NEWFOUNDLAND AND LABRADOR HYDRO

Coordination and Communication with Customers

March 2014

newfoundland labrador hydro
a nalcor energy company

Table of Contents

EXECUTIVE SUMMARY

Newfoundland and Labrador Hydro (Hydro) has completed a comprehensive review of the events surrounding the supply disruptions on the Island Interconnected System during January 2-8, 2014. The review included investigation of the rotating outages that occurred between January 2-8, 2014[1] and the transmission/terminal station equipment failures that occurred on January 4 and 5, 2014.

This report provides a detailed description of the events of January 2014 from a customer communication and coordination perspective and is followed by key findings and recommendations.

Generally, this review shows that Hydro's personnel responded very well to the events of January 2014. While there are areas for improvement, Hydro was well prepared to address the situation and mobilized its staff effectively and efficiently and dealt with the events as they unfolded.

Hydro's Energy Control Centre (ECC) and Corporate Communications team maintained engagement with Newfoundland Power's control centre and communications team which resulted in coordinated and responsive efforts from the utilities and effective and timely messages to the public. The capacity assistance agreement reached with Corner Brook Pulp and Power (CBPP), one of the four largest Industrial Customers on the island, was effective and enabled Hydro to add generation to the Island Interconnected System. Hydro's Corporate Relations team, including Corporate Communications, Customer Service and Energy Efficiency, provided frequent up-to-date information to the public and key stakeholders through a variety of channels, including traditional and social media, which resulted in key information reaching the public. Customer Service answered calls during the outage and, due to coordinated efforts internally, was able to provide up-to-date information to Hydro's Rural Customers and also

[1] Rotating outages occurred on January 2, 3, 5 and 8, 2014.

assist Newfoundland Power's customers (who phoned Hydro). Information regarding conservation was made available to the public throughout the disruptions which Hydro believes helped reduce load demand.

Based on the findings, the following recommendations are being actioned.

1 Communication and Outage Coordination with Newfoundland Power

CCC1 Review rotating outage process used during the period of January 2-8, 2014, internally and with Newfoundland Power.

CCC2 Review protocol for Hydro's use of Newfoundland Power's hydroelectric and standby generation resources and Newfoundland Power's request for real-time data concerning the status of the Island Interconnected System.

CCC3 Review outage protocol and add a Daily Communications Summary coordinated with Newfoundland Power and the mutual sharing of notices and advisories prior to release.

2 Capacity Assistance from Corner Brook Pulp and Paper

No recommendations identified.

3 Communication with the General Public and Hydro Customers

CCC4 Prepare public advisories templates in advance of potential events to assist with rapid response and customer queries.

CCC5 Streamline internal process for distribution of information from the ECC to Corporate Communications to ensure accurate and timely communication.

CCC6 Develop key customer and power outage stakeholder list.

CCC7 Investigate alternatives for Customer Service calls, including overflow call options and the Interactive Voice Response (IVR) programming at high volume times, to ensure customer calls are answered in a more timely manner.

CCC8 Identify priority feeders in Hydro's service territory and determine which feeders contain sensitive customers to assist in developing a feeder rotation list.

4 Call for Customer Conservation

CCC9 Develop protocol for advising internal and external stakeholders when Hydro's system reserves are within the threshold of the loss of the largest generating unit, and when an energy conservation call is required.

CCC10 Ensure conservation information directed at commercial businesses is prepared and released in addition to conservation information for residents.

1 INTRODUCTION

On January 10, 2014, Newfoundland and Labrador Hydro initiated an internal review of the supply disruptions on the Island Interconnected electricity system in January 2014. This review included investigation of the rotating outages that occurred between January 2-8, 2014 and the transmission/terminal station equipment failure that occurred on January 4 and 5, 2014. The purpose of the review is to analyze and investigate potential contributing factors, determine lessons learned, and to identify immediate and longer-term actions to address opportunities for improving Hydro's performance and preventing similar events in the future. Hydro's review approach emphasized critical self-analysis and captured key items that worked well and areas which can be improved upon.

This report focuses on coordination and communication with customers and covers the following areas:

1) Communication and outage coordination with Newfoundland Power;
2) Capacity assistance from Corner Brook Pulp and Paper;
3) Communication with the general public and Hydro customers; and
4) Call for customer conservation.

In completing the review, employees held lessons learned discussions and reviewed interim findings. Hydro also engaged external consultants where necessary.

2 REVIEW PROCESS – LESSONS LEARNED

One of the key undertakings initiated through the internal review process was a lessons learned exercise which began after the system restoration activities were completed. It included consultations with employees in various areas of Hydro that were involved in the coordination and communication of information during the outages, supply disruptions and restoration efforts. The purpose of the lessons learned exercise was to review the events of January 2014 in

an open and honest manner to identify things that Hydro did well, areas that require improvement and what can be done to initiate those improvements.

The results of the reviews are mapped out in the Findings and Recommendations section. Immediate concerns were addressed and, where appropriate, implementation status is being documented for longer-term items. Hydro also engaged external consultants where necessary to provide analyses and feedback of Hydro's coordination and communication efforts.

2.1 Communication and Outage Coordination with Newfoundland Power

2.1.1 Energy Control Centre

2.1.1.1 January 2-8, 2014

On January 3, 2014, Hydro and Newfoundland Power conducted a review of the coordination process for rotating power outages. This resulted in Hydro's ECC and Newfoundland Power's control centre implementing immediate improvements to the coordination process. For example, during the initial rotating outages on January 2, 2014, each time Newfoundland Power initiated a feeder rotation they would call Hydro's ECC to ensure close coordination and maintain system frequency. When this procedure was reviewed, it was determined that due to the frequency of the rotating outages, this process had the effect of extending Newfoundland Power's customer outages. As a result, it was agreed that while both utilities would maintain contact and continue to monitor the system, Newfoundland Power would monitor system frequency to ensure stability while implementing the rotating outages within an agreed load change threshold.

2.1.1.2 Post January 8, 2014

On January 20, 2014, Hydro's System Operations division commenced a lessons learned exercise, which included, amongst other things, a review of Hydro's ECC's coordination efforts with Newfoundland Power's control centre. Present at this meeting were responsible parties from System Operations, including the ECC, Energy Systems and Supply Chain Management.

Specifically, in relation to Newfoundland Power, the following items were discussed:

- coordination and communication with Newfoundland Power;
    - coordination of feeder rotation;
    - level of communication;
    - power system restoration;
- communications with Corporate Relations;
    - routing of customer calls to the ECC after hours;
- Hydro's Generation Loading Sequence and Generation Shortages protocol;
- Hydro's rotating outage procedure, generally; and
- internal documentation of the events.

2.1.2 Corporate Relations – Corporate Communications

On January 20, 2014, Hydro's Corporate Relations division conducted an initial lessons learned exercise. Included in this exercise were members from Hydro's Corporate Communications team, Customer Service team and Energy Efficiency team. This review included, amongst other things, a review of Hydro's communications efforts with Newfoundland Power. Specifically, relating to communication with Newfoundland Power, the following items were discussed:

- communication and coordination between utilities;
    - preparation and release of information to the public;
    - media relations;
- communication and coordination with System Operations; and
- communication planning.

Hydro plans to share its findings with Newfoundland Power to determine if further improvements can be made to the coordination and communication process between the two utilities.

2.2 Capacity Assistance from Corner Brook Pulp and Paper

Hydro's System Operations also conducted a lessons learned exercise regarding Hydro's coordination efforts with CBPP. Specifically, the following items were discussed:

- coordination and communication with CBPP; and
- temporary addition of the CBPP capacity arrangement to the Generation Loading Sequence and Generation Shortages protocol.

2.3 Communication with the General Public and Hydro Customers

2.3.1 Internal

In relation to communications and customer service with the general public and customers, the following items were discussed as part of the internal lessons learned exercise:

- media relations;
- social/digital media;
    - outage takeover website;
    - use of Twitter, Facebook;
- communication and coordination with System Operations;
- customer service;
    - accountabilities for Customer Call Centre with the ECC;
    - overflow call options and IVR programming at high volume times;
- information flow to government officials;
    - coordination with government on communication and campaign work;
- stakeholder communication; and
- communication planning.

2.3.2 External

Following the outages, Hydro's Communications team engaged external consultants to: i) conduct a public survey to determine the power outages impact on customers and provide customers' opinion on Hydro's performance during the outages; ii) review Hydro's usage of

social media during the disruptions; and iii) review Hydro's management of the initial communication response and provide post event analysis.

a) MQO Research

MQO Research was engaged to conduct a telephone survey with randomly selected individuals on the island portion of the province to determine the power outages' impact on individuals and review of Hydro's performance during the disruptions. A copy of this report is located at Appendix 2.

b) NATIONAL Public Relations

NATIONAL Public Relations was engaged to provide a review of Hydro's use of social media from January 2-12, 2014. This included a review of Twitter, Instagram and on-line mentions. A copy of this report is located at Appendix 3.

c) Cathy Dornan Public Affairs

On January 4, 2014, Cathy Dornan Public Affairs was engaged to provide communication assistance to Hydro's Corporate Relations division throughout the supply disruptions. They were subsequently engaged to provide a post event analysis of Hydro's response efforts and compare it to accepted communication principles. A copy of this report is located at Appendix 4.

2.4 Call for Customer Conservation

In terms of customer conservation, the following items were discussed as part of the lessons learned exercise:

- call for conservation;
    - effectiveness of efforts;
    - continued use of customer conservation for 2014;
- integration and coordination between the ECC and the Energy Efficiency team;

- conservation messages and approach;
    - timing of conservation request; and
    - content for demand related messages.

3 BACKGROUND

3.1 Communication and Outage Coordination with Newfoundland Power

3.1.1 System Operations and Energy Control Centre

Hydro and Newfoundland Power coordinate many activities in the areas of forecasting, planning and operations. There is no single overarching document that outlines the coordination processes that exists between the two utilities. For particular activities, Hydro maintains documented procedures that are used to guide the coordination between the two utilities. The following list identifies the procedures, or instructions, maintained and used by Hydro that involve coordination with Newfoundland Power:

- 010 - System Outages;
- A-003 - Notification of Weather Warnings and Lightning Activity;
- T-001 - Generation Loading Sequence and Generation Shortages[2];
- T-007 - Holyrood Black Start Restoration Using Hardwoods Gas Turbine;
- T-032 - Restoration Plan for Loss of TL202 and TL206; and
- T-078 - Hardwoods and Oxen Pond Restoration.

These instructions are attached as Appendices 5 to 11.

Discussions and communications occur on an ongoing basis between personnel at various levels of the utilities. These activities, and the coordination that exists, have developed over time and through particular oversight of the Inter-Utility System Planning and Reliability Committee, with representation by both utilities. The committee includes senior operations and engineering

[2] T-001 does not reference the temporary arrangement with Corner Brook Pulp and Paper. T-001 has been temporarily revised to reflect the capacity assistance agreement with Corner Brook Pulp and Paper and is attached at Appendix 8.

management from Hydro and Newfoundland Power and meets twice a year to consider matters relating to load forecasting, system reliability, generation availability and peak load management preparedness. The intent of these discussions is to share observations with respect to historical and forecast loads. Hydro uses Newfoundland Power's forecast, together with forecasts for Hydro's Industrial and Rural Customers, to develop a five-year forecast, by month, of the Island Interconnected System energy and peak demands. As well, each year Hydro and Newfoundland Power discuss and coordinate the performance of Newfoundland Power's generation to prove the availability of their generation plants for the winter period.

Subsequent to the receipt of Newfoundland Power's five-year forecast and the completion of Hydro's long-term planning forecast, which includes Hydro's forecast of Newfoundland Power's energy and peak demand requirements, Hydro and Newfoundland Power communicate and discuss each other's forecast results.

Monthly, Hydro issues a report to its control room operators regarding the cost and start up times associated with all standby resources, including gas turbines and diesels owned by Newfoundland Power. This report presents the status of all standby generation and the start up time of each resource. Daily, Hydro and Newfoundland Power communicate and coordinate generation resources in order to meet system demands. Newfoundland Power reports to Hydro on the availability of their generating units. As required, Hydro's ECC discusses with Newfoundland Power's control centre the availability of water resources in their small hydroelectric facilities to ensure timely use of their generation and to maximize the benefits in maintaining customer supply. Hydro also makes requests to Newfoundland Power, as required, to change the level of production output of their hydroelectric units. In addition, Hydro and Newfoundland Power coordinate planned equipment outages to minimize the impact on customers and ensure power system security.

During periods when the system demand is expected to be high or when system generation

reserves are at risk, Hydro and Newfoundland Power coordinate additional activities:

- When cold weather and high system demands are on the forecast horizon, hourly forecasts of system demand are shared with Newfoundland Power.
- Hydro may request Newfoundland Power curtail their interruptible customers and request Newfoundland Power place in service their standby gas turbine and diesel units to help meet system demand. Hydro and Newfoundland Power discuss the appropriate timing associated with each of these requests to ensure maximum benefit to the system and minimize impacts to customers.
- Hydro and Newfoundland Power coordinate to ensure a balance between system supply and demand.
- Hydro and Newfoundland Power coordinate delivery point voltage reduction strategies by reducing the voltage on certain power system elements to reduce the system demand.
- Hydro and Newfoundland Power also coordinate public conservation requests, using a consistent message.

Prior to January 2, 2014, Hydro had never had to engage in rotating outages on the broad Island Interconnected System. In this situation, demand went beyond available supply and Hydro determined it was unable to maintain system frequency (60 Hz). Hydro's ECC and Newfoundland Power's control centre coordinated the rotating outage process to ensure the reliability and integrity of the power system. This is to maintain a balance between supply and demand to minimize the impact to customers. When load shedding was required, Hydro tried to proportionately balance the number of Hydro's customers affected with the number of Newfoundland Power customers affected.

3.1.2 Corporate Communications

Hydro maintained communication dialogue with Newfoundland Power and coordinated the release of information as required. Normally, when there is a routine power outage, Hydro

follows its Power Outage and Emergency Operating Procedures (Appendix 1) which provides a communications plan for Hydro to follow during a routine power outage. During an outage, Hydro will work with Newfoundland Power's communications representatives to relay and receive information about outages affecting Newfoundland Power's customers (when required).

3.2 Capacity Assistance from Corner Brook Pulp and Paper

Hydro and CBPP have a Service Agreement, approved by the Board of Commissioners of Public Utilities (PUB), which sets out the terms and conditions under which Hydro provides service to CBPP. CBPP owns and operates approximately 137 MW of hydroelectric generating capacity that provides 50 and 60 Hz power to its paper mill. CBPP has 81 MW of 60 Hz generation capacity and 56 MW of 50Hz capacity. Of the 56 MW (50Hz), 32 MW is used; 20 MW through a frequency converter and 12 MW used for mill load. The remainder is not used due to CBPP system constraints. To supplement their power requirements, CBPP purchases firm and non-firm power and energy from Hydro under the Service Agreement. Under the Service Agreement, by October 1 of each year, CBPP is required to declare the amount of firm power that it intends to purchase from Hydro the following year. Based on the amount of firm power required, CBPP is also entitled to a certain amount of non-firm (interruptible) power. Since 2009, CBPP has operated under a pilot program which enables a demand credit rate structure to facilitate the more efficient use of CBPP's hydraulic generating resources and permits lower energy production from Hydro's Holyrood Thermal Generating Station.

While extremely rare, due to high demand and supply concerns, Hydro will investigate opportunities with its Industrial Customers, such as CBPP, to enter into a short-term capacity assistance arrangement. Such an arrangement with CBPP was finalized on December 31, 2013. The arrangement allows for Hydro to call on progressively increasing blocks of capacity from CBPP's 60 Hz generation (20 MW, 40 MW and 60 MW). These blocks are made available in four-hour periods through load curtailment at the Corner Brook paper mill. The arrangement

with CBPP for capacity assistance has since been extended through the remainder of the winter period (to March 31, 2014). The details of the arrangement are attached at Appendix 11.

When system demand is expected to be high, Hydro will engage its Generation Loading Sequence and Generation Shortages protocol (Appendix 7). Under the steps in this protocol, as it pertains to CBPP, Hydro will first request that CBPP (through Deer Lake Power) maximize its hydroelectric generation (step 3) and will cancel all non-firm power delivery (step 9). If load is still increasing and it is apparent that a generation shortage may occur, Hydro will ask its Industrial Customers (which includes CBPP) to shed non-essential loads and inform them of system conditions (step 12). Hydro will then make a capacity assistance request to CBPP (step 13) and request they, and other Industrial Customers, shed additional load (step 14). Step 13 of this protocol was added, on an interim basis, in December 2013 to incorporate the capacity assistance agreement with CBPP (Appendix 8).

3.3 Communication with the General Public and Hydro Customers

Hydro will make provincial electricity consumers aware that they may be affected by a generation shortage using both traditional and social media. For Hydro's Rural Customers, in the case that customer demand exceeds generation supply, Hydro will develop a feeder rotation list of its customers and provide notice to customers when possible. The outage rotation list serves as a guideline to indicate which customers will be affected, the time of the outage and the approximate outage duration. Depending on system conditions, the feeder rotation list may have to be modified or revised. The notice provided to the public and customers consists of general information regarding the approximate length and general timing of the outage. The exact numbers of customers affected can vary upon implementation based on the load reduction required.

Hydro's customer rotation and notification process is generally as follows:

1. The ECC provides a feeder rotation list to Customer Service and Corporate

Communications. This identifies the communities and feeders that will be subject to an outage, the approximate time and the approximate duration;

2. Customer Service updates the outage notification database with the information;
3. Corporate Communications issues an advisory and distributes the advisory through media, its website and social media;
4. The ECC provides any further updates regarding changes in the rotation list or issues with the rotations; and
5. The ECC advises Customer Service and Corporate Communications when overall customer rotation has ended.

During a power outage, Hydro's Corporate Communications team relays timely and accurate information to the public and the media. Information is communicated through a variety of channels: social media (Twitter and Facebook); Public Service Announcement on Hydro's website and via traditional media. Hydro works with regional representatives to develop and deliver information to key customers and the general public in the affected areas. The Corporate Communications team also ensures key stakeholders are advised.

Hydro's Customer Service Call Centre is open Monday-Friday from 08:00 to 16:00 to serve Hydro's customers, and Hydro provides an automated 24-hour power outage and emergency service to its customers. Outside of regular call centre hours, emergency and outage calls are routed through an IVR system to the ECC. If the ECC receives a high volume of calls, it will contact Customer Service and make a decision to call in Customer Service Representatives (CSR) and open the Call Centre after hours.

Customers may use either of Hydro's Customer Service toll-free numbers to access the Power Outage and Emergency System (POES). Once contact is made with the POES, customers can obtain the following information:

- Dates and times of scheduled outages for specified communities; and

- Updates on current unscheduled outages for specified communities.

Callers to the POES have the option to press zero to speak to a CSR. During normal work hours, calls are directed to Hydro's Call Centre. After hours, calls are directed to the ECC. CSRs have been coached to provide as much detail as possible. At minimum, the CSR provides the following information:

- the time the outage started;
- if crews are on-site or en route;
- if a helicopter patrol is in progress;
- that Hydro has availed of social media as a tool to provide outage update;
- that Hydro expects a minimum of four hours to complete an assessment of the power outage (dependent upon weather conditions that can slow the assessment/patrol);
- that Hydro will continue to update its automated telephone system as further information is available;
- that customers can access information via Hydro's website at www.nlh.nl.ca and that Hydro will continue to update its online outage takeover website as further information is available;
- that Hydro will provide updates through the news media (VOCM, CBC radio, depending on the magnitude of the situation); and
- ask the customer to call back if other concerns arise.

3.4 Call for Customer Conservation

Hydro monitors the projected reserve using the seven-day load forecast and projected capacity availability. System Operations also monitors the system on a day forward basis. Due to the range of variability in the short-term forecasts, Hydro assesses the likelihood of load on the power system approaching the available capacity to determine when conservation may provide a benefit. When Hydro determines that conservation may benefit the system, it initiates a discussion with Newfoundland Power and then a discussion with internal stakeholders. The

focus of the discussions is on the need for the request, the appropriate timing for the request to be most effective to avoid rotating outages and the need to balance public confidence in the power system. In determining if the conservation request is needed, Hydro reviews the load forecast for the period in question, available or unavailability of generation, including wind generation, and weather forecasts.

If Hydro determines that a conservation request is required, Hydro's Corporate Communications team and Energy Efficiency team will work closely with Newfoundland Power to coordinate messaging and ensure the information is released to the public and key stakeholders.

4 SEQUENCE OF EVENTS

4.1 Communication and Outage Coordination with Newfoundland Power

At various times in December, Hydro was actively managing the system supply and load using its regular planning process and tools and the Generation Load Sequence and Generation Shortage protocol as required. There were a number of circumstances in December which prompted the Systems Operations team to actively and closely monitor both forecast load and supply including discussions with Newfoundland Power.

With respect to outage coordination, Hydro realized that it would likely not meet the forecast load on January 2, 2014. At that time, it enacted the final steps in its Generation Load Sequence and Generation Shortage protocol and planned for a customer conservation request and probable rotating outages. That morning, Hydro's ECC contacted Newfoundland Power's control centre to discuss the forecast and the need for a conservation request. Hydro's ECC also notified Corporate Communications and internal stakeholders. Internal discussions occurred between Hydro's operations and communications team via teleconference at 11:00 to discuss the details of the supply and load parameters and the required conservation request. Following the meeting, conservation messages were coordinated with Newfoundland Power and after

several discussions, it was agreed that Hydro would take the lead on releasing the conservation advisory. Following the discussions with Newfoundland Power, Hydro drafted the advisory. Once the advisory was drafted and internally approved, it was sent to media in the early afternoon and released to the public (posted on Hydro's website and social media sites.) Following release of the advisory, key messages were sent to Newfoundland Power.[3] Subsequent media interviews were conducted.

With increasing system load and rapidly declining operating reserves, Hydro's ECC requested Newfoundland Power's control centre to commence rotating outages at 16:13 on January 2, 2014. At this point, there were a number of key elements that were monitored to support the decisions on the timing and the amount of load to interrupt. These elements were: 1) amount of remaining generation reserve; 2) system frequency; and 3) system voltages. System frequency, total generation and system voltage data were shared between the utilities in real time. The determining factor for rotating outages was the system frequency. Once Hydro determined it was unable to maintain system frequency (60 Hz), rotating outages were implemented.

On January 2, 2014, as Newfoundland Power was implementing rotating outages, they called Hydro's Energy Control Centre each time. This was to ensure close coordination when shedding and restoring customer load to maintain system frequency. The process was reviewed on January 3, 2014 and it was agreed that while both utilities would maintain contact, the number of the coordination calls relating to the rotating outages would be reduced. Both utilities continued to monitor the system to ensure the system frequency was stable while rotating the outages.

From January 2 to January 8, 2014, Hydro and Newfoundland Power's control centre maintained communications. At the end of each day, Hydro and Newfoundland Power engaged

[3] A more detailed account of the sequence of events for Corporate Relations is shown in Table 2.

in a discussion about the day's events and prepared for the following day. This included a review of the load forecast, weather forecast, and potential for rotating outages. Each morning, Hydro contacted Newfoundland Power to confirm load forecast for the day and the likelihood for rotating outages. From January 2 to January 8, 2014, notice to Newfoundland Power to begin rotating outages was given to their control center in real time which resulted in the requests being implemented very quickly. It should be noted that there were times, due to system voltage constraints, that Hydro specifically requested that customers on the Avalon Peninsula be chosen for outages.

For its direct Rural Customers, Hydro established an outage rotation schedule, using 30 – 60 minute intervals. This included the Northern Peninsula, the Connaigre Peninsula, Burgeo and South Brook areas. The Customer Service and Corporate Communications teams were updated by the ECC on January 5 and 8, 2014, regarding the outages affecting Hydro's customers. Customer Service and Corporate Communications were provided a list of communities and approximate times for the rotating outages. The customer outage database was updated with timely information. Social and digital media (Hydro website, twitter, Facebook) were also used to communicate outages.

4.2 Capacity Assistance from Corner Brook Pulp and Paper

During the disruptions, Hydro's ECC maintained communication and coordination with CBPP. When Hydro determined that capacity assistance was required, the ECC contacted CBPP (via Deer Lake Power) and requested the required block of load for the four-hour period. CBPP was also informed when capacity assistance was no longer required.

A summary of when Hydro relied on the capacity assistance agreement with CBPP from January 2-8, 2014, is detailed below in Table 1.

Table 1: Corner Brook Pulp and Paper Capacity Request Summary

Starting Date and Time	Capacity Delivered (MW)	Number of Four-Hour Periods
January 2 (06:45) to January 3, 2014 (22:45)	60	10
January 4 (07:55) to January 6, 2014 (20:00)	60	15
January 6, 2014 (20:00-23:59)	40	1
January 8, 2014 (07:00-19:40)	60	3
January 8, 2014 (19:40-22:16)	40	1

4.3 Communication with the General Public and Hydro Customers

4.3.1 Corporate Communications

On January 2, 2014, Hydro generally followed its routine Power Outage and Emergency Operating Procedures (a description of the events regarding the call for customer conservation is described in the next section). At approximately 13:50 on January 2, 2014, Hydro made provincial electricity customers aware that conservation was required using traditional, social and digital media. At 16:13, Hydro communicated to the public that generation supply would not meet customer demand and rotating outages were required. The focus of the information was outage details, conservation and safety.

The Corporate Communications team was accessible to the media throughout the January supply disruptions. Hydro participated in more than 100 media stories and held seven media briefings. Hydro posted a high volume of information via social media, which included 350+ Twitter posts, 60+ Facebook posts, and more than 49,000 social media mentions. Hydro experienced an increase in its Twitter followers from 3,000 to approximately 9,000 and its Facebook followers increased by 1400 over the outage period to approximately 8,800. Three Corporate Communications team members managed public responses and social media messages.

Hydro's Vice President of Corporate Relations tweeted directly from her account. Hydro also retweeted and posted information relating to Newfoundland Power. An account of the events and actions from Hydro's Communications team is fully outlined in Table 2.

On January 4, 2014, Hydro engaged Cathy Dornan Public Affairs to assist Hydro in its communications response efforts, as per the Outage and Emergency Operating Procedures.

On January 5, 2014, Hydro launched an "outage takeover website" to temporarily replace Hydro's website. The purpose of the outage takeover website was to create a one-stop place where advisories, important links and key contact information could be housed and easily accessed by the public. This site was the first thing that a visitor to www.nlh.nl.ca or someone searching for Hydro through a search engine would see. The following information was included: latest Public Safety Advisory; link to Hydro's outage information page; Hydro's customer inquiry number; media contact; link to Newfoundland Power's outage information page and customer inquiry number; and safety information. The outage takeover website also featured a live twitter feed.

During the rotating outages on January 5 and 8, 2014, a list of outages was communicated to Hydro customers through media advisories, an update to the outage information page on the Hydro website, and posts on social media sites, Twitter and Facebook.

