



August 1, 2012
BCT CLIFF#: 205455

BRIEFING NOTE FOR INFORMATION:
Hydrogen Fuel Cell Bus Program

ISSUE:

The mid-point evaluation of the Hydrogen Fuel Cell Bus program.

BACKGROUND:

In 2009, BC Transit took possession of 20 hydrogen fuel cell buses to be operated in the Resort Municipality of Whistler (RMOW). These buses and the supporting fueling station are located at the new \$23M BC Transit Whistler maintenance facility, and represent both the largest hydrogen fuel cell bus fleet and fueling station in the world. It is an \$89M, five year demonstration project which was funded by the Province of British Columbia, the Federal Government and the Canadian Hydrogen and Fuel Cell Association. The Federal Government provided \$48M in capital funding while the Province provides \$1.8M/year to offset the increased operating costs. The project goals are to determine the commercial viability of the technology, and assess its performance in transit use.

The contract provider for the hydrogen gas is Air Liquide and the fuel is trucked in from its facility in the Province of Quebec. The contract is a five year "take or pay" term, with a second five year "take or pay" term. Under the contract, BC Transit can step away from the second five year term but it must notify Air Liquide six months before the end of the first term (i.e. October 2013). s14

s14

There are other hydrogen fuel cell bus programs that are being demonstrated elsewhere in the world; however, they are much smaller fleets, make up a very small percentage of the operating fleet for the service area, and operate in controlled or limited conditions. The fleet being tested by BC Transit in the RMOW is primary fleet for the service area, and is being operated in all conditions without limitations.

The demonstration project ends in 2014. During this term, the performance of the vehicles will be monitored and assessed. This assessment will determine the future of this fleet. s13

s13

Therefore,

s13

s13 Accordingly, the BC Transit project team has initiated a mid-term evaluation report on the fleet.

DISCUSSION:

To assess the hydrogen fuel cell bus program, the following objectives were established:

- acquire 20 fuel cell buses to provide zero emissions transit service at the Resort Municipality of Whistler and evaluate their performance;
- build the required refueling station and evaluate its performance;

- evaluate fuel cell bus performance compared to diesel buses; and,
- identify the optimal go-forward option for buses (after March 31, 2014).

The BC Transit project team has completed the mid-term evaluation which assesses the project against these objectives:

- The first two objectives have been achieved. All 20 buses and the fueling station are operating. To date, the buses have logged over 2.3M kilometres of transit service.
- Although the fuel cell buses have demonstrated their capability to meet the duty cycle required in the RMOW, the buses have not met all specific requirements identified for the project. Specifically, the average fuel range is below the amount specified in the contract and is worse during the colder winter months, maintenance costs and time are three times higher than diesel buses, and the fuel costs/consumption is three times that of a diesel bus. Also, s17

s17
team is estimating that s17 As a result, the BC Transit project s17
s17

- The program has been s17

s17

The operation of these buses, past March 2014 in their current form s13

s21 s13 s21

The following “go forward” options are being analyzed by the BC Transit project team:

s17

s21

s21

s13

s16

s16

To ensure that any program decision will fit within the budgeting cycle requirement for both capital and operating funding and ensure continued service for the RMOW, this analysis must be completed by October 2012.

Written by: Manuel Achadinha, President & CEO
BC Transit