

1 **Q. The response to PUB-NP-157 discusses distribution system load growth planning**
 2 **and operational planning but it did not discuss the planning process for the Rebuild**
 3 **Distribution Lines projects or the Distribution Reliability Initiative projects.**
 4 **Describe the process for evaluating these capital programs and how distribution**
 5 **planning engineers are involved.**

6
 7 A. The Rebuild Distribution Lines and Distribution Reliability Initiative projects are
 8 inspection-based programs for the replacement of deteriorated poles, conductor and
 9 hardware on existing distribution structures. Annual inspections are carried out to
 10 determine the need for the replacement of distribution system components or the
 11 rebuilding of lines or portions of lines. The work is typically completed in the following
 12 year.

13
 14 Both the Rebuild Distribution Lines and Distribution Reliability Initiative programs are
 15 focussed on preventative maintenance, and distribution planning engineers are not
 16 typically involved in the evaluations.

17
 18 The Rebuild Distribution Lines project involves the replacement of deteriorated
 19 distribution structures and electrical equipment that have been previously identified
 20 through the Company's ongoing preventative maintenance program, or as a result of
 21 engineering reviews. Projects consist of either the complete rebuilding of deteriorated
 22 distribution lines, or the selective replacement of various line components based on
 23 preventative maintenance reviews of a line, or engineering reviews of experience with
 24 identified components. The items typically replaced are poles, crossarms, conductor,
 25 cutouts, surge/lightning arrestors, insulators and transformers.

26
 27 Individual distribution feeder projects are identified through a 7-year inspection cycle,
 28 with approximately 43 of the Company's distribution feeders inspected each year. The
 29 inspections are conducted by planners and, where necessary, an engineering review is
 30 completed to determine the appropriate scope of work.¹

31
 32 The Distribution Reliability Initiative project involves the replacement of deteriorated
 33 poles, conductor and hardware to reduce the frequency and duration of power
 34 interruptions to customers served by specific distribution lines.² Each year, the 15 worst-
 35 performing feeders, based on each of the SAIDI, SAIFI, CHIKM, CIKM and

¹ The report *4.4 Distribution Rebuild Update June 2012* included with Newfoundland Power's 2013 Capital Budget Application describes the Company's current preventative maintenance program, distribution inspection standards and targeted replacement programs. This report is included as Attachment A to the response to Request for Information PUB-NP-068.

² The nature of the upgrading work follows from a detailed assessment of past service problems, knowledge of local environmental conditions (such as salt contamination and wind and ice loading), and engineering knowledge to apply location specific design and construction standards.

1 customer-minutes reliability indices, are identified.³ An engineering review is carried out
2 on all identified feeders. Where necessary, detailed engineering inspections of identified
3 feeders will be carried out to determine what reliability-focussed work is required.⁴

³ SAIDI is the system average interruption duration index, calculated by dividing aggregate customer hours of outages by the number of customers served. SAIFI is the system average interruption frequency index, calculated by dividing aggregate number of customer interruptions by the number of customers served. CHIKM is the customer hours of interruption per kilometer and is calculated by dividing aggregate customer hours of outages by the kilometers of distribution plant. CIKM is the customers interrupted per kilometer, calculated by dividing aggregate number of customer interruptions by the kilometers of distribution plant. Customer-minutes is calculated by multiplying the number of outage minutes by the number of affected customers.

⁴ For examples of the identified work, see the *Distribution Reliability Initiative* reports from the 2010 through 2014 capital budget applications, included as Attachments B through F of the response to Request for Information PUB-NP-068.