City of North Vancouver has used this model to establish the Lonsdale Energy Corporation, which is a municipally-owned neighbourhood energy utility, similar to the one being contemplated by the City of Vancouver. They have chosen to appoint only City staff members to Lonsdale Energy Corporation's Board of Directors.

At the outset, this model appeared to offer the benefits of lower liability exposure for the City and greater ease of exit, as compared to the other three options considered. However, the evaluation concluded that any liability protection afforded through this model would be of limited value to the City. Moreover, a wholly-owned subsidiary would not provide any significant additional flexibility, compared to Options A and C, with respect to future exit and could ultimately prove to be more cumbersome.

OPTION C: NEU OWNED BY THE CITY & OPERATED BY A THIRD PARTY

Under this model, the City would own the assets (either as part of the existing municipal corporation or through a wholly-owned subsidiary) but would engage a third party to undertake all or part of the operations, maintenance and administrative functions of the utility. Council would regulate rates via by-law and operating policies, but an operating contract may constrain Council regarding how and when changes are made to operating policies.

The City of North Vancouver has opted for this model, in which their wholly-owned subsidiary, the Lonsdale Energy Corporation, has a contract with Terasen Gas Ltd to provide various operations, maintenance and administrative services to the utility.

Staff believe that entering into a contract with a third-party operator prior to the commercial operations date is not feasible, as this would require a lengthy public procurement and negotiation process. Moreover, the nature and benefits of an operating contract may depend in part upon what heat source is ultimately pursued by the City for the NEU, and this has not yet been determined.

Opting for a City-owned and operated NEU (Option A) in the short-term does not preclude the City from entering into an operating contract with a third party in the future, should this been to the City's benefit.

OPTION D: NEU OWNED & OPERATED BY A THIRD PARTY

Under this option, the City would sell the NEU assets (comprised primarily of some start-up design work and the distribution piping system that has been installed) to a third party. The City would then have no continuing involvement with the NEU. An example of this model is Central Heat Distribution Ltd, which provides heating services in Vancouver's downtown core.

The main advantage of private ownership is that all of the risk and investment associated with the utility is transferred away from City taxpayers to the private sector equity holders. In addition, there is the possibility of lower operating costs due to additional efficiencies or expertise associated with a private owner, which could translate into potentially lower rates for NEU customers.

A privately-owned NEU may not have the same level of access to senior government funding grant opportunities, which could have a negative impact on customer rates. As a private utility, the NEU would be subject to regulation by the BC Utilities Commission (BCUC). The BCUC would regulate rates, capital additions/ replacement, service extensions, and any future disposal or transfer of assets. The City would have no direct control over the utility, but could exert some indirect assistance to and/or influence over operations and interconnection through mechanisms such as municipal street access and operations agreements, zoning by-laws, permitting, taxation, operating agreements, etc.

This option would require the City to issue a request for tenders at least 24 months prior to COD to allow time for negotiation with the successful bidder and regulatory approval of facilities and rates by the BCUC. The request for tenders would need to include a draft access agreement with the City, together with any other contracts required with the City (e.g., use of sewer heat, if required) in order for bidders to establish a tender price and secure financing. As with Option C above, staff does not believe it is feasible to complete this process prior to the commercial operation date.

Based on the evaluation process, it is the recommendation of this report that Council pursue Option A, in which the City would own the NEU and operate it as a division of the Engineering Services Group. This is reflected in Recommendation A.

4. GOVERNANCE PRINCIPLES FOR CITY OWNERSHIP AND OPERATION

Based on the overarching objectives of environmental and economic sustainability, staff recommend that the following principles be adopted as Council policy to govern the ownership and operations of the NEU:

(a) GHG EMISSION REDUCTIONS: The City's primary objective for the energy utility is to minimize greenhouse gas emissions, consistent with directions established in the Community Climate Change Action Plan.

(b) LONG-TERM FINANCIAL VIABILITY: The utility will be operated to ensure long-term financial viability based on a commercial model.