Table 2: Timeline of Communication Activities

Date	Time	Action
January 2, 2014	08:00	Call from operations confirmed peak load may exceed capacity
	11:30 – 12:30	Several discussions with Newfoundland Power communications team on advisory and messaging — Decision that Hydro would take lead on releasing

Date	Time	Action
		advisory — Decision to release conservation request had to be balanced against maintaining public confidence. i.e. important to ensure it was absolutely necessary before releasing.
	12:30	Advisory and messages drafted
	13:00	Update provided to Government
	13:30	Advisory distributed for internal approval
	13:51	Advisory sent to media/public – posted to website and social media
	14:30	Key messages sent to Newfoundland Power communications
	15:00	Confirmed media interviews with NTV, VOCM, CBC, Telegram, CBC National
	15:12	Information sent to all employees – conservation messages
	16:13	Rotating outages began, regular updates through social media
	~21:30-23:30	Updated advisory sent to media/public, social media rotations stopped for the night
January 3, 2014	07:00	Updated Newfoundland Power communications on loads and messages for the day Social media updates continued with safety and conservation messages throughout day and into evening
		Media interviews with CBC morning shows, VOCM and Telegram
	12:21	Requested Newfoundland Power join Hydro for joint

Date	Time	Action
		media brief
	13:15	Advisory for media briefing sent to Newfoundland Power communications for approval
	13:37	Media advisory distributed
	14:30	Joint media briefing at Hydro Place
	16:30	Dawn Dalley, Vice President of Corporate Relations - interview with CBC Here and Now
	16:30	Updated advisory sent to media/public on rotating outages
	18:00	Rob Henderson, Vice President of Hydro - interview with VOCM
	19:36	Rotating outages end, information updated on social media
January 4, 2014	09:00	Social posts indicating outages likely result of severe weather, investigating
	10:00	Began media interviews and social posts indicating investigation into incident at Sunnyside terminal station
	Ongoing	Liaison and dialogue with Newfoundland Power Communications team
	13:00	Prepared messages with Newfoundland Power at Hydro Place
	14:00	Joint media briefing – Hydro, Newfoundland Power, Fire and Emergency Services NL (FESNL) Continued constant feed of real-time updates, Q&A on social media
	16:40	Information on outage sent to media/public and posted on website

Date	Time	Action
	17:30	Prepared key messages with Newfoundland Power at Hydro Place
	18:00	Joint media briefing – Hydro, Newfoundland Power, FESNL Continued real-time updates and frequent messages about conservation and safety
January 5, 2014		Frequent messages on social media about conservation and safety on outage takeover website
	11:00	Launched takeover website – contained links to important information, advisories and contact numbers
	11:30	Briefing at Government with stakeholders
	13:30	Joint media briefing with Premier, Hydro and Newfoundland Power
	~14:30	Ed Martin, President and CEO, on VOCM open line show
		Started work on joint media campaign sponsored by Government, Hydro and Newfoundland Power Hydro communications and Hydro takeCHARGE team – worked with Government to develop messages and collateral. Newfoundland Power provided input.
	17:30	Hydro advised its customers of rotating outages – schedule posted online
	21:40	Trip at Holyrood
	21:50	Dawn Dalley updated VOCM and CBC on Holyrood incident
	21:50-23:00	Real-time information distributed on social media until all customers restored
January 6, 2014	05:17-22:48	Rotating outages to Newfoundland Power customers

Date	Time	Action
		Ed Martin - interview with CBC morning show
		Continued posting information on social media with real-time updates and responding to questions
		Government joint conservation advertisements began running, included posting conservation info to Government website and used hashtag #conserveNL
		Joint media briefing Premier, Hydro
	13:30	Hydro continued frequent conservation messages on social media
		No planned rotating outages
January 7, 2014		Conservation and safety messages continued via social media
		Continued answering questions about generation and load on social media
		Joint briefing with Premier, Newfoundland Power and Hydro
	13:00	Posted update on Hydro takeover website and on social media
	16:40	Updated Hydro takeover/front website
January 8, 2014	10:30	Government shared top ten conservation tips – Hydro re-tweeted
		New peak load reached – conservation messages continued on social media
		Rotating outages resumed. Hydro posted lists of communities and times on website for outages in Hydro distribution service territory
	15:23	Rotating outages to Newfoundland Power and Hydro

Date	Time	Action
		customers begin
	~15:30	Media advisory issued on rotating outages and posted on Hydro takeover website online
	16:00	Joint briefing, Premier, Hydro and Newfoundland Power
		Rotating outages ended and public notified
	17:42	Advisory posted on Hydro takeover website that Unit 1 at Holyrood back online
	18:30	Ed Martin interviewed with CBC On the Go, NTV Evening News and CBC Here and Now
January 9, 2014		Hydro communications team continued to answer questions and provide social media updates
January 10 – 14, 2014		Preparation for PUB reporting
		Prepared public advertisement and stakeholder outreach apologizing to customers for impact of outages and to make it clear that Hydro is in full support of review processes
		Prepared post outage survey with general public to assess communication and impact including conservation measures

4.3.2 Customer Service

After 16:13 on January 2, 2014, following the start of Newfoundland Power's rotating outages, Hydro's ECC received calls from Newfoundland Power's customers asking about the outages. At that time, Customer Service and the ECC decided to reopen Hydro's Call Centre if the call activity continued or increased. The ECC monitored the volume of calls and determined that the Call Centre did not need to reopen that evening.

With the continued calls for conservation and potential for rotating outages, Hydro's Call Centre opened early at 07:00 on January 3, 2014. Two CSRs and a supervisor were present. The Call Centre answered four calls between 07:00 and 08:00 and thirty-seven calls between 16:00 and 20:00. After 20:00, calls slowed considerably and Customer Service decided to close the Call Centre and calls were transferred back to the ECC.

Following the system events of the morning of January 4, 2014, due to the volume of calls coming in, the ECC requested Call Centre support. The Call Centre was opened from noon to 18:30 with two CSRs and one supervisor on site. Fifty calls were answered during that time with approximately 80% of the calls from Newfoundland Power customers. Call volume dropped considerably after the provision of public outage updates by Hydro's Corporate Communications team (via media and social media). Customer calls were transferred to the ECC at 18:30.

Call Centre support was not required on January 5, 2014, however, two CSRs were on standby in case they were needed. The Call Centre Supervisor maintained frequent contact with the ECC to monitor the situation and volume of calls. The Call Centre operated normally on January 6 and 7, 2014. During this timeframe, Hydro received some calls from Newfoundland Power residential customers seeking damage compensation. All calls from Newfoundland Power customers were directed to contact Newfoundland Power with their concerns as per normal process.

Rotating outages began at 15:23 on January 8, 2014 and Hydro decided to keep the Call Centre open after 16:00. While rotating outages ceased prior to 18:00 that evening, the public was informed of the possibly of outages recommencing, depending on customer demand. As such, the Call Centre remained open until 19:30. Thirty-three calls were answered between 16:00 and 19:30 and customer calls were transferred back to the ECC at 19:30.

4.4 Call for Customer Conservation

A decision to issue a conservation request to customers was made during the morning of January 2, 2014 as there was an anticipated shortage in generation capacity to meet the customer demand expected during the evening peak period. At 08:00 on January 2, 2014, the available system supply, including purchases, was 1,497 MW; at that time the system demand was 1,450 MW, with a reserve of 47 MW.

On January 1, the mean temperature for the day was -13 C[4] and the system peak demand was 1,436 MW. The forecast temperatures for January 2, 2014 were in the range of -13 C to -18 C[4]. With a reduced system reserve; a weather forecast indicating extremely cold temperatures for the day; and Hydro's experience with system demands in the period leading up to January 2, 2014 Hydro felt that a conservation request was required to deal with a potential generation capacity shortage. Thus, at 08:00, Hydro's ECC initiated discussions with Newfoundland Power's control centre regarding a conservation request. Also, at that time, the ECC contacted Corporate Communications. Discussions were held between System Operations and Corporate Relations via teleconference at 11:00 to brief on the details of the supply and load parameters and the required conservation request.

Following the meeting, messages were coordinated with Newfoundland Power and it was determined that the conservation request should come from Hydro. Hydro drafted a press advisory and appropriate social media messages and, upon internal approval, the release was issued to local media. Interviews were arranged with local media proactively and prior to the press advisory being released to expedite the public release of information. Social media posts on Twitter and Facebook were made just after the press advisory was issued. Hydro formally issued the conservation request to the public at approximately 14:00 via traditional and social media. The news release (Appendix 14) defined a series of short-term conservation measures customers were asked to make.

[4] Source: Environment Canada for the City of St. John's.

Subsequently, a joint media campaign initiative sponsored by the Government of Newfoundland and Labrador, Hydro and Newfoundland Power was initiated. The campaign included radio and print ads (Appendix 15) and web based initiatives. An information sheet with conservation tips for residential and commercial customers was also promoted through social media and was posted on the Government's website (Appendix 16). Both utilities and government in media interviews also promoted the same targeted conservation measures to customers which asked customers to: 1) reduce electric heat by a few degrees; 2) conserve hot water by not running dishwashers, washers and showers; 3) avoid using clothes dryers; and 4) turn off Christmas lights.

5 KEY FINDINGS AND RECOMMENDATIONS

5.1 Coordination and Communication with Newfoundland Power

Power system restoration communication and coordination with Newfoundland Power went well. Resources in Hydro's System Operations were present to help operators in the ECC and conduct was professional and calm in the control room. The communication between Hydro and Newfoundland Power control centres worked well with real-time improvements to the rotating outage process that resulted in a reduction in the average outage duration experienced by Newfoundland Power's customers. Newfoundland Power and Hydro rotated feeders and monitored a common frequency source which permitted Hydro to maintain system reliability. The Generation Load Sequence and Generation Shortage Protocol was followed and ensured that the ECC maintained system reliability.

The dialogue between Hydro's Corporate Communications teams and Newfoundland Power's communications team ensured the public was kept aware of the situation by the best possible means and helped ensure consistent messaging. Hydro's Corporate Communications team was accessible to Newfoundland Power's communication team throughout the disruptions and shared information in an open manner. Hydro also shared Newfoundland Power's contact information on its website, subsequent outage takeover website and through social media. The

effort was generally coordinated and efficient and overall resulted in a timely exchange of information to each other and to the public. Where there were gaps during the events, feedback was provided and changes were made.

The rotating outage process, including the changes incorporated on January 3, 2014, worked well, however, a review of the process, both internally and with Newfoundland Power's control centre, should be conducted to ensure best practices are used in future events.

In addition to reviewing the rotating power outage process, Hydro and Newfoundland Power have agreed to develop a protocol to address Hydro's use of Newfoundland Power's hydroelectric and standby generation resources. Hydro is also reviewing Newfoundland Power's request, received in February 2014, that originated from the inter-utility meeting held in May 2013, for real-time data relating to the status of the Island Interconnected System.

While Newfoundland Power was consulted during the decision to issue the initial conservation advisory, the advisory itself was not provided to Newfoundland Power prior to its release. Hydro has reviewed this process and even though Hydro is satisfied that Newfoundland Power was fully aware of the contents of the advisory, courtesy dictates that Hydro should have provided a copy to Newfoundland Power prior to releasing the advisory to the public.

It was also noted that a daily summary of events would assist in supplementing the communication between the utilities, in terms of reviewing the events that occurred, during the outages and looking back from a lessons learned perspective and should be incorporated into Hydro's Power Outage and Emergency Operating Procedure.

Recommendation		Status (Timing)
CCC1	Review rotating outage process used during the period of January 2-8, 2014, internally and with	In Progress (May 15, 2014)

Recommendation		Status (Timing)
	Newfoundland Power.	
CCC2	Review protocol for Hydro's use of Newfoundland Power's hydroelectric and standby generation resources and Newfoundland Power's request for real-time data concerning the status of the Island Interconnected System.	In Progress (May 15, 2014)
CCC3	Review outage protocol and add a Daily Communications Summary coordinated with Newfoundland Power and the mutual sharing of notices and advisories prior to release.	In Progress (April 30, 2014)

5.2 Capacity Assistance from Corner Brook Pulp and Paper

The coordination and communication efforts between Hydro and CBPP worked well. Upon determining that capacity assistance was required, Hydro contacted CBPP, who were receptive to a solution and a short-term capacity assistance agreement was achieved in short order. These types of arrangements are normal for utility operations and provided Hydro with additional generation. The arrangement was also more cost effective than other alternatives, such as renting a gas turbine, and was an appropriate solution for the time frame required. This arrangement is in place until March 31, 2014**.**

5.3 Communication with the General Public and Hydro's Customers

5.3.1 External Review

Hydro's Corporate Communications team engaged external consultants, MQO Research, NATIONAL Public Relations and Cathy Dornan Public Affairs to review Hydro's performance during the outages. The telephone survey conducted by MQO Research showed that 62% of the people surveyed gave Hydro a rating of seven or higher (out of ten) when asked if Hydro provided information that was easy to understand. Over 50% of people surveyed provided a

rating of seven or higher on Hydro's provision of up-to-date and reliable information. While respondents indicated that Hydro could have provided more information and updates during the outages, respondents also indicated that Hydro's communication with the public was one of the top things that Hydro did well during the events. The report by NATIONAL Public Relations also shows that Hydro had a significant presence on social media. It demonstrates that social media was an effective means of sharing information and that Hydro was successful in reaching its target audience: customers and members of the general public. The report by Cathy Dornan Public Affairs indicates that Hydro did a very good job of communicating to the public and ensured that the public had reliable information.

5.3.2 Internal Review

The Corporate Communications team engaged in frequent distribution of information through a variety of channels, including traditional and social media. The team was accessible to the media throughout the disruptions and responded to social media questions efficiently and effectively. Hydro posted a high volume of information via social media and shared information in real time, for example, the Vice President of Corporate Relations was on air with VOCM and CBC within ten minutes following the January 5 Holyrood event. To assist with the provision of information to the public in the future, advisory templates should be prepared in advance.

During the outages, Hydro created an outage takeover website during the outages that took priority over Hydro's website such that all advisories, important links and key information was housed in one place and accessible by the public. It has been determined that the outage takeover website worked very well during the disruptions and Hydro has created an outage takeover website which can be deployed immediately by Corporate Communications during future events. The website will also have mobile functionality such that the public can access it through mobile devices.

Corporate Communications and the ECC maintained good dialogue and contact throughout the events, however, there were a few instances where information on system events was not provided to Corporate Communications in a timely manner. This resulted in the inaccurate provision of information to stakeholders and customers. Where there were gaps during the events, feedback was provided and changes were made.

Hydro communicated with key stakeholders during the disruptions. Regular updates were sent to Government by the Vice President of Corporate Relations. Both Hydro and Government participated in joint media briefings and participated in a joint energy conservation campaign. As well, new stakeholders were identified during the outages, such as the Canadian Federation of Independent Businesses. However, a broader key customer account and power outage stakeholder list would assist and expedite this process in the future.

Following the outages in January 2014, Hydro has continued to provide information to, and answer questions from, the public through email and social media. A public advertisement and stakeholder outreach plan was prepared and issued publicly, apologizing to customers for the events and their impact.

Hydro also held follow-up meetings with large institutions, including Memorial University and College of the North Atlantic, and has had discussions with the school district, the St. John's Board of Trade and the Canadian Federation of Independent Businesses.

On January 29, 2014, Hydro started posting its daily supply and demand reports, which it provides to the PUB, on Hydro's website. On February 17, 2014, Hydro posted a blog post explaining peak demand and generation and a live feed of Hydro System generation and Island System generation on its website, in response to customer feedback and requests.

Recommendation		**Status (Timing)**
CCC4	Prepare public advisories templates in advance of potential events to assist with rapid response and customer queries.	In Progress (May 15, 2014)
CCC5	Streamline internal process for distribution of information from the ECC to Corporate Communications to ensure accurate and timely communication.	In Progress (May 15, 2014)
CCC6	Develop key customer and power outage stakeholder list.	In Progress (May 15, 2014)

Customer Service received a number of calls during the outages from Newfoundland Power customers, seeking information on the duration of outage rotations and when generation supply would return to normal. The overall customer tone was good; while some customers were frustrated, few were really upset. A lack of information on restoration times and uncertainty with supply were the common concerns expressed by callers. Some businesses expressed concern with the economic impact on their business. The provision of news updates and media briefings by the Corporate Communications team appeared to ease the call volume into Hydro's Call Centre. It was noted that there were only two CSRs available to take calls at a time, meaning that if more than two people called at the same time, a queue was created and people had to wait until a CSR was available. Customer Service is already investigating overflow call options and the IVR programming at high volume times and potential alternatives.

If the Call Centre was not open, calls were directed to the ECC. While coordination between the ECC and Customer Service worked well and the ECC determined it was capable of answering Customer Service calls while the Call Centre was closed, to ensure that the ECC can focus on system operations, the process of routing calls to the ECC after hours should be reviewed by

the ECC and Customer Service to determine if a better alternative exists.

During the outages, it was discovered that each Transmission & Rural Operations (TRO) region maintained its own key customer contact list and these lists are not centralized and coordinated with Hydro's Customer Service. While Hydro was able to provide its customers with up-to-date information in an effective manner, it was determined that the key customer contact list for each TRO region should be centralized and a process put in place for ongoing management of the list.

	Recommendation	Status (Timing)
CCC7	Investigate alternatives for Customer Service calls, including overflow call options and the IVR programming at high volume times, to ensure customer calls are answered in a more timely manner.	In Progress (April 30, 2014)
CCC8	Identify priority feeders in Hydro's service territory and determine which feeders contain sensitive customers to assist in developing a feeder rotation list.	In Progress (April 30, 2014)

5.4 Call for Customer Conservation

Hydro is of the opinion that the conservation measures had an impact in reducing customer demand, although the specific impact of the conservation measures cannot be measured. Through monitoring of social and traditional media, it was apparent that people were taking steps to conserve energy in both their homes and businesses. At the beginning of the rotating outages, in particular, people posted about observing homes without their holiday lights on and discussed measures they were taking inside their homes and businesses, such as turning down their heat and turning off commercial lighting and heat.

The survey conducted by MQO Research post-outage, indicates that 86% of respondents practiced energy conservation measures during the outages and most had continued with these measures up to the time of the survey. Most respondents indicated that they turned off outdoor Christmas lights (83%) and turned down the heat (51%). As well, through coordination with the Government of Newfoundland and Labrador, Memorial University of Newfoundland, the College of the North Atlantic and grade schools remained closed removing considerable load from the electrical system. As well, we recognize that commercial customers were also assisting. Within Hydro offices, for example, adjustments were made to heating systems to enable demand savings within the peak periods. Changes in total system load pattern due to conservation, weather variables, and regular dynamic behaviour of load, however, make it difficult to discern the specific and measureable impact of conservation. Regardless, such requests are worthwhile and should be maintained.

Hydro and Newfoundland Power promote energy conservation initiatives and programs through the joint utility program, takeCHARGE. The internal review determined that additional broad conservation programs related to demand reductions are not necessary during the 2014 winter period. There are two primary reasons for this assessment. First, the marginal cost of generation is driven by Holyrood Thermal Generating Station fuel which is an energy related cost. This has resulted in a focus on energy conservation in joint utility programming as a cost effective alternative to the burning of fuel at Holyrood. The short-term calls for conservation in January were targeting demand reductions. The establishment of demand management programs would require further study of the longer-term marginal costs of the system to provide economic basis for their implementation. Secondly, at this time Hydro's generation is projected to meet the forecast load for the remaining 2014 winter period so an extended demand management program is not required.

Following the January 2014 supply disruptions, the ECC requires a formal protocol for advising internal and external stakeholders to determine if a conservations request is necessary.

Corporate Communications also requires a clear protocol for advising the public of the conservation request.

The conservation requests and public releases were prepared very quickly. When the initial conservation request was made on January 2, 2014, it focused solely on conservation and what the public could do to conserve. This is consistent with the approach taken by utilities in other jurisdictions, however, the conservation information provided to the public was primarily directed at residential customers initially, but should be broadened to include commercial customers.

The Corporate Communications team and Energy Efficiency team worked well together to develop the messaging surrounding energy conservation and this practise should be continued.

Recommendation		Status (Timing)
CCC9	Develop protocol for advising internal and external stakeholders when Hydro's system reserves are within the threshold of the loss of the largest generating unit, and when an energy conservation call is required.	In Progress (April 30, 2014)
CCC10	Ensure conservation information directed at commercial businesses is prepared and released in addition to conservation information for residents.	In Progress (April 30, 2014)

Appendices

Appendix 1

POWER OUTAGE AND EMERGENCY OPERATING PROCEDURES

Revision: 5
Updated: March 21, 2011

newfoundland labrador hydro
a nalcor energy company

TABLE OF CONTENTS

PURPOSE

The purpose of this document is to provide a clear communications plan for Newfoundland and Labrador Hydro (Hydro) during a power outage or emergency, to better service our customers. The document outlines the roles and responsibilities of departments and designated individuals during customer outages and emergencies, as well as the procedures to follow during these situations.

GENERAL

Hydro provides a 24-hour power outage and emergency service to its customers in Newfoundland and Labrador. Customers may use either of Hydro's Customer Service toll-free numbers to access the on-line Power Outage and Emergency System (POES). Once contact is made with the POES, customers can acquire the following information:

- Dates and times of scheduled outages for specified telephone exchanges.
- Updates on current unscheduled outages for specified telephone exchanges.

While in the POES customers have the option to "zero out" to speak with a Hydro Representative. Calls are directed to Hydro's Communications Centre during normal work hours and to the Energy Control Centre (ECC) after hours. If a customer accesses the POES and no outages are recorded for the exchange they selected, then they are immediately given the option to "zero out" to report an outage to a Hydro representative.

In addition to the POES, customers can access outage information via Hydro's website at www.nlh.nl.ca.

The procedures and responsibilities outlined in this document are designed to insure all reported power outages and emergencies are documented and responded to in a timely and effective manner. In addition, customers affected by a power outage or emergency are kept up-to-date on the status of the outage affecting them. This will occur either through the POES or through information provided by Corporate Communications & Shareholder Relations to the media.

These procedures are divided into two sections. *Section 1 - Procedures for Responding to a Power Outage or Emergency Call*, outlines the process to be followed from the time notification of a power outage or emergency is received until it is responded to in the field. *Section 2 - Procedures for Managing a Power Outage or Emergency*, outlines the process to be followed from the initial assessment of the event until power is restored or the emergency is over and the POES is back to normal mode.

GUIDELINES

Power outage and emergency calls from customers during regular work hours will be handled through Hydro's Communications Centre.

Power outage and emergency calls from customers after regular work hours will be handled through Hydro's ECC, unless the Communications Centre has been activated because the volume of customer calls can not be handled through the ECC.

Three or more calls to the Communications Centre, or to ECC or the Region reporting an outage in a similar location triggers the immediate standard outage notification message to be placed on POES. The standard outage notification will include basic information about the areas affected, if there is a known reason for the outage and an approximate restoration time. If the reason for the outage is unknown, then no reason will be given for the outage. If the restoration time is unknown the initial message will inform the customer of this. If the restoration time is unknown after 1 hour a new message will be recorded indicating an estimated restoration time of 3 hours. If there is a delay in getting to the site the initial message will indicate a restoration time of 4 hours.

Single Points of Contact (SPOC) have been identified for: Communications Centre, Corporate Communications and Shareholder Relations (CC&SR) and the Region impacted by the outage or emergency. A list of SPOC designates and contact information is attached in Appendix A to this document

RESPONSIBILITIES

Customer Service Manager

1. Will ensure Hydro's POES is functioning as required and changes and upgrades are identified and carried out in a timely manner.
2. Will ensure customer concerns with respect to the system are recorded and responded to.
3. Will ensure user suggestions and concerns are recorded and addressed.
4. Will co-ordinate all changes and updates with the Service Provider.
5. Will ensure all users of the POES receive sufficient and up-to-date training.
6. Will ensure that the power outage procedures outlined in this document are provided to all staff involved in the power outage process.
7. Will ensure the power outage procedure is regularly reviewed and updated as necessary and communicated to all involved.
8. Will monitor the effectiveness of this power outage procedure and report deficiencies to appropriate staff to address the shortcomings.

Regional Manager or Designate

1. The Regional Manager will be the SPOC for the Region affected by the power outage or emergency.
2. The Regional Manager may designate a Regional designate to handle power outages or emergencies and act as the SPOC.
3. Will designate two or more employees in each of the following locations to handle power outage and emergency calls from the Communications Centre: Wabush, Happy Valley-Goose Bay, St. Anthony, Port Saunders and Bishop's Falls.
4. Will be responsible for establishing a VIP contact list of customers for their Region and ensuring this list is kept up-to-date.
5. Will ensure that customers on the VIP contact list are contacted when any of the conditions exist in Table 1: Power Outage or Emergency Severity Table.
6. Will work with Corporate Communication & Shareholder Relations (CC&SR) designate to prepare information for release to stakeholders and the media.
7. Will ensure that employees in the areas affected by the power outage or emergency know the proper protocol for handling calls from the public and the media.
8. Will maintain contact with the field crew and provide the Communications Centre designate with all pertinent information as early as possible.

Communications Centre Designate

1. Will be the SPOC for System Operations & Customer Service (SO&CS) Department during regular business hours and when the Communications Centre is activated after regular business hours.
2. Will communicate with the ECC, and Regional and CC&SR designate to relay and receive information about the outage.
3. Will maintain regular contact with the ECC designate to obtain updates when required.
4. Will provide information to the CSRs for updating the standard outage notification and ensure the POES is accurate and up-to-date.
5. Will make the appropriate arrangements to staff the Communications Centre to handle power outages that will continue after 4:00PM.
6. Will provide notice of any temporary closure of the Communications Centre to the ECC and will provide contact information in case of emergency during the closure.
7. Will co-odinate with all parties to implement a contingency plan if and when a problem should occur with any of the communications networking (ie. Communications Centre telephones not functioning)
8. Will set up Holiday Call Routing at the beginning of each year for Billing and Outages.

Corporate Communications & Shareholder Relations (CC&SR) Designate

1. Will be the SPOC for CC&SR Department.
2. Will relay timely and accurate information to the media during power outages.

3. Will work with NF Power's Communications representatives to relay and receive information about outages affecting NF Power customers (when required).
4. Will work with a Regional Representative to help develop and deliver information to VIP customers and the general public in the affected areas.
5. Will develop and maintain a VIP list for key shareholders & customers (i.e. Premiers office, MHA's, PUB, Mayors).

System Operations and Customer Services (SO&CS) Administrative Assistant

1. Will maintain a list of all (SPOC) and designates, all On-call Personnel throughout the System and Regional and area office personnel. This information will be kept on a common drive available to all users and will be attached as an appendix to this document.
2. Will maintain an up-to-date list of employees in each region and area office who are designated to handle power outage and emergency calls received from the Communications Centre during regular work hours.

Responsibilities for CSRs, ECC Operators, ECC Shift Supervisor, Regional and Area Office Personnel, Customer Services and Region On Call are outlined in the following pages under Outage Protocol.

OUTAGE PROTOCOL DURING REGULAR BUSINESS HOURS: (8:00 AM to 4:00 PM NST WEEKDAYS)

Customer Service Representatives (CSRs)

1. Will answer calls to the power outage line on a priority 1 basis.
2. Will open the CIS Emergency Calls Database in Lotus Notes and document all pertinent information on the power outage or emergency. (This information may be received directly from the customer or may be passed on by an ECC Operator or the Region.)
3. The CIS Emergency Call file is automatically forwarded to a group of individuals in one of three regional offices, depending on the area selected by the CSR when the file is created. As the note is opened by individuals in the regional office group, a return notification is sent to the originator.
4. If a return notification is not received immediately **OR** if the power outage or emergency is deemed by the CSR to be of an extreme nature (i.e. life threatening, major property damage, fire) will immediately follow up the Lotus Note with a telephone call to the designated person(s) in the affected regional or area office and confirm the Lotus Note was received. If it was not received will pass the information on verbally.
5. Will notify the Communications Centre designate if Lotus Notes is not operating.
6. Will contact the Communications Centre designate if contact cannot be made with personnel in the affected regional or area office.
7. Will immediately place a standard outage notification message on the POES, if any of these conditions exist:
   - A third call is received for the same power outage or emergency.
   - ECC has identified the outage as a system problem affecting multiple customers.
   - The Region has identified the outage as a system problem affecting multiple customers.
8. Will notify the Communications Centre designate when the standard notification is established.
9. Will continue to update the outage notification with information provided by the Communications Centre designate.
10. Will forward all calls from the media to the CC&SR designate.

Communications Centre Designate

1. Will receive information from the Regional designate once the situation is assessed by the field crew on site.
2. Will determine the severity of the outage per Table 1: Power Outage or Emergency Severity Table in consultation with the Regional Designate and will contact the CC&SR designate if one of the conditions exist as described in Table 1.
3. Will maintain contact with the CC&SR designate for the purpose of providing updated information on the power outage or emergency.
4. Will maintain contact with the affected area Regional Designate to obtain

updates on the outage or emergency.

5. Will maintain regular contact with the ECC Operator to obtain updates when required.
6. Will provide information to the CSRs for updating the standard outage notification.
7. Will relay information to the ECC and to the Customer Services On Call person by 3:30 PM of any power outages or emergencies that will extend beyond 4:00 PM.

Regional and Area Office Personnel

1. The designated employees will handle power outage and emergency calls received from the Communications Centre, system information received from the ECC and calls from the public regarding a power outage or emergency. One of the employees or a designate will be available at all times to receive and process transactions.
2. Will immediately open and read Lotus Notes on power outages and emergencies received from the Communications Centre.
3. If Lotus Notes is not operating or if information is received from the ECC, will manually record the outage information from the CSR or ECC Operator and pass it onto the Regional designate for immediate action.
4. Will manually record outage information received directly from the public, pass the information onto the Regional designate for immediate action and call the Communications Centre for information purpose. (The Power Outage and Emergency phone number will also be passed onto the public for future reference - 1-888-737-1296.)
5. Will forward all calls from the media to the CC&SR designate.

