2014/15-2016/17 ELECTRICITY EFFICIENCY PLAN

PLAN OVERVIEW

Prepared for the New Brunswick Department of Energy and Mines

with the assistance of Dunsky Energy Consulting

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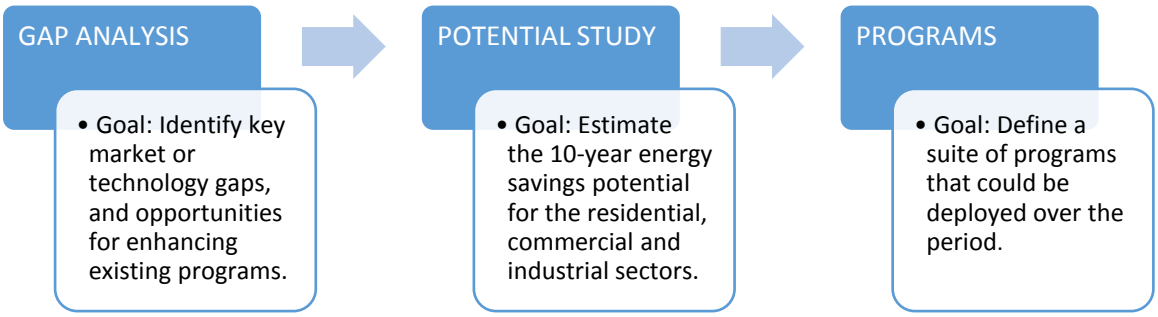
Context

The Ministry of Energy and Mines released in October 2011 the *New Brunswick Energy Blueprint*, which presents a detailed action plan for implementing a strategic direction for the province's energy future over the next 10 years. **Included amongst the 20 government actionable items was the development of a three year electricity efficiency plan by the electric utilities in conjunction with Efficiency NB,** a government Crown Agency. The objectives of this document are threefold: i) outline the thorough process and detailed work that led to the development of the Plan; ii) present the program investments and the associated benefits; and, iii) provide an overview of the existing and new programs and activities aimed at helping the province's citizens and businesses in reducing their electricity bills.

Detailed Analyses

In early 2012, a Steering Committee was established to define an initial electricity efficiency plan covering the 2013/14-2015/16 period. The Committee was comprised of senior officials from the following utility and governmental organizations: NB Power, Saint John Energy, Edmundston Energy, Perth-Andover Electric Light Commission, Efficiency NB, the Department of Energy and Mines, and the Department of Environment and Local Government.

The services of a consulting firm, Dunsky Energy Consulting, were retained to assist the Committee in this endeavour. More specifically, the consulting firm followed a three-pronged approach as outlined in the figure below.



The Committee met on a regular basis to review and discuss the consultant's work with the ultimate objective of designing a triennial plan that maximizes the benefits for the province in the short-term and establishes a solid foundation for increased investments in the future should more resources be made available. Following the work on the first plan, the Committee instructed the consulting firm to prepare an updated version of the plan for the 2014/15-2016/17 period.

Plan Benefits

The plan requires an **investment of $57 million in electricity efficiency programs** between the years 2014/15 and 2016/17**.** Significant economic, social and environmental benefits will result from these investments. Following are the key plan benefits:

- Save **106 GWh** and **18 MW** of electricity annually by 2016/17, i.e. equivalent to the annual electricity consumption of **6,500 households.**
- Result in **$80 million in bill savings** to consumers and businesses over the life of the energy efficiency measures.
- Offer **$18 million** in incentives to consumers and businesses.
- Generate **$54 million** of spending in electricity efficiency products and services.
- Provide a **6:1 benefit to cost ratio** for dollars invested by consumers and businesses.
- Improve **comfort and air quality** in homes and commercial buildings.
- Create jobs, more **than 744 net "person-years" of employment**.
- Reduce **48,100 tons of CO_2 emissions** by 2016/17, i.e. equivalent to avoiding the emissions of 10,190 cars for one year.

