
ENVIRONMENT COMMITTEE

*HIS WORSHIP, THE MAYOR
AND COUNCILLORS*

**SUBJECT: HYDROGEN AVAILABILITY PROJECT
CHEVRON BURNABY REFINERY
PRELIMINARY PLAN APPROVAL #07-281**

RECOMMENDATION:

1. THAT a copy of this report be forwarded to Mr. Paul D. Gray, Manager, Business analysis and Facilities Planning, Chevron Burnaby Refinery, 355 North Willingdon Avenue, Burnaby, BC, V5C 1X4

REPORT

Council, at the 'Open' Council meeting held on 2008 June 16, referred the attached report regarding an application for Preliminary Plan Approval (PPA) for the installation of hydrogen production equipment at the Chevron Burnaby Refinery to the Environment Committee for consideration.

The Environment Committee, at its meeting held on 2008 June 23, completed its review of the matter and endorsed the report.

Respectfully submitted,

Councillor D. Johnston
Chair

Councillor P. Calendino
Vice Chair

Councillor L. Rankin
Member

Copied to:	City Manager Chief Building Inspector Director Engineering Director Planning & Building Director Parks, Recreation and Cultural Services Fire Chief
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To: His Worship, the Mayor and Councillors
From: Environment Committee
Re: Hydrogen Availability Project
Chevron Burnaby Refinery
Preliminary Plan Approval #07-281

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Item.....
Meeting..... 2008 June 16

COUNCIL REPORT

TO: CITY MANAGER **DATE:** 2008 June 10
FROM: PLANNING AND BUILDING **FILE:** 44000 20
Reference: PPA # 07-281
**SUBJECT: HYDROGEN AVAILABILITY PROJECT
CHEVRON BURNABY REFINERY
PRELIMINARY PLAN APPROVAL #07-281**

PURPOSE: To inform Council of an application for Preliminary Plan Approval (PPA) for the installation of hydrogen production equipment at the Chevron Burnaby Refinery.

RECOMMENDATION:

2. THAT a copy of this report be forwarded to Mr. Paul D. Gray, Manager, Business Analysis and Facilities Planning, Chevron Burnaby Refinery, 355 North Willingdon Avenue, Burnaby, BC, V5C 1X4.

REPORT

1.0 BACKGROUND

In 2007 September, the City received a Preliminary Plan Approval (PPA) application from the Chevron Burnaby Refinery for the installation of new hydrogen production equipment at its 5201 Penzance Drive location. The new equipment is to allow for production of ultra low sulphur diesel fuel as mandated by Canadian Federal regulations. On 2007 September 06, staff advised Council that a report would be prepared for Council consideration on completion of the review of the PPA application.

It is a long standing policy of Council for staff to report out on PPA applications relating to petroleum facilities in Burnaby. This report provides a summary of the application, the input received from other agencies, Chevron's completed public consultation process and the City's PPA review process.

2.0 PROPOSED HYDROGEN PRODUCTION EQUIPMENT INSTALLATION

Over the past ten years, both Provincial and Federal governments have mandated several sulphur reductions in gasoline and diesel fuels. To meet the regulatory requirements, the Chevron Burnaby Refinery established a clean fuels program in 2002. Earlier phases of Chevron's Low Sulphur Gasoline Project have been approved under PPAs issued between 2003 and 2007.

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The proposed installation of hydrogen production equipment is to meet the mandated requirements of the 2006 Canadian Federal Regulations for the production of Ultra Low Sulphur Diesel (ULSD) fuels, and is the final phase of Chevron's clean fuels program.

Sulphur is removed from diesel fuel as part of the refining process through a hydro-treating process which uses hydrogen. Currently, the refinery produces all its existing hydrogen from a single catalytic reformer processing unit. This existing processing unit is not able to produce the amount of hydrogen required to meet the new standards for production of ULSD fuel. In order to supplement the current equipment to provide for the required continual supply of hydrogen needed in the production of clean fuels, Chevron has proposed to install new hydrogen production equipment in Area 2 of the Chevron Refinery at 5201 Penzance Drive (see attached Figure 1). The new equipment, also known as a steam methane reformer or SMR, will provide for the production of the incremental hydrogen needed as part of the refining process to produce cleaner fuels. The equipment necessary for the production of hydrogen as part of the refining process includes:

- a Steam Methane Reformer (SMR) which converts natural gas into hydrogen;
- a Pressure Swing Absorption Unit (PSA) that will purify the hydrogen; and
- compressors to convey natural gas into the SMR and extract the finished hydrogen from the unit.

The hydrogen is produced on demand by the equipment as an intermediate product that is consumed in downstream processes in order to produce the clean fuels. The facilities are not being designed or engineered for the production of hydrogen fuel for industrial or retail sale purposes, and there is no provision or plans for any on-site storage of hydrogen. Chevron notes in their submission that although these refinery upgrades are required in order to produce the mandated clean fuels, the equipment will not increase the overall throughput capacity of the refinery.