(c) COMPETITIVE USER FEES: The City will strive to establish and maintain customer rates that are competitive with the long-term capital and operating costs of other heating options available to customers.

(d) FLEXIBLE, INNOVATIVE & LOCAL TECHNOLOGIES: The City, where feasible, will support the development and demonstration of flexible, innovative and local technologies through the NEU.

(e) NEU CAN BE EXPANDED AND/OR DUPLICATED: The City will consider and evaluate the potential to expand the utility to other neighbourhoods and developments, with the merits and feasibility of each expansion phase to be determined separately.

5. RATE-SETTING PRINCIPLES

At the current stage of development, it is recommended that Council establish a set of principles to guide the future development of NEU customer rates and terms of service. The need for this set of principles has been identified for two reasons:

- to enable Council to set policy in advance of the development of the future NEU bylaw and associated customer rates and terms of service; and
- to disseminate Council policy to the public, Southeast False Creek developers, and other interested stakeholders as far in advance as possible, recognizing that Council's policy is subject to change over time as with all Council policies.

The following rate-setting principles are recommended for use when enacting the bylaws respecting NEU rates and terms of service:

(a) FULL COST RECOVERY: That NEU rates are structured so as to recover the following costs incurred by the City, based on forecasted costs:

i. all direct operating costs associated with the NEU;

ii. all debt service and repayment costs associated with the NEU;

iii. the share of City administrative overheads that are attributable to the NEU;

iv. property taxes and/or payments-in-lieu of property taxes, as appropriate;

v. a reserve fund for NEU rate stabilization;

vi. an appropriate level of compensation for the risks and liabilities assumed by the City associated with the ownership and operation of the NEU; and

vii. credits for any benefits provided by the NEU to City taxpayers (e.g., contribution to corporate GHG reductions goals), as determined by Council.

(b) EQUITABLE COST-SHARING: That NEU rates fairly apportion the aforementioned costs among customers of the NEU.

(c) UNDERSTANDABLE & EFFICIENT RATES: That NEU rates be understandable to customers, practical and cost-effective to implement.

(d) APPROPRIATE RATE CLASSES: That at least two separate rate classes (commercial and residential) be established to distinguish different types of NEU customers, with rates reflecting each class's proportional contribution to total costs.

(e) PRICE SIGNALS: That, where feasible, NEU rates provide price signals that encourage energy conservation by NEU customers.

(f) RATE STABILITY FOR NEU CUSTOMERS: That the methodology for calculating NEU rates provide year-to-year rate stability for NEU customers to the greatest extent possible.

(g) REVENUE STABILITY FOR THE CITY: That the methodology for calculating NEU rates provide year-to-year revenue stability for the City to the greatest extent possible, and include the use of a rate stabilisation reserve similar to that used by the City for other utility operations.

(h) ANNUAL RATE ADJUSTMENTS: That rates be updated by Council annually based on forecasted costs, and adjusted to reflect any deviation from target levels of reserves, with annual rate changes requiring review and approval by Council followed by enactment of the necessary amendments to the NEU by-law.

Risk Premium Included In Customer Rates

Rate-setting principle number a(vi) above indicates that rates will include a recovery to the City for the risks and liabilities assumed by the City associated with the ownership and operation of the NEU. This is to ensure that City taxpayers both inside and outside the NEU precinct are treated equitably, with neither group subsidizing the other. This compensation would include an allowance for insurance and an additional risk premium over and above the City's cost of debt financing, equivalent to the difference in the City's cost of debt and the allowed weighted after-tax cost of capital for a comparable private utility. This rate adjustment model is similar to the one adopted by the BC Utilities Commission.

Rate Structure

Comparable energy utilities often structure customer rates to be comprised of two components:

- a fixed capacity charge based on the peak heating capacity subscribed by each customer, and
- an energy charge based on monthly heat demand.

