

1 **Q. Page 1-5, lines 1-9: Please describe in detail the initiatives and the implementation**  
2 **cost for each that contributed to improved Newfoundland Power emergency**  
3 **preparedness and customer responsiveness.**  
4

5 **A. A. Introduction**  
6

7 On January 11, 2013, an equipment problem at Newfoundland and Labrador Hydro's  
8 ("Hydro") Holyrood thermal generating station caused the plant to disconnect from the  
9 Island Interconnected System. This disturbance resulted in approximately 173,000  
10 Newfoundland Power customers losing electrical service. Service was fully restored to  
11 customers by January 13, 2013.  
12

13 Beginning on January 2, 2014, and lasting until January 8, 2014, Newfoundland Power  
14 customers incurred power outages as a result of continuing generation supply shortages  
15 and successive major electrical system disruptions on the Island Interconnected System.  
16 The generation supply shortages resulted in rotating power outages which caused as  
17 many as 33,529 customers to be without electricity at one time. The impact of the major  
18 electrical system disruptions resulted in as many as 187,501 Newfoundland Power  
19 customers being without electricity at one time.  
20

21 Since the loss of supply on the Island Interconnected System in 2013 and 2014,  
22 Newfoundland Power implemented a number of initiatives to improve its emergency  
23 preparedness and customer responsiveness.  
24

25 **B. 2013 Initiatives**  
26

27 Newfoundland Power reassessed its customer service response to major electrical system  
28 outages following the electrical system events of January 11-13, 2013. This reassessment  
29 resulted in changes to customer service technology, overall outage response processes  
30 and human resource deployment.  
31

32 Following the January 2013 outage, the customer service technology improvements  
33 included (i) a 25% increase in the Customer Contact Centre telephone line capacity; (ii)  
34 enhancements to the telephone system to facilitate more advanced message handling  
35 techniques; (iii) improvements to permit faster mobile phone access to outage  
36 information; and (iv) upgrades to the Company's website to improve customer access to  
37 outage related information.  
38

39 To improve the timeliness, accuracy and consistency of customer communications during  
40 major electrical system events, Newfoundland Power established a team referred to as the  
41 *communications hub*. The communications hub is comprised of operations, customer  
42 relations, communications and information services employees. The communications

1 hub is responsible for the assembly, updating, and dissemination of outage status and  
2 restoration information to key employees.<sup>1</sup>

3  
4 To increase the pool of employees available to communicate with customers throughout a  
5 major electrical system event, the Company identified and trained additional employees  
6 to provide service in the Customer Contact Centre. The pool of additional employees  
7 identified included people who regularly work in human resources, finance, conservation,  
8 regulatory, information services and audit functions.

9  
10 The implementation costs associated with the 2013 customer service technology  
11 improvements described above were approximately \$40,000.

### 12 **C. 2014 Initiatives**

#### 13 ***General***

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15  
16 Following the events of January 2014, Newfoundland Power assessed (i) its customer  
17 service technology, (ii) customer communications response and (iii) electrical system  
18 performance, including that related to rotating power outages.<sup>2</sup>

#### 19 ***Customer Service Technology***

20  
21 Newfoundland Power's customer responsiveness was improved in 2014 following the  
22 January 2-8, 2014 generation supply shortages and successive major electrical system  
23 disruptions on the Island Interconnected System. This was achieved, in part, through  
24 customer service technology improvements.

25  
26 The customer service technology improvements initiated by Newfoundland Power in  
27 2014 include (i) an SMS text messaging platform; (ii) an additional web server; (iii) load  
28 balancing technology to share website traffic between web servers; (iv) website  
29 enhancements; and (v) additional capacity improvements in the Customer Contact Centre  
30 telephone system.<sup>3</sup>

31  
32 The implementation costs associated with the 2014 customer service technology  
33 improvements described above were approximately \$225,000.

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<sup>1</sup> This includes information from Company sources, such as the Customer Contact Centre, System Control Centre and field operations. It also includes information gathered from a diverse array of external sources, including customers, Hydro, fire and emergency services, the Department of Transportation and Works, municipalities, critical suppliers, school districts and seniors' homes.

<sup>2</sup> January 2<sup>nd</sup>, 2014 was the first time Newfoundland Power was required to conduct rotating power outages on a sustained basis to respond to a forecast generation shortfall on the Island Interconnected System.

<sup>3</sup> Newfoundland Power commenced SMS text messaging and email notification service to customers for feeder-level outages in December 2014. The service is currently available via the Company's website. As of September 30, 2015, approximately 1,300 Newfoundland Power customers had subscribed to the service. As of December 16, 2015 the number of customers subscribing to the service has increased to approximately 8,230.

1           ***Customer Communications***

2           Customer communications has also been improved by the introduction of the *Advance*  
3           *Notification Protocol* and the *Joint Storm/Outage Communications Plan* which trigger  
4           and guide customer communications activities in response to developing or existing  
5           supply shortages or electrical system events on the Island Interconnected System.<sup>4</sup>  
6

7           The Advance Notification Protocol consists of five alert levels based on predetermined  
8           reserve margin thresholds.<sup>5</sup> When each reserve margin threshold is breached, the  
9           Advance Notification Protocol defines the actions to be taken by each utility, identifies  
10          the customers and stakeholders to be notified and information to be provided. Decreasing  
11          reserve margins call for increased customer communications, the eventual request for  
12          customers to conserve energy, and ultimately, preparation for rotating power outages  
13          should electrical load be expected to exceed available generation.  
14

15          The Joint Storm/Outage Communications Plan provides communications teams from  
16          Newfoundland Power and Hydro with coordinated strategies, tools and templates to assist  
17          the utilities in determining the appropriate customer communications response during  
18          anticipated or actual electrical system events. The goal of the Joint Storm/Outage  
19          Communications Plan is to ensure coordinated and consistent information is  
20          communicated from the utilities to customers so that customers are prepared in the event  
21          of an outage.  
22

23          The Advance Notification Protocol and the Joint Storm/Outage Communications Plan  
24          were developed using Newfoundland Powers internal resources. The costs incurred to  
25          develop these initiatives were not incremental to the Company's operations.

