

1 Q. (Re: Application Clause 2) Hydro indicates that “The gas turbine was very rarely
2 required to perform the black start function”. In its history, how many times was
3 the gas turbine needed and successfully used for black start, and how many times
4 has the black start function at Holyrood been needed since the gas turbine was
5 taken out of service?
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8 A. Hydro has no records of blackstart (or similar) events prior to 1991 for the Holyrood
9 Thermal Generating Station (HTGS).
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11 Between 1991 and December 1994, there were no blackstart events. In December
12 1994, the Holyrood gas turbine was required to blackstart the HTGS. A major
13 snowstorm caused severe wind and ice loading related failures of multiple
14 transmission lines, and subsequently resulted in a complete outage to the HTGS.
15 The first generating unit was not placed back in service until nearly 24 hours later.
16 The duration of this outage was exacerbated by, among other things, Hydro’s
17 inability to successfully start and operate the Holyrood gas turbine at this time.
18 Following these events, Hydro performed annual tests of the Holyrood gas turbine
19 blackstart capability.
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21 Following this event in December 1994, there were no further blackstart
22 requirements up to the time the gas turbine was taken out of service in January
23 2012. Since January 2012, it would have been required on one occasion to
24 blackstart the HTGS, namely during the outage in January 2013. During the early
25 morning hours of January 11, 2013, the HTGS experienced a loss of supply from the
26 system due to a severe winter blizzard which caused the high voltage equipment in
27 the Holyrood Terminal Station to experience electrical faults and subsequently

1 resulted in the lockout of the high voltage switchyard equipment. This resulted in a
2 complete shutdown of the HTGS.

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4 As a result of the equipment lockouts in the switchyard, power could not be
5 delivered to the HTGS from the transmission system until later in the afternoon.
6 The severe weather had prevented maintenance people from reaching the site until
7 then. During this delay, and in the absence of a local blackstart generation source,
8 the HTGS units cooled down and could not be maintained in pre-warmed state to
9 be ready to provide power to the system when the terminal station was restored.
10 The lack of pre-warming resulted in another 11-hour delay in restoring Holyrood
11 generation, even after the supply from the system was restored.

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13 During the system events on January 4 and 5, 2014 the gas turbine would not have
14 been required to blackstart the HGTS. Unlike the circumstances that occurred in
15 January 2013 and December 1994, during the recent events the 230 kV
16 transmission lines into the Holyrood Terminal Station were able to be restored
17 quickly, thus providing station service requirements.