



ADMINISTRATIVE REPORT

Report Date: April 11, 2014
Contact: Brian Crowe
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RTS No.: 10418
VanRIMS No.: 08-2000-20
Meeting Date: April 29, 2014

TO: Vancouver City Council
FROM: General Manager of Engineering Services
SUBJECT: Southeast False Creek Neighbourhood Energy Utility (SEFC NEU) -
Transition to a Stronger Conservation Rate Signal

RECOMMENDATION

THAT Council adopt, in principle, a transition strategy to adjust the SEFC NEU customer rate structure to improve the energy conservation price signal, as described in this report.

REPORT SUMMARY

This report seeks Council approval of a transition strategy to adjust the SEFC NEU rate structure to strengthen the energy conservation price signal. Beginning in 2015, it is proposed that annual rate increases be largely allocated to the consumption-based Energy Use Charge of the SEFC NEU rate. This will improve the conservation price signal while maintaining energy rates at the same level as projected under the commercial utility rate model. This approach is recommended by the Rate Review Panel, and will be implemented in a gradual manner to provide rate payers with adequate time to adjust.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

In December 2006, Council approved a set of governance and rate-setting principles for the SEFC NEU, including direction that, where feasible, NEU rates provide price signals that encourage energy conservation by NEU customers.

In July 2010, Council approved the establishment of a third-party Expert Rate Review Panel (referred to as the "Rate Review Panel" in this report) to advise staff and Council on future SEFC NEU rate adjustments.

On October 3, 2012, Council approved the Vancouver Neighbourhood Energy Strategy and Energy Centre Guidelines, to address the Greenest City 2020 Action Plan objective of reducing 120,000 tonnes carbon dioxide per year through the deployment of sustainable energy systems for high-density neighbourhoods.

On December 17, 2013, Council approved the SEFC NEU 2014 Rate Report, which directed staff to report back by April 30, 2014 with a recommended approach to adjusting the SEFC NEU rate structure starting in 2015 to improve the energy conservation price signal.

REPORT

Background/Context

The SEFC NEU began operation in January 2010, and since then has rapidly expanded to serve 320,000 square metres (3,500,000 square feet - slightly more than 50% of the original business case projection) of residential, commercial and institutional floor area. Over time the NEU will continue to be extended to serve new developments in SEFC and Great Northern Way Campus Lands, with total build-out currently forecast at 690,000 square metres (7,400,000 square feet -approximately 20% greater than projected in the original business case) of floor area.

As reported in the SEFC NEU 2014 Rate Report¹, the utility is on target for meeting long-term business and environmental performance targets, and financial risk associated with uncertain timing of SEFC development has reduced considerably from prior years. To ensure fair and appropriate customer rates, all annual rate increases have been vetted by the Rate Review Panel.

Rate Structure

The NEU uses a commercial utility rate model; rates are set to under-recover infrastructure financing costs in the early years of operation, and then gradually recover all costs and generate a modest return on investment over time. As projected in the 2014 Rate Report, rates are forecast to escalate at 3.22% (1.22% + inflation) annually until 2015, and at 2.0% (inflation) annually from 2016 onwards.

SEFC NEU rates are comprised of two components: a fixed Capacity Levy (related to the fixed capital and operating costs associated with the NEU) and a variable Energy Use Charge (related to customers' metered energy consumption). The utility currently generates 57% of its revenues from the fixed Capacity Levy, and 43% from the consumption-based variable Energy Use Charge. In past years, utility rates have been escalating at approximately 3.22% per year to recover long-term costs under the commercial utility rate model. Such annual increase has been applied equally to both the fixed Capacity Levy and variable Energy Use Charge.

