

1 Q. **Reference: Program 2 - Overhaul Unit 2 Turbine and Valves (2023) - Holyrood**

2 Hydro states on page 10, lines 2-4, that “While on site performing the overhaul of the Unit 2  
3 turbine and valves, the contractor will provide a generator specialist and dedicated equipment  
4 to perform electrical testing of the rotor and stator windings. This testing will be completed  
5 without the dismantling of the generator.”

6 a) Please describe the electrical tests that will be performed on the generator to establish its  
7 suitability for reliable operation.

8 b) Please identify any risks to the generator that are associated with the proposed tests.

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11 A. a) It is planned that the electrical tests to be performed on the generator stator windings will  
12 include the following:

- 13 • Insulation resistance;
- 14 • Polarization/depolarization;
- 15 • Frequency dielectric response;
- 16 • Power factor tip-up; and
- 17 • Offline partial discharge.

18 These tests are a multi-pronged approach to verify the health of the insulation system of  
19 Unit 2 stator windings.

20 For the rotor windings, comprehensive testing requires removal of the rotor. In 2023,  
21 without removal of the rotor, it is planned that insulation resistance testing will be  
22 completed.

23 b) The planned testing is considered non-destructive, as none of the tests will stress the  
24 windings to voltages above the rated levels. Risks to the generator related to human error  
25 or test equipment failure exist, but are considered to be very low. Testing will be completed

- 1 by qualified and experienced personnel and the test equipment and software have built-in
- 2 safe guards to prevent human error and software/hardware failure.