

Durability and Productivity in the Field

Mobile GIS technology enhances accuracy of electric distribution model for Nova Scotia Power, Inc.

Nova Scotia Power, Inc. is an electric distribution utility managing \$3.5 billion worth of generation, transmission and distribution assets across the province of Nova Scotia. The 15,500-mile electrical system provides electricity to nearly half-a-million residential, commercial and industrial customers.



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Executive Vice President and COO
Nova Scotia Power Inc. (NSPI)

Nova Scotia Power Inc. (NSPI) is aggressively pursuing their mandate to deliver exceptional customer service to residents thanks to its visionary leadership, customer-centric culture, and mobile GIS technology that enables accurate data collection in the field.

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Using BlackBerry smartphones and affordable Freeance Mobile software, Nova Scotia Power is enhancing its model of its electrical distribution system. The three-year GIS Connectivity Project will result in an accurate digital representation of an expansive system that was formerly modeled using original draftsmen’s drawings.

NSPI’s collector team uses Freeance Mobile software on BlackBerry Storm smartphones to collect precise location information and data about customer connectivity and distribution system features such as transformers and disconnect switches. Collected data is transferred from their BlackBerry Storms to Nova Scotia Power’s ArcGIS® Server software, where technicians use it to update the electrical model within minutes.

Brian Shannon, NSPI’s GIS Connectivity Project Manager explains. “With Freeance Mobile for BlackBerry, we’re building a more accurate picture of NSPI’s distribution system, which has tremendous benefit for operations and customer service,” says Shannon.

A highly accurate electrical model will improve NSPI’s Outage Management System (OMS), enabling them to better predict the impact of storms, dispatch line crews more effectively and provide better information to customers and emergency officials during outages.

“This is, at the heart, a customer-service initiative, although there’s no question this project has returned measurable time and cost savings already,” Shannon reports, midway through the three-year project.

Freeance Mobile on BlackBerry Solves a Rocky Start

The province of Nova Scotia spans an area of 34,352 square miles with population dispersed between major urban centers and small coastal villages. Collection occurs on foot and by vehicle in urban, rural and off-road areas.

At the start of the GIS Connectivity Project, looking at the projected labor profile, Shannon foresaw a problem. It was going to be near impossible to complete the work on time.

Shannon deduced this based on the experience of an earlier small pilot program where engineering students gathered data using ruggedized devices built specifically for use in the field.

“With the ruggedized units, students in the pilot program had to travel to and from local NSPI offices scattered throughout the province in order to upload the collected data to local computer terminals,” Shannon explains. “For the GIS Connectivity Project, allotting time to travel to and from these depot offices every day would significantly reduce daily productivity.”

“Freeance on BlackBerry allowed us to avoid the need for collectors to travel to local utility depots for data uploads each day. Two hours saved per day for each of the 14 collectors, translates into nearly \$200,000 worth of labor savings.”

- Brian Shannon, GIS Connectivity Project Manager, Nova Scotia Power Inc. (NSPI)

With capital expenditure approvals for the three-year plan in place, however, Shannon and his team had to make things work.

The ruggedized devices were capable of connecting to the NSPI network via modem, however, this method of connectivity lacked the required IT security control. Customer connectivity information is private customer data that requires secure encryption.

A technology solution was needed that met this security requirement, as well as the following specified criteria

- Ease of coordinating multiple teams collecting data on handheld devices.
- Eliminate the need to return to an office to transfer data.
- Increase the data process flow thereby reducing time to get data into the production environment.
- Simplify the data gathering process with easy to understand forms and pre-defined values, thereby reducing potential errors.

Already using a BlackBerry platform for executive-level communications, NSPI recognized they had the communications backbone in place to move forward swiftly. “Our IT Project Lead, Chris Cruickshank was familiar with Freeance Mobile for BlackBerry and he suggested we investigate its suitability for our needs,” says Shannon.

It quickly emerged as the right solution.

“We contacted TDC Group, explained our requirements, and right from that first phone call, they worked steadfastly with our systems analyst Jamie Simpson and GIS lead Anthony Bell to put a solution in place quickly.”

Since that beginning, Shannon explains the experience with the Freeance Mobile solution has been, “One positive outcome after another.”

Richard Janega, Executive Vice President and COO at NSPI agrees: “Freeance on BlackBerry has provided an integrated business solution for our utility, by improving speed and accuracy throughout our processes, including data collection in the field, updating the GIS system and approving system changes.”

A welcome surprise for Shannon and his team was how the smartphones stand up in field conditions and in every conceivable weather condition. “We have our BlackBerry Storms in OtterBox™ units and we don’t have issues in terms of durability. In our experience, BlackBerry smartphones are very suitable for field use in rugged conditions. They stand up fine,” he says.

The Numbers Don’t Lie: Measurable Time and Costs Savings

Shannon identifies the linchpin of the GIS Connectivity Project as the ability to provide reliable connectivity in the field for immediate GIS server updates. “Freeance Mobile on BlackBerry allowed us to avoid the need for collectors to travel to local utility depots for data uploads each day. Two hours saved per day for each of the 14 collectors, translates into nearly \$200,000 worth of labor savings,” says Shannon.

Shannon also reports significant direct cost savings in terms of hardware, software server and licensing. “The cost savings advantage of Freeance on BlackBerry was approximately 1/8th of the cost of the technology solution we initially considered,” he says.



"It's almost unfathomable when you hear of a solution that can work for a fraction of the cost of a leading alternative, and provide a far superior level of connectivity, but the numbers don't lie." Shannon says these cost savings alone may prove to be a big factor leading to the GIS Connectivity Project coming in on or under budget.



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Customizable Forms Reduce Errors, Increases Operational Efficiency

Previously, field personnel who noted discrepancies in the location or identification of features in the field would have to manually record any new findings on paper diagrams and submit to office personnel for manual updates to the model.

"Now our field personnel simply fill out the GPS Collector form in Freeance Mobile," says Shannon. The form is configured with required fields and predefined values, and the integrated BlackBerry GPS records the location automatically. The record is saved and is immediately available to the GIS Technician in the office, who verifies the data and updates the model within minutes.

"Having the collected data transmitted directly to the GIS Server during the collection process reduces errors and eliminates the turnaround time between data collection and submission to the GIS Technicians for processing," Shannon explains.

He credits the ease of use of the GIS Collector as integral to these operational savings. "Our enthusiastic field collectors are not necessarily utility-experienced folks, yet they're accurately capturing the different components of our infrastructure. We're giving them a basic orientation to what the field assets look like, and they're using drop down lists from the custom forms, which improves data accuracy and avoids potential errors." says Shannon. In addition to the operational and financial benefits, the ultimate payoff for NSPI is increased ability to deliver exceptional customer service.

For instance, more accurate data in their electric system model means outage locations are more accurately predicted and crews are dispatched more effectively.

"In large storms, where dozens of crews can be dispatched to make repairs, having those crews staged correctly maximizes their performance, minimizes logistical effort, speeds resolutions and ultimately benefits customers through quicker restoration," Janega explains.

"In short, Freeance Mobile on BlackBerry is providing us with time and cost savings, while helping us create a foundation for improved customer service."

Technology Profile	
Freeance Software	Freeance Mobile 2.0 - Pro Edition
BlackBerry Solution	BlackBerry Enterprise Server v. 4.1.6 25 BlackBerry Storm smartphones
ESRI Software	ArcGIS Server 9.3.1
Wireless Carrier(s)	Bell Canada
Database Software	Oracle 10g - 64bit