In its letter in response to the 2014 SEFC NEU Rate Report, the Rate Review Panel recommended that the City freeze the fixed Capacity Levy, and apply the full amount

¹ The report titled "Southeast False Creek Neighbourhood Energy Utility 2014 Customer Rates" (RTS 10346) was approved by Council on December 17, 2013.

of future rate increases to the variable Energy Use Charge. The basis for this recommendation was to improve the price signal to NEU customers to better encourage energy conservation. The Rate Review Panel based this recommendation on the fact that in the past 4 years of operations, energy demand and associated revenues have become much more predictable and the utility’s financial risk is now significantly lower relative to the first years of operation.

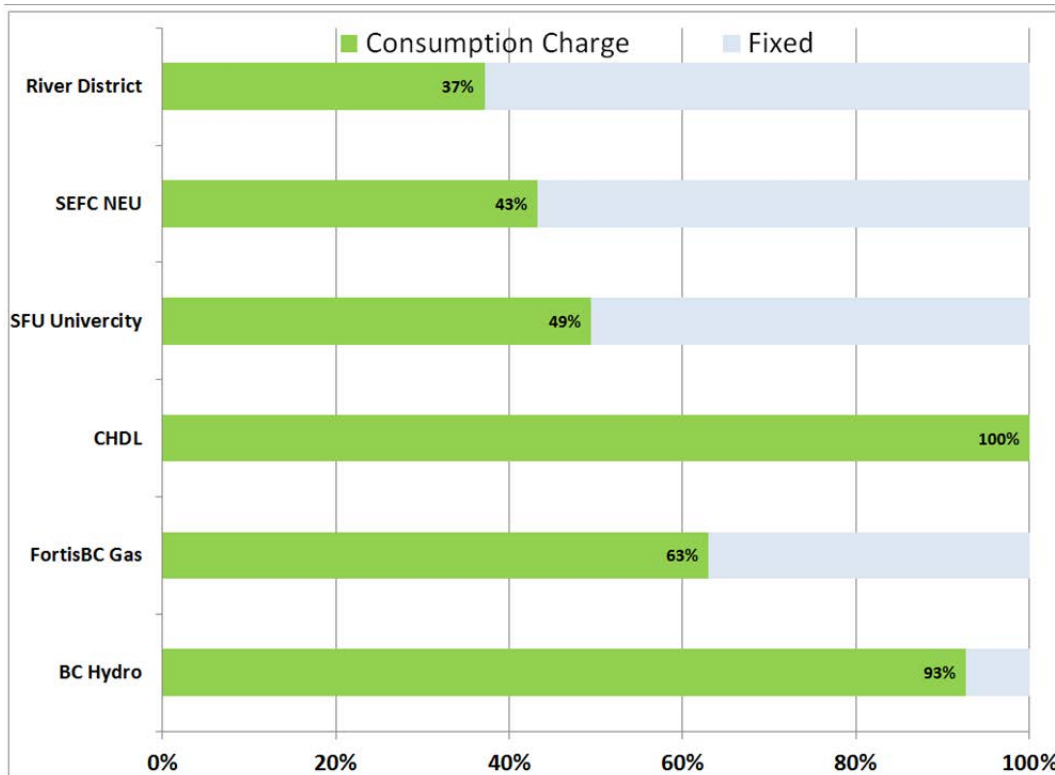
Strategic Analysis

Comparison of SEFC NEU Conservation Price Signal with Other Utilities

Figure 1 provides a comparison of the SEFC NEU’s conservation price signal to other utility providers. Utilities that have a higher proportion of revenues from variable consumption-based fees have a stronger conservation price signal. In general terms, utilities consider a number of different variables in the determination of fixed and consumption-based fees, including:

- the proportion of total utility operating costs that are fixed vs. consumption-based;
- regulatory requirements or policy to drive conservation; and
- potential cost savings to utility customers achieved through reduced energy demand.

