

1 Q. Please provide all studies and workpapers used in developing the
2 functionalization and classification ratios shown on Exhibit RDG-1,
3 Schedules 4.1, page 2 of 2, Distribution. Please provide this schedule in
4 electronic format with related data and worksheets, and with all links in
5 working format.

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8 A. Functionalization and classification ratios for distribution were primarily
9 developed from studies and documents prepared by Foster Associates, Inc.
10 and filed at Hydro's 2001 General Rate Application as NP-123. The
11 response to this request is attached as file 2001 NP 123.pdf and contains the
12 following documents:

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14 (1) Study of Distribution System Cost Classification, Foster Associates, Inc.,
15 December 1996;

16 (2) Study of Distribution System Cost Classification, Foster Associates, Inc.,
17 December 1998;

18 (3) 2001 Update to the Zero Intercept Analysis:

19 a. Memo from John Brickhill, Foster Associates, to Glenn Mitchell,
20 Newfoundland and Labrador Hydro, dated April 23, 2001.

21 b. Memo from Brian Chabot and Karen Morgan, Foster Associates, to
22 John Brickhill, Foster Associates, dated April 12, 2001.

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24 Also attached is Foster Associates' regression analysis file, PUB 17
25 ZeroInterceptAnalysis.xls.

PUB-17 NLH
2003 NLH General Rate Application

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- 1 A cross-reference summary between the Cost of Service Schedule 4.1 and
2 these documents and files follows. Within the Cost of Service Study itself,
3 Schedule 4.1 is not linked electronically to any of these files.
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| Cost of Service Schedule 4.1: Functionalization and Classification Ratios Reference Summary | | | | | | | | | | | | | | | | | | | | |
|--|---|-------------------------------|--|--|----------------------|-------|--------|--------|---------------------------------|-------|--------|------|---------------------------|-------|-------|-------|---------------------------|---------|-------|-------|
| COS Sch. 4.1 Line/Col | | | Reference | | | | | | | | | | | | | | | | | |
| L28,C7 | Substation Structures and Equipment | | Study of Distribution System Cost Classification, Foster Associates, December 1996: Page 28, Refer to 2001 NP 123. | | | | | | | | | | | | | | | | | |
| L29 | Land & Land Improvements by Subfunction: | | Based on historical knowledge and first used in the 1992 COS study. | | | | | | | | | | | | | | | | | |
| L30,C2 | Primary | 85.0% | | | | | | | | | | | | | | | | | | |
| L31,C2 | Secondary | 15.0% | | | | | | | | | | | | | | | | | | |
| L31,C9 L38,C9 | Customer Component: Primary Conductor | 11.3% | This percentage is a summary of the two subfunctions related to primary conductor which are: three-phase and other. Three-phase is 72.76% of the total primary conductor cost and is considered 100% demand-related (Study of Distribution System Cost Classification, Foster Associates, December 1998: Appendix C, p.4, Refer to 2001 NP 123). The remaining 27.24% is subject to the ratios determined from the conductor zero intercept analysis. Foster Associates' Excel file: PUB 17 ZeroInterceptAnalysis.xls Conductor Data worksheet indicates 41.7% customer component. <table><tr><td>Calculation Summary:</td><td>Total</td><td>Demand</td><td>Custmr</td></tr><tr><td>Primary Conductor – Three-phase</td><td>72.7%</td><td>100.0%</td><td>0.0%</td></tr><tr><td>Primary Conductor – Other</td><td>27.2%</td><td>58.3%</td><td>41.7%</td></tr><tr><td>Primary Conductor – Total</td><td>100.00%</td><td>88.7%</td><td>11.3%</td></tr></table> | | Calculation Summary: | Total | Demand | Custmr | Primary Conductor – Three-phase | 72.7% | 100.0% | 0.0% | Primary Conductor – Other | 27.2% | 58.3% | 41.7% | Primary Conductor – Total | 100.00% | 88.7% | 11.3% |
| Calculation Summary: | Total | Demand | Custmr | | | | | | | | | | | | | | | | | |
| Primary Conductor – Three-phase | 72.7% | 100.0% | 0.0% | | | | | | | | | | | | | | | | | |
| Primary Conductor – Other | 27.2% | 58.3% | 41.7% | | | | | | | | | | | | | | | | | |
| Primary Conductor – Total | 100.00% | 88.7% | 11.3% | | | | | | | | | | | | | | | | | |
| L31,C13 L41,C13 | Customer Component: Secondary Conductor | 41.7% | Memo April 12, 2001 from Brian Chabot and Karen Morgan to John Brickhill indicates 41.6% for conductor. (Refer to 2001 NP 123) Foster Associates' Excel file: PUB 17 ZeroInterceptAnalysis.xls Conductor Data worksheet indicates 41.7%, used in the COS. | | | | | | | | | | | | | | | | | |
| L32,C8 L32,C9 L32,C12 L32,C13 | Land & Land Improvements: Primary Demand Primary Customer Secondary Demand Secondary Customer | 75.4% 9.6% 8.7% 6.3% | L30,C2 x L30,C8 L30,C2 x L30,C9 L31,C2 x L31,C12 L31,C2 x L31,C13 | | | | | | | | | | | | | | | | | |
| L33 L34,C2 L35,C2 L36,C2 | Poles by Subfunction: 3 Phase Primary Other Primary Secondary | 41.2% 36.4% 22.4% | Study of Distribution System Cost Classification, Foster Associates, December 1996: Appendix D: Calculation of Split of Pole Investment Between Primary and Secondary (Refer to 2001 NP 123). | | | | | | | | | | | | | | | | | |
| L35,C9 L36,C13 | Customer Component: Poles: Primary and Secondary | 54.3% | Memo April 12, 2001 from Brian Chabot and Karen Morgan to John Brickhill (Refer to 2001 NP 123) Foster Associates' Excel file: PUB 17 ZeroInterceptAnalysis.xls Pole Data worksheet | | | | | | | | | | | | | | | | | |

| Cost of Service Schedule 4.1: Functionalization and Classification Ratios | | | | |
|--|--|-------|--|--|
| Reference Summary | | | | |
| COS Sch. 4.1 Line/Col | | | Reference | |
| L37,C8 | Poles: | | | |
| L37,C9 | Primary Demand | 57.8% | L34,C2 x L34,C8 + L35,C2 x L35,C8 | |
| L37,C12 | Primary Customer | 19.8% | L35,C2 x L35,C9 | |
| L37,C13 | Secondary Demand | 10.2% | L36,C2 x L36,C12 | |
| | Secondary Customer | 12.2% | L36,C2 x L36,C13 | |
| L39,C8 | Submarine Conductor: | | Study of Distribution System Cost Classification, Foster Associates, December 1996: Page 28, Refer to 2001 NP 123. | |
| | Primary Demand | 100% | | |
| L40,C11 | Customer Component: | | Memo April 12, 2001 from Brian Chabot and Karen Morgan to John Brickhill (Refer to 2001 NP 123) | |
| | Transformers | 63.9% | Foster Associates' Excel file: PUB 17 ZeroInterceptAnalysis.xls XMR Regr Output worksheet | |
| L42-43 | Customer Component of Services and Meters: | 100% | Study of Distribution System Cost Classification, Foster Associates, December 1996: Page 29, Refer to 2001 NP 123. | |