Regional Designate

1. Will maintain regular contact with the field crew and provide the Communications Centre designate with the following pertinent information as early as possible:
   - Cause of the outage or emergency
   - Location and number of communities and customers affected
   - Estimated restoration time
   - Changes to initial information
   - Number of crews working on the problem
2. Will provide updates to the Communication Centre designate on the status of the power outage and emergency.
3. Will relay information to the Region On Call person by 4:00 PM of any ongoing power outages.
4. Will forward all calls from the media to the CC&SR designate.

ECC Operator

1. Will make contact with the Regional and Area Office Personnel and pass along the power outage or emergency information in cases when immediate contact cannot be made with the Communications Centre during regular business hours.

2. If the Communications Centre is closed during regular business hours, calls taken by the ECC Operator will be immediately forwarded to the Regional and area office personnel.
3. Will receive information from the Communications Centre designate by 3:30PM on any ongoing outages or emergencies.

ECC Shift Supervisor

1. Will contact a CSR in the Communications Centre if two or more power outage or emergency calls are received in the ECC.
2. Will contact a CSR in the Communications Centre immediately if a system event occurs that results in a power outage to Hydro customers.
3. Will provide an update to the Communications Centre designate, if the Communications Centre is reopened during an ongoing outage.

OUTAGE PROTOCOL AFTER REGULAR BUSINESS HOURS (FROM 4:00 PM to 8:00 AM NST AND WEEKENDS)

ECC Operator

1. Will review the CIS Emergency Calls Database in Lotus Notes for details on all power outage and emergency activity that occurred that day and will review any on line messages currently active in the POES.
2. Will note the details of the outage and contact the Region On Call person upon notification of a power outage or emergency.
3. Will immediately place a standard outage notification message on the POES, if any of these conditions exist:
   - A third call is received for the same power outage or emergency.
   - ECC has identified the outage as a system problem affecting multiple customers.
   - The Region has identified the outage as a system problem affecting multiple customers.
4. Will update the standard outage notification on the POES as information is received from the field.
5. Will forward all calls from the media to the CC&SR designate.
6. Will continue to answer power outages and emergency calls from all areas that have not been transferred to the Communications Centre.
7. Prior to shift change will relay information to the Communications Centre designate of any ongoing power outages.

ECC Shift Supervisor

1. Will be the SPOC for the ECC.
2. Will determine the severity of the outage per Table 1: Power Outage or Emergency Severity Table in consultation with the Region On Call person and will contact the CC&SR designate if one of the conditions exist as describe in Table 1.
3. Will make the decision to contact the Customer Services On Call person to request that the Communications Centre be opened to accept trouble calls.
4. Following activation of the Communications Centre will provide any available update information to the Communications Centre designate concerning the ongoing outage or emergency.

Customer Services On Call Person

1. When contacted by ECC or the Communications Centre will confirm the location and extent of the outage and will then proceed directly to the Communications Centre. (This may occur prior to 4PM if an ongoing power outage or emergency is expected to extend beyond 4PM).
2. Will contact the CSRs to work as per the latest callback schedule.
3. Will reroute all telephone exchanges in the outage area from the ECC to the Communications Centre when a CSR(s) is set up to take calls.

4. Will maintain hourly contact with the Region On Call person to obtain regular updates on the outage.
5. Will keep CSR informed of the latest information for the purpose of keeping POES updated.
6. Will maintain hourly contact with the CC&SR designate for the purpose of providing updated information on the outage or emergency.
7. Will keep the Region On Call person informed of any pertinent information provided by customers.
8. In consultation with the Region On Call person, will deem the power outage or emergency over and will restore the call rerouting to its normal status.
9. Will relay information to the Communications Centre designate by 8:00 AM of any ongoing power outages.

Region On Call Person

1. When notified by ECC of a power or emergency will immediately make the necessary arrangements for a timely response.
2. Will provide updates to the ECC each hour on the hour until the power outage or emergency is over, or more frequently if the situation worsens or ends.
3. If the Communications Centre is activated, will provide updates to the Customer Service On Call person each hour on the hour until the power outage or emergency is over, or more frequently if the situation worsens or ends.
4. Will arrange a designate to provide information to ECC or the Communications Centre and /or process information received from ECC or the Communications Centre if, due to the severity of the outage or emergency is unable to perform these duties in an effective manner.
5. Will relay information to the Regional designate by 8:00 AM of any ongoing power outages.

Customer Service Representatives

1. Will report to the Communications Centre when called. Recall will be on a rotation basis.

PROCEDURES

Section 1 - Procedures for Responding to a Power Outage or Emergency Call

1.1 Power outage or emergency calls will be answered and processed by the Communications Centre, Energy Control Centre (ECC) and Regional and Area Office Personnel. Calls received at any other Hydro location will be directed to Hydro's Power Outage Line 1-888-737-1296.

1.2 Calls received at the Communications Centre, ECC and Regional and Area Office will be processed as follows:

1.2.1 **Communications Centre**

1.2.1.1 Calls will be answered by first available Customer Services Representative (CSR).

1.2.1.2 Only power outage and emergency calls will be accepted on the 1-888-737-1296 line. A CSR should transfer all other calls received on this line to Hydro's Customer Service line.

1.2.1.3 When the call is answered, the CSR will immediately open the CIS Emergency Calls Database and document all pertinent information on the outage or emergency.

1.2.1.4 The CSR will confirm receipt of return notification from the regional office personnel.

1.2.1.5 If a return notification is not received immediately **OR** if the power outage or emergency is deemed by the CSR to be of an extreme nature (i.e. life threatening, major property damage, fire) will immediately follow up the Lotus Note with a telephone call to the designated person(s) in the affected regional or area office and confirm the Lotus Note was received. If it was not received will pass the information on verbally.

1.2.1.6 Should Lotus Notes not be operating, the CSR will manually record the pertinent information and immediately call the Regional and Area Office Personnel in the affected regional or area office.

1.2.1.7 All CSR's will immediately read a Lotus Note received from the emergency database that was processed by another CSR.

1.2.1.8 Should two or more power outage or emergency calls be received at or around the same time, the CSRs taking the calls will communicate with the other CSRs through Lotus Notes Instant Messaging, where possible, to avoid a duplicate message being sent to the affected regional or area office.

1.2.1.9 All calls from the media will be forwarded to the Corporate Communication & Shareholder Relations (CC&SR) designate.

1.2.2 **Energy Control Centre**

1.2.2.1 Calls will be answered by the first available System Operator.

1.2.2.2 Power outage and emergency calls received during **regular business hours** will be handled as follows:

1.2.2.2.1 The ECC Operator will record the information from the customer and immediately call a CSR in the Communications Centre with the information. If immediate contact cannot be made with a CSR, the ECC Operator will make contact with the Regional or Area Office Personnel and pass along the power outage or emergency information. The ECC Shift Supervisor will contact the Communications Centre designate and inform them of the situation as soon as possible.

1.2.2.2.2 If a System event occurs that results in a power outage, the ECC Operator will contact a CSR in the Communications Centre immediately and pass along the pertinent information pertaining to the outage.

1.2.2.2.3 If the Communications Centre is closed during regular business hours the ECC Operator will handle the calls the same as those received after regular business hours. The call shall be made to the Regional Office (general number) as the on call person may not be available during regular work hours.

1.2.2.3 Power outage and emergency calls received **after regular business hours (4PM – 8AM, weekends and holidays)** will be handled as follows:

1.2.2.3.1 The ECC Operator will record the information from the customer and immediately call the Region On Call Person with the information.

1.2.2.4 All calls from the media will be forwarded to the CC&SR designate.

1.2.3 **Regional and Area Office**

1.2.3.1 Calls made directly to the office will be handled by the employee who answers the phone.

1.2.3.2 The employee will manually record the pertinent information and immediately notify the Regional designate in the affected regional or area office and a CSR in the Communications Centre (8AM to 4PM weekdays) or the ECC (4PM to 8AM, weekends & holidays) and pass along the information.

1.2.3.3 The employee receiving the call will provide the customer with Hydro's Emergency Power Outage Number 1-888-737-1296.

1.2.3.4 All calls from the media will be forwarded to the CC&SR designate.

1.3 If contact cannot be made by the CSR or ECC with the Region and Area Office Personnel in the affected area, the CSR or ECC Operator will immediately contact the Communications Centre designate (during regular business hours) or ECC Shift Supervisor (after regular business hours) who will assume responsibility for making contact with the Regional designate or Region On Call Person and pass along the outage information.

1.4 **Proceed to Step 1.5 only if one of the following events occur:**

1.4.1 A third call is received for the same power outage or emergency.
1.4.2 ECC has identified the outage as a system problem affecting multiple customers.
1.4.3 The Region has identified the outage as a system problem affecting multiple customers.

1.5 When initial contact has been made with the Regional and Area Office Personnel, the CSR (during regular business hours) or ECC Operator (after regular business hours) will place a standard outage notification message on the Power Outage and Emergency System (POES).

The standard outage notification will include basic information about the area(s) affected, if there is a known reason for the outage and an approximate restoration time. If the reason for the outage is unknown, then no reason will be given for the outage. If the restoration time is unknown the initial message will inform the customer of this. If the restoration time is unknown after 1 hour a new message will be recorded indicating a restoration time of 3 hours. If there is a delay in getting to the site the initial message will indicate a restoration time of 4 hours.

1.6 When the recorded message has been completed the CSR or ECC Operator will notify the Communications Centre designate (during regular business hours) or ECC Shift Supervisor (after regular business hours).

1.7 The Communications Centre designate or ECC Shift Supervisor in conjunction with the Regional designate or Region On Call Person will use the following table to determine the severity of the power outage or emergency. If any one of these conditions is met, then notify the CC&SR designate immediately.

Table 1: Power Outage or Emergency Severity Table
▪ Power disturbances affecting a significant number of customers and/or occurring over a significant period of time. The threshold for reporting an incident in this category is any power disturbance causing 1,000 or greater customer-hours of interruption (e.g., one hour outage affecting 1,000 customers or a 15 minute outage affecting 4,000 customers).
▪ Power disturbances affecting an entire diesel system, regardless of the number of customers, when the duration of the outage is four hours or more.
▪ Any intermittent power disturbances that occur frequently over a period of four hours or more and affect a specific geographic area.
▪ Any other power disturbance or incident that, in the judgment of the utility, ought to be reported to the PUB.

Section 2 - Procedures for Managing a Power Outage or Emergency

2.1 When the standard outage notification message is in place and the severity of the power outage or emergency is determined, the following steps shall be taken to manage the event.

1.1.1 **<u>Regular business hours – 8AM to 4PM Monday to Friday</u>**

1.1.1.1 When the initial assessment is completed by the field crew on site, the Regional designate will provide an update to the Communication Centre designate and pass along the following outage information: time, location and cause of the outage, number of communities and customer impacted and estimated restoration time.

1.1.1.2 If the severity of the outage or emergency falls in one of the categories in Table 1: Power Outage or Emergency Severity Table, the Communications Centre designate will contact the Corporate Communication & Shareholder Relations (CC&SR) designate to pass along the following outage information: time, location and cause of the outage, number of communities and customers impacted and estimated restoration time. The Communications Centre designate will provide the CC&SR designate with hourly updates, or more frequently if the condition worsens, until the outage is over.

1.1.1.3 If the severity of the outage or emergency falls in one of the categories in Table 1: Power Outage or Emergency Severity Table, the Regional designate will contact VIP customers in their region affected by the outage or emergency.

1.1.1.4 The Regional designate will provide employees in the areas

affected by the power outage or emergency accurate and up-to-date information. This is important for employees in Hydro's diesel plants who may receive calls from the public regarding an outage or emergency.

1.1.1.5 The Regional designate will provide updates to the Communications Centre designate each hour at the top of the hour until the power outage or emergency is over, or more frequently if new information becomes available or if the outage worsens.

1.1.1.6 As each update is received from the Regional designate, the Communications Centre designate will assign a CSR to update the IVR message, even if no new information is provided.

1.1.1.7 The SPOC for Customer Services will also maintain regular contact with the ECC to obtain updates when required.

1.1.1.8 Should it appear that an ongoing power outage or emergency will extend beyond 4PM the Regional and Communication Centre designates will arrange transition of responsibilities by 3:30PM and relay information about the outage to Region On Call person and ECC personnel respectively. The following information will be provided: time, location and cause of the outage, number of communities and customer impacted, estimated restoration time, number of crews on site and work to be completed.

2.2.1 **4PM to 8AM and on weekends & holidays (Communication Centre Closed)**

2.2.1.1 When the initial assessment is complete by the field crew on site, the Region On Call person or designate will provide an update to the ECC Shift Supervisor and pass along the following outage information: time, location and cause of the outage, number of communities and customer impacted and estimated restoration time.

2.2.1.2 If the severity of the outage or emergency falls in one of the categories in Table 1: Power Outage or Emergency Severity Table, the ECC Shift Supervisor will contact the CC&SR designate to pass along the following outage information: time, location and cause of the outage, number of communities and customers impacted and estimated restoration time. The ECC Shift Supervisor will provide the CC&SR designate with an update if the outage worsens.

2.2.1.3 The Region On Call person or designate will contact VIP customers in their region affected by the outage or emergency, if necessary.

2.2.1.4 The Region On Call person or designate will provide employees in the areas affected by the power outage or emergency accurate and up-to-date information. This is important for employees in

Hydro's diesel plants who may receive calls from the public regarding an outage or emergency.

2.2.1.5 The Region On Call or designate person will provide updates to the ECC Shift Supervisor each hour at the top of the hour until the power outage or emergency is over, or more frequently if new information becomes available or if the outage worsens.

2.2.1.6 As each update is received, the ECC Shift Supervisor will assign an ECC Operator to update the IVR message even if no new information is received.

2.2.1.7 Should it appear that an ongoing power outage or emergency will extend beyond 8:00AM, the Region On Call person or designate and the ECC Shift Supervisor will arrange transition of responsibilities by 8:00AM and relay information about the outage to Regional designate and Communications Centre designate respectively. The following information will be provided: time, location and cause of the outage, number of communities and customers impacted, estimated restoration time, number of crews on site and work to be completed.

2.3.1 **4PM to 8AM and on weekends & holidays (Communication Centre Opened)**

2.3.1.1 If the power outage or emergency occurs after normal hours or on weekends or holidays and the ECC Shift Supervisor determines the severity of the incident requires the Communications Centre to be opened he/she will contact the Customer Services On Call person and request the Communications Centre be opened.

2.3.1.2 The Customer Services On Call person will immediately arrange the Communications Centre to be opened.

2.3.1.3 When a CSR(s) is set up to take calls, the Customer Services On Call person will reroute all telephone exchanges in the outage area from the ECC to the Communications Centre.

2.3.1.4 The ECC Operator will continue to answer power outages and emergency calls from all areas that have not been transferred to the Communications Centre.

2.3.1.5 The Customer Services On Call person will contact the ECC Shift Supervisor and the Region On Call person for an update on the outage and will obtain the following information: time, location and cause of the outage, number of communities and customers impacted and estimated restoration time.

2.3.1.6 As each update is received the Customer Services On Call person will assign a CSR to update the IVR message, even if no new information is provided.

2.3.1.7 The Customer Services On Call person will provide the CC&SR designate with an update if the outage worsens.

2.3.1.8 Should the Customer Services On Call person decide to close the Communications Centre before the power outage or emergency is over he/she will contact the ECC Shift Supervisor to arrange transition of responsibilities and notify the Region On Call person or designate and the CC&SR designate of the transfer of responsibilities.

2.3.1.9 In consultation with the Region On Call person or designate, the Customer Service On Call person will deem the power outage or emergency over and will restore the call rerouting to its normal status.

1.2 **Planned Outages that extend beyond the original work**

Whenever a planned outage is deemed to extend for more than 30 minutes beyond the original planned outage, the field crew shall notify the Regional On Call. At this point, employees will follow Step 2 of these procedures.

1.3 When a power outage or emergency is over the Communications Centre designate (during regular business hours) or the ECC Shift Supervisor (after regular business hours) will ensure the POES is restored to normal operating status.

1.4 Whenever a major outage or emergency occurs the Customer Services Manager will arrange a “lessons learned” meeting at the earliest opportunity but not more then 5 working days following the outage.

APPENDIX A

Power Outage and Emergency Contact List			
On Call Listing			
	Work Number	Home Number	Cell Number
System Operations & Customer Services			
Robert Henderson			
Bob Butler			
Terry LeDrew			
Art Bursey			
David Harris			
Rob Cater			
Al Ballard			
Sonya Duggan			
Central Region			
Mike Churchill			
Gary Broderick			
Hughie Ireland			
Kenny Lush			
Darren Moore			
Jim Sceviour			
Scott Slade			
Paul Smith			
Joe Walsh			
Jim Wheeler			
Northern Region			
Bill Nippard			
Roger Hynes			
Ivan Parrill			
Tony Walker			
Dean Smith			
Kirby Spence			
Wade Hillier			
Clarence Way			
Roger Smith			
Jeff Rumbolt			
Clem Richards			
Larry Brown			
Ron Smith			
Labrador Region			
Harold Kean			
Anthony O'Brien			
Ken Lyall			
Rod Cabot			
Tom Sheppard			
Gerard Gould			
Phil Goudie			
Corporate Communications and Shareholder Relations			
Karen O'Neil			
Merissa Wiseman			

Single Points of Contact (Regular Work Hours)			
	Work Number	Home Number	Cell Number
System Operations & Customer Services			
Sonya Duggan			
Al Ballard			
Rob Henderson			
Bob Butler			
Sandra Sheppard			
Central Region			
Darlene Hancock			
Donna Bursey			
Lisa LeDrew			
Lois Dalley			
Kay Curtis			
Cathy Penney			
Lillian Hunt			
Northern Region			
Lousie Sinnicks			
Mary Lowe			
Darlene Genneaux			
Debbie Calloway			
Labrador Region			
April Pike			
Wayne Hoskins			
Charles Strowbridge			
Corina Ralph			
Corporate Communications and Shareholder Relations			
Karen O'Neil			
Merissa Wiseman			

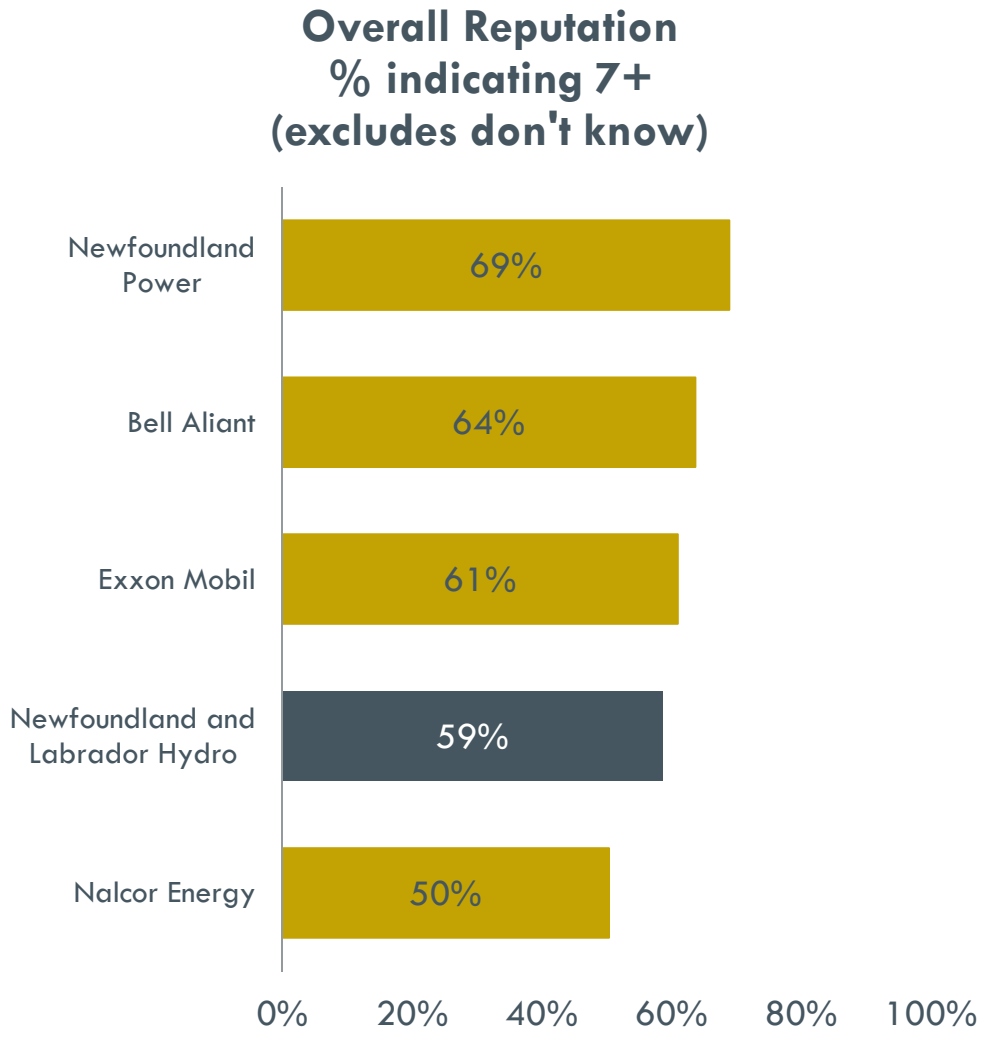
Newfoundland and Labrador Hydro
Power Outage Follow Up February 2014

Background and Methodology

- This project is based on telephone interviews completed with randomly selected individuals, 18 years of age and older, throughout Newfoundland and Labrador.
- Data collection took place from Jan 29th to Feb 4th 2014. Of note, data collection was taken after the major storm that caused wide spread planned and unplanned power outages.
- A total of 400 interviews were completed, which gives a margin of error of ± 4.9%, at the 95% confidence level.

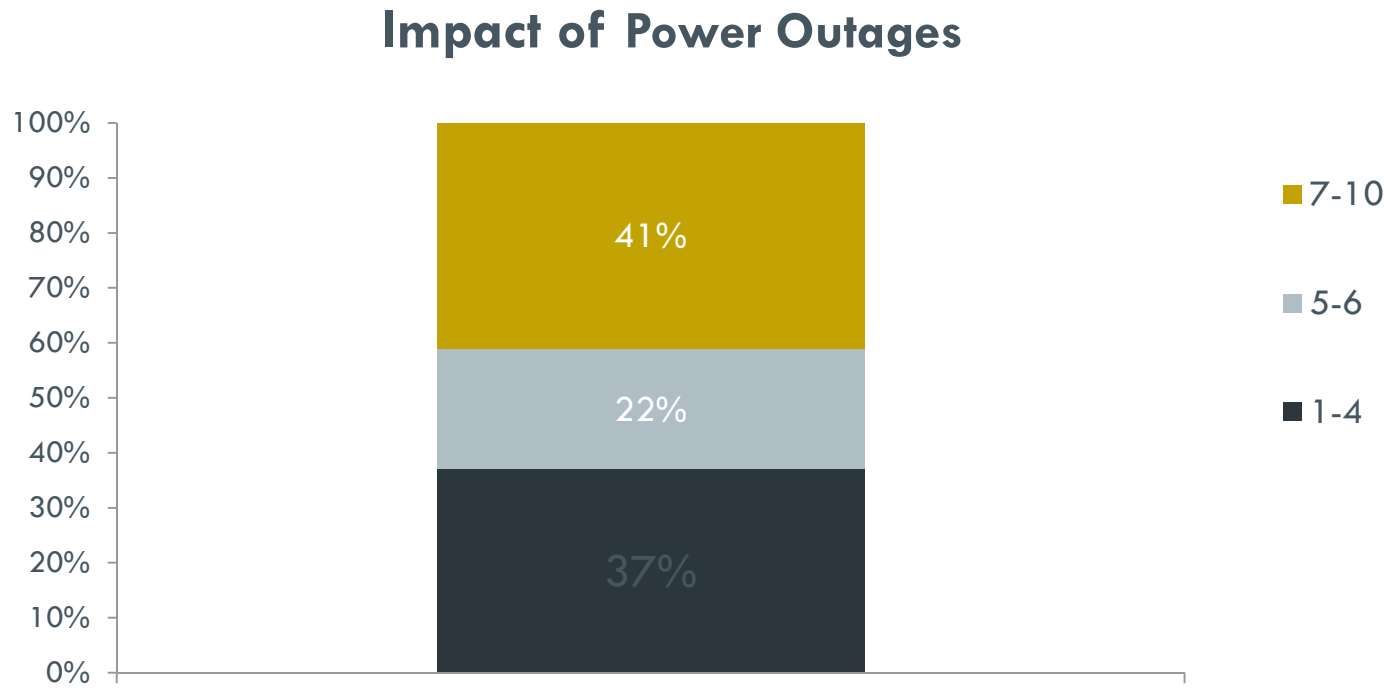
Benchmark Measures

- The survey began by asking respondents to assess the overall reputation of several prominent companies.
- A scale of 1 to 10 was used, where 1 is "a very bad reputation" and 10 is "a very good reputation".
- The % indicating 7+ are shown. 59% gave Newfoundland and Labrador Hydro a score of 7 or higher.



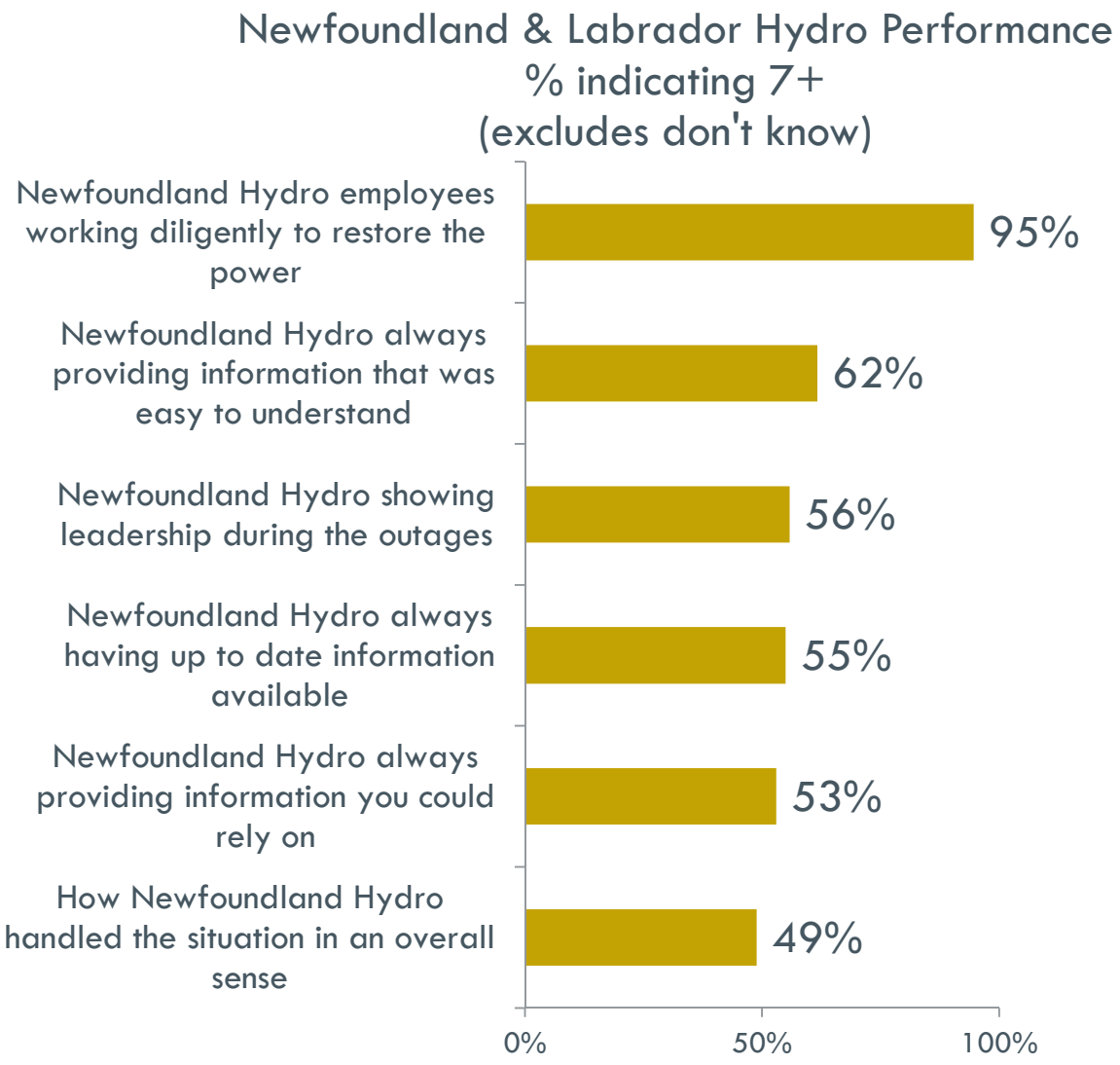
Impact of Recent Power Outages

- Respondents were asked to rate from a scale of 1 to 10, where 1 is "no impact at all" and 10 is "a very serious impact", the impact that the recent power outages had on them.
- For only 13%, the recent power outages had no impact at all (score of 1) on them.