FIGURE 1. CONSERVATION PRICE SIGNAL STRENGTH OF BENCHMARK UTILITIES



Currently, the NEU's conservation price signal is comparable to other new neighbourhood energy systems at SFU UniverCity and River District. However, the price signal is weaker than that of Central Heat Distribution Ltd. (CHDL), FortisBC gas or BC Hydro, all of which are large established utilities that have a high proportion of operating costs that are driven by consumption.

Staff and the Rate Review Panel recommend that a greater proportion of future rate increases be applied to the consumption-based Energy Use Charge, as described in Table 1. This will satisfy the intent of improving the conservation price signal, using a gradual approach that allows energy users sufficient time to adapt their usage in response to the price signal. It is recommended that the adjusted allocation method be implemented over two years starting in 2015 as shown in Table 1.

TABLE 1. PROPOSED ALLOCATION OF FUTURE RATE INCREASES

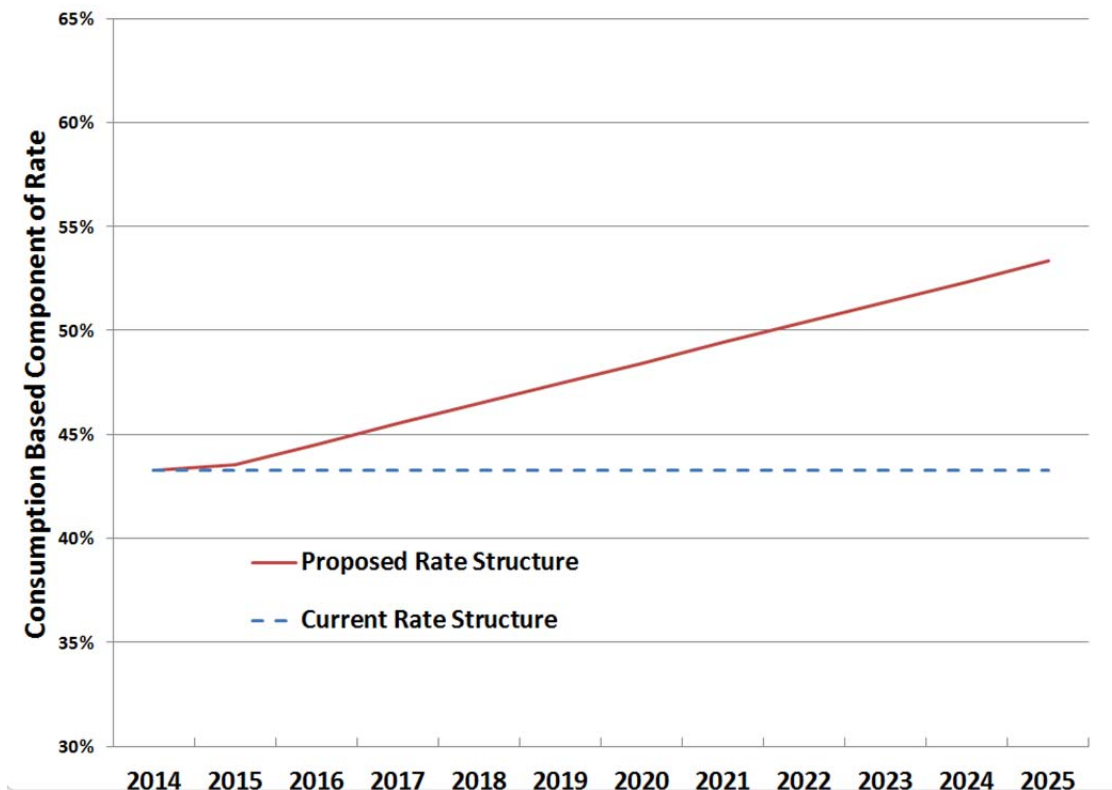
YEAR	FORECAST ANNUAL NET INCREASE	PROPOSED ALLOCATION OF ANNUAL INCREASE	
		BASE LEVY (FIXED CAPACITY)	CONSUMPTION-BASED ENERGY USE CHARGE
2015	3.2%	2.8%	4.0%
2016 to 2021	2.0%	0%	4.0% to 4.5%
2022 to 2034	2.0%	0%	3.5% to 4.0%

Note: Based on 2014 NEU Rate Report forecast, as approved by Council December 2013.

