

A REPORT TO
THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES
(pursuant to Order No. P.U. 14(2004))

RURAL DEFICIT ANNUAL REPORT
Summary of Specific Initiatives

NEWFOUNDLAND AND LABRADOR HYDRO

March 2015

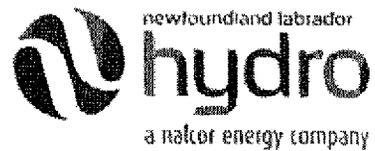


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1 Introduction

Newfoundland and Labrador Hydro (Hydro) serves approximately 38,000 Rural Customers through its distribution operations. Electrical service is provided to the majority of these customers at an operating loss or deficit, except for the approximately 10,900 Rural Customers served on the Labrador Interconnected System who pay rates which both recover costs as well as contribute to funding a portion of the overall rural deficit.

While there is no cost of service prepared by each diesel area or community, generally speaking, revenues from Rural Customers, particularly diesel areas, do not fully recover their fixed costs. Therefore, the incremental cost of fuel is a direct impact to the rural deficit as it is not fully recovered from revenues from increased sales.

Hydro's mandate to provide least-cost, safe and reliable power to all its customers remains its primary focus. Controllable costs, primarily operating expenses, remain relatively consistent from year to year, despite increasing wages, general inflationary pressure on material supply costs and other costs. Hydro continues to control its operating expenses using measures such as Conservation and Demand Management (CDM) aimed at internal energy efficiency. Such efforts both reduce Hydro's costs and assist in reducing and/or limiting growth of overall system fuel costs.

Table 1 shows the rural deficit for 2010 to 2014, excluding the Labrador Interconnected System. Because 2014 is a Test Year currently under review by the Board, the 2014 Rural Deficit is estimated based upon the 2014 actual costs combined with a portion of the deferred 2014 Revenue Deficiency allocated to the rural deficit.

Table 1
Hydro Rural (Excluding Labrador Interconnected)

| \$ millions | Annual Amounts | | | | | Year over Year | | | |
|--------------------|----------------|--------------|--------------|--------------|--------------|----------------|---------------|---------------|---------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2011/ 2010 | 2012/ 2011 | 2013/ 2012 | 2014/ 2013 |
| Revenues | 53.3 | 58.4 | 60.8 | 62.5 | 62.6 | 5.1 | 2.4 | 1.7 | 0.1 |
| Costs: | | | | | | | | | |
| Operating Expenses | 36.2 | 40.0 | 43.0 | 44.4 | 47.4 | 3.8 | 3.0 | 1.4 | 3.0 |
| Fuel | 19.7 | 26.1 | 27.6 | 28.9 | 35.7 | 6.4 | 1.5 | 1.2 | 6.8 |
| Purchased Power | 5.5 | 7.0 | 7.5 | 7.7 | 7.9 | 1.5 | 0.4 | 0.2 | 0.2 |
| Depreciation | 14.2 | 14.2 | 11.6 | 12.5 | 12.7 | (0.1) | (2.6) | 0.9 | 0.2 |
| Return | 17.9 | 20.5 | 20.4 | 19.7 | 23.0 | 2.6 | (0.1) | (0.8) | 3.4 |
| Total | 93.4 | 107.8 | 110.1 | 113.1 | 126.6 | 14.3 | 2.3 | 3.0 | 13.6 |
| Rural Deficit | 40.2 | 49.4 | 49.3 | 50.6 | 64.1 | 9.2 | (0.1) | 1.3 | 13.5 |

Table 1 shows the overall rural deficit of \$64.1 million in 2014 was higher than 2013 by approximately \$13.5 million or 21.1%, primarily due to increases in operating expenses, fuel cost, and proposed return on equity.

The primary controllable cost, operating expenses, has increased from \$36.2 million in 2010 to \$47.4 million in 2014, primarily driven by increases in wages and benefits and increases in maintenance and material costs due to investment in aging assets.

Chart 1 presents both the rural deficit in total and the rural deficit excluding fuel costs for the period 2010 to 2014.