NL Hydro Performance

- There is no negative perception of the employees trying to restore power. 95% gave a rating of 7 or higher and only 1% gave a 4 or less.
- Almost 50% gave a rating of 7 or higher on Hydro's overall handling of the situation.



Excludes "Don't Know"

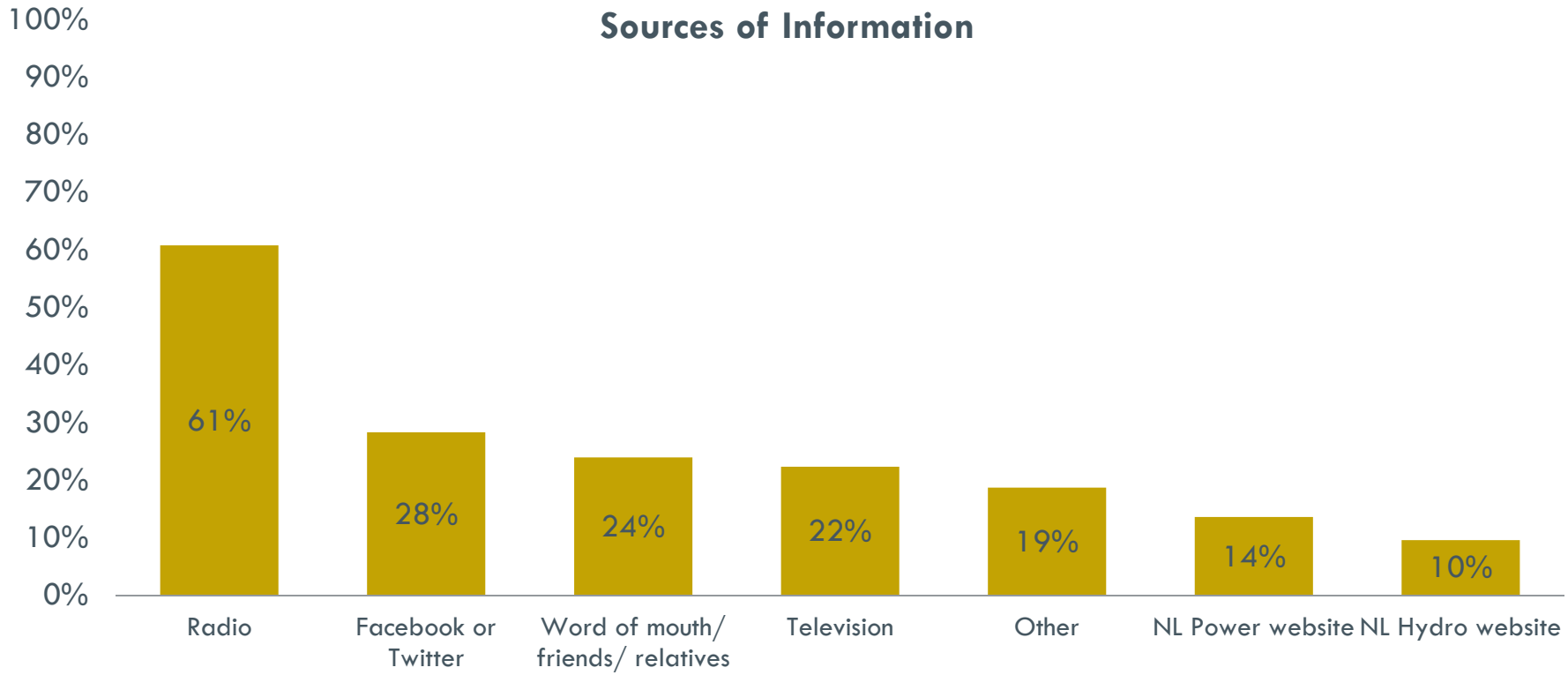
Open-ended questions

- Respondents were asked what they think Newfoundland & Labrador Hydro could have done better during the power outages. The top mentions were:
  - To be better prepared for power outages
  - To give more information/updates during the power outages

- Respondents were asked what were the specific things they felt Newfoundland & Labrador Hydro did well during the outages. The top mentions are below and the apparent contradiction between information and updates being on both lists can be explained by the comments coming from two different groups of people:
  - The dedication of the workers
  - They tried their best to get the power back as quickly as possible
  - Communication delivered to the public

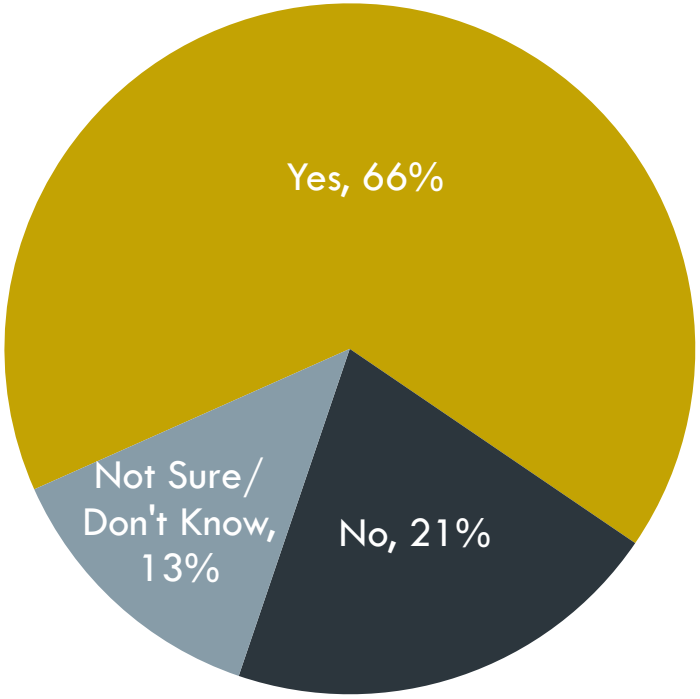
Sources of Information

- The respondents were asked what sources of information did they rely on the most during the power outages.
- The most common is radio at 61%



Information Available

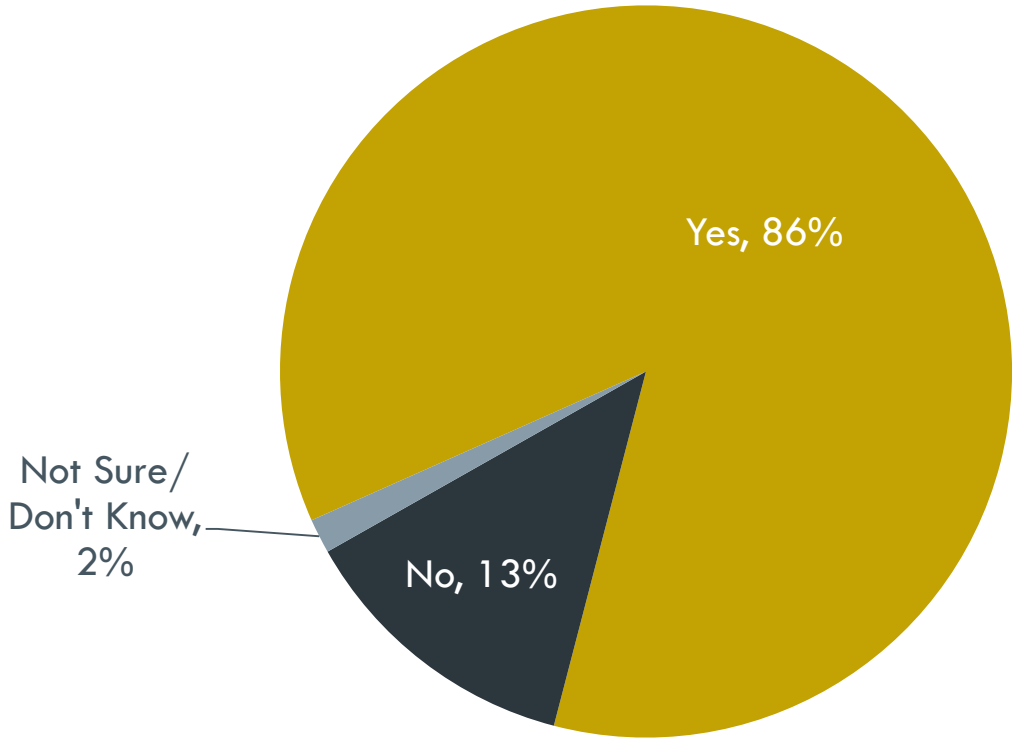
Did you feel that Newfoundland & Labrador Hydro provided information in enough places?



- Those that answered no were asked where else should the information have been. Most answered that they wanted more information available on the radio and that they wanted information available on the telephone (hotline).

Energy Conservation Measures

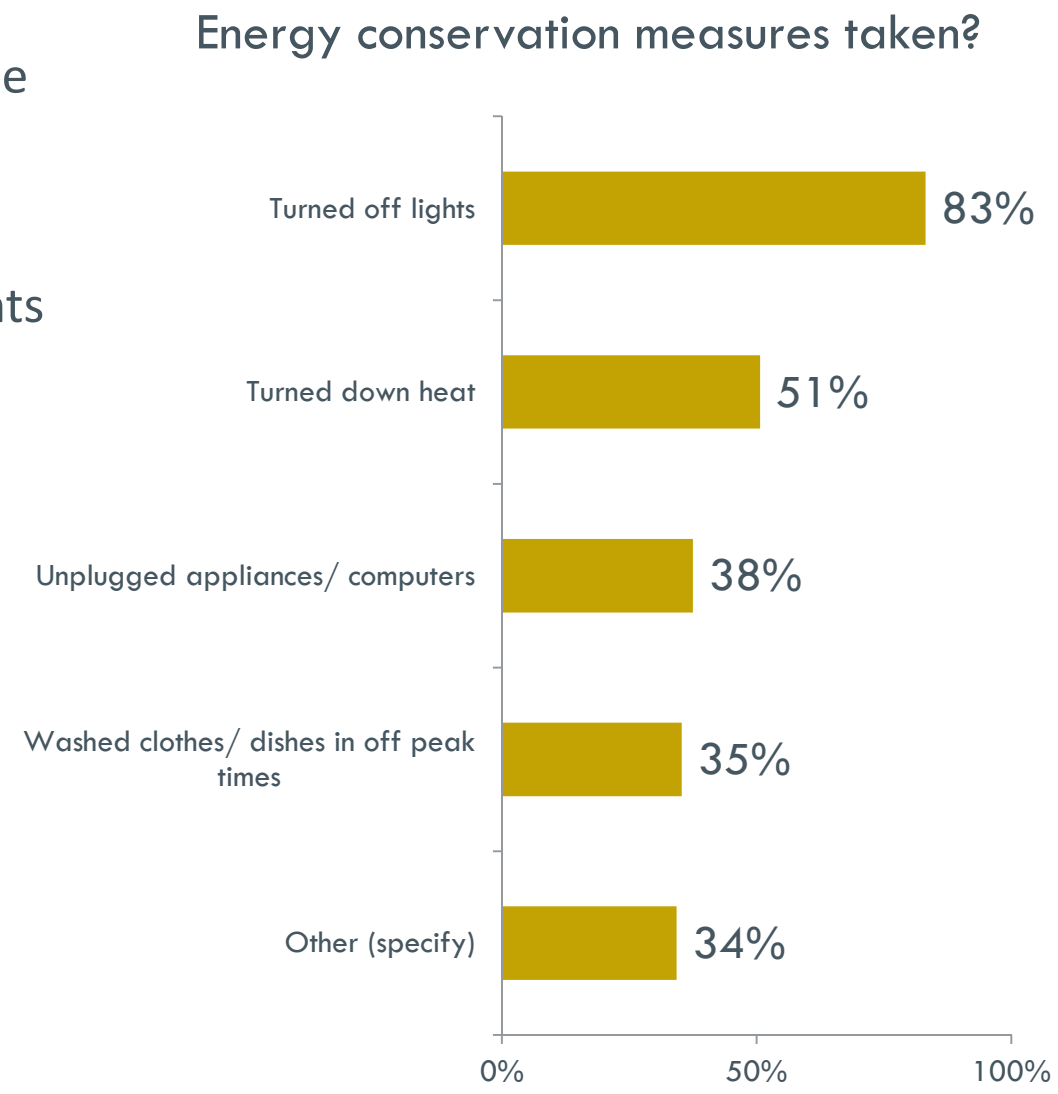
Did you and your family practice any energy conservation measures around the time of the outages that you would not normally have done?



Energy Conservation Measures

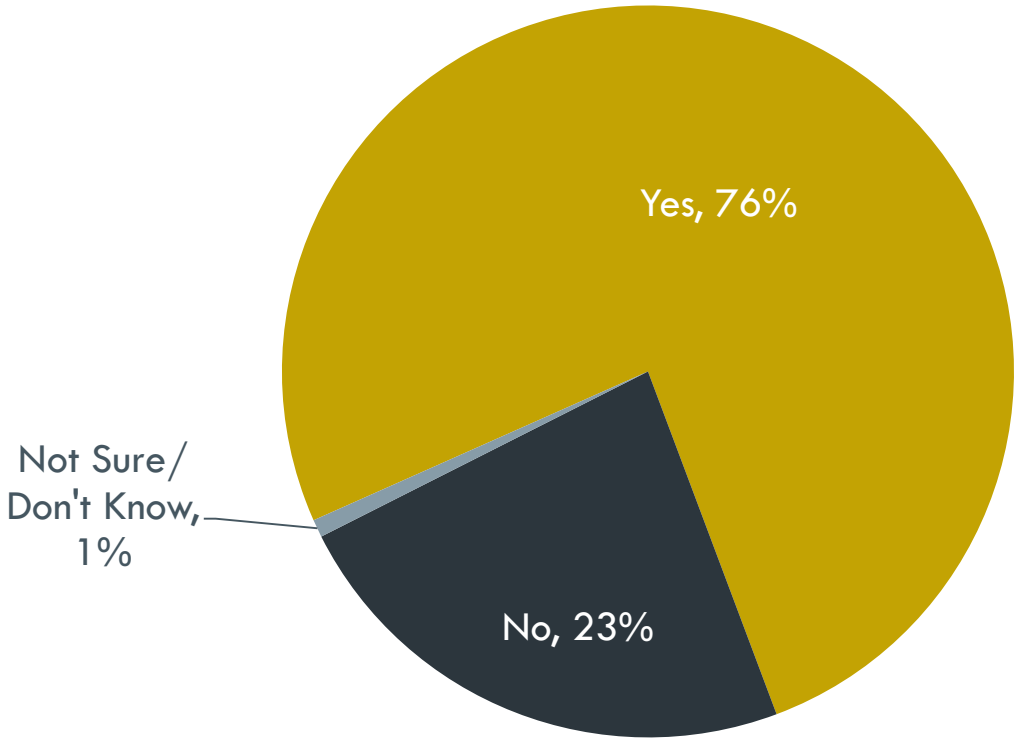
For those who answered other, the most common mentions were:

- Did not wash clothes
- Turn off outside/Christmas lights
- Used wood stove



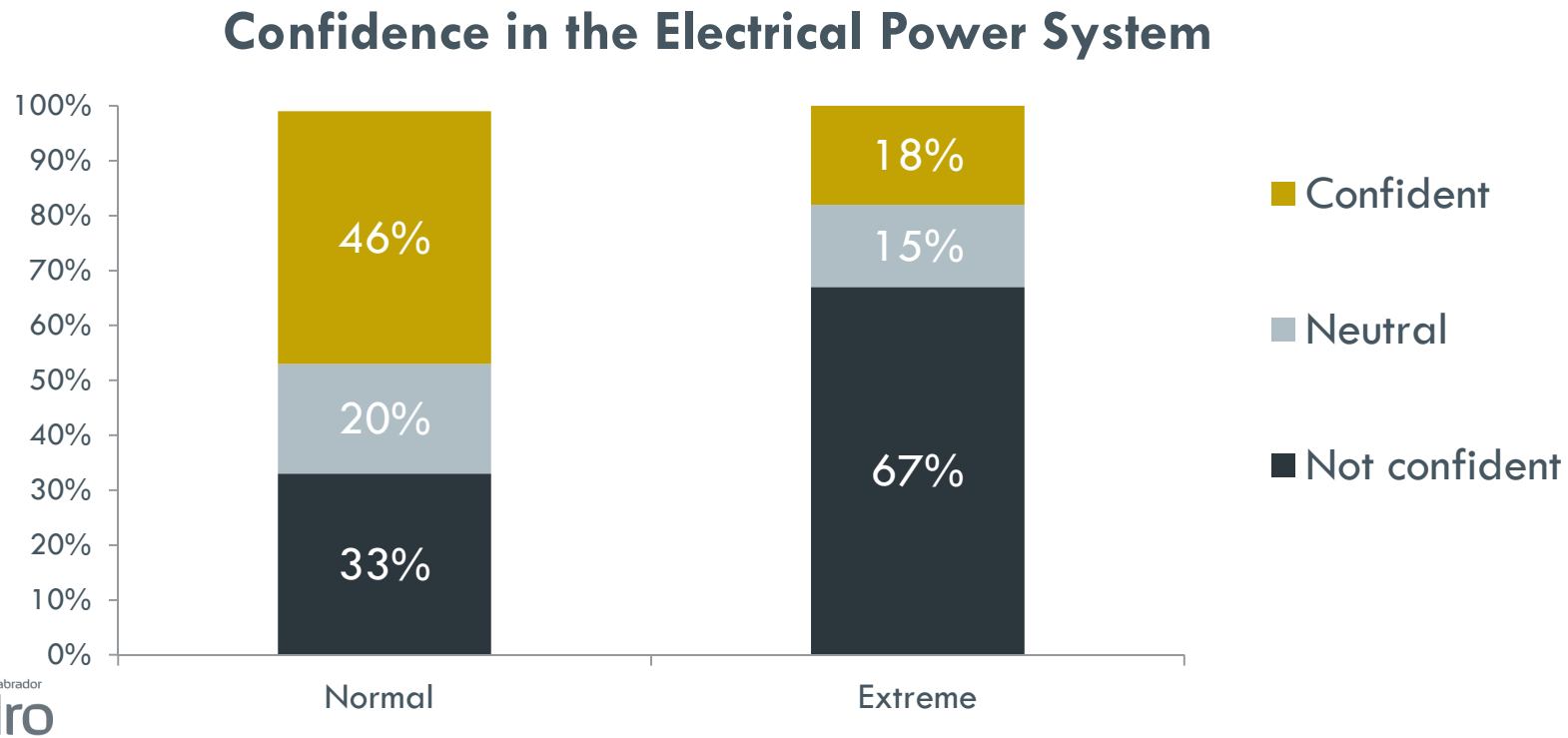
Energy Conservation Measures

Have you continued with these energy conservation measures?



Confidence in the Electrical Power System

- Confidence in the electrical power system is not great, particularly in extreme weather situations. Interestingly, younger respondents are less confident in both normal and extreme weather situations.

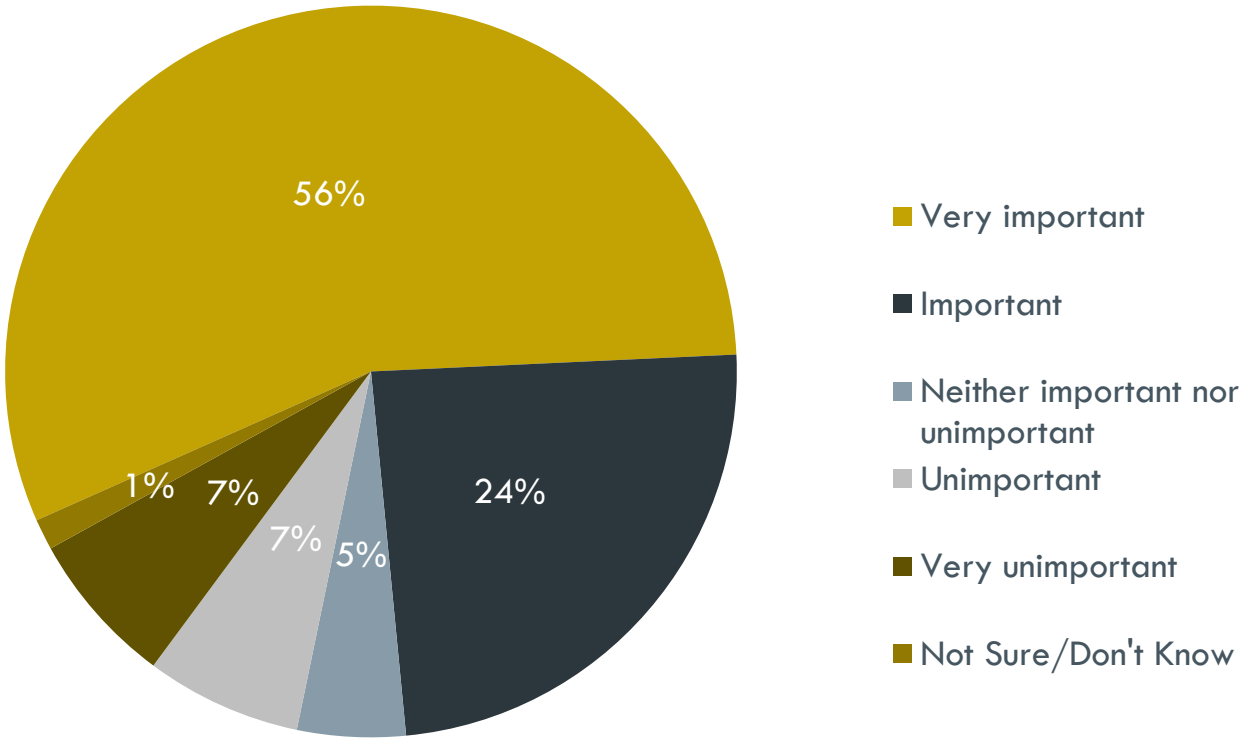


What would restore confidence?

- When asked what would restore their confidence in the electrical system, most people mentioned upgrading equipment and stations, more maintenance and more backup.
- Others took the question more as a when would they be confident rather than what would have to be done. These people tended to mention that one or more storms would have to happen without serious power loss before they would be confident again.
- Of interest is the fact that virtually nobody mentioned anything the general public should be doing to decrease the demand for power.

Review Causes of Outages

How important do you think it is that an independent review of the causes of the outages take place?



Key Findings

- The suggestions for how confidence can be restored places the responsibility squarely with the main players in the system. Respondents mostly suggested infrastructure improvements, upgrades, maintenance and backups.
- There is a strong sentiment that an independent review of the causes of the outages should take place.
- Hydro's performance during the outages were rated reasonably well. The efforts of the employees to restore power are certainly recognized.
- The tone of these findings seems to be more about taking steps to ensure it doesn't happen again rather than how Hydro did during the event.
- The majority of the respondents (86%) practiced energy conservation measures around the time of the outages and most have continued with these measures since.

Social Media Report – NL Hydro Outages

January 2-12, 2014

Executive Summary

With over 60 million impressions achieved through almost 50,000 mentions, social media and more specifically Twitter, was the second most-used source for information during the outages over the ten day period in January. Radio ranked first, and other traditional news mediums including evening news, newspapers were not relied on as heavily for up to date information on the events and impacts.

The greatest benefit that Twitter provided was the ability for two-way conversation between customers and other stakeholders and the company. This was achieved through the use of the accounts by NL Hydro, NF Power and also through the personal account of Nalcor VP, Dawn Dalley. As a result of the speed at which information could be made available through Twitter, the dialogue was for the most part very neutral and fact based, or positive.

We know that Twitter was effective in getting information updates out because as you monitor the word clouds you can see that the language changes day to day based on what the company has tweeted and shared.

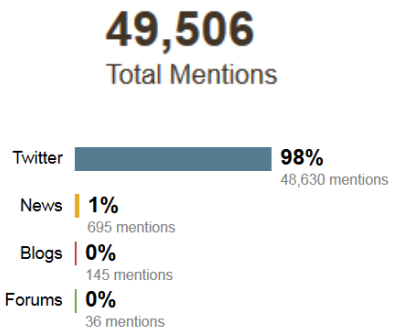
Throughout the event, more followers have come to rely on Twitter as a critical medium in which to get the most up to date information from NL Hydro and NF Power. During the January events, the tone and messages provided seemed disjointed at times and raised the question in peoples' minds if the two companies where on the same page. This is an area for improvement in future. While operationally the effort may have been seamless, the tone and information sharing on Twitter was not always well-aligned.

For NL Hydro, the use of a corporate account on Twitter as well as the personal account of spokesperson Dawn Dalley was an excellent approach to allow for ongoing updates and information, as well as very quick responses to specific questions and a call for conservation amongst customers. The response to Dalley's personal tweeting "humanized" the response and was well-received by stakeholders. While this approach is not required in all scenarios, during major events should be considered if resourcing the effort is possible.

Twitter will continue to be an important tool for two-way communication for NL Hydro and NF Power. While only so much information can be provided in 140 characters, it can be used for critical updates, messages of conservation, answering questions, and also for directing stakeholders to the tremendous amounts of information available to them through the company websites. Continued strategy development and focus on how to best leverage Twitter is important because it's the way that many stakeholders will now expect to be reached during any kind of event.

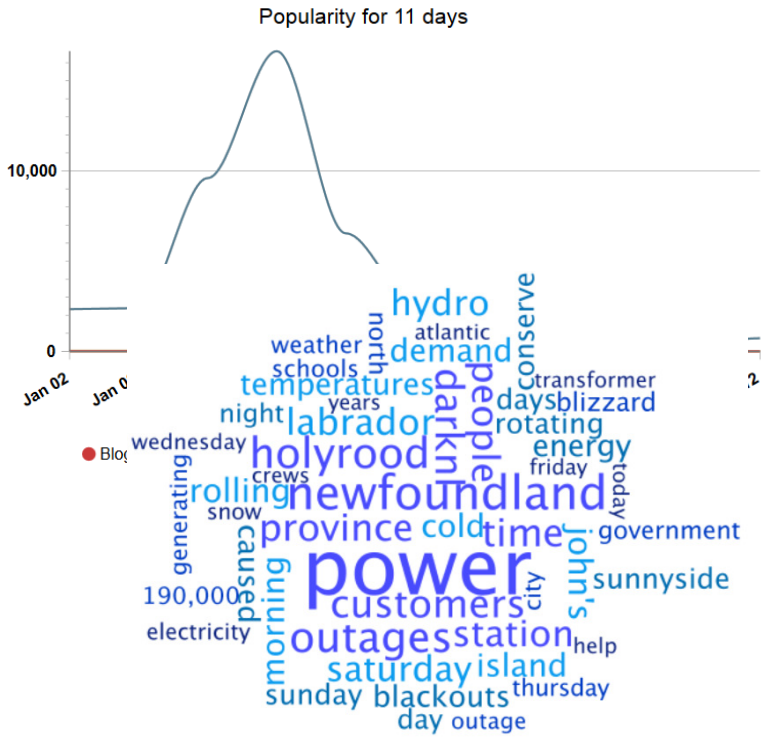
Highlights

- This report focuses on social media activity from January 2 until January 12, 2014 during the peak management and response period for Newfoundland and Labrador Hydro. There is a particular focus on Twitter since it accounted for 98% of almost 50,000 mentions during this period.
- The fact that there was almost 50,000 mentions in 11 days, 48,600 of which were on Twitter, demonstrates the resources required for NL Hydro to successfully monitor, respond and manage social media during the outages.
- Although the preference is always for NL Hydro to be the top source of information on social media, this would have been an unattainable goal in this instance. Given the number of media outlet and personnel accounts providing updates, as well as the required involvement of both NL Hydro and NF Power, no one Twitter account would successfully dominate social media updates. Understanding that, the focus becomes ensuring that NL Hydro, NF Power and where possible, media, are providing timely, accurate and consistent information so whether individuals receive updates from @NLHydro or @VOCMNews, the information should consistent. This is achieved on social media the same way it is in traditional media – by regularly providing up-to-date information to the media. The difference when we consider this in the context of social media is that the public and the media expect the information much faster (within minutes).



