

1 **Q. Further to the response to PUB-NP-066, describe the general process Newfoundland**
2 **Power uses to determine each year's targets for scheduling each year's substation**
3 **and relay preventive maintenance jobs.**

4
5 A. Targets are developed differently for each of the types of substation equipment described
6 in Table 1 of the response to Request for Information PUB-NP-066. The following
7 briefly describes the individual targets and how they are determined.

8
9 *Substation Inspections:* Monthly inspections are based on the criticality of substations in
10 overall electrical system operations. Target is 100% completion. In 2013, the inspection
11 program was modified so that only one inspection was required during the July/August
12 peak vacation period. Consequently, the current target is eleven inspections per
13 substation per year.

14
15 *Equipment oil samples:* All power transformers, tap changers and bulk oil circuit
16 breakers are sampled at least annually. Target is 100% completion. Depending on the
17 sample results an individual unit may be sampled more frequently than annually.

18
19 *Tap 4 Vibration Analysis:* All tap changers in service are tested annually. Target is
20 100% completion.

21
22 *Relay Maintenance:* Relay maintenance is based upon a five year cycle. The annual
23 target is 20% of General Electric Model Type IAC electromechanical relays in service.

24
25 *Battery Maintenance:* Battery banks are tested every six months. Target is 100%
26 completion.

27
28 *Thermography Inspection:* Thermographic inspection of each substation is undertaken
29 annually. Follow up scans are done as required.¹ Target 100% completion.

30
31 *Portable Substation Maintenance:* Portable substations are maintained annually. Target
32 is 100% completion.

33
34 *Power Transformer Maintenance:* Power transformer maintenance is based upon a
35 twelve year cycle. The annual target is approximately 8% of total power transformers.²

36
37 *Breaker Maintenance:* Breaker maintenance is based upon a ten year cycle. The annual
38 target is approximately 10% of total breakers.²

¹ See the response to Request for Information PUB-NP-230.

² Power transformer maintenance is prioritized based upon condition assessment. See the response to Request for Information PUB-NP-212.