Chart 1
Rural Deficit (\$ millions) 2010 - 2014

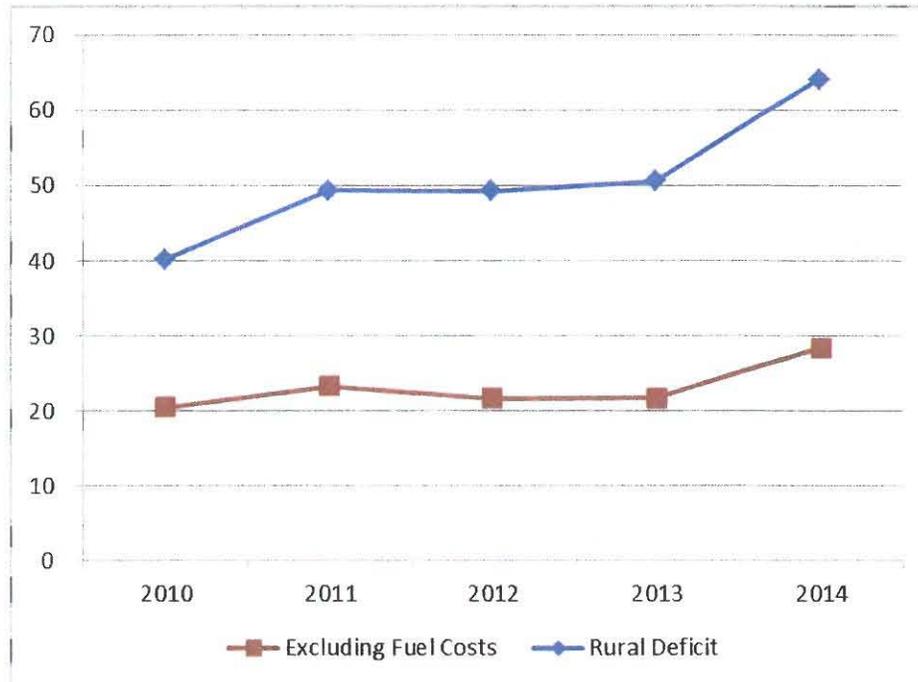


Chart 1 illustrates that the rural deficit has been relatively consistent year over year for the period 2010 to 2013 when the impact of fuel costs is excluded. For 2014, the increased cost excluding fuel reflects the inclusion of 8.8% return on equity proposed for rural assets.

2 Operating Initiatives

2.1 Internal Energy Efficiency Initiatives

In 2014, Hydro completed or launched operating initiatives that are part of multi-year projects through its internal energy efficiency program. Such initiatives contribute to overall cost containment, a portion of which is allocated to Hydro Rural customers and therefore contributes to deficit reduction. A summary of these initiatives is as follows:

- Retrofitted existing T12 fluorescent light fixtures to more energy efficient T8 lamps and electric ballasts at four area offices (Wabush, Port Saunders, Deer Lake, and Bishop's Falls);
- Installed automatic temperature set-back controls for space heaters in four buildings (HTGS Shawmont Bldg., Bishop's Falls Carpenter Shop, Port Saunders Warehouse, and HVGB Terminal Station Control Bldg.);
- Installed energy efficient LED or T5 high-bay light fixtures to replace inefficient metal halide fixtures at the Charlottetown Diesel Plant, Hopedale Diesel Plant (new extension), and Makkovik Diesel Plant;
- Continuing to replace interior and exterior metal halide fixtures with more efficient LED fixtures at Bay d'Espoir;
- Hydro Place exterior lighting (parking lot, wall packs, front entrance canopy, and architectural lighting) was retrofitted from HPS fixtures to more efficient LED fixtures;
- The new CT building at HTGS was specified to use efficient LED high bay interior lighting, and LED exterior lighting; and
- Variable frequency drives (VFDs) were installed on several of the forced-draft (FD) fan motors at HTGS that supplies combustion air to the boilers.

In addition, as previously reported, Hydro continues with its ongoing control measures which also contribute to limiting the rural deficit, as follows:

- Continuing to capture waste heat in more than half of Hydro's diesel plants to heat Hydro premises;
- Planning diesel unit replacement size to optimize fuel efficiency;
- Monitoring diesel system fuel efficiency to identify poor performers so that corrective action may be taken;
- Utilizing commercial air flights during regular work hours where practical, rather than more expensive helicopter use;
- Having operators choose the most fuel efficient mix of engines, when possible, to supply the community load. This is done automatically in automated plants;

- More effective planning and scheduling, which includes a significant coordination effort in the upfront planning process to ensure delays and duplicate asset outages are minimized. Planning and scheduling results in better utilization of the workforce with the planner ensuring the available weekly capacity of each crew is matched to the estimated weekly work. Overall, planning and scheduling helps Hydro perform effective maintenance activities in the most efficient manner;
- Completing life cycle cost analysis to help ensure the overall least-cost option is chosen when analyzing tenders for the purchase of new diesel engines. For example, new engines were put in service in Little Bay Islands, McCallum and Francois in 2011. In the life cycle, cost analysis items such as capital cost, overhaul cost, fuel cost (based upon fuel efficiency data), and routine operation and maintenance cost are considered;
- In 2008, Hydro raised its focus on improving internal efficiency to reduce the internal use of energy. This ongoing activity is targeting reductions in energy usage in all facilities including diesel plants, offices, and line depots within the areas affecting the rural deficit;
- Also in 2008, Hydro moved the printing of customer bills in-house resulting in savings with respect to printing costs;
- In 2009, mailing costs were reduced by improved sorting of customer bills to avoid multiple mail outs to customers with multiple accounts and by eliminating return envelopes for customers not paying by mail; and
- Hydro began offering e-billing to its customers in 2010. E-billing is an electronic paperless form of sending customer bills by email. This method of billing is convenient, beneficial to the environment and offers a cost savings on postage, paper and envelopes. For 2014, there were 3,522 customers using e-bills as their method of billing. Based on a cost of approximately \$0.83 to mail a customer bill, the savings from e-bills are \$2,833 per month, or \$34,000 per year.