The proposed change is expected to have nominal financial impact on the utility and the total cost for the average customer will be largely the same (at similar consumption level) as forecast in 2013. Should energy demand decrease over time due to stronger pricing signal, most of the revenue reduction will be offset by lower operating costs and the residual financial impact to the utility will be minimal.

As illustrated in Figure 2, the strength of the conservation price signal will improve gradually with time. The actual allocation of future rate increases will be set to achieve an appropriate balance between the objectives of energy conservation, affordability and financial stability for the utility. Staff propose to evaluate the effectiveness of the rate structure policy within 5 years to determine if any further changes are needed to improve the conservation price signal.

FIGURE 2. SEFC NEU CONSERVATION PRICE SIGNAL STRENGTH CHANGE WITH TIME



SEFC NEU Customer Implications

The proposed change to the rate structure will not impact the average utility customer if their energy use does not change. Costs for each customer will gradually become more dependent on actual energy consumption and less dependent on floor area (which is the basis for the fixed levy). Customers will have a greater ability to reduce their energy cost by reducing consumption, and their total energy cost will become slightly more volatile with changing weather and behavior.

The Rate Review Panel agrees that this approach to transitioning the rate structure strikes an appropriate balance between the need to encourage energy conservation with the need to provide customers with adequate time to adjust use patterns in response to the price signal. The Rate Review Panel’s letter is attached in Appendix 1.

Implications/Related Issues/Risk (if applicable)

Financial

The proposed adjustment to the rate structure is expected to have nominal financial impact on the utility as the recommended effective annual rate increase will remain the same as previously projected, and will not change the utility’s ability to achieve the long-term financial performance targets described in the 2014 SEFC NEU Rate Report.

Because the proposed change will increase the proportion of future revenues that are subject to variability in energy consumption, staff have assessed the potential financial impact to the utility if less energy is consumed than anticipated. As an example, in the event that annual energy demand decreases by 10% by 2024, most of that revenue reduction will be offset by lower operating costs mainly related to the reduced cost of electricity and natural gas; the residual impact to utility revenues would be less than 1% of budget, which is considered to be manageable.

Environmental

The NEU seeks to achieve a 60% GHG reduction compared to Business-as-Usual². This target is based on 70% of the annual energy supply coming from the sewage heat recovery process. While the NEU has a successful track record for achieving this target, reduced energy consumption achieved through an improved conservation price signal will help to achieve further reductions in GHG emissions.

CONCLUSION

This report recommends that the shift to strengthen the SEFC NEU energy conservation price signal begin in 2015. This proposed change is consistent with the recommendations of the Rate Review Panel as well as established Council policy for the SEFC NEU. Improved energy conservation will further improve the environmental performance of the SEFC NEU, while reducing long-term costs for customers.

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² Business-as-Usual is defined as the type of heating and domestic hot water system that would be installed in typical local construction in absence of the NEU. It assumes electric baseboard heat for residential units and natural gas for ventilation air, domestic hot water and commercial/institutional spaces

Mayor and Council
City of Vancouver
453 West 12th Avenue
Vancouver, BC V5Y 1V4

April 3, 2014

Re: NEU Rate Panel – Comments on Conservation Rate Signal

Dear Mayor Robertson and Councillors,

The purpose of this letter is to advise Council of the Rate Review Panel's views and recommendations regarding the proposed use of a stronger conservation rate signal.

The Panel met with NEU staff in March 2014 to discuss the proposed shift to increasing the Energy Charge. The Panel has reviewed the Administrative Report to Council, dated April 2, 2014, on this subject.