Popularity Graph – Social vs Traditional media

- Typically, (even for breaking news) graphs such as the popularity graphic below show traditional media peaks, followed shortly by social media peaks in conversation. Although this was generally the case during the outages, the ratio of traditional and social media mentions is so skewed that traditional media mentions are barely representing on the graph below. Although it is becoming increasingly common for social media mentions to be much higher than traditional media, the ratio of social to traditional media mentions for this issue is atypical.
- Despite 98% of mentions coming from Twitter, this doesn't mean social media deserves more (or even equal) attention compared to traditional media relations. Traditional media relations efforts arms media outlets with the information they're expected to relay online. And although many customers were also using Twitter to communicate, the daily word clouds at the end of this document that on a day-to-day basis, the conversation on Twitter was still driven by local media (multiple media Twitter handles and hashtags regularly



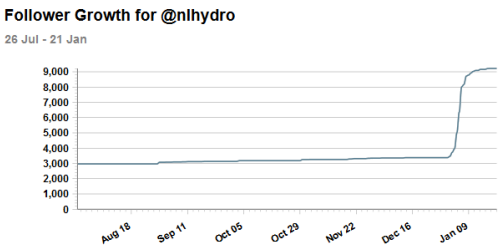
appear in daily word clouds) Instead, social media should be incorporated as part of a broader media and public response plan as it was in this incident.

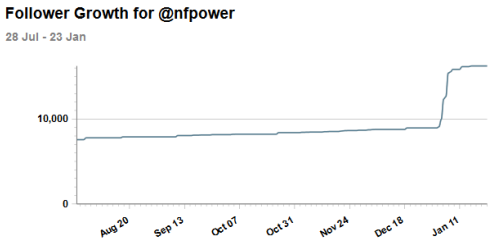
Word Clouds

- The word cloud to the right demonstrates the most commonly occurring words in online mentions during the outages. Larger words indicate more frequent mentions.
- Although many people were complaining and expressing frustrations on social media the most frequent words are a positive reflection of the utilities management of the issue. They are factual words, not emotional.
- Key words indicate that updates and facts were frequently shared online. This is evident by the presence of words such as transformer, generating, caused and multiple weekday mentions (Saturday, Sunday, Wednesday, Thursday, Friday).
- Key messages are also included (e.g., conserve, temperatures, 190,000)

Follower Growth

- The dramatic increase in followers to the @NLHydro account, which tripled in a few days, demonstrate that users recognized hydro as a useful source of information during the period.



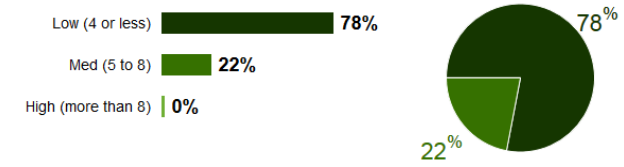


- This is especially significant since Newfoundland Power services 85% of customers on the island, so it is likely that most Twitter users consider Newfoundland Power to be their utility.
- Although Newfoundland Power's account has more followers, its increase was smaller and its customer base is significantly larger.
- Comparing updates from the two accounts during the outages, NL Hydro was much more efficient and active. Not only in terms of providing updates, but context and explanations that give followers the opportunity to understand what was happening and why.
- The word cloud to the right consists of the most frequently occurring words in the bios of twitter followers. Although it cannot connect followers with customers, it does indicate @NLHydro has been successful in reaching its target audience: customers and members of the general public. While such word clouds can often be dominated by government, union, industry-affiliated words, this is balanced and appears representative of the general public (student, mother, husband, university, business, NL, etc.)

Twitter Reach

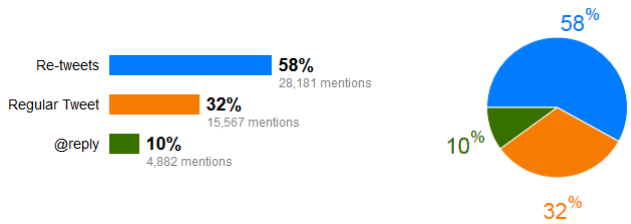
61.5 million estimated impressions
from 48,630 Twitter mentions by 20,497 users

Authority Breakdown



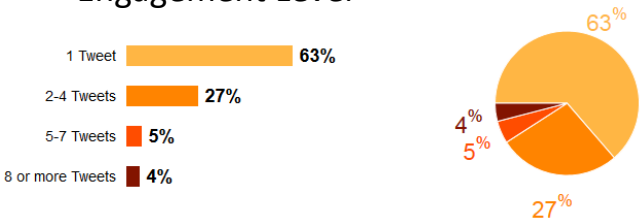
- There are no Twitter accounts based in NL that would be considered “high” authority. This would be for popular celebrities, Barack Obama, etc.
- Having more than 10,000 tweets from accounts of medium authority demonstrates the newsworthiness and reach of the issue. This would be accounts such as Justin Trudeau, George Stroumboulopoulos, Alan Hawco and Mark Critch, along with generic accounts such as CTV News, CBC Top News, the Weather Network and CBC NL.
- Most mentions are low authority but a low Twitter authority doesn't mean an account isn’t worth connecting with. In fact, NL Hydro’s target audience lies completely within this group. It’s the customers and local media who are interested in what is happening with electricity issues in the province.

Mention Type



- For issues that are heavily reported and updated by multiple media outlets, retweets would typically account for approximately 70% of the mentions.
- This demonstrates that while news updates and comical mentions are shared widely (as also seen in retweeted tweets statistics), many people are using social media to share their own experiences and opinions.
- 10% of mentions as replies is encouraging for this type of incident. It indicates that while people are engaging in conversations with one another, most are simply stating their own experience/opinion or providing an update, not engaging with other accounts. When @reply grows to 20% or more in an instance such as this, it is often an early indicator that the issue is snowballing and people’s level of frustration is growing at a crisis-level rate.

Engagement Level



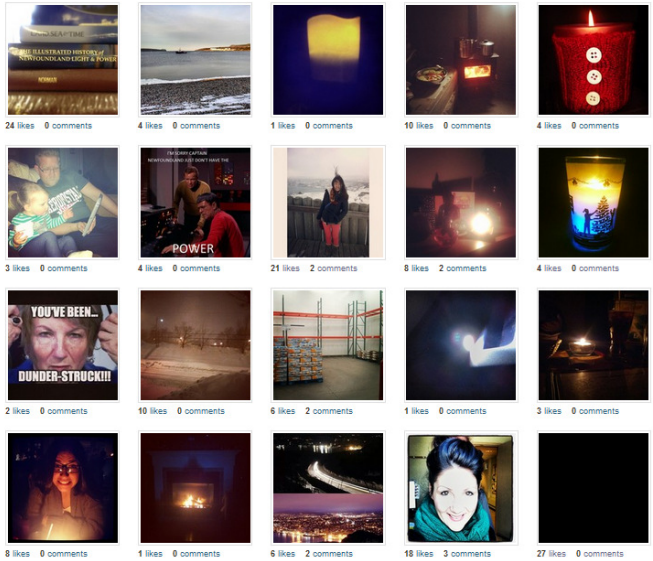
- Most individuals are only tweeting once and about a quarter of mentions come from accounts that are tweeting more than once.
- While the percentage of those who have tweeted more frequently is low, considering the total number of tweets, this still means thousands of accounts tweeted more than 5 times.

Most Retweeted Tweets

Although many of the tweets were complaints about the power outages, those that were shared and tweeted the most during the 11 days were not. The most retweeted tweets were those offering encouraging words, adding a new perspective to the conversation or providing an update on the situation.

Instagram

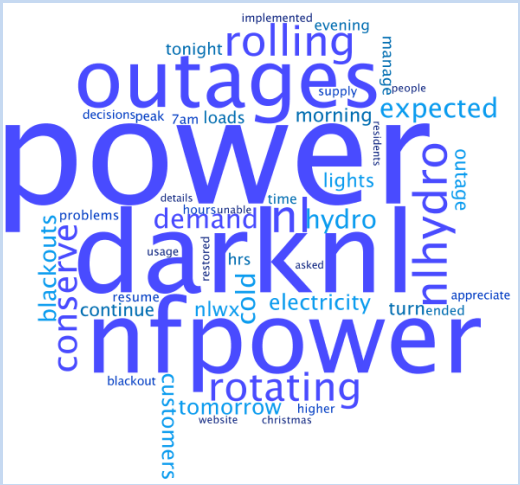
The collage of Instagram images to the right are those with the #darknl hashtag during the outages. There are no red flags here, typical Instagram pictures of people capturing what they're doing during the outages. Although there is one that is a meme, it is directed at the Premier. This is not surprising given the public discontent with the Premier's response and there is nothing of that nature directed at the utilities.

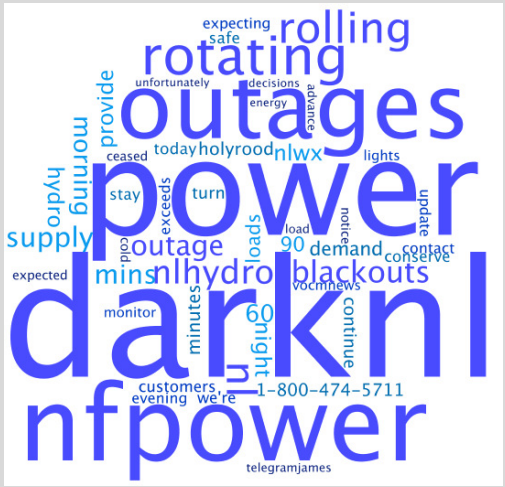
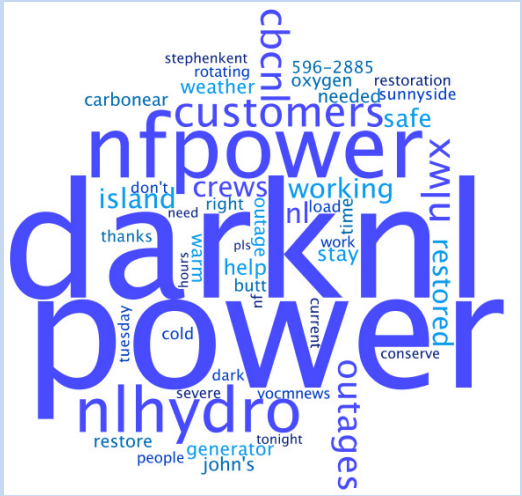


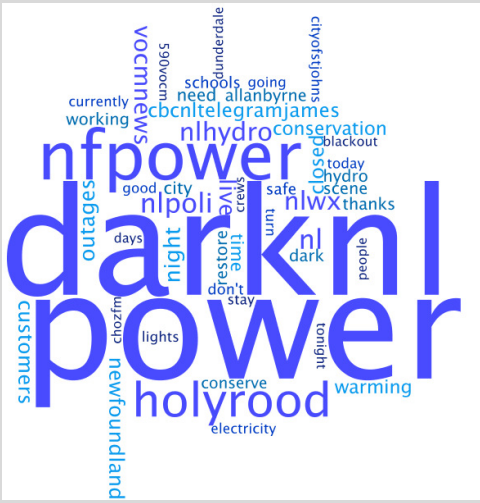
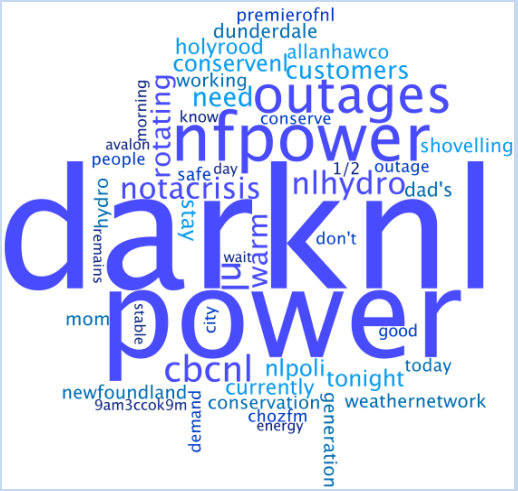
Daily breakdown

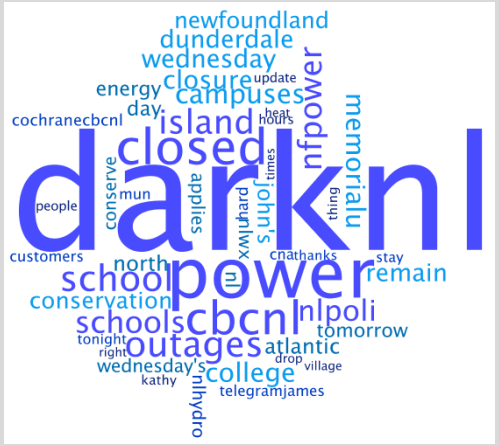
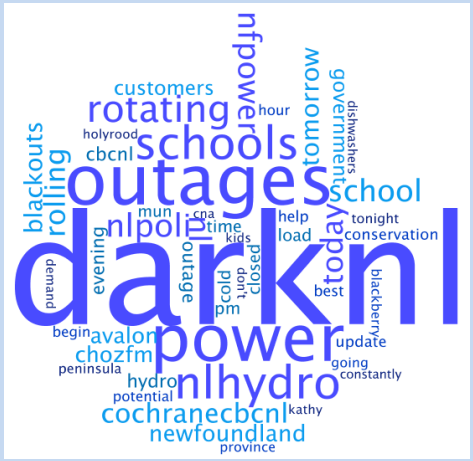
The following pages breakdown the mentions each day from January 2-12, including details about reach, the most retweeted tweets and word cloud capturing most frequently used words.

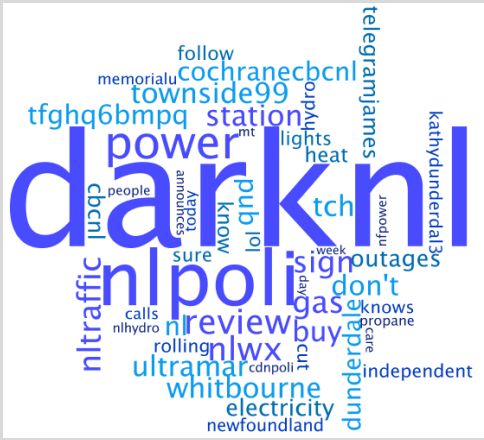
- It is positive that most retweeted tweets are generally factual, humorous or well wishes rather than complaints or frustrations. This is a testament to the utilities and media (via the utilities) ability to provide accurate and valuable information quickly.
- The conversation in the final days is largely driven by media. This is clear since many media twitter handles and hashtags appear in the word clouds. The conversation became especially light and humorous in tone during the final days as well. For example, one of the most retweeted tweets on January 10-12 is a joke about naming the generating stations in Holyrood and "Holyrood be trippin yo".
- Looking at 11 days of the top 4 tweets, only a couple are critical of Hydro.

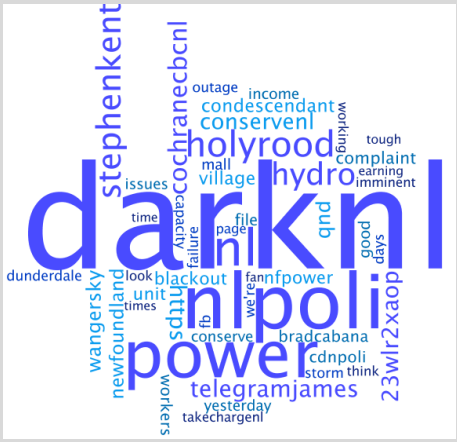
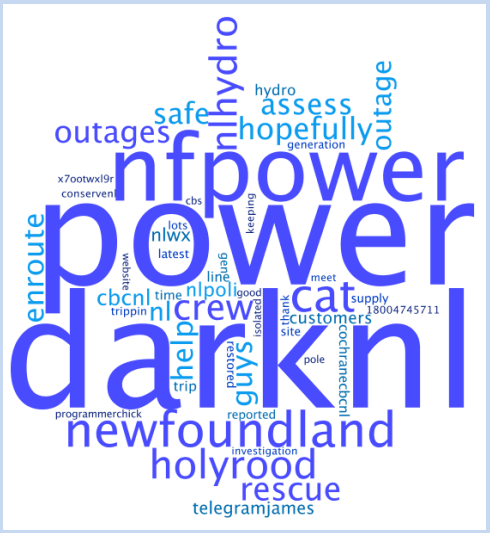
Date	Reach			Most Retweeted Tweets	Word Cloud
	Impressions	Mentions	Users		
Jan 2, 2014	3.5 million	2,342	1,050	Rotating outages implemented to manage electricity demand due to NLHydro system problems. Check website for details http://t.co/BXeOyN7YIe 2 Jan 2014 by Newfoundland Power Rotating power outages have ended for this evening and are expected to resume at 7am tomorrow morning. 2 Jan 2014 by Newfoundland Power Unfortunately we are unable to provide advance notice of rotating outages. Decisions are made quickly to balance supply and demand of power. 2 Jan 2014 by Newfoundland Power Due to @NLHydro power supply limitations we expect rolling outages to last between 30 & 60 mins. We appreciate your cooperation. 2 Jan 2014 by Newfoundland Power	

Jan 3, 2014	3.4 million	2,397	1,065	Rotating Outages have ceased for this evening. We will monitor loads throughout the night and provide an update in the morning. Stay Safe! 3 Jan 2014 by Newfoundland Power We're expecting rotating outages to last around 60 mins. If your outage exceeds 90 minutes please contact 1-800-474-5711. 3 Jan 2014 by Newfoundland Power Rolling blackouts in St. John's. From the complaints you'd swear it was random beheadings. #darknl #zombieapocalypse 3 Jan 2014 by Sean Panting We're expecting outages to last around 60 mins. If your outage exceeds 90 minutes please contact 1-800-474-5711. Thank you for you patience. 3 Jan 2014 by Newfoundland Power	
Jan 4, 2014	13.7 million	9,607	3,692	Generator needed for man in Carbonear on oxygen. If you can help, please call George Butt 596-2885. #darkNL #cbcnl 4 Jan 2014 by CBC Newfoundland It will likely be Tuesday before power will be restored to all customers. Crews are working around the clock. Stay safe everyone. 4 Jan 2014 by Newfoundland Power Please be advised, current outages taking place across the island are resulting from severe weather, not because of rotating outages. 4 Jan 2014 by Newfoundland Power Hoping that everyone affected by #DarkNL can stay safe and warm tonight. 4 Jan 2014 by Justin Trudeau, MP	

Jan 5, 2014	16.7 million	16,641	6,938	I'm on the scene, live at Holyrood. #DarkNL http://t.co/TuVrnE7peX 5 Jan 2014 by Allan Byrne Education Minister Clyde Jackman says all schools in Newfoundland, including MUN and CNA, will be closed Monday and Tuesday #DarkNL 5 Jan 2014 by OZFM Over 100,000 customers without power To everyone complaining to NL hydro, my dad just risked his life trying to restore the power and is currently in the hospital #HaveRespect 5 Jan 2014 by Danielle Vey Sending much warmth & good thoughts to glorious @Newfoundland 'rs that are without power again! #GodspeedToTheUtilityWorkersPart #DarkNL 5 Jan 2014 by G. Stroumboulopoulos	
Jan 6, 2014	10.9 million	6,544	2,724	Shovelling out Mom and Dad's back door. 1/2 @weathernetwork @CBCNL #DarkNL http://t.co/9aM3CCok9M 6 Jan 2014 by Allan Hawco To everyone complaining to NL hydro, my dad just risked his life trying to restore the power and is currently in the hospital #HaveRespect 5 Jan 2014 by Danielle Vey As long as generation from @nlhydro remains stable there should be no need to rotate outages this evening. Stay warm and safe. 6 Jan 2014 by Newfoundland Power Hang in der #DarkNL .Burn books in ur basement to stay warm. Pick the weakest in your family to eat if need b- (don't tellem) & 4 fun dance! 6 Jan 2014 by Shaun Majumder	

Jan 7, 2014	3.6 million	2,670	1,414	Wednesday's school closure also applies to @MemorialU and the College of the North Atlantic campuses on the island #darknl #cbcnl 7 Jan 2014 by CBC Newfoundland Village Mall: Revenge of The Fountain #DarkNL 7 Jan 2014 by Dave Sullivan There are no rotating power outages planned for this evening. It's important u con't to conserve energy. We're monitoring our system closely 7 Jan 2014 by Newfoundland Power Conservation remains very important!Customers should be prepared for potential outages as temps drop & during peak usage times. 7 Jan 2014 by Newfoundland Power Quidi Vidi, St. John's - The day after the	
Jan 8, 2014	4.8 million	4,365	2,020	Outage rotations affecting customers on the Avalon Peninsula will begin this evening. We will do our best to keep outages to 1 hour. 8 Jan 2014 by Newfoundland Power Reporter theory is school kids are constantly running dishwashers and dryers to ensure schools stay closed #DarkNL 8 Jan 2014 by David Cochrane Due to extremely cold temperatures today & demand going up we're now facing rotating outages on the Avalon for the 1st time since Mon. 8 Jan 2014 by NLHydro An update regarding schools across the province, including MUN and CNA, will be made by government officials at 4 PM today. #DarkNL 8 Jan 2014 by OZFM	

Jan 9, 2014	2.2 million	917	503	Did you buy gas at Ultramar Whitbourne TCH? Sign on the door of gas station there. #nltraffic #nlwx #DarkNL http://t.co/tFGHQ6BmpQ 9 Jan 2014 by Wayne Lannon if u don't follow me sure i'll cut ur heat and lights…… and u KNOWS what that's like lol #DarkNL what a sin 9 Jan 2014 by Kathy Dunderdale MT @CochraneCBCNL #Newfoundland Premier announces independent review of electricity system. Operations. Management. Regulation #darknl 9 Jan 2014 by CBC News Alerts St. John's Fire Department got about 46 calls a day during #darknl due to alarms sounding & medical calls. Almost 400% increase #cbcnl 9 Jan 2014 by CBC Newfoundland	
Jan 10, 2014	2.3 million	2,016	780	Unit 2 is still offline and problem being investigated. However, we currently have enough gen avail. from other sources to provide power. 10 Jan 2014 by NLHydro I think we should name the individual generators in holyrood so we can properly lay blame. #2s name is Stan. Stan why you be tripin #DarkNL 10 Jan 2014 by Stephanie Kennedy #DarkNL 2: Dark Harder. 10 Jan 2014 by Gerry Porter RT @TelegramJames : For anybody keeping track, we're now into the *ninth* day of unreliable electricity. #DarkNL 10 Jan 2014 by The Telegram All customers now have power restored. We had enough reserve generation to begin restoration efforts immediately. 10 Jan 2014 by NLHydro	

Jan 11, 2014	471,635	403	213	These are tough times for many Village Mall retail workers who are not working/earning an income through no fault of their own #DarkNL 11 Jan 2014 by Dale Kirby, MHA WANGERSKY: It's astounding how frequently Newfoundland Hydro reports talk about "imminent failure" http://t.co/Hc92g5PNL7 #DarkNL 11 Jan 2014 by James McLeod I think we should name the individual generators in holyrood so we can properly lay blame. #2s name is Stan. Stan why you be tripin #DarkNL 10 Jan 2014 by Stephanie Kennedy Holyrood back at 80% capacity where it was yesterday before issue with Unit 2. Fan in Unit 3 still under repair. #DarkNL #ConserveNL #nlpoli 11 Jan 2014 by Steve Kent, MHA	
Jan 12, 2014	810,514	728	351	A Newfoundland Power crew is enroute to assess the situation and hopefully help rescue the cat. Be safe guys. 12 Jan 2014 by Newfoundland Power Holyrood be trippin' yo #darknl 12 Jan 2014 by David Cochrane For anybody not keeping track, with the latest Holyrood trip, we are now into the 11th day of ongoing power disruptions. #DarkNL 12 Jan 2014 by James McLeod There are some isolated outages reported on @NFPower site http://t.co/X7OoTWXl9r or 18004745711. Hydro has lots of gen to meet supply. 12 Jan 2014 by NLHydro	

The following assessment of the communications activity was completed at the request of NL Hydro.

Cathy Dornan Public Affairs participated in the communications response at the request of NL Hydro during the power outages from January 4th onward, and therefore had an ability to see the communications team and the operations team in action.

This document is a critical independent assessment complemented by research results since the power outages that provides an overview of how effective the communications response was, but as well, where there may be opportunities for improvement.

February 2014

Assessment of Communications Efforts by NL Hydro

January 2-11 2014

Following an informal assessment, NL Hydro appears to have done a very good job of communicating to the public through the events of Jan 2 – 12, 2014. A strong use of social media and traditional media allowed the message to be swift and frequent. This ensured people had reliable information. Anecdotal comments have shown satisfaction with NL Hydro executives and staff on how they handled social media specifically.

In subsequent formal research of the public concerning the power disruptions, it was confirmed that people felt they received good information in a timely way from NL Hydro. A research overview is included later in the document to verify some of the statements and beliefs in the assessment.

General rules of managing emergency communications:

- **The more honest, transparent and sincere you are with your audience, the more you will appeal to them on a human level and gain their trust and forgiveness.**

  NL Hydro: This was done very well. There was honesty in the communications that allowed people to believe the company. They did not have to always like the message but believing it was important.

- **Learn your lesson. State what you are doing to make sure that it does not happen again – and then actually make sure that it does not happen again**.

  NL Hydro: The repeated outages over many days left people feeling unsure that it would not happen again. NL Hydro did a good job explaining what needed to happen to equipment to fix the issues and followed through operationally to fix them.

- **Sincerely apologize when an apology is due**.

  NL Hydro: This was handled well by Ed Martin. Considering his personal reputation and by extension Hydro's, this was well done.

- **When in doubt, always remember to focus on building a relationship with your stakeholders. Well-established relationships go a long way in and out of an emergency situation**.

  NL Hydro: Prior to the events of Jan 2, it appears that relationships were generally solid. During the outages there may not have been as much contact with stakeholders as desired. Recovery will involve mostly stakeholder management.

- **Be careful about what marketing messages and campaigns you launch during and immediately after the emergency situation**.

  NL Hydro has not over promised. Post event has been handled well.

- **Not ignoring the situation in hopes that it will go away.**

  NL Hydro: Although it is difficult to ignore a blackout, NL Hydro instead responded quickly.

- **Responding to the public's inquiries and demands for updates in real-time, with an understanding and sympathetic tone, while being as open and honest as you possibly can.**

  NL Hydro: Likely one of the best successes. Use of social media allowed for real time response and it was very well executed.

- **Put those impacted by the emergency and the public first.**

  Nl Hydro: This is the key to emergency communications response. It appears the message of public first was well established in the communications.

- **Be real. Be human. Be sincere. Be honest. Be understanding. Be current. Be reliable. Be apologetic.**

  NL Hydro: For the most part, this was all included in the messaging and approach taken by NL Hydro. The effectiveness of this comes down to the spokesperson. Hydro had a few different voices throughout the outages. Quite often, the less technical people are more effective in communicating what people can understand. Ed Martin and Dawn Dalley were very effective in this area.

Overall highlights:

- Use of social media was a main focus of communications efforts and worked very well.
- Support from local media cannot be underestimated. If radio stations had not stayed on air, NL Hydro would not have been as successful. The medium was available and Hydro officials made themselves available to media without hesitation.
- Willingness to respond immediately and not become tied down in approvals allowed for real time information release.
- Emphasis was on media response and coordination needed to be stronger on broader stakeholder outreach.

Strength of response:

- Timeliness of communications
- Honesty of message
- Frequency of message
- Use of social media
- Use of radio call in shows
- Regular media briefings
- Timing of bringing Ed Martin into the response
- Effective monitoring of comments and media and correction of inaccuracies
- Allowing for people to contact NL Hydro and quick response
- System Operations updates via email hourly
- Ongoing and frequent contact and cooperation with NL Power communications
- Having key operational personnel at response sites (Holyrood) allowed for fast moving information
- Availability of key spokespeople to traditional media
- Takeover page on Hydro web site
- Coordination between utilities and government
  Speed of approval and messages - enabled rapid response

Areas for improvement:

- Initial news conference was hurried and unsure although this is common in emergency communications response
- More focus on stakeholder outreach, needed stakeholder liaison in place early
- Early in response, more time should have been taken preparing message, this improved as days went on
- Did not have regular media/stakeholder media list readily available or stakeholders clearly mapped and identified, caused slow down in getting initial information out
- Daily summary meetings between utility communications
- Some early inconsistency in messages but this was corrected

- Need to increase internal communication and engagement through entire process and ensure one person accountable.