Plan Programs and Activities

The table below presents the projected public investments and savings for the various sectors during the Plan's timeframe. A short description of the programs and activities stemming from these investments can be found later in this section. A balanced approach was taken in determining the areas of investments in order to capture cost-effective electricity efficiency measures across the sectors and to address new, innovative energy technologies and strategies. Based on sound management practices, the plan will be re-visited on a regular basis by assessing program results and market conditions and by seizing new opportunities that may arise. We note that the Plan's success will require a flexible approach to implementation.

	Program Investments (M$)				2016/17 Annual Cumulative Savings*		Bill Savings**
	2014/15	2015/16	2016/17	TOTAL	GWh	MW	(M$)
Households	7.6	8.5	9.2	**25.3**	**68.4**	**11.5**	**62.7**
Business & Government	8.7	9.3	11.2	**29.2**	**38.0**	**6.5**	**17.5**
Enabling *(cross-sectoral)*	0.6	0.7	1.1	**2.3**	N/A	N/A	N/A
TOTAL	**16.8**	**18.5**	**21.5**	**56.8**	**106.4**	**18.0**	**80.2**

** Note: Savings (at the meter) are recurrent for approximately an additional 15 years. ** Savings over the life of the energy efficiency measures.*

Households

Low Income Efficiency Program

Last fall, a new multi-fuel program offered by Efficiency NB was specifically designed to address the particular needs of low income homeowners. The program carries out fully funded and facilitated retrofits for energy efficiency. It will target homes in need of major efficiency upgrades, especially insulation and heating systems, resulting in significant energy savings for homeowners who have difficulty meeting their household financial obligations.

Home Retrofit Programs

Efficiency NB's current multi-fuel home retrofit program provides financial support to homeowners and residential multi-unit building owners in planning and undertaking their energy efficiency projects, such as installing attic and basement insulation and energy efficiency heating systems. Until September 2014, NB Power in collaboration with Efficiency NB will be offering homeowners free installation of highly cost-effective products while the upgrade evaluation is conducted under the Agency's program. Products installed include: low-flow shower heads, regular and specialty CFLs, kitchen and bathroom faucet aerators, and water heater pipe wrap.

In 2015 NB Power and Efficiency NB will collaborate in their offerings to households with Efficiency NB concentrating its efforts on building envelope measures while NB Power will introduce a program aimed at promoting the installation of the most efficient Energy Star ductless heat pumps.

Over the next three years, various activities will be undertaken by both organizations to ensure ongoing success and uptake in home retrofit programs, including marketing campaigns.

Mass-Market Energy Efficient Products Program

NB Power, in cooperation with Efficiency NB, offered last winter mail-in rebates and point of sale discounts for a host of energy efficient products, such as: clothes washers, refrigerators, electronic thermostats, regular and specialty compact fluorescent lamps (CFLs), light-emitting diodes (LEDs) and low flow showerheads. Additional products may be promoted over the next three years. The program builds upon a close partnership between Efficiency NB and home improvement and appliance retailers across the province to raise awareness of energy efficiency and engage consumers to take action. Municipal utilities' customers have access to this province-wide program, which will be promoted through both traditional and social media.

Other New Initiatives

Two additional initiatives will be developed and deployed over the next ten months: water savings devices; and, home energy report. These are designed to make energy savings more accessible to all New Brunswickers.

Water Saving Devices Program

NB Power will offer free or cost-shared water savings devices (e.g. low flow showerheads and faucet aerators) to customers who lease a new and more energy efficient domestic hot

