Q. Describe all software tools used by Newfoundland Power's System Control Centre and the Central Dispatch Team.

A. The primary software tools used by the System Control Center ("SCC") are the supervisory control and data acquisition ("SCADA") system, the Outage Management System ("OMS"), Informer, Switch, the Work Permit application and the Geographical Information System ("GIS"). The primary software tools used by the Central Dispatch Team are ClickSoftware, the OMS and the GIS.[1]

A description for each of these software tools is provided below.

SCADA System

The SCADA system is used to remotely monitor and control the Company's electricity system. It is used by the SCC operators to remotely monitor and control 71 substations, 25 hydro generators, 2 gas turbines, 187 distribution feeders and 78 power transformers.[2] Engineering and operations employees also use real-time and historical data from the SCADA system for system assessment, analysis and planning purposes.[3] In total there are approximately 40,000 individual data points monitored and controlled through the SCADA system.[4]

Outage Management System

The OMS is used to create, process, dispatch, and close outage reports from customers.[5] The system also archives outage records used to prepare interruption reports for creating reliability statistics. During normal business hours the Customer Contact Centre ("CCC") will answer and record outage reports and the Central Dispatch Team will dispatch customer outage reports or trouble calls to Powerline Technician ("PLT") crews using the system. After normal business hours, the SCC Power System Operators will assume responsibility for recording and dispatching outage reports, with the exception of

[1] The SCC and the Central Dispatch Team also use Microsoft Office programs such as Outlook, Excel, Word, Internet Explorer and SharePoint as part of their regular duties. The Central Dispatch Team also regularly access 2 of the Company's work management systems, Technical Work Request and Avantis Asset Management, as well as the Customer Service System and Streetlight Management System.

[2] Further information about the SCADA system can be found in the response to Request for Information PUB-NP-164.

[3] Remote access to view only SCADA system displays is provided to engineering and operations staff through an Internet Explorer based application called Display at Web.

[4] The Company plans to replace the SCADA system as a multi-year capital project in 2015 and /2016. The SCADA system is a Schneider/Telvent OASyS™ system originally installed in 1999 with a significant upgrade of the operating system and the real-time server hardware completed in 2004.

[5] The Outage Management System is an internally developed application originally installed in 2003. The system currently uses the Microsoft .Net Framework 4.0 development environment. See the response to Requests for Information PUB-NP-294 for a summary of information requests related to the Outage Management System.

severe weather and electrical system events where the CCC and Central Dispatch Team will remain in operation.

Informer

Informer is an internally developed application designed to communicate outage information to customers.[6] Outages are recorded in the Informer application with details such as the locations affected, estimated restoration time ("ETR"), reason for the outage, and other information of interest to customers.[7] Customers can view this information on the Company's website in a list or map format. Customers will also hear a recorded message with the same outage information through the Company's 1-800 voice announcer system when calling to report or get information on an outage.[8]

During normal system operations, the Informer system is typically updated by the SCC Power System Operators. This responsibility is transferred to the Communications Hub during severe weather or system events, such as those on January 2-8, 2014.

Switch

The Switch application is an internally developed application used by engineering and operations staff and SCC operators to create, approve and execute detailed switching procedures on the electricity system.[9] Switching procedures are prepared by trained engineering and operations personnel within the application and require 3 levels of review and approval before the switching procedure can be executed.[10]

The Switch application also allows protection plans to be associated with a switching procedure to ensure protection equipment will continue to operate correctly after the switching steps are executed. The application also tracks confirmation requests that are used to ensure the appropriate engineering and operations supervisors are aware of and approve the schedule for equipment to be taken out of service.

[6] Informer was designed and implemented by Newfoundland Power in 2012 to replace its legacy outage notification platform. The system currently uses the Microsoft.Net Framework 4.0.

[7] Further information about the process for updating ETRs using the Informer system can be found in the response to Request for Information PUB-NP-103.

[8] Further information about the design and user operation of the Informer system can be found in the responses to Requests for Information PUB-NP-124 and PUB-NP-164.

[9] Switch is a web-based application using an Oracle database engine.

[10] First and second level approvals are completed by engineering and operations personnel who have been granted the required approval authority. The final level of review and approval is granted by an SCC Power Systems Operator or supervisor.

Work Permit

The Work Permit application is an internally developed application used to track work permits issued to engineering and operations staff working on the electricity system. The application produces a unique work permit number and tracks to whom and when the permit was issued.

GIS

The Company's GIS, known as ArcFM, provides a central database for storage of distribution asset information. The application also displays information about the geographic location and electrical connectivity of the distribution network. This information allows users to, for example, determine the nearest upstream isolation switch from a piece of equipment or identify downstream sections of distribution lines affected by the operation of a switch. The GIS currently stores information about primary distribution lines, streetlights and poles. This information includes equipment specifications as well as geographical location.[11]

The Company purchased and installed the GIS system in 2013 as part of a project to streamline the manual processes used to maintain and distribute information associated with the Company's distribution assets.[12]

ClickSchedule

ClickSchedule is used by the Central Dispatch Team to automatically schedule work for PLT crews.[13] A schedule optimizer is used to automatically create a work schedule based on required skill, location and priority to reduce driving time and increase overall efficiency. The software automatically tracks work progress as field crews update the status of jobs on laptops in the field.[14]

[11] Equipment specifications stored in the GIS include pole height and classification, conductor size and materials, transformer kVA ratings, etc.

[12] Further information about GIS can be found in the response to Request for Information PUB-NP-278.

[13] Newfoundland Power purchased and installed ClickSchedule in 2010 and is currently using version 8.1 of the application. Further information about ClickSchedule can be found in the response to Request for Information PUB-NP-164.

[14] Field crews use a mobile application called ClickMobile on laptops in their vehicles to receive and complete work orders electronically.