Post Outage Research

The following are research highlights taken from a research report provided by MQO Research. A survey of 400 Newfoundlanders and Labradorians was taken in the early part of February, post power outages.

When asked to rate the overall reputation of NL Hydro: 59% gave Newfoundland and Labrador Hydro a score of 7 or higher.

When respondents were asked what were the specific things they felt Newfoundland & Labrador Hydro did well during the outages. The top mentions are below:

- The dedication of the workers
- They tried their best to get the power back as quickly as possible
- Communication delivered to the public

Respondents were asked what they think Newfoundland Hydro could have done better during the power outages. The top mentions were:

- To be better prepared for power outages
- To give more information/updates during the power outages

When respondents were asked if they felt that Newfoundland & Labrador Hydro provided information in enough places, 66% said yes.

newfoundland labrador hydro
a nalcor energy company

OPERATIONS STANDARD INSTRUCTION

STATION:	All Stations	**Inst. No.**	010
TITLE:	System Equipment Outages	**Page** 1	**of** 4

To adequately plan the operation of the power system, it is necessary to have sufficient time to plan equipment outages and evaluate the effect of these equipment outages on system operation and customer service. This is particularly important for outages affecting Hydro's Rural customers, Industrial Customers or Newfoundland Power. Equipment outages on Hydro's system can affect customers on Newfoundland Power's operation and vice versa. Therefore adequate time for co-ordination between control centres must be provided.

1. PLANNED SYSTEM EQUIPMENT OUTAGES

a) Planned system equipment outages must be requested from the Energy Control Centre (ECC) as far in advance as possible.

A minimum of **FIVE WORKING DAYS** notice shall be given for equipment outages which are internal to Hydro (i.e., do not require customer outages).

For outages involving Newfoundland Power, Industrial Customers and Hydro Rural customers, a minimum of **SEVEN WORKING DAYS** notice is required.

b) The equipment outage is to be requested using the Planned System Equipment outage database application.

c) Requests for equipment outages shall originate from:

i. Short Term Work Planning and Scheduling – Planner (TRO Regions);
ii. Short Term Work Planning and Scheduling – Planner (Hydro);
iii. Short Term Work Planning and Scheduling – Planner (Thermal)
iv. Short Term Work Planning and Scheduling – Planner (Exploits)
v. Other departments shall direct their equipment outage requests through the appropriate planning areas; and
vi. Newfoundland Power Control Centre – Superintendent (or designate).

d) All requests shall be made to the Supervisor - ECC (or designate) with copies sent to stakeholders.

OPERATIONS STANDARD INSTRUCTION

STATION:	All Stations	**Inst. No.**	010
TITLE:	System Equipment Outages	**Page** 2	**of** 4

1. PLANNED SYSTEM EQUIPMENT OUTAGES (cont'd.)

e) Equipment outages requested by Transmission and Rural Operations shall contain the following information:

i. specific equipment affected (in case of transmission line indicate specific section)
ii. starting date and time*
iii. ending date and time*
iv. type of work protection required
v. purpose of equipment outage
vi. switching arrangements

* The starting and ending times will include switching time and work time. This is especially important when customer interruptions are involved.

f) Equipment outages requested by Hydro Operations, Thermal Operations or Exploits Generation shall contain the following information:

i. equipment affected
ii. starting date and time*
iii. ending date and time*
iv. purpose of equipment outage

* The starting time is the time the equipment is disconnected from the system. The ending time is the time the unit is restored to available status.

g) Equipment outage notification by Newfoundland Power shall contain the following information:

i) specific equipment affected
ii) starting date and time*
iii) ending date and time*
v) condition guarantee (if required)
vi) purpose of equipment outage
vii) switching arrangements

OPERATIONS STANDARD INSTRUCTION

STATION:	All Stations	**Inst. No.**	010
TITLE:	System Equipment Outages	**Page** 3	**of** 4

1. PLANNED SYSTEM EQUIPMENT OUTAGES (cont'd.)

h) Other equipment outage requests, from CF(L)Co, NUGs, Industrial Customer, etc. will be channelled through the Supervisor - ECC, (or designate) who will discuss the requirements with the area concerned before the request is granted.

i) When a decision has been made, the Supervisor, ECC (or designate) will notify the originator of the equipment outage request with copies to the same personnel as in the original request and to other stakeholders.

j) Switching arrangements shall be confirmed at the time of the equipment outage confirmation.

k) The equipment outage confirmation will be given as much in advance as possible notice.

l) If there is a requirement for an equipment outage to be extended the ECC Shift Supervisor shall be advised.

OUTAGE APPROVAL

Prior to the approval of any planned equipment outages, the Planned System Equipment Checklist is to be completed by the Supervisor –ECC (or designate). To assist with the checklist, the document - *System Constraints for Planned Equipment Outages* should be reviewed. This document provides guidelines, constraints and other considerations when approving outages to power system equipment. A link to this document follows:

..\..\ECC Management\INSTRUCTIONS\System Constraints for Planned Equipment Outages Rev 3.doc

SYSTEM OPERATING INSTRUCTION

STATION:	All Stations	**Inst. No.**	010
TITLE:	System Equipment Outages	**Page** 4	**of** 4

2. DEVIATION FROM STANDARD

All parties shall attempt to work within the time limits as outlined in this standard. Timeframes may be relaxed through discussion and agreement between all stakeholders.

3. FORCED REMOVAL OF EQUIPMENT

Non-scheduled removal of equipment from service shall be determined by the ECC Shift Supervisor in consultation with available personnel or system on-call.

In case of an emergency, when time limitations prohibit consultation, the ECC Shift Supervisor shall exercise proper judgement and report the problem and action taken to appropriate personnel or on-call as soon as possible.

REVISION HISTORY

Version Number	Date	Description of Change
0	1980-11-19	Original Issue
12	2012-11-08	General Changes and added link to document - *System Constraints for Planned Equipment Outages*

PREPARED: Art Bursey	**APPROVED:**

SYSTEM OPERATING INSTRUCTION

STATION:	GENERAL	**Inst. No.**	A-003
TITLE:	Notification of Weather Warnings and Lightning Activity	**Page** 1	**of** 2

GENERAL

Weather warnings include extreme winds, heavy rainfalls or floods, lightning, ice storms, blizzards, and other extreme occurrences. Warnings are not the regular daily public forecasts that Environment Canada issues. Also, the Energy Control Centre operates a real time Lightning Tracking System (LTS) application to monitor the activity of lightning around Newfoundland and Labrador.

OBJECTIVE

Its primary purpose is to provide early warning of lightning activity and adverse weather. Use this information to improve power system security and reliability. In response to warnings, Energy Control Centre staff shall position the power system in order to guard against the impending threat of lightning and adverse weather.

ADVERSE WEATHER:

Procedure

When Environment Canada issues to the Energy Control Centre a special weather warning, the information contained in the warning shall be forwarded to regional and plant staff, who maybe potentially impacted. After hours, on-call persons shall be notified.

Use this information to improve power system security and reliability. In response to warnings, Energy Control Centre staff shall position the power system in order to guard against the impending threat of adverse weather.

LIGHTNING ACTIVITY

Similarly, others may benefit from notification of lightning activity. The Energy Control Centre shall notify other parties that may be impacted by lightning activity.

SYSTEM OPERATING INSTRUCTION

STATION:	GENERAL	**Inst. No.**	A-003
TITLE:	Notification of Weather Warnings and Lightning Activity	**Page** 2	**of** 2

PROCEDURE

Energy Control Centre staff will notify the following parties of lightning that may affect their operations or activities:

1. Hydro personnel working in switchyards or near transmission lines.
2. Bay d'Espoir Control Room
3. Holyrood Control Room
4. Northern region personnel (Manager – Generation and Terminals or Production Supervisor during normal hours and on-call after hours) of any lightning activity in the vicinity of L'Anse au Loop and Lac Robertson
5. Newfoundland Power Control Centre
6. Industrial Customers
7. Exploits Grand Falls Control Room

**Part of the Emergency Response Plan

REVISION HISTORY

Version Number	Date	Description of Change
0	2004-08-23	Original Issue
2	2013-09-25	Add Exploits Grand Falls Control Room

PREPARED: Bob Butler/Ross Kearley	**APPROVED:**

SYSTEM OPERATING INSTRUCTION

STATION:	GENERAL	**Inst. No.**	T-001
TITLE:	GENERATION LOADING SEQUENCE AND GENERATION SHORTAGES*, **	**Rev. No.**	07
		Page 1	**of** 2

INTRODUCTION

In the event of a system generation shortage, the following guidelines shall be followed in the sequence outlined in order to minimize outages to customers:

PROCEDURE

A. Normal Generation Loading Sequence

1. Bring on line all available Hydro hydroelectric generators and load them to near their full capacity.

2. Request Newfoundland Power to maximize their hydro production.

3. Make a Capacity Request of Deer Lake Power to maximize their hydroelectric generation.

4. Request Non-Utility Generators to maximize their hydro production.

5. Increase Holyrood production to near full capacity.

6. Notify customers taking non-firm power and energy that if they continue to take non-firm power, the energy will be charged at higher standby generation rates.

7. Ask Newfoundland Power to curtail any interruptible loads available.

8. Start and load standby generators, both Hydro and Newfoundland Power units, in order of increasing average energy production cost with due consideration for unit start-up time.

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 1992-07-16
Robert Butler		**REV. DATE:** 2009-04-29

newfoundland labrador hydro
a nalcor energy company

SYSTEM OPERATING INSTRUCTION

STATION:	GENERAL	**Inst. No.**	T-001
TITLE:	GENERATION LOADING SEQUENCE AND GENERATION SHORTAGES	**Rev. No.**	07
		Page 2	**of** 2

PROCEDURE (cont'd.)

9. Cancel all non-firm power delivery to customers and ensure all industrial customers are within contract limits.

If load is still increasing and it is apparent that a generation shortage may occur, proceed as follows:

10. Ensure that steps A1 to A9 above have been followed and implemented.

11. Inform Newfoundland Power of Hydro's need to reduce supply voltage at Hardwoods and Oxen Pond and other delivery points to minimum levels to facilitate load reduction. Begin voltage reduction.

12. Request industrial customers to shed non-essential loads and inform them of system conditions.

13. Request industrial customers to shed additional load.

14. Request Newfoundland Power to shed load by rotating feeders. At the same time, shed load by rotating feeders in Hydro's Rural areas where feeder control exists.

Note:

Generation from Wind Farms may shutdown with little notice.

* Part of the Environmental Plan
** Part of the Emergency Response Plan

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 1992-07-16
Robert Butler		**REV. DATE:** 2009-04-29

newfoundland labrador hydro
a nalcor energy company

SYSTEM OPERATING INSTRUCTION

STATION:	GENERAL	**Inst. No.**	T-001
TITLE:	GENERATION LOADING SEQUENCE AND GENERATION SHORTAGES*, **	**Rev. No.**	07
		Page 1	**of** 2

INTRODUCTION

In the event of a system generation shortage, the following guidelines shall be followed in the sequence outlined in order to minimize outages to customers:

PROCEDURE

A. Normal Generation Loading Sequence

1. Bring on line all available Hydro hydroelectric generators and load them to near their full capacity.
2. Request Newfoundland Power to maximize their hydro production.
3. Make a Capacity Request of Deer Lake Power to maximize their hydroelectric generation.
4. Request Non-Utility Generators to maximize their hydro production.
5. Increase Holyrood production to near full capacity.
6. Notify customers taking non-firm power and energy that if they continue to take non-firm power, the energy will be charged at higher standby generation rates.
7. Ask Newfoundland Power to curtail any interruptible loads available.
8. Start and load standby generators, both Hydro and Newfoundland Power units, in order of increasing average energy production cost with due consideration for unit start-up time.

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 1992-07-16
Robert Butler		**REV. DATE:** 2009-04-29

DRAFT

newfoundland labrador hydro
a nalcor energy company

SYSTEM OPERATING INSTRUCTION

STATION:	GENERAL	**Inst. No.**	T-001
TITLE:	GENERATION LOADING SEQUENCE AND GENERATION SHORTAGES	**Rev. No.**	07
		Page 2	**of** 2

PROCEDURE (cont'd.)

9. Cancel all non-firm power delivery to customers and ensure all industrial customers are within contract limits.

If load is still increasing and it is apparent that a generation shortage may occur, proceed as follows:

10. Ensure that steps A1 to A9 above have been followed and implemented.

11. Inform Newfoundland Power of Hydro's need to reduce supply voltage at Hardwoods and Oxen Pond and other delivery points to minimum levels to facilitate load reduction. Begin voltage reduction.

12. Request industrial customers to shed non-essential loads and inform them of system conditions.

13. Make a Capacity Assistance request to Corner Brook Pulp and Paper.

14. Request industrial customers to shed additional load.

15. Request Newfoundland Power to shed load by rotating feeders. At the same time, shed load by rotating feeders in Hydro's Rural areas where feeder control exists.

Note:

Generation from Wind Farms may shutdown with little notice.

* Part of the Environmental Plan
** Part of the Emergency Response Plan

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 1992-07-16
Robert Butler		**REV. DATE:** 2009-04-29

DRAFT

SYSTEM OPERATING INSTRUCTION

STATION:	**Holyrood, Hardwoods and General**	**Inst. No.**	T-007
TITLE:	**Holyrood Black Start Restoration Using Hardwoods Gas Turbine****	**Page** 1	**of** 4

Introduction

The Avalon Peninsula may become separated from Bay d'Espoir and the remainder of the power system during ice, wind or other storm events. When this happens, Holyrood generation will likely trip due to an imbalance between area load and on-line generation. Customers will be without power until the Hardwoods Gas Turbine and Holyrood fossil units are placed in-service and the load is reconnected.

The goal of this instruction is to supply the necessary black start load (5-10 MW) of the Holyrood Generating Plant using the Hardwoods gas turbine via TL242.

Guidelines

Hardwoods Terminal Station

- Use the "Black Start - Open Breakers" command button to open the following breakers at HWD TS to facilitate energizing a dead bus:
  - B2L42
  - B1B2
  - B7C1
  - B7T1
  - B7T2
  - B8T4
  - B8T3
  - B8B9
  - B8C2
  - B7T5
- Confirm open the breakers listed above

Newfoundland Power Operations

- Consult with the Newfoundland Power Control Centre; inform them a black start will be initiated via the Hardwoods Gas Turbine. Request that they open all breakers associated with their 66kV Bus 6:
  - HWD-54L-B
  - HWD-5L-B
  - HWD-19L-B

SYSTEM OPERATING INSTRUCTION

STATION:	**Holyrood, Hardwoods and General**	**Inst. No.**	T-007
TITLE:	**Holyrood Black Start Restoration Using Hardwoods Gas Turbine****	**Page** 2	**of** 4

Guidelines (cont'd.)

Newfoundland Power Operations (cont'd.)

HWD-79L-B
HWD-72L-B
HWD-T2-B
HWD-T1-B

- With Newfoundland Power, confirm open the breakers listed above

Hardwoods Gas Turbine

- Request Hardwoods Gas Turbine to be started locally (Both Ends A & B, if available) in Black Start Operation as per Instruction T-075.

Holyrood Operations

- Consult with the Holyrood Control Room; inform them a black start will be initiated via the Hardwoods Gas Turbine. Request that they confirm open HRD B2L42 and HRD ST34. Have them standby until ECC is ready to energize their station service boards via transformer SST-34.

Holyrood Terminal Station

- Use the "Black Start - Open Breaker" command button to open the following breakers at HRD TS to facilitate energizing a dead bus:

B12B15
B12L18
B12L17
B6T10
B6L3
B7L2
B7T5
B7L38

SYSTEM OPERATING INSTRUCTION

STATION:	**Holyrood, Hardwoods and General**	**Inst. No.**	T-007
TITLE:	**Holyrood Black Start Restoration Using Hardwoods Gas Turbine****	**Page** 3	**of** 4

Guidelines (cont'd.)

Energizing TL242

- The present operating philosophy requires that a local operator is required to close the Gas Turbine breaker, G1T5 at Hardwoods, under a black start condition (as per Instruction T-075). Have the operator close G1T5. Check closed.
- Energize B8 by closing HWD B7T5. Check closed.
- Adjust the generator output voltage to achieve approximately 67 kV on Bus 8.
- Adjust HWD T3 tap to position 4 and energize B2 by closing HWD B8T3. Check closed.
- Close and/or check closed HRD B12L42.
- Energize HRD B12 via TL242 by closing HWD B2L42. Check closed. If necessary, adjust HWD T3 tap position to achieve acceptable voltage levels on HRD B12.

Energizing Holyrood Station Service Boards

- Close and/or check closed HRD B12T10. Note that B12T10 must be closed before B6T10 as they are interlocked (described in instruction T-048).
- Energize B6 by closing DRD B6T10. Check closed.
- HRD T10 tap position can't be adjusted without station service power, which is provided by the Holyrood Plant. Without station service available, HWD T3 tap position can be adjusted to achieve acceptable voltage levels on HRD B6. Once the Holyrood Plant energizes their Unit Service and Station Service Boards, station service power should become available in the Holyrood Terminal Station. Once station service power is available, HRD T10 tap changer can be used to achieve acceptable voltage levels on HRD B6.

SYSTEM OPERATING INSTRUCTION

STATION:	**Holyrood, Hardwoods and General**	**Inst. No.**	T-007
TITLE:	**Holyrood Black Start Restoration Using Hardwoods Gas Turbine****	**Page** 4	**of** 4

Guidelines (cont'd.)

Holyrood Operations

- Inform the Holyrood Control Room their station service boards are ready to be energized. When they are ready, energize transformer SST-34 by closing HRD B6L3. Check closed. They may close ST34 and proceed with their Black Start procedure.

ECC Operations

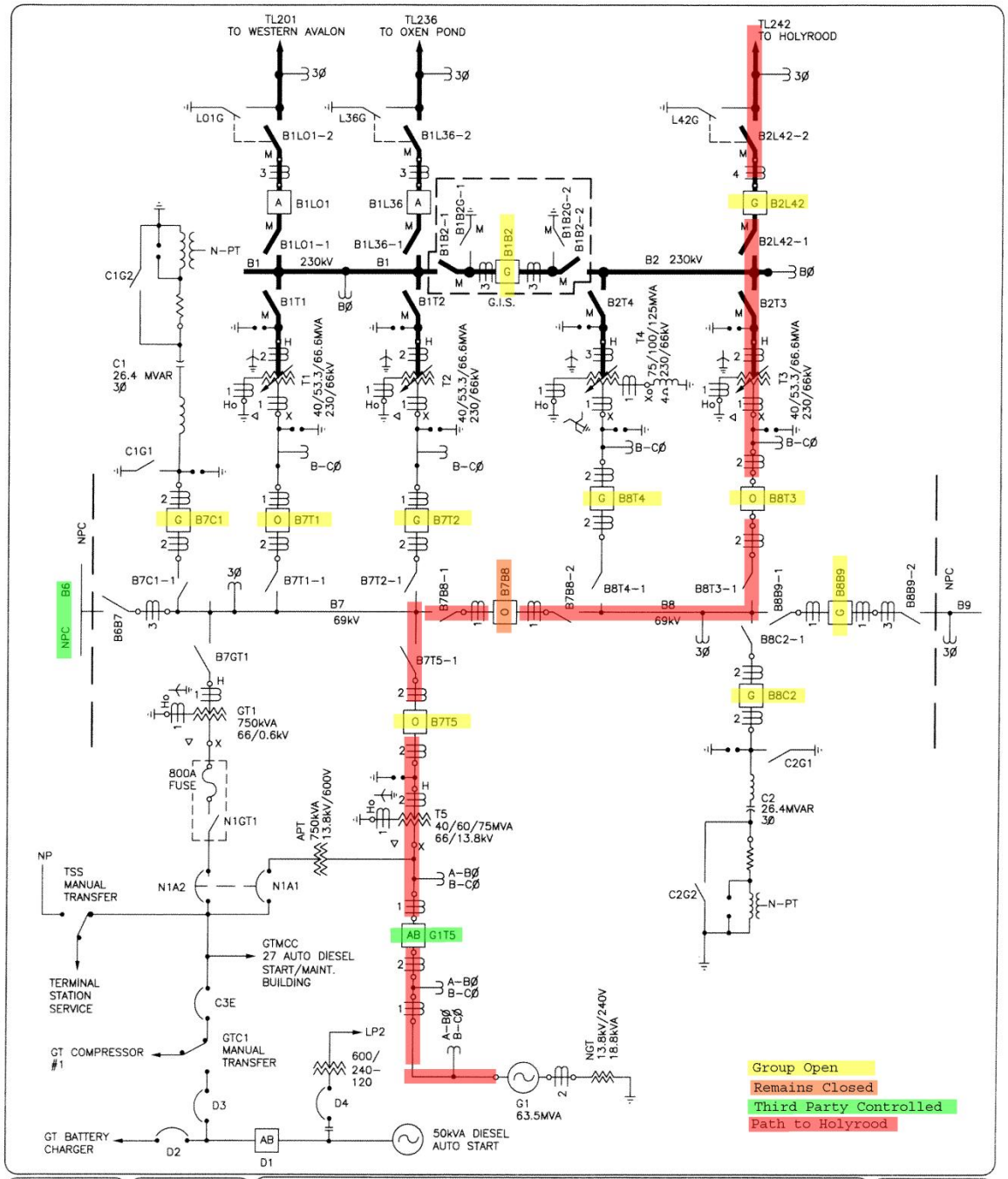
- Proceed with Instruction T-022 Restoration Of The Avalon Peninsula When Isolated From Bay d'Espoir.

** Part of the Emergency Response Plan

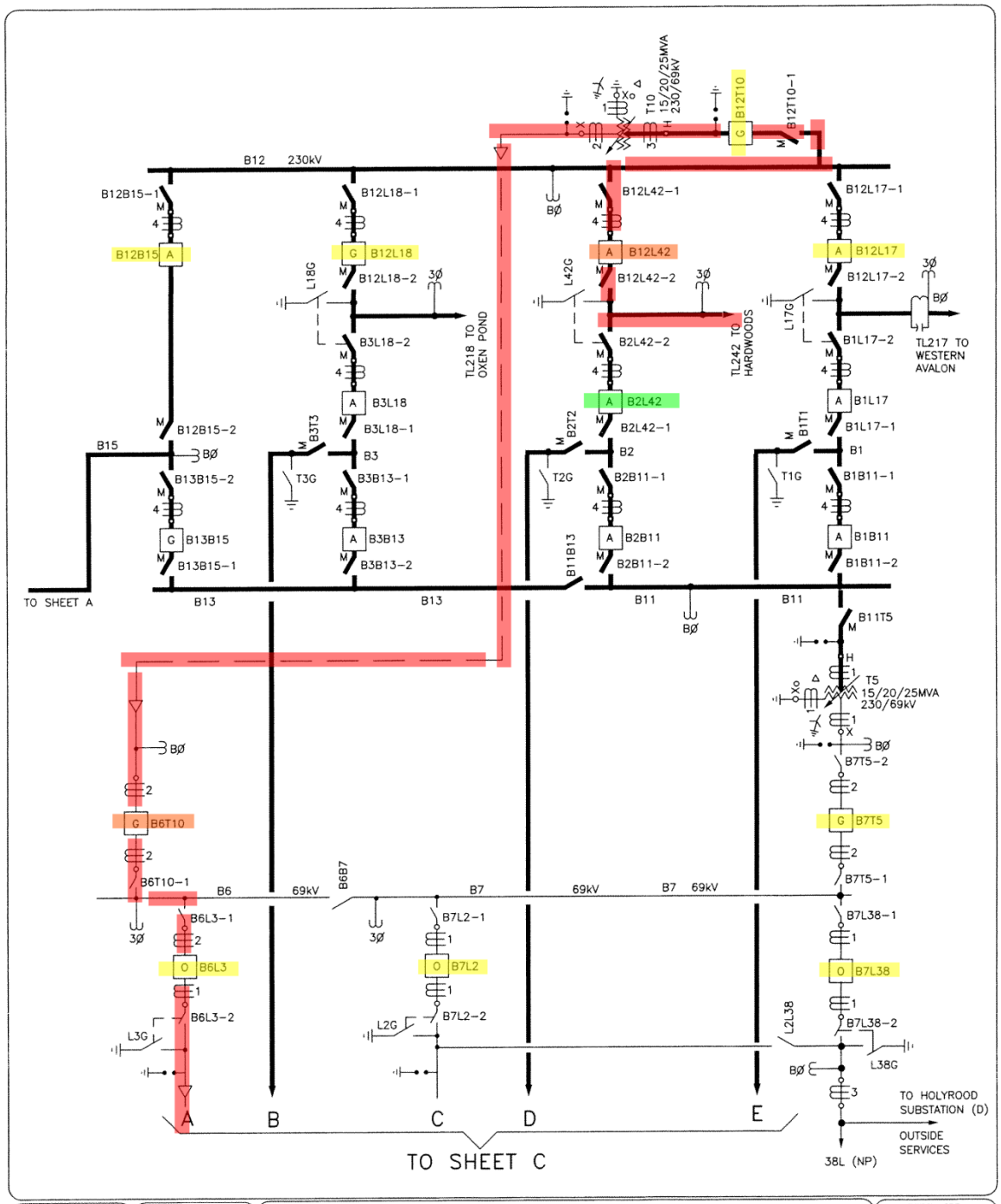
REVISION HISTORY

Version Number	Date	Description of Change
0	2012-06-07	Original Issue
1	2013-10-31	Updates

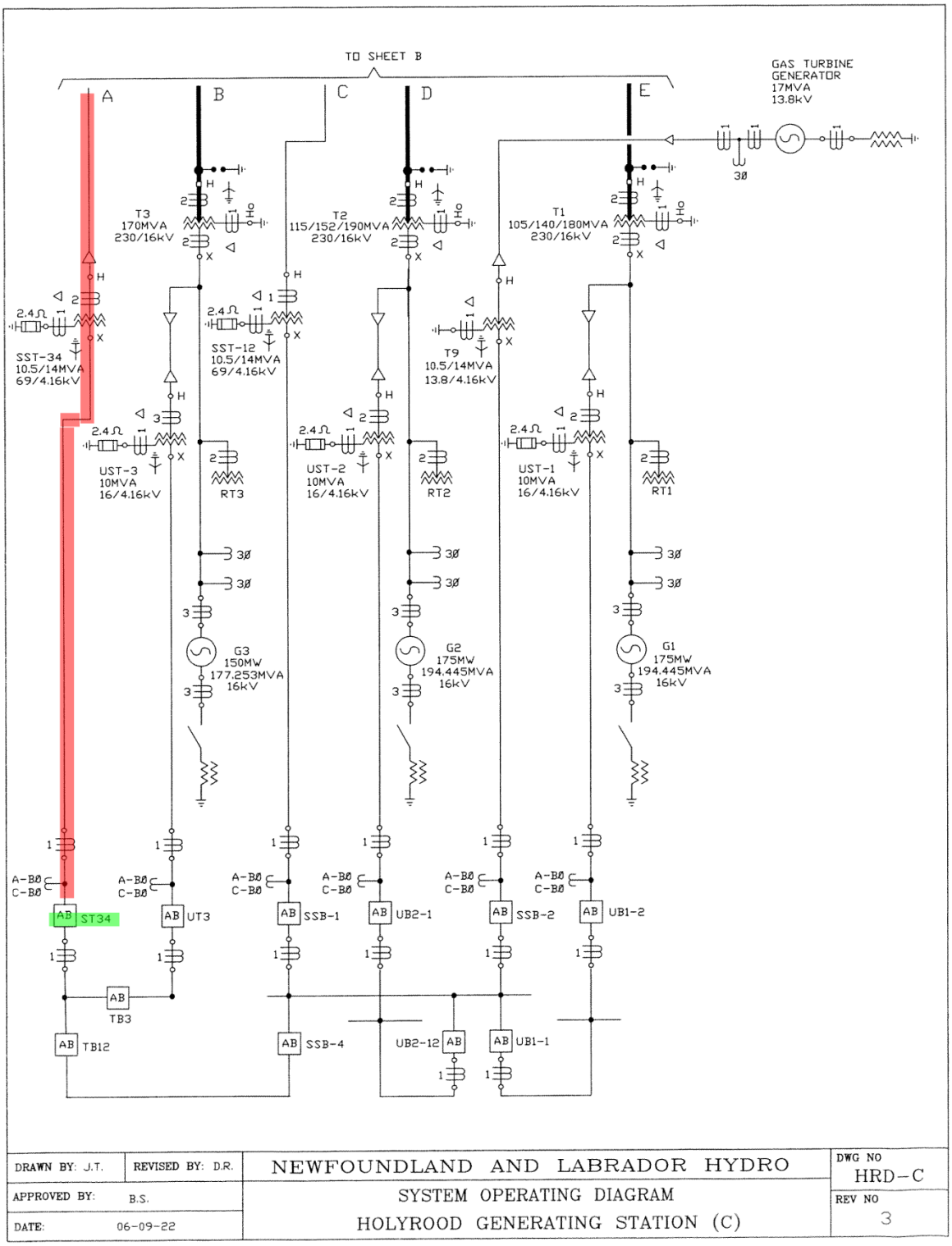
PREPARED: R. Coish	**APPROVED:**



DRAWN BY: J.T.	REVISED BY: D.R.	NEWFOUNDLAND AND LABRADOR HYDRO	DWG NO HWD-1
APPROVED BY R. STOYLES		SYSTEM OPERATING DIAGRAM HARDWOODS TERMINAL STATION	REV NO 18
DATE 2007/10/25			



DRAWN BY: J.T.	REVISED BY: D.R.	NEWFOUNDLAND AND LABRADOR HYDRO	DWG. NO. HRD-B
APPROVED BY: J.F.		SYSTEM OPERATING DIAGRAM HOLYROOD TERMINAL STATION (B)	REV. NO. 10
DATE: 05-03-16			


TO SHEET B
A
B
C
D
E
GAS TURBINE
GENERATOR
17MVA
13.8kV
3Ø
T3
170MVA
230/16kV
T2
115/152/190MVA
230/16kV
T1
105/140/180MVA
230/16kV
SST-34
10.5/14MVA
69/4.16kV
SST-12
10.5/14MVA
69/4.16kV
T9
10.5/14MVA
13.8/4.16kV
UST-3
10MVA
16/4.16kV
UST-2
10MVA
16/4.16kV
UST-1
10MVA
16/4.16kV
RT3
RT2
RT1
G3
150MW
177.253MVA
16kV
G2
175MW
194.445MVA
16kV
G1
175MW
194.445MVA
16kV
A-BØ
C-BØ
AB
ST34
UT3
SSB-1
UB2-1
SSB-2
UB1-2
TB3
TB12
SSB-4
UB2-12
UB1-1
DRAWN BY: J.T.
REVISED BY: D.R.
APPROVED BY: B.S.
DATE: 06-09-22
NEWFOUNDLAND AND LABRADOR HYDRO
SYSTEM OPERATING DIAGRAM
HOLYROOD GENERATING STATION (C)
DWG NO
HRD-C
REV NO
3

SYSTEM OPERATING INSTRUCTION

STATION:	Energy Control Centre	**Inst. No.**	T-032
TITLE:	Restoration Plan for Loss of TL202 and TL206	**Page** 1	**of** 3

This plan is devised to assist in the restoration of the power system should TL202 and TL206 trip simultaneously. Newfoundland and Labrador Hydro's Energy Control Centre Shift Supervisor will direct all actions necessary to restore the power system to its normal operating state. Upon loss of both 230 kV transmission lines from Bay d'Espoir to Sunnyside, Hydro's automatic restoration scheme will activate. The goal of the scheme is to restore power to TL207 from either TL202 or TL206. A number of items can be performed while the auto-restoration program is running. If unsuccessful, the program will timeout after 1½ to 2 minutes. Complete the following items in preparation of restoring the system.