Background

In its November 26, 2013, letter to Mayor and Council regarding 2014 Rates, the NEU Panel expressed concern regarding the relative amount of NEU revenues derived from the variable Energy. Specifically, the Panel stated:

“The ratemaking approach underlying the NEU rate structure is consistent with most of the rate setting principles established by City Council. The exception is the principle that rates should provide price signals to encourage conservation. In prior years, the rate increase has been applied as an equal percentage to both the fixed Capacity Levy and the variable Energy Charge. The result is that, for 2013, 63% of total revenues will be come from Capacity Levies, which are unaffected by conservation efforts and, by extension, offer no incentive for customers to conserve energy.

Capacity Levies offer the advantage of stable and predictable revenues so, during its first few years of development, it was appropriate to favour managing the utility's financial risk over conservation. However, customer connections are now at a level where the NEU rate structure can begin to move toward a better balance between these objectives.”

Discussion

The original structure of the NEU rates made sense in the context of a “green field” district energy system. While there is a bylaw that requires that new buildings connect to the system, there was never any guarantee of the amount or timing of revenue that would be available to the NEU. This was in spite of the substantial fixed costs that had to be installed prior to initial operations. During the first few years of operation, having a relatively high “fixed” revenue component made sense.

As the NEU has grown, it has connected significant load from new and existing buildings in its service area consistent with the original projections. While it still has some risk of future revenue in terms of building construction and timing, it is approaching a more stable phase of its development. As such, it can transition to a rate structure that has greater variable revenues that are tied to actual consumption which allow for a greater direct price signal to NEU end-use customers. The NEU has now established a connected load at slightly more than 50% of the original business case projection.

The proposed transition strategy of shifting the proportion of revenue to a variable cost over time, commencing in 2015, by increasing the Energy Charge to capture the majority of future rate requirements while keeping the Capacity Levy at current levels, or by increasing only modestly, will have the effect sought by the Panel.

It should be emphasized that this is not a proposal to increase total NEU revenues to a level higher than would normally be established in the rate making process; it is only a proposal to shift the proportion of the revenue collected to the variable revenue charge.

At the current level, only 43 percent of the NEU revenue is subject to consumption. Under the proposed methodology, it will take over 7 years to reach 50 percent and will reach approximately 60% by 2034. By comparison, City Staff estimates that FortisBC Energy Inc. (natural gas) and B.C. Hydro (electricity) charge 63% and 93%, respectively, on a variable basis.

We view the benefits of the current proposal as follows:

- The variable revenue increases over time while it is expected that the corresponding financial risk profile of the NEU declines;
- The customer impact is gradual, allowing end-users more time to adapt their use patterns to minimize the impact of the higher Energy Charge;
- Customers that are successful in their own conservation efforts will reduce the annual costs of the NEU to the benefit of themselves, the NEU or both, through achieving such things as:
 - Reducing the marginal use of back up fuel (natural gas)
 - Deferring the need for additional capital (eg. a 2nd heat pump)

- This is a methodology that can be altered later (ie. increase or decrease the movement towards variable revenue) depending on the relative size of revenue requirements, financial risk or other factors facing the utility in the future.

Most importantly, the increase reliance on revenue based on actual consumption is consistent with the mandate of the NEU from its inception. The NEU was intended to reduce the emission of greenhouse gases (GHGs) relative to the business as usual development of the Southeast False Creek area while at the same time delivering competitively priced energy to end-users. The Panel believes that this proposal accomplishes that objective.

Recommendation

The Rate Review Panel fully endorses the proposed shift to a stronger conservation rate signal as outlined in the Administrative Report of April 2, 2014.

Further, we agree with the Staff's proposal to evaluate the effectiveness of the rate structure policy within 5 years to determine if any further changes are needed to improve the conservation price signal.

On behalf of the NEU Rate Review Panel,

Yours truly,



Ronald L. Cliff, Panel Member

cc. Cameron Lusztig, Panel Member