

1 Q. How does Hydro balance the issues of cost and reliability in providing voltage
2 and frequency stability?

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5 A. Hydro's transmission planning criteria requires that transmission system
6 voltages be maintained between 95 and 105% with all equipment in service.
7 For loss of a single transmission system component (i.e. transmission line or
8 transformer) Hydro's transmission planning criteria requires that voltages be
9 maintained between 90 and 110% in steady state prior to adjustment by the
10 ECC. Where a deficiency is identified, additions or modifications to the
11 transmission system are developed to maintain voltages within criteria and
12 the least cost option is recommended for implementation.

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14 With respect to frequency stability, technical analyses are completed to
15 determine the minimum acceptable level of inertia for each generation
16 addition to the Island Interconnected System. The inertia requirements form
17 part of the tender evaluation when selecting the least cost vendor. As well
18 because the Island Interconnected system is isolated from the North
19 American power grid, frequency regulation is a concern. Hydro employs an
20 Underfrequency Load Shedding Scheme designed to protect system integrity
21 in the event of major disturbances such as the loss of generation or a
22 multiple transmission line outage. With this scheme customer loads are
23 automatically disconnected to help compensate for the loss of transmission
24 or generation protecting the integrity of the remaining system. When
25 compared with other more costly and complicated solutions the
26 Underfrequency Load Shedding Scheme provides a reasonable balance
27 between cost and reliability in protecting against complete system collapse.

1 Where the application of these technical requirements result in a capital
2 budget proposal, unless there are exceptional requirements e.g. new power
3 source or major reliability initiative, Hydro employs a guideline to its capital
4 program that it should not normally exceed cash flow from operations. This
5 serves to limit revenue requirements and any rate increase.