***Note*- Maintain Contact with Newfoundland Power throughout this Restoration Procedure.**

Newfoundland Hydro (NLH)		Comments
1.	Upon loss of TL 202/TL 206 auto-restoration program will execute.	***Check program status - Come -by-Chance (CBC) display set. (T-023)***
2.	Restore lines and customer load tripped due to underfrequency load shedding (TL 226, TL 220, GBK L1, St. Alban's, etc.)	***Reminder: - AGC has tripped to Monitor.***
3.	Monitor and Control West Coast voltage.	***Follow Guidelines for West Coast Voltage Control.***
4.	Request Bay d'Espoir Plant to take local control.	***Have Bay d'Espoir staff monitor and regulate frequency.***
5.	Notify North Atlantic Refining Ltd and Vale.	***NARL – 463-8811 ext.487 Vale – 758-8778 or 697-1102***
6.	Notify System On-Call and Corporate Relations.	
7.	Execute Group Breaker openings in OPD, HWD, HRD and WAV.	****NLH will verify group breakers open completed. *NP will verify Avalon feeders Open.***
8.	Check CBC, HWD, OPD Cap Banks Open.	****Verify all Avalon Capacitor Banks Open.***

SYSTEM OPERATING INSTRUCTION

STATION:	Energy Control Centre	**Inst. No.**	T-032
TITLE:	Restoration Plan for Loss of TL202 and TL206	**Page** 2	**of** 3

Newfoundland Hydro (NLH)		Comments
9.	If HRD Unit(s) tripped, Request Holyrood's Control Room to open all unit breakers.	***ECC will verify Holyrood unit breakers open.***
10.	Execute SSD Group Breaker opening.	***Separate 138 kV from 230 kV at Sunnyside and verify group breaker open completed.***
11.	Restore TL 202 and/or TL 206 (If not already done by auto-restoration). If TL202 and TL206 remain out, consider HRD Blackstart from either Newfoundland Power's Mobile Generation at HRD or HWD TL242 (refer to Instruction T-007 and T-023).	***TL 202 preferred to avoid energizing TL 203 when restoring SSD 138 kV bus. Adjust SSD LTC's to acceptable voltage levels.***
12.	Restore TL 207 (If not already done by auto-restoration) and restore TL 237 to WAV.	***Notify NARL to restore (30 MW). *May require adjusting all online generating units to achieve acceptable Avalon voltage levels.***
13.	Restore Sunnyside 138 kV bus. Monitor and Control Voltages. *Note:* ****Use of CBC caps will result in excessive Voltage spikes****	***Restore TL212 and TL219. Notify Newfoundland Power to restore Burin and SSD Feeders. *If required the removal TL219 (SSD-SPO) will help lower the Avalon voltage.***
14.	Restore second line from Bay d'Espoir to Sunnyside, if possible.	***Monitor and control voltage to acceptable levels.***
15.	Restore TL237 at WAV, adjust WAV LTC's to acceptable levels (142 kV) and notify Newfoundland Power to restore WAV Loads.	***64L, B2T1, B2T2, and 86L loads.***
16.	Close WAV L01L37 to energize TL201 to HWD via B1L01. Adjust HWD LTC's to acceptable levels (68 kV) and notify Newfoundland Power to restore HWD Loads.	****Use HWD Cap Banks after LTC's usage exhausted. *Start Hardwoods GT, if not already started.***

SYSTEM OPERATING INSTRUCTION

STATION:	Energy Control Centre	**Inst. No.**	T-032
TITLE:	Restoration Plan for Loss of TL202 and TL206	**Page** 3	**of** 3

	Newfoundland Hydro (NLH)	Comments
17.	Close HWD B2L42 to energize TL242 to HRD. *If not completed through Black Start T-007* Close HRD B12L42.	***HRD station service restored. Notify NP and restore 39L and 38L (If not already completed).***
18.	Close HRD B12L18 to energize TL218 to OPD. Close OPD B1L18. Adjust OPD LTC's to acceptable levels (68KV) and notify Newfoundland Power to restore OPD Loads.	****Use OPD Cap Banks after LTC's usage exhausted.***
19.	When HRD Unit(s) are Online, restore all remaining loads. Use CBC Cap Banks as required.	
20.	Restore all remaining 230kV Transmission Lines, TL203, TL217, & TL236.	***Monitor and control voltage to acceptable levels.***

Notes:

- To secure the system after load has been restored, place remaining 230 kV transmission lines in-service and start Paradise River plant. Newfoundland Power will restore the remainder of their system, picking up load in consultation with Hydro (ECC).
- The Wind Farms should not be re-connected to the system until the Holyrood plant is in a stable mode of operation and the load is restored. When connected, the output of the wind farm(s) should be limited to the total pick-up capability of the Holyrood plant in the event that the wind generation is suddenly lost or rejected.
- Under extenuating circumstances (HRD offline for extended period), the Wind Farms could possibly supply load to Newfoundland Power's system and help maximize the available Avalon Generation capacity.

REVISION HISTORY

Version Number	Date	Description of Change
0	2013-04-11	Original Issue

PREPARED: Jason Dean	**APPROVED:**

EAST COAST

POWER SYSTEM

RESTORATION PLAN

(Loss of TL202 and TL206)

Newfoundland and Labrador Hydro _____

Newfoundland Power _____

Revision 0 ***2013-04-09***

Instruction T-032 – Newfoundland Hydro's East Coast Restoration Plans

Appendix – Newfoundland Power's East Coast Restoration Plans

East Coast Restoration Loss of TL 202 & TL 206

Notes

- Used Station LTC's to set Voltage Levels to nominal (68KV,142KV)
- Use Capacitor Banks after LTC's are fully Utilized.
- Use CBC Capacitor Banks after HRD is Online.

Auto Restoration Program (ARS) for TL202/206 Initiates to Restore Supply to (NARL) via TL 207

Contacts

- Restore Lines and any Customer Loads tripped due to under frequency load shedding (TL226, TL 220, GBK L1, St.Alban's, etc..) — Button — Note: AGC tripped to Monitor
- Monitor & Control West Coast Voltage — Button — Follow Guidelines for West Coast Voltage Control
- Notify Bay D'Espoir to Place Plant Control in local — BDE Control Room to Regulate and Monitor Frequency
- Notify North Atlantic Refining and Vale inc. — (NARL 463-8811 Ext # 487); (Vale 758-8778 or 697-1102)
- Notify System On-call and Corporate Communications Instruction(A-022)

No → Auto Restoration Program (ARS) fails to Initiate and TL 202/206 not Restored.

Yes → TL202 and/or TL 206 Restored, TL 207 energized to CBC (NARL).

Some Areas May still be connected if HRD Unit(s) didn't Trip, Restore and Sync Stations/Areas

Open/Close Necessary Breakers to Restore Remaining Stations

Holyrood (HRD) Unit(s) Online/ Offline

No → Holyrood (HRD) Unit(s) Offline

Yes → Holyrood (HRD) Unit(s) Online

Restore second Line TL 206/or TL202

TL202/or TL206 Restored

Restore 138KV Bus at SSD, Newfoundland Power can Restore Gander Loop.

TL202/or TL206 Restored

Operate Group Breaker Openings at OPD, HWD, HRD, WAV, & SSD.

HRD Control Room - Open all Unit Breakers.

Verify Newfoundland Power All Avalon Feeder Breakers Open

- ECC – Scada View NPSTJ St.John's Feeder Status
- ECC – Scada View NPAVALON Avalon Feeder Status

Confirm Open All Capacitor Banks at CBC, HWD, & OPD.

TL 202/ TL 206 Not Restored

Restore TL 202 or TL 206

Sunnyside (SSD)Restored via TL 202 and/or TL 206

HRD Blackstart either NP Mobile Generation at HRD or TL 242 from HWD GT (T-007)

TL 203 & TL217 restore together to get WAV Loads.

TL 237 Preferable, Lowest Voltage Impact

Notify NARL to Restore (463-8811 Ext # 487)

HWD GT Online (50MW), (HRD Blackstart = 10MW)

Western Avalon (WAV) Restored Via TL 237 and/or TL203.

NARL (CBC) Restored via TL 207

TL242, HRD Bus 12 Restored

TL 217 Restored

Restore availableWAV Loads,Minimize voltage levels

Remove TL219 to Reduce Voltage Levels at WAV.

TL242

Hardwoods (HWD) Restored Via TL 201

Oxen Pond (OPD) Restored Via TL 236

Holyrood (HRD) Restored Via TL 217

TL 218 Restored

Notify Newfoundland Power of any extra Generation available at HWD GT, Following Black Start T-007.

Newfoundland Power would like to supply all the critical St. John's loads possible with HWD GT until Transmission Lines can be restored to the Avalon.

Wind Farms may be Online through Newfoundland Power Restoration Plans.

Newfoundland Power Can proceed to Restore WAV to HRD Loop.

Newfoundland Power can proceed with St. John's Restoration through HWD.

Newfoundland Power can continue with St. John's Restoration through OPD.

All Avalon Customers Restored.

Appendix A

Newfoundland Power Restoration Plan

East Coast Restoration (Loss of TL-202 & TL-206)

Overview

NLH will open all 230 kV Breakers at SUN OXP and HWD and HRD (Duff's) to disconnect the 230 kV network from the sub transmission components. NLH will operate breakers at SUN and WAV to attempt to energize NARL from one 230 kV line from Sunnyside

NP will begin the process of separating all NP lines and loads from the NLH system to allow NLH to restore voltage to the 230 KV at WAV. NP will then pickup load from the Western Avalon System to provide sufficient load to mitigate the effects of the charging assocated with the 230 kV network. NLH will decide when we have picked up enough load to allow them to energize the 230 kV system to HRD and on to HWD and OXP.

NP SCC operators will contact the following and inform them that we are implementing the East Coast Restoration Plan.

1. Systems On-Call
2. On-Call Supervisor - St. John's,
3. On-Call Supervisor - Avalon,
4. MUN – Electrical Maintenance, and request that an operator stands by at MUN substation to operate feeder breakers if required.

Each of these will be responsible for contacting the following and or dispatching field staff to the locations identified for each area.

Systems On-Call,

1. Contact the following:
2. Manager of Operations
3. Corporate Communications.
4. Superintendent of Generation (or designate).

St. John's On- Call

1. Contact Manager St. John's Region.
2. Dispatch staff to RRD, BIG, CAB, FER, SCV to contact SCC and operate feeders as directed.

Avalon On-Call

1. Contact Manager Eastern Region
2. Dispatch Staff to HOL, COL, SPF, WAV, DUN, CAR, ILC, HGR, HCT,OPL & RVH to contact SCC and operate feeders as directed.

Superintendent of Generation (or designate)

Arrange to have operators visit each of the hydro plants that locked out to reset plants that should be made available to go online. Refer to the Southern Shore restoration plan for details of the Southern Shore system.

Prepare to run GRT, and WES GTs if requested.

Dispatch staff to SCV and TOP, PHR, SCV and PHR operators should be familiar with feeder recloser operation if needed to manage loading.

NP SCC

Preparation for Restoration

NP SCC Operators will disconnect the NP system from the NLH system by opening the following Circuit Breakers

Table 1

HWD-T3-B	OXP-34L-B
HWD-49L-B	OXP-70L-B
HWD-73L-B	OXP-01-B
HWD-54L-B	OXP-32L-B
HWD-5L-B	OXP-31L-B
HWD-19L-B	OXP-35L-B
HWD-79L-B	OXP-67L-B
HWD-72L-B	OXP-58L-B
HWD-T1-B	
HWD-T2-B	WAV-86L-B (NLH)

NP will breakup its 66 kV and 138 kV sub-transmission networks into sections to prepare for restoration by opening the following breakers.

Table 2 – Avalon Transmission

BRB-39L-B	BLK-55L-B
BRB-56L-B	BLK-94L-B
BRB-57L-B	BLK-80L-B
CAR-40L-B	BLK-86L-B
CAR-41L-B	
CAR-68L-B	HCT-43L-B
HGR-57L-B	

Table 3- St. John's Transmission

KEL-52L-B	SLA-13L-B
	SLA-15L-B
GOU-17L-B1 (or B2)	SLA-69L-B
PHR-3L-B	
MOB-24L-B	KBR-16L-B
	KBR-12L-B

NP will open all remote controlled distribution feeders in St. John's and Avalon from the Feeder Summary Screen using the group Commands where available. Any feeders that cannot be opened via the Group Commands due to tagging or configuration must be accessed by Individual feeder control from the substation SLD.

Open the following Bus Tie and Transformer Breakers to Drop the feeders at RRD and MUN

Table 4 St. John's Distribution

RRD-TB-2-3	MUN-TB-1-2
RRD-T2-B	MUN-T1-B
RRD-T3-B	MUN-T2-B

System Restoration

WAV 230 kV Bus Energized

Close the following Breakers monitoring voltage and loading with NLH

Use Group Feeder Group Close Commands when picking up large blocks is load is acceptable. There will be a slight delay between feeder close commands. If there is a need to pickup load slower or in smaller blocks use the individual feeder controls at these locations.

Table 5 Western Avalon Restoration

Breaker / Control	Subsystem Energized	Peak Load (MVA)
WAV-B2T1 (NLH)	WAV Feeders (3)	12.0
WAV-B2T2 (NLH)		
WAV-B4L64 (NLH)	BLK - BRB 138 & 66 kV	
BRB-Group-1	BRB Feeders (5)	20.4
BRB-39L-B	SPF-COL_HOL	16.5
BLK-Group-1	BLK Feeders (2)	10.2
BLK-55L-B	PJN-QTZ-DUN Feeders & CLK 66 kV	7.9
CLK-Group-1	CLK Feeders (3)	8.6
BLK-94L-B	SCT- RVH-TRP	8.9
BLK-80L-B	NHR-ISL-HCT	11.4
BRB-56L-B	CAR Feeders (4)	16.5
BRB-57L-B	ILC Feeders (2)	11.1
HGR-57L-B	HGR Feeders (3)	9.5
CAR-40L-B	VIC Feeders (2)	8.6

CAR-41L-B	Complete 66 kv Loops BRB-BLK Systems	
CAR-68L-B		
HCT-43L-B	NCH & OPL Feeders (6)	12.6
WAV-86L-B (NLH)	Complete WAV-BLK 66 kV Loop	
BLK-86L-B		

System Restoration

HWD 230 kV and 66 kV Buses Energized

Close the following Breakers monitoring voltage and loading with NLH

Use Group Feeder Group Close Commands when picking up large blocks is load is acceptable. There will be a slight delay between feeder close commands. If there is a need to pickup load slower or in smaller blocks use the individual feeder controls at these locations.

Table 6 Hardwoods Restoration

Breaker / Control	Subsystem Energized	Peak Load (MVA)
HWD-T3-B	HWD 25 kV Bus	
HWD-07-B and HWD-08-B	HWD 25 kV Feeders	24.9
HWD-T1-B	HWD 12.5 kV Bus	
HWD-T2-B		
HWD-Group-1	HWD 12.5 kV Feeders (5)	38.4
HWD-72L-B	GDL-GOU-SJM 66 kV & Distribution Busses	
HWD-73L-B		
GDL-Group-1	GDL-12.5 kV Feeders (6)	45.1
GOU-Group-1	GOU-12.5 kV Feeders (3)	32.3
SJM-Group-1	SJM-12.5 kV Feeders (4)	14.5
SJM-Group-2	SJM-12.5 kV Feeders (4)	16.5
SJM-Group-3	SJM-12.5 kV Feeders (3)	11.0
SJM-12-B	SJM-4.16 kV Feeder	2.7
PHR-3L-B	PHR 33 kV & 4.16 kV Feeder	2.5
GOU-17L-B1	BIG 66 kV and 12.5 kV Feeders	10.1
HWD-19L-B	MOL-66 kV and 12.5 kV	
MOL-Group-1	MOL-12.5 kV Feeders (8)	47.1
HWD-54L-B	KEN-66 kV and 25 kV	
KEN-Group-1	KEN-25kV Feeders (4)	49.2

Table 6 (cont'd) Hardwoods Restoration

HWD-49L-B HWD-79L-B	CHA-KEL 66 kV and Distribution Busses	
CHA-Group-1	CHA 25 kV Feeders (3)	48.9
KEL-01-B & KEL-02-B	KEL 12.5 kV Feeders	22.2
KEL-52L-B	SCV-66 kV and SCV Feeders (2)	10.4
HWD-5L-B	BCV 66 kV and 12.5 kV	
BCV-Group-1	BCV 12.5 kV Feeders (4)	21.5
MOB-17L-B	MOB-66 kV-FER 66KV, CAB-01 & FER-01 Feeders	7.5
MOB-01-R, MOB-02-R	MOB 12.5 kV Feeders	10.2

System Restoration

OXP 230 kVand 66 kV Buses Energized

Close the following Breakers monitoring voltage and loading with NLH

Use Group Feeder Group Close Commands when picking up large blocks is load is acceptable. There will be a slight delay between feeder close commands. If there is a need to pickup load slower or in smaller blocks use the individual feeder controls at these locations.

Table 7 Oxen Pond Restoration

Breaker / Control	**Subsystem Energized**	**Peak Load (MVA)**
OXP-01-B	OXP 12.5 kV Feeder	10.7
OXP-31L-B OXP-70L-B	SLA 66 kV and Distribution Busses & MUN 66 kV	
SLA-Group-1	SLA-4.16 kV Feeders (5)	11.6
SLA-Group-2	SLA 12.5 kV Feeders (3)	20
SLA-Group-3	SLA 12.5 kV Feeders (3)	20
MUN-T2-B	MUN 12.5 kV Feeders (3)	5.5
MUN-T1-B	MUN-12.5 kV Feeders (6)	11.1

MUN-TB-1-2		
OXP-32L-B	RRD-66 kV KBR 66 kV and Distribution Busses	
OXP-67L-B		
RRD-T2-B	RRD-12.5 kV Feeders (4)	17.6
RRD-T3-B	RRD-12.5 kV Feeders (4)	17.6
RRD-TB-2-3		
KBR-Group-1	KBR-4.16 kV feeders (8)	15.5
KBR-Group-2	KBR-12.5 kV Feeders (4)	24.0
OXP-35L-B	VIR-PEP-PUL 66 kV and Distribution Busses	
OXP-58L-B		
VIR-Group-1	VIR 12.5 kV Feeders (8)	65.8
PEP-Group-1	PEP 12.5 kV feeders (4)	22.3
PUL-Group-1	PUL 12.5 kV Feeders (4)	34.1

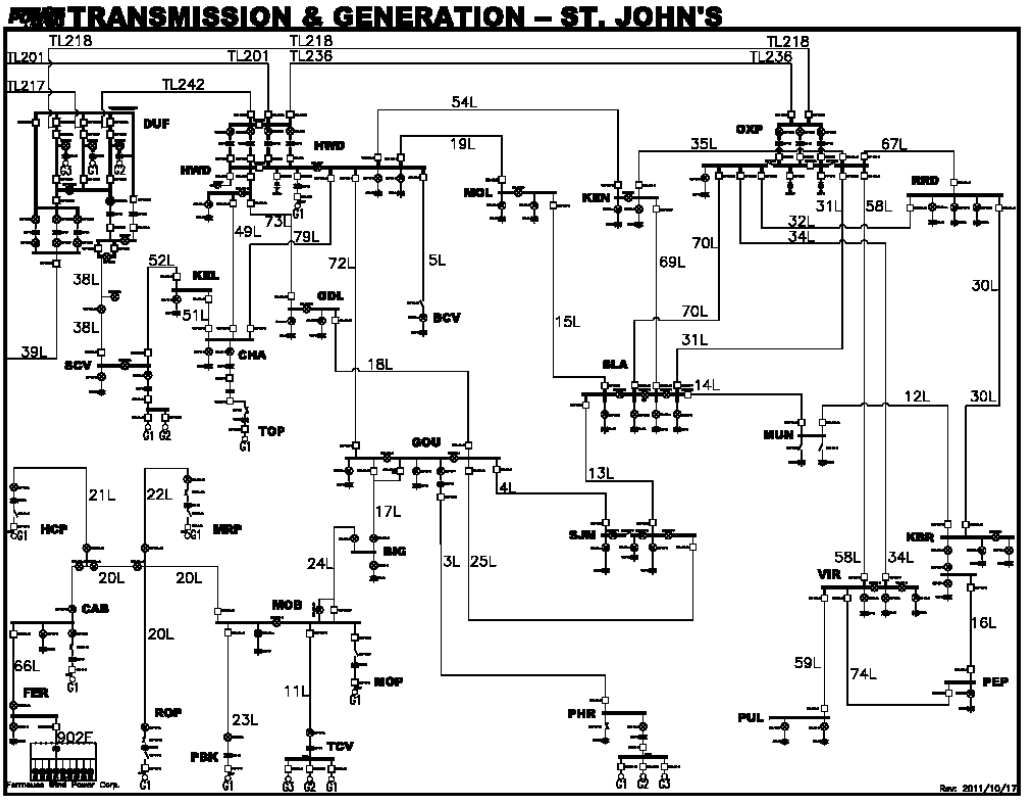
Completion of Restoration

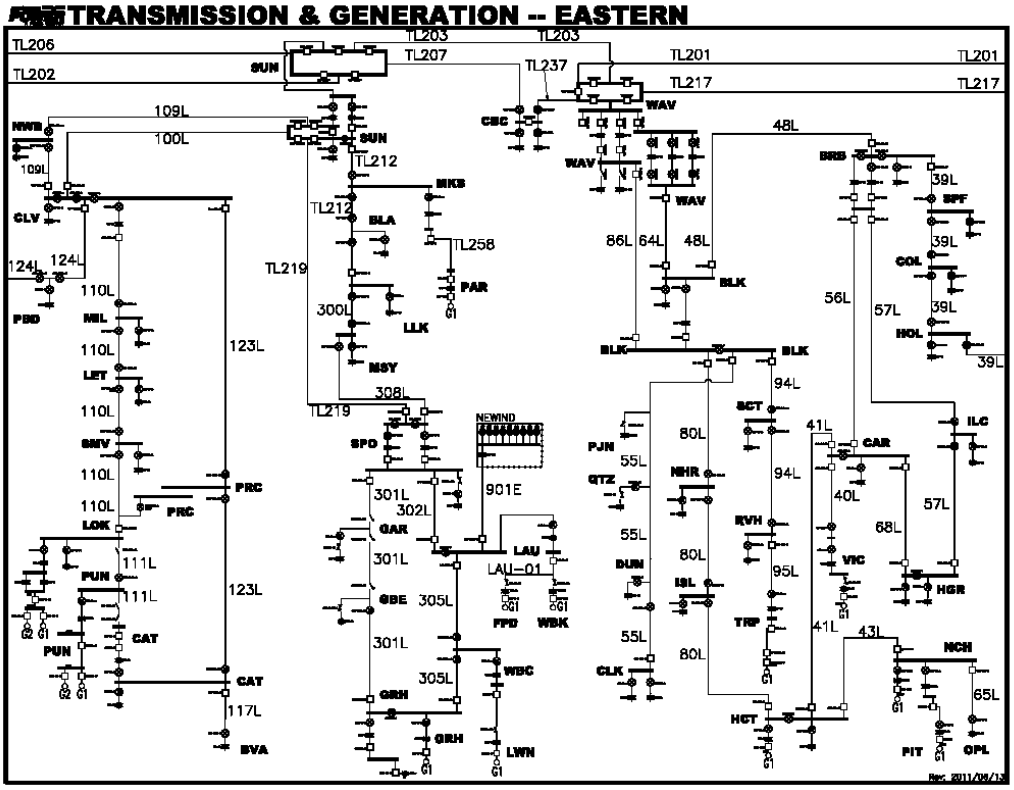
Close the following breakers to restore all loops in the St. John's 66 kV transmission system.

Table 8 Transmission Loops

SLA-13L-B	KBR-16L-B
SLA-15L-B	KBR-12L-B
SLA-69L-B	HRD-B7L38 (NLH)
OXP-35L-B	HRD-B8L39 (NLH)

Newfoundland Power Schematics:





HYDRO
THE POWER OF COMMITMENT

SYSTEM OPERATING INSTRUCTION

STATION:	**Hardwoods and Oxen Pond**	**Inst. No.**	T-078
TITLE:	**Hardwoods and Oxen Pond Restoration ****	**Rev. No.**	
		Page 1	**of** 6

Introduction:

Newfoundland and Labrador Hydro (**NLH**) supplies Newfoundland Power (**NP**) customers in the St. John's and surrounding areas using three delivery points

- Hardwoods 66 kV (busses 7 and 8);
- Oxen Pond 66 kV (busses 2 and 5); and
- Holyrood 69 kV (38L).

