

1 Q. **System Reliability**

2 Which group reviews the causes of outages and how are the outage causes
3 generally used to improve reliability?
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6 A. The causes of outages are reviewed by technical specialists with assigned
7 accountability for particular asset groups:

8 a. Transmission related outages are reviewed by the Senior System

9 Operations Engineer – Reliability;

10 b. Distribution related outages are reviewed by the TRO Asset Specialist –
11 Distribution; and

12 c. Generation related outages are reviewed by the Long Term Asset
13 Planning group for the facility involved.
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15 Nalcor's Project Execution and Technical Services Division provides root cause
16 investigation support to the specialists indicated above on an as-required basis.
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18 The Long Term Asset Planning (LTAP) group has assigned responsibility to identify
19 and monitor asset reliability and service level requirements, complete root cause
20 and repeat failure analysis and oversee remedial action plans for improved
21 reliability. Assigned Asset Owners have overall accountability for operations and
22 maintenance of generation, transmission and distribution assets, and to ensure that
23 supporting functions like Long Term Asset Planning are fulfilling their role.
24

25 Typically remedial actions can involve changes to PM programs, packaging of
26 related corrective maintenance activities, and/or updating of Long Term Asset

1 Management Plans for asset replacement or refurbishment, as well as adjustments
2 to critical spares. For example:

- 3 • If a transmission or distribution system is having an increased number of
4 trips during high winds, investigation may determine that additional
5 poles need to be added in the line or dampers are required to be
6 installed on the conductor. This would improve the reliability for that
7 transmission or distribution line.
- 8 • If an outage at a generating plant is traced back to a lubrication system,
9 the defect would be corrected and the PM program updated to address
10 the issue before a failure occurs in the future.

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12 Hydro also has a Performance and Reliability Committee which reviews and makes
13 recommendations to the assigned Asset Owners on the performance of the bulk
14 electrical system and the reliability to all Hydro's customers. The terms of reference
15 for this committee are attached as PUB-NLH-341 Attachment 1.

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17 The LTAP group reviews forced outages to identify root causes to prevent future
18 outages. In addition, outages are trended over five years to identify repeat failures
19 and patterns to identify further remedial actions to improve future reliability. There
20 is an on-going as well as an annual review component to this process. PUB-NLH-
21 341 Attachment 2 summarizes the role and responsibilities of LTAP. PUB-NLH-341
22 Attachment 3 overviews the process for long term asset management plans with
23 O&M experience and outages as an identified input.