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CITY OF **VANCOUVER**

ADMINISTRATIVE REPORT

Report Date:	April 13, 2007
Author:	R. Birch
Phone No.:	604.873.7280
RTS No.:	06698
VanRIMS No.:	11-2000-14
Meeting Date:	April 13, 2007

TO: Vancouver City Council

FROM: General Manager of Engineering Services

SUBJECT: Neighbourhood Energy Utility Heat Source Technology

RECOMMENDATION

THAT Council receive this report for INFORMATION

GENERAL MANAGER'S COMMENTS

The General Manager of Engineering Services submits this report for INFORMATION.

COUNCIL POLICY

On March 2, 2006, Council approved in principle the creation of the Neighbourhood Energy Utility and authorized preliminary design work for a sewer heat recovery plant and further investigation of biomass as an alternative heat source for Phase 1 or later phases.

On December 14, 2006, Council received a report entitled "Neighbourhood Energy Utility – Evaluation of Heat Source Options". This report outlined the relative merits of Sewer Heat and Biomass Energy as heat sources for Phase 1 of the Southeast False Creek Neighbourhood Energy Utility. The report identified biomass as the preferred option, based mainly on the superior greenhouse gas (GHG) emission performance and relatively low technical risk of this option. Council authorized the Neighbourhood Energy Utility Steering Team to submit an air quality permit application in support of biomass energy for Phase 1 of the Southeast False Creek project. Further, Council authorized the Steering Team to review the results of the public consultation process after 30 days in relation to the impact on project schedule and either:

i) continue with the permit application process and development of biomass heat, OR

ii) cancel the permit application and proceed with design activities for the use of sewer heat

PURPOSE

The purpose of this report is to advise Council that, based on the schedule delays associated in obtaining a biomass air quality permit and on recent progress resolving the technical viability of sewer heat recovery, the NEU Steering Team has selected the second option noted above for Phase 1 of the SEFC NEU. Consequently, staff will be notifying the GVRD that the permit application for a biomass heat source in Phase 1 will be withdrawn.

BACKGROUND

The December, 2006 Report to Council noted that a biomass heat source facility would be subject to GVRD air quality regulations and would require the issuance of an emissions permit. The permit review process includes a public consultation component, and the length of time necessary to process the permit application can vary significantly based upon the feedback received during public consultation.

Due to the need to meet the development schedule of buildings in South East False Creek, and uncertainties related to the length of time required for GVRD approval, the report proposed that an assessment would be made after the first 30 days of the public process. The NEU Steering Team was given authority by Council to either cancel the permit application and proceed with design activities for the use of sewer heat or continue pursuance of an air quality permit for biomass, dependent upon the outcome of this assessment.

A biomass air quality permit application was filed with the GVRD in February, 2007. Public consultations began on March 1. Direct notification was provided to the surrounding community and various Southeast False Creek stakeholder groups, and advertisements were placed in local newspapers. Open houses were held on March 13 and March 15, and three additional information sessions were held between March 22 and March 27 with stakeholder groups.

An assessment of the feedback received and its implications on project schedule has now been performed, in accordance with Council's instructions.

In the past three months, further work has been done by the City's consultants to investigate technical challenges related to the viability of sewer heat recovery. This work has determined that solutions can be found to key issues, and the technical risk associated with a sewer heat recovery system has been reduced significantly. These issues included:

- Concerns about sewer flow limitations, which can be solved by using the Nelson Force Main Sewer as a source of "top up" supply
- Concerns about the ability of the heat pump to operate in low heat demand conditions, which can be addressed by adding a small condensing natural gas boiler to the design

- Concerns about the potential for delays arising from the need for certification of specialized equipment originating in Europe, which can be mitigated by early ordering of the necessary equipment.

DISCUSSION

1. Assessment of Public Process

The public process to date with various stakeholders (including individual residents, resident associations, Southeast False Creek Developers, various non-governmental organizations and others) has identified a number of concerns related to biomass:

- perception that wood combustion generates harmful emissions
- perception that truck delivery of wood pellet fuel would have undesirable impacts
- concern that environmental impacts have not been adequately assessed.

Other concerns related to questions that staff were unable to answer at this stage in the project's design and implementation. Specific concerns were:

- concern about appearance of the energy centre/stack
- lack of detailed design information for the proposed equipment
- concern about lack of certainty of source and quality of fuel supply.

Staff believe that all of the above perceptions and concerns could, with sufficient time and further work, be addressed and resolved to the satisfaction of most stakeholders. However it is staff's judgement that there is insufficient time available in this project schedule to carry out the necessary public process in support of an air quality permit application for Phase 1 of the Southeast False Creek Neighbourhood Energy Project. Delays of between 2 and 6 months, or longer are anticipated. These delays are not manageable within the project schedule.

2. NEU Steering Team Decision

With this information about the schedule implications of biomass, and taking into consideration the progress made to mitigate technical risk associated with sewer heat recovery, the NEU Steering Team has decided to continue with energy centre design activities using sewer heat recovery as the base heat source. Consequently, staff will be notifying the GVRD that the City's application for an air quality permit for the Phase 1 heat source will be withdrawn.

3. Future Potential for Biomass

This technology choice will generate very significant GHG reductions, though less than would have been achieved with biomass.

It is important to note that a decision to proceed with sewer heat as the primary heat source for Phase 1 is no reflection of the viability of biomass energy as a sustainable heat source option for other potential district heating or building development projects. Biomass has the advantage of being able to generate heat using any one of a number of waste products. As

well, it continues to be recognized widely as a reliable heat source with superior GHG emission performance.

FINANCIAL IMPLICATIONS

As reported in the December 12, 2006 Council report, the projected long term costs associated with sewer heat recovery is approximately equivalent to the wood pellet biomass option. Further work will be done during the upcoming design process to update cost information and Council will be advised as to any issues which may arise as a result.

CONCLUSION

The Neighbourhood Energy Utility seeks to achieve Council policy objectives by achieving greenhouse gas emission reductions, consistent with the directions established in the Community Climate Change Action Plan. Adoption of sewer heat recovery for Phase 1 of the Neighbourhood Energy Utility demonstrates the City's continuing leadership in applying innovative concepts and technologies to achieve these objectives.

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