During one peak (on February 15, 2003 at 1800 hours) when the system load was 1402 MW, the total area load was approximately 520 MW. Hardwoods station, including its gas turbine, supplied 216 MW, Oxen Pond supplied 222 MW and Holyrood 38L, 36 MW. The remaining 46 MW was supplied by Newfoundland Power's generation.

The Newfoundland Power's 66 kV system is configured with connections between the three delivery points. Hardwoods is connected to Holyrood via two lines, 49L and 79L, which run from Hardwoods to Chamberlains. Real power normally flows from Hardwoods to Chamberlains. Oxen Pond does not directly connect into Holyrood. Hardwoods and Oxen Pond are connected via three lines, 13L (St. John's Main to Stamp's Lane), 15L (Molloy's to Stamp's Lane) and 54L (Hardwoods to Kenmount). The net real power flow across all three lines, under normal conditions, is relatively low. Most of Newfoundland Power's generation is located in the Hardwoods systems, with a small amount of generation in the Holyrood system.

Capacity:

It is important to understand the capacity of transmission and terminal equipment when meeting customers load requirements, especially under a contingency situation. These physical capabilities, or limits, shall always be respected.

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 2003-03-19
B. Butler		**REV. DATE:**

HYDRO
THE POWER OF COMMITMENT

SYSTEM OPERATING INSTRUCTION

STATION:	**Hardwoods and Oxen Pond**	**Inst. No.**	T-078
TITLE:	**Hardwoods and Oxen Pond Restoration**	**Rev. No.**	
		Page 2	**of** 6

Introduction (cont'd.)

The transmission line capacity into Hardwoods and Oxen Pond stations are provided below for different ambient temperatures.

Hardwoods (MVA)	25°C	15°C	0°C	SCADA Alarm
TL201	208	260	322	User shall
TL236	237	298	370	define
TL242	330	420	524	limits *
	775	978	1216	

Oxen Pond (MVA)	25°C	15°C	0°C	SCADA Alarm
TL218	237	298	370	User shall
TL236	237	298	370	define
	474	596	740	limits *

* seasonally adjusted

Terminal station transformer capacities at Hardwoods and Oxen Pond, assuming all cooling mechanisms are functioning properly, are provided. Normal operating and firm capacities are included. Firm indicates capacity under the largest single contingency, the loss of the biggest transformer.

Hardwoods	Capacity	Trip Setting	SCADA Alarm
Transformer T1	67 MVA	95 MVA	60 MVA
Transformer T2	67 MVA	95 MVA	60 MVA
Transformer T3	67 MVA	95 MVA	60 MVA
Transformer T4	125 MVA	175 MVA	115 MVA
Gas turbine	50 MVA		
Station	376 MVA		
	358 MW (95% pf)		
Firm	251 MVA		
	240 MW (95% pf)		

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 2003-03-19
B. Butler		**REV. DATE:**

HYDRO
THE POWER OF COMMITMENT

SYSTEM OPERATING INSTRUCTION

STATION:	**Hardwoods and Oxen Pond**	**Inst. No.**	T-078
TITLE:	**Hardwoods and Oxen Pond Restoration**	**Rev. No.**	
		Page 3	**of** 6

Introduction (cont'd.)

Oxen Pond	Capacity	Trip Setting	SCADA Alarm
Transformer T1	67 MVA	95 MVA	60 MVA
Transformer T2	125 MVA	191 MVA	115 MVA
Transformer T3	125 MVA	191 MVA	115 MVA
Station	317 MVA		
	300 MW (95% pf)		
Firm	192 MVA		
	182 MW (95% pf)		

Oxen Pond & Hardwoods	Capacity
Firm	568 MVA
	540 MW (assume 95% pf)

Holyrood	Capacity	Trip Setting	SCADA Alarm
Transformer T5	25 MVA	38 MVA	22 MVA
Transformer T10	25 MVA	33 MVA	22 MVA
Station	50 MVA		
	48 MW (95% pf)		

Reliability

Newfoundland Power operates its 66 kV transmission in the St. John's and surrounding area as a system, connecting the Hardwoods 66 kV, Oxen Pond 66 kV and Holyrood 69 kV delivery points. Interruption of one or two of these three delivery points may affect customers, however, it depends on the time of year, time of day, which particular delivery points are affected, configuration of the Newfoundland Power system and other related conditions.

Interruption of the Holyrood 38L delivery point should not affect customer service as customers will be supplied through the Hardwoods delivery point via 49L and 79L.

HYDRO
THE POWER OF COMMITMENT

SYSTEM OPERATING INSTRUCTION

STATION: **Hardwoods and Oxen Pond**	**Inst. No.** T-078
TITLE: **Hardwoods and Oxen Pond Restoration**	**Rev. No.**
	Page 4 **of** 6

Reliability (cont'd.)

Interruption of Oxen Pond or Hardwoods may result in service outages to some of Newfoundland Power's customers. During heavier load periods customers will be affected when all the load switches to the in-service delivery point and overloads Newfoundland Power's transmission. During lighter load periods, Newfoundland Power may be able to supply all their customers through the remaining delivery point. However, voltage remains a concern when supplying Newfoundland Power without Hardwoods or Oxen Pond available, due mainly to the lack of regulation on their system.

Restoration Guidelines

Perform the following steps after the loss of Hardwoods or Oxen Pond, resulting in customer interruption

1. NLH will monitor the system frequency and ensure AGC status is ON and the frequency stable. At the same time NLH will contact NP to initiate this restoration procedure.
2. If required, NLH will direct personnel to the problem station to investigate. TRO personnel will normally be contacted first, however, ECC staff are available should the need arise.
3. If applicable, NLH will isolate problem and restore remaining station equipment to service. The fully capable station will be used to restore as many customers as possible to service while personnel attend to and isolate the problem area.
4. Supply as many NP customers in the Holyrood – Seal Cove area from 38L by opening the loop near the Hardwoods end. The objective is to offload as much as possible the load on 49L and 79L at Hardwoods.

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 2003-03-19
B. Butler		**REV. DATE:**

HYDRO
THE POWER OF COMMITMENT

SYSTEM OPERATING INSTRUCTION

STATION:	**Hardwoods and Oxen Pond**	**Inst. No.**	T-078
TITLE:	**Hardwoods and Oxen Pond Restoration**	**Rev. No.**	
		Page 5	**of** 6

Restoration Guidelines (cont'd.)

5. NP will isolate their substations in preparation for the restoration process. Depending on the load and if not already tripped, NP shall be prepared to separate OPD and HWD systems to facilitate the restoration process. During restoration, NLH will approve the connection of OPD and HWD into one system.
6. NLH will secure generation requirements. Have as many generating units on-line as possible to assist with frequency regulation during the restoration process. Start the Hardwoods gas turbine using both gas engines. Ensure both Cat Arm units are placed in speed mode. If possible, place Holyrood units at an output level that will assist with frequency regulation. Units are at their maximum shall be reduced by about 15 to 20 MW each, depending on the unit load and if there is sufficient other generation. Ensure the Holyrood units are in speed load control. These steps shall not slow greatly the restoration of customers and should be done co-incidentally if these actions have a long duration.
7. NP will start their generation, to be ready to be connected to the transmission network as it is restored. This will offload the requirement from NLH.
8. NP will have ready 20- to 40-MW load blocks to restore using their individual or group breaker control schemes. NP will set the priority for customer restoration. NP will provide to NLH reasonably accurate measures of the load being restored and will, if necessary, apply appropriate cold load pickup relationships.
9. NLH will schedule the frequency setpoint to 60.05 Hertz.
10. Establish and maintain between NLH and NP control centres a continuous and dedicated voice communications channel during customer restoration.
11. NLH will direct the restoration of NP customer load blocks. NP will begin with their larger load blocks and end with the smaller loads.
12. NP will restore load as directed by NLH.

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 2003-03-19
B. Butler		**REV. DATE:**

HYDRO
THE POWER OF COMMITMENT

SYSTEM OPERATING INSTRUCTION

STATION:	**Hardwoods and Oxen Pond**	**Inst. No.**	T-078
TITLE:	**Hardwoods and Oxen Pond Restoration**	**Rev. No.**	
		Page 6	**of** 6

Restoration Guidelines (cont'd.)

13. NLH will
    - monitor the frequency level and ensure AGC is ON,
    - check for potential transmission line or station transformer overloading (ALARMS and SCADA displays), and
    - monitor station voltages (ALARMS and SCADA displays).

14. NP will monitor their system for potential equipment overload and low voltages.
15. NLH may adjust Holyrood and other generation output level to assist in frequency regulation. This action should not slow greatly customer restoration.
16. Repeat steps 11 to 15 until all customers are restored to service.
17. Return all system operating parameters to normal.

** Part of the Emergency Response Plan

PREPARED BY:	**APPROVED/CHECKED BY:**	**ISSUED DATE:** 2003-03-19
B. Butler		**REV. DATE:**

Temporary Capacity Assistance Agreement with Corner Brook Pulp and Paper

The arrangement between Hydro and Corner Brook Pulp and Paper was finalized on December 31, 2013 with an initial term specified to the end of January 2014. The details are:

- Payment for all energy received into the Hydro system during a period of the capacity assistance (the four-hour assistance window) is included in the fixed payment below and there shall be no payment through the secondary energy arrangement;
- Payment will be only for the highest MW interruption requested. For example, if the initial notice is for 40 MW and it is later modified to a 60 MW requirement, only the 60 MW related payment shall apply. Specifically, for each four-hour request, the payment is the following:
    - 20 MW - $40,000;
    - 40 MW - $100,000; or
    - 60 MW - $180,000,

      depending on the largest amount requested during the four-hour period;
- A capacity assistance request shall be made to Corner Brook Pulp and Paper with no less than 15 minutes prior notice to the time that the capacity assistance period is scheduled to commence. Hydro will endeavour to provide additional notice when possible, with the option of cancelling the notice at least 20 minutes prior to the time that the capacity assistance period is scheduled to commence; and
- If the load at the Corner Brook Paper Mill is reduced for any other reason and Hydro asks for maximized Corner Brook Pulp and Paper hydro generation, Corner Brook Pulp and Paper will comply with this request to provide power to the system, under the terms of the existing Service Agreement, with payments only as per the ongoing secondary energy arrangement.
- In addition to the amounts for the interruption blocks, Hydro has agreed to pay a capacity fee of $63,000 per month for each of the months of February and March of 2014. These amounts are payable whether or not Hydro makes a capacity assistance request in those months.

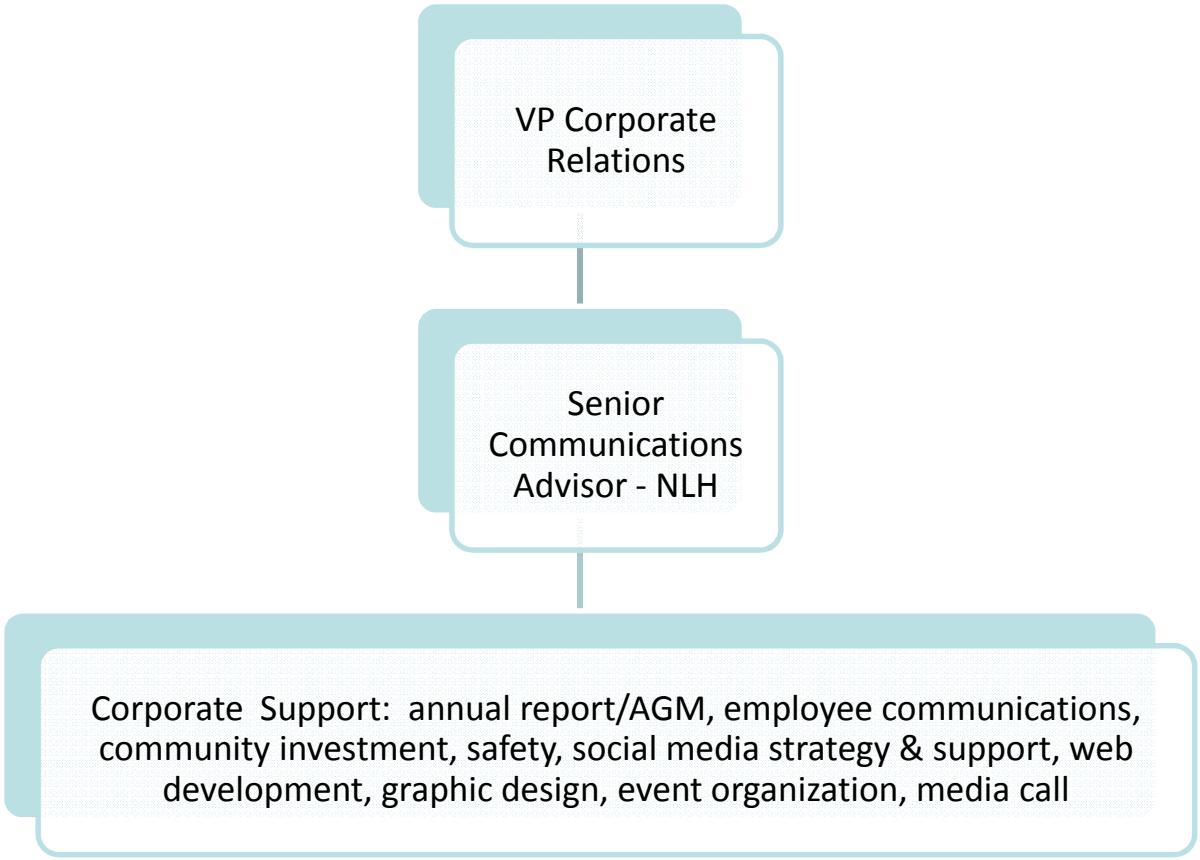
Communications Highlights
System Disruptions
January 2014

Boundless Energy

newfoundland labrador hydro
a nalcor energy company


Take a
MOMENT
for Safety

Communications Organization



Communication Principles & Objectives

- Principles grounded by our core values:
  - Open Communication
  - Honesty and Trust
  - Respect and Dignity
  - Teamwork
- Objectives
  - to be transparent and accessible, providing timely info via communication channels
  - manage expectations on service interruptions and return
  - manage and correct misinformation

Communications Highlights - Media

- Frequent distribution of information through varied channels
- Completely accessible to media throughout disruptions
- More than 100 media interviews, and 7 media briefings
  - Proactive updates through media (tv, radio, print)
  - Daily media briefings - Jan 3 to 8 (media briefings done with NFP & Gov't)
  - VOCM live coverage of media briefings
  - Regular CBC morning show updates
  - Very quick presence on live radio when required
    - (ex. on air within 10 minutes after Jan 5 Holyrood event)
  - News releases sent to media, posted to social media and Hydro website

Communications Highlights - Digital

- High volume of information and interaction via social media
  - 350+ Twitter Posts – more than tripled followers
  - 60+ Facebook Posts – more than doubled followers
  - More than 49,000 total social media mentions
- Created takeover page of Hydro website on January 5
- Three communications team members managed public responses and messages through twitter/facebook
- VP Corporate Relations tweeted from personal account (RTs by Hydro)
- Additional team members reviewing/monitoring twitter/facebook to capture questions for response
- Directed people to Hydro and NF Power outage info pages
- Retweeted/posted NF Power info
- Info on outages, and conservation and safety messages

Communications Highlights - Internal

- Email to staff on Jan 2 and 3 with conservation request and updates on events
- Email update to staff on Jan 6 with update of events
- Updates provided to Customer Service managers
- Update provided in internal newsletter – Newswire
- Regular updates provided to Board of Directors

Communications Highlights – Gov't

- Regular updates sent to Government by VP Corporate Relations throughout entire period
- Participated in joint media briefings
- Particpated and assisted joint energy conservation campaign with Gov't, Hydro and NF Power (radio, print, social media, and website with conservation tips)

Coordination of Information

- ECC/Operations
  - Jan 2-3 – Comms team in regular contact with Operations
  - Jan 4-5 – Comms team onsite in CEOC
  - Ongoing - system updates provided through email multiple times/day, meeting as required
- Customer Service
  - Coordination of messages with customer service to ensure consistent information provided to customers
- NF Power
  - Ongoing and regular dialogue between Comms teams

Communications Protocols Followed

- Power Outage and Emerg. Notification Procedures
  - Currently being reviewed/updated
  - Last full update, March 2011
  - Helps provide clear communications plan during outages
  - Includes communication with NFP if their customers impacted
- Emergency Communications Plan
  - Draft version, updated November 2013
  - Training & exercise scheduled for Q1, 2014
- Hydro Communications Lead – On-call
  - Mobilized Jan 2; additional comms staff also mobilized Jan 2
- CERP initialization
  - January 4 & 5 - Four communications team members mobilized

Thursday, January 2

- 8:00 am - call from operations confirmed peak load may exceed capacity
- 11:30 – 12:30pm several discussions with NF Power comms on advisory and messaging
  - Decision that Hydro would take lead on releasing advisory
  - Decision to release conservation request balanced against maintaining public confidence. i.e. Imp. to ensure it was required
- 12:30 pm - Advisory and messages drafted
- 1:00 pm– Update provided to Government
- 1:30 pm– Advisory distributed for internal approval
- 1:51pm – Advisory sent to media/public – posted to website and social media
- 2:30 pm– Key messages sent to NF Power communications

Thursday, January 2, con't

- 3:00pm– Confirmed media interviews w/ NTV, VOCM, CBC, Telegram, CBC National
- 3:12pm – Info sent to all employees – conservation messages
- 4:30 pm– Rotating outages began, regular updates through social media
- 9:30 pm– Updated advisory sent to media/public, rotations stopped for the night

Friday, January 3

- 7:00 am – Updated NF Power communications on loads and messages for the day. Media interviews with CBC morning shows, VOCM and Telegram
- 12:20pm – Requested NF Power join Hydro for joint media brief
- 1:15pm – Advisory for media briefing sent to NFP Power comms for approval
- 1:37pm – Media advisory distributed
- 2:30pm – Joint media briefing at Hydro Place
- 4:30 pm – Dawn Dalley - interview with CBC Here and Now
- 4:30 pm – Updated advisory sent to media/public on rotating outages
- 6:00pm – Rob Henderson on VOCM
- 8:30 pm – Rotating outages end, information updated on social media
- Social media updates continue with safety and conservation messages throughout day and into evening

Saturday, January 4

- 9:00 am – social posts indicating outages likely result of severe weather, investigating
- 10:00 am– begin media interviews and social posts indicating investigation into incident at Sunnyside terminal station
- 1:00pm – prepared messages with NF Power at Hydro Place
- 2:00pm - joint media briefing – Hydro, NF Power, Fire & Emergency Services (FESNL)
- Continue real-time updates, Q&A on social media throughout day
- 4:40 pm- info on outage sent to media/public and posted on website
- 5:30pm - prepared key messages with NF Power at Hydro Place
- 6:00pm – joint media briefing – Hydro, NF Power, FESNL
- Continue real-time updates and frequent messages about conservation and safety

Sunday, January 5

- Frequent messages on social media about conservation and safety
- 11:00 am – launched take-over page on Hydro website – containing links to important information, advisories and contact numbers
- 11:30 am - Briefing at Gov't with stakeholders
- 1:30pm – Joint media briefing w/Premier, Hydro and NF Power
- ~2:30pm - Ed Martin does call with VOCM open line show
- Started work on joint media campaign sponsored by Gov't, Hydro and NF Power. Hydro comms and Hydro takeCHARGE team – worked with Gov't to develop messages and collateral. NF Power also provided input.
- 5:30pm– Hydro advises its customers of rotating outages – schedule posted online
- 9:40pm – Trip at Holyrood - Dawn Dalley updates VOCM and CBC less than 10 min after event
- 9:50-11:00pm - real-time information distributed on social media until all customers restored

Monday, January 6

- Ed Martin interviews with CBC morning show
- Continue posting information on social media with real-time updates and responding to questions
- Gov't joint conservation advertisements begin running, included posting conservation info to Gov't website and using hashtag #conserveNL
- 1:30pm – Joint media briefing Premier, Hydro
- Hydro continues frequent conservation messages on social media

Tuesday, January 7

- No planned rotating outages
- Conservation and safety messages continue via social media
- Continue answering questions about generation and load on social media
- 1:00 pm – Joint briefing with Premier, NF Power and Hydro
- 4:40 pm – posted update on Hydro takeover page and on social media

Wednesday, January 8

- 10:30 am update on Hydro takeover page
- Gov't tweets top 10 conservation tips – Hydro re-tweets
- New peak load reached – conservation messages continue on social media
- ~3:30 pm– rotating outages resume. Hydro posts lists of communities and times on website for outages in Hydro distribution service territory
- 4:00 pm – media advisory issued on rotating outages and posted on Hydro takeover page online
- 4:15 pm - Joint briefing, Premier, Hydro and NF Power
- 6:30 pm – advisory posted on Hydro takeover page that Unit#1 at Holyrood back online

Jan 9 to 14

January 9

- Ed Martin interviews with CBC On the Go, NTV Evening News and CBC Here and Now

January 10 – 14

- Hydro comms team continues to answer question and provide social media updates
- Preparation for PUB reporting
- Prepared public advertisement and stakeholder outreach apologizing to customers for impact of outages and supporting reviews
- Prepared post outage survey with general public to assess communication and impact including conservation measures

Next steps post outage

- January 29 – Posting daily supply and demand reports on Hydro website
- February 17 – Posted blog post explaining peak demand and generation
- February 17 – Posted live feed of Hydro System generation and Island System generation on Hydro website
- Full review and update of Hydro website including mobile accessibility to be completed within 6 weeks.
- Discussion of lessons learned and improvements

Quick Lessons Learned

- Rapid response on all channels important for outage communication
- Quick approvals worked well and executive engagement enabled quick response
- Coordinated stakeholder outreach with clearly assigned accountable necessary in future
- Daily summary meetings between utility communications required to supplement ongoing communication
- Takeover page or “dark site” ready and implemented immediately.
- Embedded conservation team members with communication team to assist in promotion of conservation messages and responding to customer, public and social media questions

Our Values

Sharing our ideas in an open and supportive manner to achieve excellence.

Teamwork

Open Communication

Fostering an environment where information moves freely in a timely manner.

Honesty and Trust

Being sincere in everything we say and do.

Safety

Relentless commitment to protecting ourselves, our colleagues and our community.

Respect and Dignity

Appreciating the individuality of others by our words and actions.

Leadership

Empowering individuals to help, guide and inspire others

Accountability

Holding ourselves responsible for our actions and performance.

Public Advisory – Island Interconnected Customers

January 22, 2014 – Due to unseasonably cold conditions and very high load forecasts for the next 24 hours, Newfoundland and Labrador Hydro (Hydro) is requesting that customers on the island take steps to conserve electricity where possible.

Given the extreme cold conditions, Hydro is forecasting a very high peak load this evening and tomorrow morning. "We are asking customers to assist us by reducing, where they can, their electricity usage during peak times," said Dawn Dalley, Vice President Corporate Relations, Nalcor Energy.

To ensure we can meet the high customer demands, homes and businesses on the island are asked to avoid unnecessary electricity usage and reduce their consumption as much as possible from 4:00 p.m. to 8:00 p.m. Thursday, January 2, 2014 and from 7:00 a.m. to 10:00 a.m. Friday, January 3, 2014.

Customers can assist by doing the following:

1. Reducing electric heat by a few degrees
2. Conserving hot water by not running dishwashers, washers and showers
3. Avoid using clothes dryers
4. Turning off Christmas lights

Hydro thanks customers for their support and cooperation at this time.

-30-

Media Contact:
Erin Squires, Senior Communications Advisor
t. 709.737.1311 c. 709.697.1186
ErinSquires@nlh.nl.ca

Attention all residents and business owners.

Our work continues to maintain power supply across the island. Conserving power is essential and your ongoing efforts can impact the power available in homes and communities.

- **Turn down thermostats a few degrees**
- **Reduce hot water usage**
- **Unplug unnecessary appliances**
- **Turn off lights when not needed**

Visit gov.nl.ca for more conservation tips.

Every effort to conserve power counts.

NEWFOUNDLAND POWER
A FORTIS COMPANY

newfoundland labrador hydro
a nalcor energy company

Newfoundland Labrador

@NFPower | @NLHydro | @GovNL | #ConserveNL

Radio script for conservation request – January 2014

Attention all residents and business owners. Our work continues to maintain power supply across the island. Conserving power is essential and your efforts can impact the power available in homes and communities. Turn down thermostats a few degrees, turn off lights, reduce hot water usage and unplug unnecessary appliances.

Visit gov.nl.ca for more conservation tips. Every effort to conserve power counts.

A message from the Provincial Government, Newfoundland and Labrador Hydro, and Newfoundland Power.

ELECTRICITY CONSERVATION MEASURES

Residents and businesses are asked to take steps to conserve electricity where possible. Conserving power is essential and all efforts can affect the power available in homes and communities.

Your ongoing efforts are particularly important during times of increased demand, including 7:00-10:00 a.m. and 4:00-8:00 p.m. daily.

Every effort to conserve power counts!

CONSERVATION AT HOME

Heating

- Turn down thermostats to its minimum setting in rooms that are not being used
- Turn back the heat in your main rooms by a few degrees

Lighting

- Turn off lights in rooms that are not being used
- Use CFL bulbs and/or only turn on lights that have CFLs installed
- Replace incandescent bulbs with CFL or LED bulbs
- Use lower wattage lights for general lighting
- Reduce the number of lights used to light outside your home
- Use sensors or timers on your exterior lighting to reduce the amount of time your lights are on

Appliances

- Unplug electrical appliances and chargers when they are not in use (including computers, tablets, printers and televisions)
- Do not preheat the oven when cooking
- Use alternate cooking sources such as a pressure cooker, toaster oven or microwave oven. Smaller appliances generally use less energy
- Use a kettle with an automatic shut off
- Set the temperature inside your refrigerator to the mid-level setting, usually 4°C
- Avoid washing and drying clothes during the increased demand times of 7:00-10:00 a.m. and 4:00-8:00 p.m.
- Wash and rinse laundry in cold water
- Set the dishwasher to energy or water saver mode and air dry dishes instead of heat drying
- Set the timer to wash dishes overnight

Around the House

- If you have a fireplace, close the flue damper when it's not in use
- Keep shades and curtains open during the day so the sun can warm your home and close them in the evening to keep the heat in
- Use kitchen and bathroom fans sparingly. Ventilation fans can extract all of your home's heat in 2 to 3 hours
- Turn off your electric water heater at the electric panel if you will be away from home for more than one week

CONSERVATION AT WORK

Whether you own or work in a small, medium or large business, conservation at work really adds up. Here are a few things that can be done around the office to conserve energy.

Heating

- Only heat spaces where necessary
- Reduce heating spaces used only for short periods. If possible reduce temperatures or shut off heating in vestibules, stairwells, lobbies and unused spaces.
- Keep shades and curtains open during the day so the sun can warm your space and close them in the evening to keep the heat in
- Lower your thermostat to the lowest comfortable setting when your business is occupied. Set the temperature back further when the business is unoccupied.
- Review programmed schedules for heating and ventilation equipment for opportunities to better match the schedule to actual occupancy and reduce runtimes.
- Avoid using electric snowmelt loops for walkways whenever possible, when temperatures allow, rely on proper snow removal and salting procedures. If it is necessary to use a snow melt loop, ensure it is not left on unnecessarily after snowfall has ceased.

Equipment

- Unplug equipment and electronic items not in use, for example, commercial grade coffee makers which continually heat the water it stores.
- Turn off machinery, computers, printers, appliances and photocopiers whenever possible
- Shut down non-critical equipment during peak demand period
- Use large equipment during off-peak hours whenever possible
- Avoid leaving any equipment on 'stand by' mode. It will still use energy and should be switched off instead
- When the building is unoccupied, turn off exhaust fans in washrooms and kitchens if possible

Lighting

- Remember to turn off outside safety and security lighting at the start of each day
- Adjust lighting levels to match needs at different times of the day
- Use natural light whenever possible. Ensure windows are clean and encourage staff to open blinds before thinking of switching on lights.
- Turn off non-essential lights, signs and billboards inside and outside the building
- Scale back to half lighting or reduce lights on a dimmer where possible
- Turn off the lights when leaving the office/building for the day. Ensure after-hours security and cleaning staff are briefed on the importance of turning unnecessary lighting off.