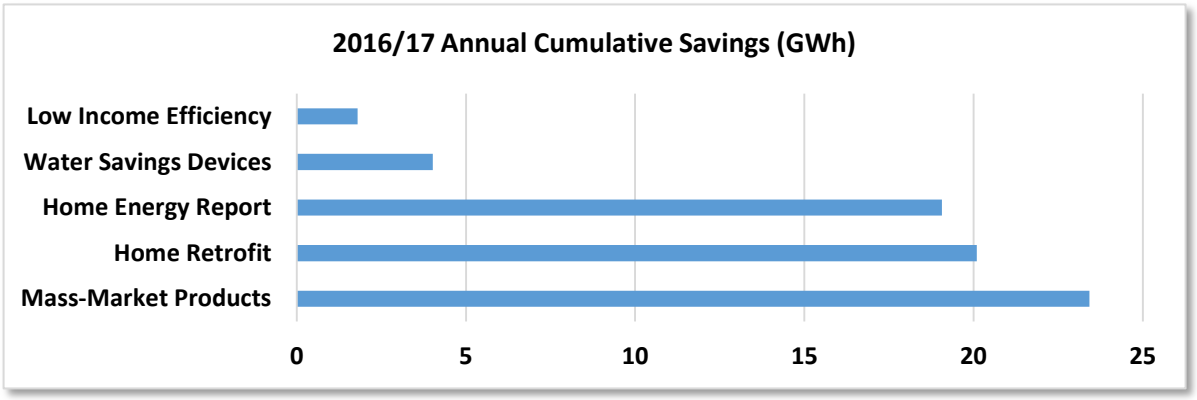
water heater through the provincial utility. The "direct install" approach will leverage the Leasing Program infrastructure to deliver greater value to customers while reducing overhead costs.

Home Energy Report Program

After the initial pilot phase in 2015, NB Power will launch in 2016 a program through which select customers will receive a personalized energy report. The report will help customers to better understand their energy usage, and to compare their consumption with that of their peers. This type of report has proven, in many provinces and U.S. states, to successfully inform and empower households to adopt more energy-conserving habits and measures.

We note that NB Power will also work closely with the province's municipal utilities, with a view to assisting them in the design and implementation of similar initiatives for their own customers.

The chart shown below illustrates the energy savings of the current and future household initiatives. More than 90% of the total household savings will come from the Mass-Market Products, Home Retrofit and Home Energy Report programs.



Business and Government

Energy Smart Program

Efficiency NB's multi-fuel program is designed to assist existing commercial building owners and operators to make their buildings more energy efficient and reduce operating and maintenance costs. Financial incentives are offered to help offset the costs of the energy audit and resulting energy conservation upgrades, including renewables (i.e. geothermal and solar).

LED Street Lighting Program

During the Plan's timeframe, NB Power will actively promote to municipalities across the province its LED Street Lighting program, which was launched in 2012. This initiative involves replacing High Pressure Sodium (HPS) street lights, which municipalities are currently renting, with more efficient LED lights. The replacement will take about five years to complete, following a balanced schedule of planned maintenance cycles, new installations and strategic change-outs.

New Initiatives

In 2015, NB Power, in collaboration with Efficiency NB, plan to introduce two new programs aimed at providing financial support to small and medium businesses in implementing energy efficiency measures. Two distinct programs, i.e. one for the commercial sector and the other for the industries, will be designed in order to better address the specific needs of each market segment.

Through its **Prescriptive Energy Efficiency Program,** the utility will help **small and medium industries (SMI)** to purchase high-efficiency equipment, such as efficient motors. A "prescriptive program" is one that establishes a pre-defined list of standardized products that are eligible for financial support, and prescribed incentive levels, that are available to customers.

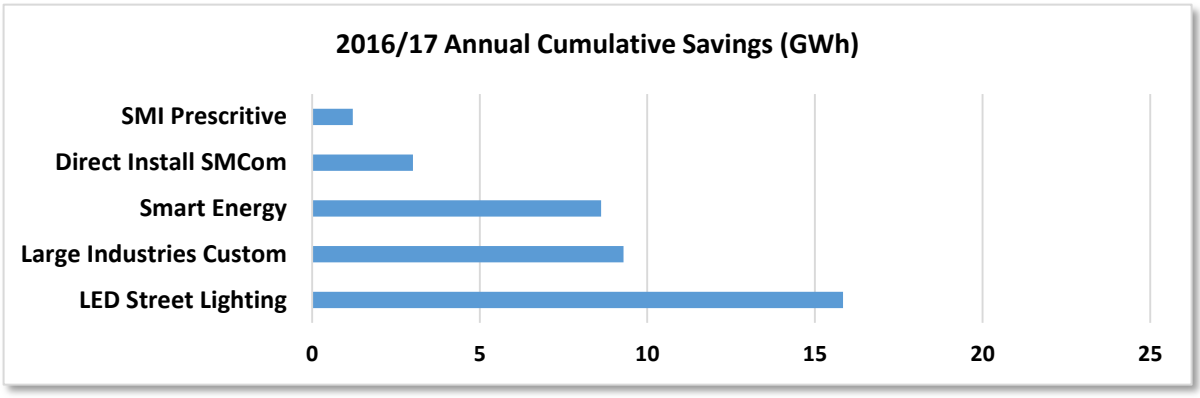
With respect to the **small and medium commercial customers (SMCom)**, NB Power will provide energy efficient lighting retrofits at low costs after having conducted a simple energy audits. By using a **"direct install" approach**, turnkey energy efficiency solutions will be offered to this clientèle.