The fixed capacity charge is set to recover capital and any fixed operating costs, while energy charges are based on variable costs such as fuel and maintenance. Staff will explore the establishment of such a rate structure and report back with recommendations to Council as to whether this is appropriate for the NEU.

6. NEXT STEPS

Energy Transfer Stations and Building Systems Peer Review

Energy Transfer Stations (ETSs) are used to transfer thermal energy from the NEU to the building customers, and are generally located within privately-owned buildings. There is some urgency to the design and integration work concerning these ETSs, as this work must be timed to coincide with the development of SEFC and Olympic Athletes' Village buildings.

To this end, staff is recommending that a consultant be engaged immediately to provide design services for the energy transfer stations that will deliver thermal energy from the NEU to building customers, and to advise the City on the technical requirements for integrating the building owners' and/or developer's mechanical systems with the NEU heat plant and distribution systems.

The scope of this work includes:

1. BUILDING HEATING AND DOMESTIC HOT WATER DESIGN REVIEW: In-building mechanical heat and domestic hot water systems must be designed by the owners/developers to deliver comfort to building occupants, and to maximize efficiency of the NEU energy plant serving it. This requires that the City retain the expertise of a specialized consultant beyond the capability of in-house City Engineering staff and City building code personnel in order to review owners/developers' designs and coordinate the NEU design with in-building designs.

2. DEVELOPMENT OF AN ENERGY TRANSFER STATION TECHNICAL RESOURCE DOCUMENT: The development of a document that outlines the technical requirements for Energy Transfer Station design, to provide the City with a technical resource.

3. ENERGY TRANSFER STATION (ETS) DESIGN SERVICES: Whether or not the ETS is located within the privately-owned building, or owned and operated by the owner/developer or the City, it is necessary for this design work to be concurrent with building mechanical system design. This will assure adequate space within each building for the ETS, will achieve the required coordination and integration between the City and the owner/developer, and will allow staff to properly develop the required regulatory structure.

4. ETS CONSTRUCTION SUPPORT: The City will likely be responsible for the construction of some ETS installations, and therefore must be equipped to manage such activities. These installation activities will be coordinated with building construction, and must be completed prior to building commissioning.

Staff recommend that this consulting work be sole-sourced to FVB Energy Inc, based on their background experience in energy transfer station design, their performance on other NEU related activities, and the lack of suitable competitor consultancies. If this recommendation is approved by Council, the City's Materials Management Division will issue the appropriate Notice of Intent to Contract and will record and report back to the City Manager any expressions of interest or concern from competitor consultancies.

New Staff Position

In Recommendation F, this report recommends that a mechanical engineer be hired to coordinate the ETS and building systems integration work, work on customer development activities, liaise with other property owners/developers on sub-metering related issues, and assist with design activities related to the NEU Community Energy Centre. This position would report to the NEU Project Manager, and would be situated within the Engineering Services Department.

FINANCIAL IMPLICATIONS

Projected Capital Financing

Development of the NEU with City ownership and operations will require the significant initial capital financing. Table 3 illustrates the projected capital requirements at various stages of the NEU development.

TABLE 3. NEU PROJECTED CAPITAL FINANCING ($2005)

YEAR	INCREMENTAL CAPITAL FINANCING REQUIRED FROM THE CITY *	CUMULATIVE CAPITAL FINANCING REQUIRED FROM THE CITY *	PHASE
2010	$14.0 million	$14.0 million	Phase 1: Olympic Village & 8 Private Lands
2015	$2.5 million	$16.5 million	Phase 2: SEFC ODP area
2020	$0.0 million	$16.5 million	Phase 3: SEFC OPD area

* Net of anticipated grants and reinvested surplus cash flows from operations.

The estimate in Table 3 reflects the external capital financing required by the NEU from the City, using the recommended energy source technology. This assumes 100% municipal ownership and 100% debt financing. The cumulative capital financing required from the City reflects assumptions about external grants and surplus cash produced by the utility operations to fund investment internally. It is anticipated that the NEU will be capable of funding growth from its accumulating surplus after approximately 2015.