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<sup>4</sup> Both the Advance Notification Protocol and Joint Storm/Outage Communications Plan were developed jointly with Hydro and require coordination between both utilities when circumstances on the Island Interconnected System warrant.

<sup>5</sup> The Alert Levels include Alert 0 – Normal Conditions; Alert 1 – Power Advisory; Alert 2 – Power Watch; Alert 3 – Power Warning; and Alert 4 – Power Emergency.

1       ***Electrical System Improvements***

2       Following the January 2-8, 2014 electrical system events, Newfoundland Power  
3       identified a number of projects necessary to improve its electrical system flexibility and  
4       resilience.<sup>6</sup> These projects improved the electrical system’s ability to respond to both  
5       major disruptions and local system events. The projects improved the system’s ability to  
6       deal with cold load pickup and improved efficiency of restoration activities following  
7       outages. The projects also served to increase the reliability and capacity of the  
8       Company’s thermal generating plants.<sup>7</sup>

9  
10       The transmission, distribution, and substation system improvements completed by  
11       Newfoundland Power in response to the January 2-8, 2014 events include the following:

- 12  
13               (i) 14 downline automated distribution feeder sectionalizing reclosers,  
14               (ii) upgrading of 4.3km of distribution feeder conductor,  
15               (iii) 7 automated substation feeder reclosers, and  
16               (iv) 2 automated transmission line breakers.

17  
18       These improvements expanded Newfoundland Power’s ability to remotely manage  
19       rotating power outages to a larger customer base, addressed a capacity constraint that  
20       existed during the January 2-8, 2014 period, and reduced the risk of extended power  
21       outages to customers serviced by a 138 kV transmission line in the Conception Bay North  
22       area. The total cost of these projects was approximately \$2.6 million.<sup>8</sup>

23  
24       Newfoundland Power’s Wesleyville and Greenhill gas turbines provide approximately 30  
25       MW of generating capacity to the Island Interconnected System. Both units required  
26       capital improvements as a result of their relatively long time in service. In 2014  
27       Newfoundland Power completed the following work in advance of the 2014/2015 winter  
28       season:

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<sup>6</sup> Newfoundland Power’s Application for *Electrical System Improvements, April 4, 2014* was approved by the Board in Order No. P.U. 14 (2014). The Company’s Application for *Thermal Generation Refurbishment, June 2014* was approved by the Board in Order No. P.U. 24 (2014).

<sup>7</sup> Cold load pickup is simply the additional electrical demand which presents itself when a disconnected feeder is reconnected. The electrical demand which can be expected upon reconnection will be higher than that which existed at disconnection. This is the result of a lack of diversity of demand at the time of reconnection. Prior to disconnection, a distribution feeder normally has a degree of diversity (randomness of electrical devices on at a given time). When that distribution feeder is disconnected and later reconnected, or “picked up”, this diversity is lost (all electrical devices are on at the moment of reconnection). This serves to increase the demand on the feeder at the moment of reconnection from what it was at the moment of disconnection.

<sup>8</sup> A detailed explanation of each of the system improvements is described in detail in the report *Electrical System Improvements, April 4, 2014* filed in relation to the Company’s April 4, 2014 application for approval of a capital expenditure supplemental to Newfoundland Power’s 2014 Capital Budget.

1                    *Wesleyville Gas Turbine*

- 2                    (i) Complete overhaul of the Rolls Royce AVON gas generator,  
3                    (ii) Refurbishment of the power turbine including replacement of insulating  
4                    blanket and weld repairs to the power turbine disc and shroud,  
5                    (iii) Replacement of the automatic voltage regulator,  
6                    (iv) Minor repairs to the building roof, and  
7                    (v) Replacement of the lubricating oil cooler.

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9                    *Greenhill Gas Turbine*

- 10                   (i) Refurbishment of the power turbine including replacement of the insulating  
11                   blanket and repairs to the power turbine labyrinth seal and replacement of the  
12                   inlet housing shroud,  
13                   (ii) Replace exhaust gas thermocouple wiring harness,  
14                   (iii) Minor repairs to the building enclosure, and  
15                   (iv) Installation of a new 100,000 litre fuel tank and associated piping.

16  
17                   Refurbishment of the Company's Wesleyville and Greenhill gas turbines helps to ensure  
18                   Newfoundland Power's thermal generating assets are available to support peak demand  
19                   on the Island Interconnected System in the near term. The total cost of these projects was  
20                   approximately \$1.7 million.<sup>9</sup>

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<sup>9</sup> A detailed explanation of each of the system improvements is described in detail in the report *Thermal Generation Refurbishment, June 2014* filed in relation to the Company's June 16, 2014 Application for approval of a capital expenditure supplemental to Newfoundland Power's 2014 Capital Budget.