The new facilities will be located on plot space currently occupied by the refinery's existing cooling tower. This site will become available once a new replacement cooling tower, now under construction and approved under PPA #05-375, is commissioned. The equipment, which includes a new steam methane reformer, consists of a number of pipes and vessels in addition to a purifying unit. The facility occupies an area of approximately 850 square meters and is well within the refining processing area. The attached Figure 2 aerial indicates the general location within which the hydrogen equipment is proposed to be installed.

3.0 CONSTRUCTION SCHEDULE

Chevron has advised that the estimated total installed capital cost of the project is \$28 million. Chevron anticipates that, once all necessary approvals are obtained, the project would commence construction in the fall of 2008 with a planned completion date in the summer of 2009.

4.0 NOISE AND TRAFFIC

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Chevron has committed to minimize construction traffic movements and construction noise during the project. Chevron has indicated that there will be minor increases in construction traffic on Willingdon Avenue and Penzance Drive, and that the project will adhere to the requirements of the Burnaby Noise and Sound Abatement Bylaw. Once the equipment is operational, there will be no net increase in traffic related to the plant, or noise from the plant due to the new equipment.

5.0 AMENDMENT TO METRO VANCOUVER'S AIR QUALITY PERMIT

The project required an amendment to Chevron's existing Air Quality Permit issued by Metro Vancouver. Based on the review completed by Metro Vancouver, an Amendment to the Permit was issued to Chevron on 2008 May 2. Some of the key requirements of the amended permit include:

- requiring Chevron to prepare an Odour Management Plan for their facilities through stakeholder input for submission to Metro Vancouver by end of the year;
- reducing emissions of volatile organic compounds by making equipment leak detection limits more restrictive; and undertaking appropriate action where necessary;
- requiring more restrictive limits for emission of oxides of sulphur, oxides of nitrogen, particulates and carbon monoxide.

The requirements of the amended permit, and the federally mandated regulations to lower sulphur content in fuels, provides for a net benefit in ambient air quality under permit emissions from a regional perspective. However, it is noted that the production of hydrogen through the use of natural gas will result in an estimated 3-5% increase in refinery greenhouse gas emissions. While greenhouse gas emissions are currently not regulated, Chevron has committed to assessing options for a greenhouse gas reduction strategy at the refinery. On an ongoing basis, staff will monitor the progress made towards implementation of the key requirements of the amended Air Quality Permit, noted above.

6.0 PUBLIC CONSULTATION PROCESS

As part of its process for review of the project, Chevron has undertaken a broad public consultation process. In order to provide the public with information on the project, Chevron has advised that they have delivered newsletters describing the project to 7500 homes and businesses in the vicinity of the refinery; included the project on the Chevron Canada Web site; placed an Environmental Protection Notice as required by Metro Vancouver for the Air Amendment Permit Application in the local community newspapers; held a neighbourhood public open house at Confederation Centre on 2007 November 7; and presented the project to their Burnaby Community Advisory Panel (CAP). At the open house session, Chevron received completed questionnaires from seven individuals with one person opposed to the project, two supportive and four were neutral.

7.0 CITY REVIEW

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The City has completed the review of the application. The application and construction drawings were circulated to applicable City departments for review and comment.

In conformance with the requirements of the Fire Prevention Office, the new production facility will be incorporated into the existing Fire Safety Plan for the refinery. The Fire Safety Plan will establish the staff training and operating procedures for the new equipment. The Fire Safety Plan and the inspection and maintenance programs will be available for ongoing review by the Fire Department.

The review process also incorporated the required Metro Vancouver Air Amendment Permit process, as summarized above. Based on the review of Chevron's proposed scope of work, the Engineering Department's Environmental Services Division has no concerns with the proposed facility upgrade, subject to Chevron complying with the conditions set out in Chevron's Amended Air Quality Permit.

The proposal meets all City bylaw requirements.

8.0 CONCLUSION

The Planning and Building Department is in receipt of an application for Preliminary Plan Approval (PPA) for the installation of new hydrogen production equipment at the Chevron Burnaby Refinery located at 5201 Penzance Drive. This new equipment will allow for the production of ultra low sulphur diesel fuel as mandated by Canadian Federal regulations.

A review of the PPA application received has been completed by staff. Chevron has also undertaken its own public information and consultation processes for the project, and has received the required Metro Vancouver Air Amendment Permit.

With Council receipt of this report, staff will undertake to complete the process for issuance of the PPA to Chevron to allow for the issuance of required permits for installation of the new hydrogen production equipment.

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B. Luksun, Director
PLANNING AND BUILDING

LP/PJA/DD:ll
Attachments(2)

cc: City Manager
Chief Building Inspector
Director Engineering
Director Parks, Recreation and Cultural Services
Fire Chief

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Attachments