As noted, Council has approved the NEU Interim Budget which is intended to finance the first phase of the NEU to 2010.

Long-Term Financing Arrangements

The NEU Interim Budget is for a maximum of $14.0 million from the Capital Financing Fund (CFF) for the development of the Phase 1 of the Neighbourhood Energy Utility to be recovered from utility fees once commercial operations have begun. Incremental capital requirements and financing for future phases of the utility will be subject to report back.

The Director of Financial Treasury and Planning, in consultation with the General Manager of Engineering Services, will report back on the long term financing of the NEU upon enactment of the requested *Vancouver Charter* amendments, and in any event by May 2007.

Funding for Next Steps

Funding for the consultant work contemplated in Recommendation E and the staff position in Recommendation F can be provided from the NEU Interim Budget.

Staff propose that the work contemplated in Recommendation E be sole sourced to FVB Energy Inc., based on their background experience in energy transfer station design, their

performance on other NEU related activities, and the lack of suitable competitor consultancies. This work must be timed to coincide with SEFC and Olympic Village building developments, and as such should proceed immediately. The City's Materials Management division will issue the appropriate Notice of Intent to Contract and will record and report back to the City Manager any expressions of interest or concern from competitor consultancies.

PERSONNEL IMPLICATIONS

Additional workload demands related to the development of the NEU require the creation of a new position, a temporary full-time mechanical engineer, at $90,968 per year, including benefits and overhead, subject to classification and compensation review by Human Resource Services.

More staff will have to be added closer to the NEU's commercial operations date. It is anticipated that the fully operational NEU in the Southeast False Creek Phase 1 area will require the addition of five or fewer full time equivalent positions, which will be funded through NEU customer rates. Staff will be reporting back to Council with a recommendation concerning specific staffing requirements for the fully operational NEU in SEFC.

CONCLUSION

Pursuant to the NEU Report, a number of recommendations related to policy and development for the NEU are made in this report.

- This report recommends that the City own and operate the NEU, within the Engineering Services Department, as this option provides the best combination of benefits related to cost of capital, control over customer rates, control over expansion of the utility and control over technology decisions.
- To guide the development and operations of the NEU, staff recommend that Council adopt policy based on the overarching objectives of environmental and economic sustainability, as delineated in a set of governance principles established in this report.
- To enable the future development of an NEU by-law, staff recommend that Council adopt as policy customer rate-setting principles.
- To ensure that SEFC buildings integrate properly with the NEU, staff recommend that building systems review and energy transfer station design work proceed immediately.

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APPENDIX A. OWNERSHIP AND OPERATIONS EVALUATION SUMMARY

EVALUATION CRITERION	OPTION A NEU AS A CITY DEPARTMENT (RECOMMENDED OPTION)	OPTION B NEU AS A WHOLLY-OWNED SUBSIDIARY OF THE CITY	OPTION C NEU OWNED BY THE CITY & OPERATED BY A THIRD PARTY	OPTION D NEU OWNED & OPERATED BY A THIRD PARTY
1. CITY'S GHG REDUCTION / SUSTAINABILITY OBJECTIVES	Direct Council control over future: – GHG management decisions (e.g., technology selection or purchase of offsets). – Utility rates or rate structures. – Extension of utility to new customers or service areas – Social or environmental policies of utility.	Direct Council control over rates and rate structures and utility extensions (via by-law). Indirect Council control (through appointment of Board of Directors) over: – GHG management decisions (e.g., technology selection or purchase of offsets). – Social or environmental policies of utility.	– Direct Council control over rates and rate structures, utility extensions and capital decisions. – Indirect Council control over operations through contract terms and conditions.	No control by City over future: – Extension of utility to new customers or service areas (subject to BCUC extensions tests). – Social or environmental policies of utility. – GHG management decisions (e.g., technology selection or purchase of offsets). – Utility rates or rate structures.
2. CITY'S FINANCING COMMITMENT (BY 2015)	~$16.5 million	~$16.5 million	~$16.5 million	$0
3. CITY'S RISK & LIABILITY EXPOSURE	– Imputed monetary value of risk borne by City is ~$200 – 340k per year (equivalent to after-tax equity risk premium of private utility). – Liability exposure cannot be limited to same extent as a private company given the utility will be backed by City's tax base.	Not expected to reduce risk or liability exposure relative to City ownership and operations.	– Some business risks may be transferred to private operator depending upon form of contract. – Any risk transfer is likely to also be reflected in a higher cost to contract operations.	– Day-to-day business risks are transferred to a private owner. – Risk borne by private owners is limited to amount of equity invested in the business.