NB Power plans to work with Efficiency NB to launch its **Large Industries Custom Program** in 2016. Under this program, the utility will work closely with eligible customers to identify and implement cost effective electrical energy saving measures on a case-by-case basis, such as Energy Management and Information Systems (EMIS) and efficient pumps and motors.

We note that the programs' success will require a flexible approach to implementation since the development of a close partnership with supply chain vendors, contractors and engineering firms will be needed. Such partnership will ensure that these important market entities can successfully assist the small and medium firms in selecting and installing energy efficient products and services that meet their needs.

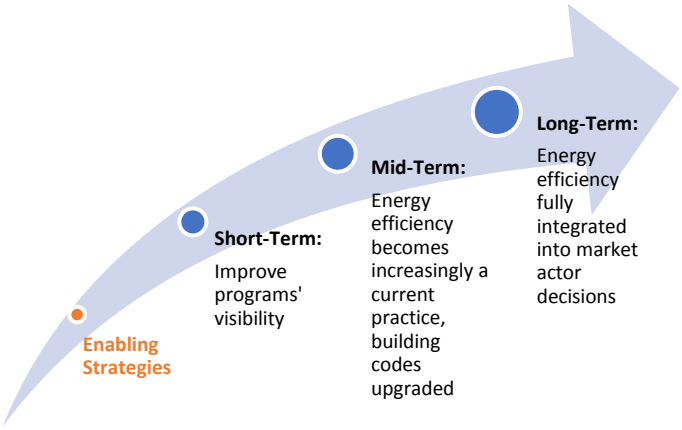
As in the case of residential programs, NB Power will support municipal utilities in deploying similar business programs, where applicable, in their service territory.

The energy savings of all current and future business programs are presented in the chart below. Savings from the LED Street Lighting program account for the bulk of the business and government sector's energy savings and are almost double the size of the Large Industries Custom program or the Smart Energy program.



Enabling Strategies (Cross-Sectorial)

Enabling strategies go beyond individual program markets to sustain long term energy savings. Investing over the next three years in initiatives that cut across customer sectors and programs, **such as innovative financing, enhanced codes and standards, building labelling policies, trade ally partnerships, strategic programmatic planning and program evaluation activities**, produces ripple effects in the short, mid and long-term as illustrated in the chart. Such investments should be viewed as seed money for developing a self-sustaining and flourishing energy efficiency industry.



Future Developments

NB Power has recently initiated steps towards integrating smart grid technologies into its electrical system with the goal to build Canada's first fully integrated 'energy internet', enabling all-way communications between customers and their homes, power plants, distribution systems and customers. NB Power plans to leverage to the extent possible the smart grid infrastructure for the deployment of programs specifically aimed at reducing the electricity demand during the coldest days of winter, i.e. at the time when electricity production costs are at their highest.

While such programs—commonly termed “demand response” programs—are designed to reduce and shift demand, particular attention will be paid to create a synergy with the initiatives laid out under the Electricity Efficiency Plan. This approach will enable the plan to maximize the benefits for households and businesses as well as optimize the deployment channels and costs of various energy conservation initiatives. By effectively incorporating demand response into the Electricity Efficiency Plan, NB Power will be joining a select group of North American leaders having an **Integrated Demand Side Management Plan.**