

1 **New Chelsea Hydro Plant Refurbishment, Schedule B, page 12-13 (\$3,973,000)**

2
3 **Q. Does the existing protection and control equipment at the New Chelsea hydro plant**
4 **function as required?**

5
6 A. The existing electromechanical relay protection equipment does not meet minimum
7 recommended standards as established in IEEE C37.102-1987. Specifically, protection is
8 not provided for:

- 9 • loss of excitation;
10 • over-voltage;
11 • under-frequency; and,
12 • stator thermal protection.

13
14 The governor functions reasonably well when operated in parallel with the grid, but does
15 not regulate well when operated in isolation from the grid. Therefore, the generator is
16 less reliable during emergencies that arise when the transmission system is unavailable.

17
18 The basic set of controls on the unit does not include vibration monitoring, bearing
19 temperature monitoring and cooling water control, all of which are considered important
20 protection for an unmanned hydro plant.