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4. IMPLEMENTATION ISSUES & COSTS	– Council would need to enact a new "False Creek Precinct Energy Utility By-law" setting out how the utility would operate and charge its consumers of energy. – This option defers necessity for any formal agreements, contracts, or regulatory approvals from BCUC.	– Same by-law requirements as City Ownership and Operation. – Would also need to develop formal access agreement and other contracts between subsidiary and City.	– Would require a tender, negotiations with successful operator, and development of an operating contract. Time required to secure an operator and finalize contract likely 12 months. – Access Agreement and other contracts may not be necessary as utility itself would not be a legally separate entity from the City.	– Request for tenders would need to be issued at least 24 months prior to COD. – Request for tenders would need to include draft access agreement and other contracts required with City (e.g., access to sewer heat).
5. GOVERNANCE	– Council approval of rates, operating budgets, staffing, policies, and capital spending. – Council may choose to delegate some decisions to a Board. – Council may at its discretion also establish an advisory board to assist in governance of the utility.	– Day-to-day operations delegated to a formal Board of Directors. – Council would exert indirect control through appointment of Board and direct control through regulation of rates, etc. (analogous to BCUC oversight of private utilities and similar to model for LEC in North Vancouver).	– Council approval of rates, operating budgets, staffing, policies, and capital spending. – Council may choose to delegate some decisions to a Board. – Contracting out may create constraints on how and when operating policies can be changed.	– Utility would be regulated by BCUC. – City would have minimal regulatory authority except some indirect impact on operations through the access agreement the utility would require with the City.

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6. EASE OF EXIT	– Future exit would require same process as exiting before COD. – The main advantages to waiting are deferral of tendering and contract development, as well as additional information and experience gained by City from actual operations of utility.	– Minimal advantages over in-house model. – It is likely that existing Access Agreement and other contracts would need to be re-developed to suit a private owner.	– Exit may be constrained by operating contract (timing, value of utility, etc.). – Exit would require development of draft Access Agreements and any other contracts required for use of City facilities.	City would exit prior to COD.
7. NEU COST OF CAPITAL	~6%	~6%	~6%	~10% (equivalent to an additional revenue requirement compared to City ownership of ~650k per year by Phase 2)
8. NEU OPERATING COSTS	– Possible efficiencies from synergies with other City utilities and functions. – Overall operating costs likely similar to private ownership.	– Slightly higher than in-house utility.	– May be able to capture efficiencies associated with larger, more experienced energy utility, but private operator would also need to earn an additional margin on any operating contract.	– Possible efficiencies from scale and expertise, depending upon private owner.
9. CUSTOMER SERVICE	– No discernable differences in quality and reliability expected.	– No discernable differences in quality and reliability expected.	– No discernable differences in quality and reliability expected.	– No discernable differences in quality and reliability expected.

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10. ACCESS TO SENIOR GOVERNMENT FUNDING	– Access to FCM and other grants for future expansion and upgrades. – No ability to use accelerated capital cost allowances or other income tax credits offered by senior levels of government. However, this is more than offset by exemption from income taxes.	– Same as City Ownership and Operations.	Same as City Ownership and Operations.	– Limited access to government grants, particularly FCM grants, for future expansion or upgrades. – Ability to use accelerated capital cost allowances and other income tax incentives offered by federal and provincial governments.