2.2 Conservation and Demand Management (CDM) Program Initiatives

The high cost of generation in isolated diesel communities and growing system load in the L'Anse au Loup system provides opportunity for Hydro to implement energy efficiency programs specific to these areas. In 2012, two programs were launched to offer incentives and technologies for residential and commercial customers located in Hydro's isolated diesel communities. The programs continued in 2014.

Isolated System Community Energy Efficiency Program

The objective of this program is to provide outreach, education, and energy efficient products to residential and business customers in the remote diesel-system communities within Newfoundland and Labrador, free of charge. From 2012 to 2014 the program operated in 42 remote communities, installed 48,171 energy efficient products in 279 businesses and 3,591 homes, and helped customers save a total of 4 GWh of electricity. Overall, the program was successful and has increased local knowledge on energy efficiency and provided employment for over 30 local residents.

The program included residential and commercial direct installations with a focus on building knowledge and capacity in the communities by hiring and training local representatives. The representatives worked within their own communities to promote the program, provide useful information on energy use, and provide direct installation of energy efficient products, including low-flow showerheads and aerators, LED lamps, compact fluorescent lamps (CFLs), smart power strips, and hot water tank and pipe insulation.

In addition to offering direct installs, the program included retail rebates on energy efficient products and working with local retailers to offer a greater selection of energy efficient products, such as household appliances and electronics. Mini-campaigns targeting specific community needs were also integrated into the program, including a holiday LED light string exchange and a drain water heat-recovery project.

2014 Program Highlights

- Direct installations for 1,181 residential and business customers consisting of water saving technologies and specialty bulbs for specific lighting needs including chandelier, vanity, and flood lights. Energy savings for the 2014 direct installs totaled 1,357 MWh;
- During the direct installations, information was also collected about the type lighting, heating, and appliances in the homes and businesses which may benefit future program development;
- A Home Energy Audit and Draft Proofing Pilot ran in 2014 in which full home building envelope audits were performed in the community of Port Hope Simpson. Energy assessments were performed on 24 residences and draft proofing on 11 houses. Participants were selected based on the information recorded in the 2011 housing assessments. This program also helped develop local skills and capacity through a comprehensive training program for a community resident and staff member. Draft proofing work included caulking, spray foam, vapour barriers, weather and draft sealing to doors and attic hatches, and air sealing electrical outlets. Post draft proofing air exchange tests show total energy savings of 2.6 MWh annually; and
- An Energy Efficient Products Consumer Survey was administered in 2014 with 104 customers participating. The survey assessed the potential for developing an online retail store to offer reasonably priced small energy efficient technology products to customers in isolated communities. The results suggested that such an online retail store would likely be unsuccessful, however local pop-up shops (temporary retail) maybe an alternative as customers prefer to purchase these products of-the shelf.

Isolated Systems Business Efficiency Program

The Isolated Systems Business Efficiency Program was launched in 2012. This program provides free walkthrough audits of business customer facilities, a report of energy saving opportunities, and ongoing technical support for projects undertaken. This custom approach has encouraged customers to undertake projects to improve the energy efficiency of

lighting, refrigeration, motor controls, and other building systems. Customer incentives are based on energy savings and to the end of 2014, more than 40 audits have been completed. This program deals primarily with small business customers and since 2012 it has produced 141 MWh of annual energy savings.

3 Capital Initiatives

Automated Meter Reading Project

The ongoing implementation of Automated Meter Reading (AMR) will reduce meter reading costs inherent in the rural deficit over the long term through reduced salary expense. A two-year 2013/2014 AMR project for the Rocky Harbour, Glenburnie, and Sally's Cove distribution systems was commissioned and completed by year-end 2014. An AMR system is planned to be installed in Roddickton in 2015.

LED Streetlight Replacement Project

During 2015, Hydro will be undertaking a pilot LED streetlight replacement project for the Town of Nain. 125 streetlight fixtures are anticipated to be retrofitted. Nain was chosen because there is a preexisting capital work plan for the town which will help minimize overall pilot implementation cost. Also, given the location and climate of Nain, this area will help provide for a full evaluation of the performance of LED lights on an isolated system with challenging weather conditions. The results of the pilot project will then assist Hydro in deciding if the implementation of LED streetlights should be implemented on a larger scale.

LED streetlights will yield fuel cost savings due to lower energy requirements compared to high pressure sodium (HPS) lights (Hydro estimates approximate savings of 37,000 kWh or \$9,200 in diesel costs). LED streetlights may also result in lower operating and maintenance costs than the existing HPS lights. Should LED streetlights prove to be cost effective in Nain, Hydro will propose an expanded implementation program for LED street lighting.

