

1 Q. (April 10, 2014 report entitled Supply and Install 100 MW (Nominal) of Combustion
2 Turbine Generation) Table 9 (page 34) shows cost estimates for various combustion
3 turbine alternatives. The cost of the 60 MW combustion turbine option is roughly
4 \$2000/kW, while the cost for the 113 MW combustion turbine option is much
5 lower at \$1261/kW. The US Energy Information Administration (EIA) (see April 2013
6 report entitled, "Updated Capital Cost Estimates for Utility Scale Electricity
7 Generating Plants" at
8 http://www.eia.gov/forecasts/capitalcost/pdf/updated_capcost.pdf) estimates the
9 cost of a conventional combustion turbine with nominal rating of 85 MW at US\$
10 973/kW (Can\$ 1058/kW based on an exchange rate of 1 Can\$ = 0.92 US\$). This
11 includes owner costs of about US\$ 162/kW (Can\$ 176/kW). An October 23, 2012
12 report entitled, "Cost and Performance Review of Generation Technologies —
13 Recommendations for WECC 10- and 20-Year Study Process" (at
14 http://www.wecc.biz/committees/BOD/TEPPC/TAS/121012/Lists/Minutes/1/121005_GenCapCostReport_finaldraft.pdf) recommends a target price (for use in
15 economic evaluations) for combustion turbines of US\$ 1150/kW (Can\$ 1250/kW).
16 This estimate is based on actual costs of a wide range of combustion turbine
17 projects completed in the United States with nominal outputs ranging from 50 MW
18 to 300 MW. While Hydro's estimate for the larger 113 MW combustion turbine
19 alternative is comparable with the WECC and EIA estimates, the Hydro estimate for
20 the 60 MW combustion turbine option is considerably higher. Please reconcile this
21 difference.

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25 A. The costing provided in the two on-line documents referenced above is based on
26 the purchase of new equipment. The project cost of the 113 MW combustion
27 turbine provided in Table 9 is based on an aftermarket unit. Hydro has not

1 performed an analysis on the total project cost of a new 113 MW unit; however, it
2 is anticipated to be significantly higher than the cost per kW presented in Table 9
3 and higher than the average costs as presented in the on-line documents. The cost
4 of a new combustion turbine (CT) package from an equipment manufacture would
5 be significantly higher than the purchase of a new unused (aftermarket) unit.

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7 The \$/kW capital costs presented in the on-line documents are average costs
8 representative of the various regions of the U.S. The EIA document states: "... the
9 cost of building power plants in different regions of the United States can vary
10 significantly". At this time, the cost of new construction in Newfoundland is
11 significantly higher than many areas of the U.S. It is expected that there are
12 additional costs associated with this project proposed for construction at Holyrood
13 compared to those referenced in the on-line documents above such as a new
14 building to enclose the complete plant and liquid fuel storage and distribution
15 system. In addition, the 60 MW CT unit is an aero derivative design, which is
16 generally more expensive per kW compared to a frame design (the 113 MW
17 aftermarket CT is based on a frame design). The 60 MW plant would be custom
18 designed and fitted with an oversized generator with the capability to generate 120
19 MW of power and provide synchronous condensing service. The plant is also
20 provided with oversized foundations, oversized transformer and expanded controls
21 to accommodate an additional 60 MW gas generator for future generation
22 expansion to 120 MW.

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24 The project budget estimate for the 60 MW plant was developed in consultation
25 with one of the leading CT equipment manufacturers, Pratt & Whitney Power
26 Systems, located in Connecticut, USA.