Itron Case Study
New Brunswick

The Value of AMR Technology

New Brunswick Power Selects Itron AMR Solution

background

Benefits

Improved accuracy of meter reading

Solution for hard to access meters

Improved meter reader safety

Minimized re-routing requirements

The Background

New Brunswick (NB) Power is the largest electric utility in Atlantic Canada, and operates one of North America's most diverse generation and interconnected transmission systems.

The Challenge

We are a customer-driven organization with plans to increase customer satisfaction across all our range of services.

To support this effort, we have established various performance indicators that reflect the needs our customers have identified through intensive surveys. For meter reading, our customers told us that they wanted consistent billing periods and actual monthly reads (no estimates). To improve customer satisfaction with meter reading, we established several performance indicators:

> Estimated reads – only 1.5% of meter readings are allowed to be estimated annually.
> Billing Periods – 97% of the monthly billing periods are within 28 to 33 days annually.

An analysis of our meter reading routes revealed that several barriers were preventing NB Power from meeting its performance indicators:

> Hard-to-access meters – meters located indoors; meters within a fenced in area etc. We wanted a solution that would allow us to solve the majority of our hard-to-access meter problems.
> Unbalanced Route Read Times – We had many routes that were manageable for the meter reader to read in a day in one season but almost impossible to read in another season. We wanted a solution that would allow us to improve the seasonal balance of route read times.
> Misreads – We wanted to be able to improve the accuracy of meter reading through this initiative.
> Safety of meter readers – Meter readers are faced with safety concerns such as dogs, deep snow, or ice. We wanted a solution that would allow us to improve the safety of meter readers.

The CENTRON meter's improved performance, such as low starting watts and low burden captures energy that was not monitored in the past by electromechanical meters.

> Oversized Routes – We had many routes that were simply too large regardless of the season when the routes were read. Oversized routes were affecting not only our ability to meet the key performance indicators, but also the morale of meter readers. Many thought we were asking them to do the impossible – i.e. read all the meters in the route, on schedule, and do it safely.
> Re-routing – Re-routing is used as an option for resolving some oversized routes; however, we wanted to limit the volume of re-routing to reduce the impact on our customers. Customers are connected to their meter reading schedule more than they know. We have equalized billing plans, fixed bank account withdrawal dates etc. that are all affected if the customer's meter reading date is altered through re-routing. We wanted to avoid, as much as possible, the cost of calling customers to make alternative arrangements and the inconvenience to customers.

Itron

Knowledge to Shape Your Future

application

Application

We chose Radio Frequency (RF) meters as the solution for the following reasons:

> Low fixed costs and low maintenance costs
> Reliability and proven technology
> Compatibility with handheld units
> Resolution to the majority of meter reading "barriers" identified
> Scaleable solution

In the fall of 1999, we began using mechanical meters equipped with radio frequency modules, and over the winter equipped handhelds with the ability to read RF meters. To determine where the meters should be installed, we first looked at our meter reading routes and determined which routes were causing us to be unable to meet the established performance indicators. We then went to our meter reading personnel and asked them to select the meters on their routes to be changed to an RF meter. In selecting the locations for RF meters, they were to pick installations that they believed would provide the most support (remove barriers indicated above) to our goal of meeting the key performance indicators and to eliminate reads that are a safety concern.

In the fall of 2000, we began testing Itron's fully electronic CENTRON meter. Over a year of monitoring and testing gave us the confidence, in the spring of 2002, to switch to the fully electronic CENTRON meter.

> Our reliability statistics showed that the CENTRON meter was outperforming mechanical meters with the RF modules – less failures.
> A fully electronic meter has an improved operating range (will register lower currents) and improved accuracy performance.
> We found that the fully electronic meter visual read always matched the RF read. In the case of the mechanical meter with the RF module, in a small percentage of cases, there would be a discrepancy between the visual and RF readings.
> The reception performance of the handheld with the CENTRON meter was as good or better than the mechanical meter with the RF module.
> There were some concerns regarding how temperature affects the Hall effect technology. We researched this with Itron and did our own primitive test to satisfy this concern. We brought 12 CENTRON meters back to the meter shop after they had been installed for over a year. We tested the accuracy of the meters in our accredited meter shop and found the meters performed well. We put the meters into a regular household freezer overnight with a measured temperature of –18 degrees Celsius. The next morning, we took them out and immediately tested the accuracy of the meters on the test console while the meters were still cold. The test results were found to be the same as when the meters were tested at room temperature (20 degrees) — with a 30-40 degree shift in temperature, the accuracy did not change. The CENTRON meters had passed our primitive freezer test!

We now have a total of 6,000 CENTRON C1SR meters and 37,000 mechanical meters equipped with RF modules. These are all read with handheld devices. NB Power's total meter population is 320,000.

results

Results

NB Power is very pleased with the results of the radio frequency meter program. Radio frequency meters have provided NB Power a solution to resolve hard-to-access meter problems, balance meter reading route times, achieve improved accuracy of meter reading, right-size routes, reduce meter reading safety concerns, and minimize re-routing requirements.

We are now able to meet or exceed our meter reading performance indicators and, therefore, meet the needs our customers expressed through the surveys. The meter readers are also very satisfied because we have addressed many of their concerns such as safety issues, oversized routes, etc.

Future Plans

We plan to continue to purchase our normal annual requirements for residential meters as radio frequency meters. We have found that the benefits of the radio frequency meter more than compensate for the incremental cost of the radio frequency meter over the standard meter. These benefits include management of route growth, improved accuracy of meter reading and efficiencies gained in meter reading.

This story, written by Darren Baxter and Don Gallant of New Brunswick Power, first appeared in the Itron (formerly Schlumberger Electricity, Inc.) customer magazine, Systems Watch Winter 2002.

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