Q. (PUB-NLH-23 and the question posed in CA-NLH-26) What is the expected availability of the Holyrood plant in MW during such an outage event? For example, could it be said that based on a de- rated adjusted forced outage rate of 9.6% (see April 10, 2014 report entitled *Supply and Install 100 MW (Nominal) of Combustion Turbine Generation*, page 22), the expected availability of the Holyrood plant with its three units is approximately 74% (0.904 * 0.904 * 0.904), or 362 MW based on a total plant output of 490 MW?

A. The expected availability of the Holyrood plant in the event that the transmission system connected to the Holyrood Thermal Generating Station becomes unavailable is the same as the expected availability of the Holyrood plant under normal conditions.

Based on a de-rated adjusted forced outage rate of 9.64%, the probability that a unit will be available is 1 – 0.0964 = 0.9036 or 90.4%. Given that the forced outages of the three Holyrood units are assumed independent of each other, then the expected availability of the Holyrood plant is 90.4%. Therefore, the expected availability in MW, based on a total plant output of 490 MW, is 490 * 0.904 = 443 MW. This can also be expressed as (170 + 170 + 150) * 90.4% = 443 MW. However, this number is more akin to an average available capacity over a year. Thus, it is not appropriate to state that, on any given day, the expected available capacity is 443 MW, no more than it would be to expect that the plant would be available at full capacity for 90.4% * 24 hours = 21.7 hours and 0 MW for the remaining 2.3 hours, on any given day.

Assuming that the expected availability of the Holyrood plant with its three units is approximately 74% (0.904 * 0.904 * 0.904) assumes that the forced unit outages are dependent on each other (i.e., an outage on any one unit leads to an outage on all of the units). As noted in the previous paragraph, this is not correct.