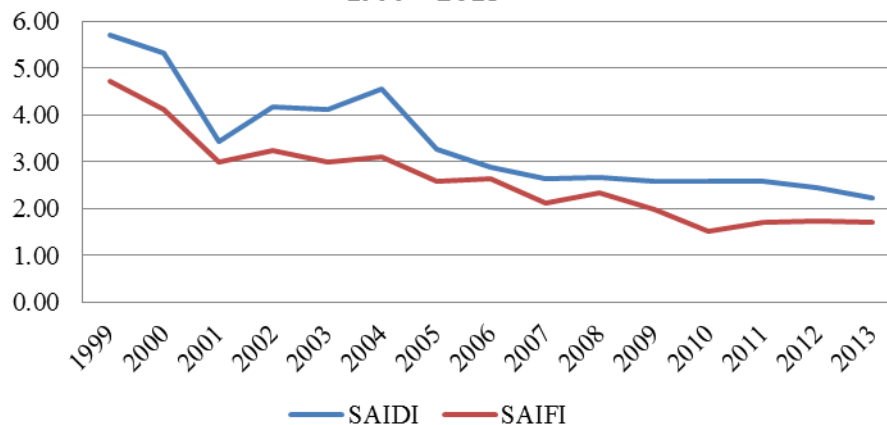


1 **Q. Describe the statistical analysis process Newfoundland Power follows to weigh**  
 2 **Transmission and Distribution (“T&D”) and substation conditions (from**  
 3 **inspections) with various reliability indices to determine priorities for capital T&D**  
 4 **and substation load growth and rebuild and modernization projects for each year.**  
 5 **Does Newfoundland Power consider risk versus outage or loss of contingency issues**  
 6 **and use some kind of scoring method or checklist, or are the determinations more**  
 7 **based on unwritten engineering judgment? Who is involved with the process and**  
 8 **who (title) makes the final decisions on what to include in each year’s capital**  
 9 **budgets?**

10  
 11 A. The primary driver of Newfoundland Power’s annual capital budgets is reliability.  
 12 Reliability is, to a large extent, a function of system condition. This is a widely accepted  
 13 engineering principle. It was recognized in, amongst other places, the 1991 *Report on the*  
 14 *Technical Performance of Newfoundland Light & Power Co. Limited*, prepared by  
 15 George Baker, P. Eng., for the Board. In a follow up report by D. G. Brown, P. Eng., in  
 16 1998 titled *Newfoundland Light & Power Co. Limited Quality of Service and Reliability*  
 17 *of Supply*, prepared for the Board, it was determined that Newfoundland Power needed to  
 18 improve reliability.

19  
 20 Subsequent to the 2 reports filed by the Board’s engineering consultants in the 1990s  
 21 Newfoundland Power proceeded to implement the asset management strategies and  
 22 capital refurbishment programs that remain in place today. In the period since the 1990s  
 23 the Company’s reliability performance has significantly improved. Graph 1 shows the  
 24 Company’s reliability performance over the period from 1999 to 2013, excluding the  
 25 impact of significant weather events.  
 26  
 27

**Graph 1**  
**SAIDI and SAIFI**  
**1999 - 2013**



1  
2 Approximately 50% of each annual capital budget is allocated to plant replacement.<sup>1</sup> The  
3 Company has prepared strategies for the refurbishment of existing distribution,  
4 transmission and substation assets. These strategies have been filed as part of prior  
5 capital budget applications and are updated at regular intervals.  
6

7 In 1998 the Company implemented a *Distribution Reliability Initiative* to address  
8 identified reliability issues.<sup>2</sup> The project provides for an annual review of all distribution  
9 feeders based on 5 year reliability trends identifying the 15 worst performing feeders  
10 based upon SAIDI, SAIFI and customer minutes of interruption.<sup>3</sup>  
11

12 In its 2004 Capital Budget Application the Company introduced the *Rebuild Distribution*  
13 *Lines* project.<sup>4</sup> In its 2013 Capital Budget Application the Company provided an update  
14 on the *Rebuild Distribution Lines* project.<sup>5</sup>  
15

16 In 2006 the Company implemented a long term *Transmission Line Rebuild Strategy* to  
17 deal with aging transmission line infrastructure.<sup>6</sup> The plan lays out proposed investment  
18 in rebuild projects based on physical condition, risk of failure, reliability statistics and  
19 potential customer impact in the event of a failure. The plan for transmission line  
20 rebuilds is updated with each year's capital budget application.<sup>7</sup>  
21

22 In 2007 the Company implemented a long term *Substation Strategic Plan* to deal with  
23 aging substation infrastructure.<sup>8</sup> The plan lays out proposed investment in refurbishment  
24 and modernization projects based on physical condition, risk of failure, reliability

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<sup>1</sup> The 2014 Capital Plan filed with the Company's 2014 Capital Budget Application is included as Attachment A to the response to Request for Information PUB-NP-080.

<sup>2</sup> The *Distribution Rebuild Update, June 2012* is included as Attachment A to the response to Request for Information PUB-NP-068.

<sup>3</sup> SAIDI measures the average number of customer hours of electrical supply outage in a year. SAIFI measures the average number of customer outages in a year. The Company has recently started to use indices related to customer outages per kilometer as an indication of the condition of assets particularly for smaller distance feeders.

<sup>4</sup> A series of reports were filed in Volume III Appendix 2 of the 2004 Capital Budget Application identifying electricity system components that had a history of failure. The replacement of these components would proceed in a systematic manner to address employee and public safety and system reliability.

<sup>5</sup> Annual updates to the *Distribution Reliability Initiative* are included as Attachments B through F to the response to Request for Information PUB-NP-068.

<sup>6</sup> The *Transmission Line Rebuild Strategy, June 2005* is included as Attachment A to the response to Request for Information PUB-NP-061.

<sup>7</sup> Annual updates to the *Transmission Line Rebuild Strategy* are included as Attachments B through F to the response to Request for Information PUB-NP-061.

<sup>8</sup> The *Substation Strategic Plan, March 2006* is included as Attachment A to the response to Request for Information PUB-NP-065.

1 statistics and potential customer impact in the event of a failure. The plan for substation  
2 refurbishment and modernization is updated with each year's capital budget application.<sup>9</sup>  
3 Substation load growth projects are filed with capital budget applications in years where  
4 there is a requirement for additional transformer capacity. The *Additions Due to Load*  
5 *Growth* project reports include engineering studies where distribution system upgrades  
6 are considered to meet the growth in electrical demand in an area.<sup>10</sup> The studies will  
7 typically include 3 alternatives for meeting the forecast load growth. These alternatives  
8 provide sufficient capacity to meet forecast loads over a 20 year study period.  
9

10 The Company does not attempt to use any scoring methodology or checklist to prioritize  
11 capital projects as is suggested in the question. Capital projects to refurbish existing  
12 assets are prioritized based on reliability indices, inspection results and engineering  
13 assessments of the in-service assets.  
14

15 The response to Request for Information PUB-NP-191 identifies who is involved with the  
16 process and who makes the final decisions on what is included in each year's capital  
17 budgets.

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<sup>9</sup> Annual updates to the *Substation Strategic Plan* are included as Attachments B through F to the response to Request for Information PUB-NP-065.

<sup>10</sup> For example, the report 2014 Additions Due to Load Growth, filed as part of the Company's 2014 Capital Budget Application, recommended the addition of transformer capacity at Hardwoods, Bay Roberts and Marble Mountain substations.