

Using Less Energy:

Nova Scotia's Electricity Efficiency
and Conservation Plan

April 2014



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Summary

There is no doubt that there are multiple benefits of electricity efficiency. While electricity efficiency has an upfront cost, the benefits we receive over time far outweigh the initial cost. In addition to the long-term savings on electricity bills, there are employment benefits, benefits to our economy, and benefits in terms of reduced GHGs and other air emissions.

In introducing legislative changes and this efficiency plan, we as a government are signaling our continued support for electricity efficiency and, in particular, the continued independence of electricity efficiency service delivery. The new model will make programs more affordable, competitive, accountable, and transformative.

The plan will result in

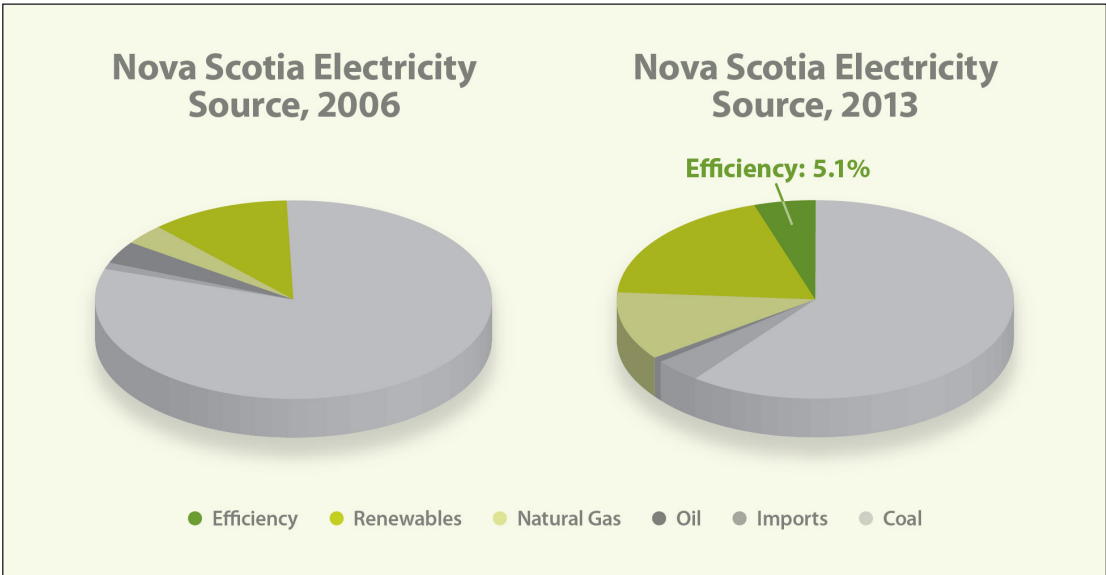
- Removal of the separate efficiency charge from electricity bills in January 2015.
- Restructuring of the electricity efficiency model. A franchise will be created that sells long-term energy savings in direct competition with energy supply options and will operate under the brand "Efficiency Nova Scotia."
- Increased oversight and accountability of electricity efficiency and conservation programs.
- Enhanced low-income energy efficiency programs for electric and non-electric homes.
- Innovative financing options for homeowners and businesses to assist with the upfront cost of major energy efficiency upgrades.
- Continuous improvement of the minimum energy performance of buildings and products purchased in Nova Scotia.

Over the coming year, the amount of energy efficiency to be purchased by NSPI may be updated based on the results of the Integrated Resource Plan and the Electricity Review, which are both currently underway. The Integrated Resource Plan will consider the amount of energy efficiency that is needed based on several different scenarios of how the future will unfold. The Electricity Review, which is being undertaken by the Department of Energy, will examine policy options that may affect how electricity is generated and delivered in Nova Scotia. This may have an impact on the amount and type of energy efficiency that is needed.

Both of these reviews will help ensure that we continually maximize the benefits of electricity efficiency in Nova Scotia. This plan will establish the structure by which the efficiency programming is delivered.

Introduction

Nova Scotia is moving toward a cleaner, more sustainable electricity system. The government has put in place targets for renewable energy, and has hard targets for greenhouse gas and air emissions. Focusing on energy efficiency, a clean, cost-effective electricity resource complements the move towards more renewables and less coal. Nova Scotia has made significant progress—and has gained valuable experience—with policies and programs that encourage households, businesses, and industries to save money by using less energy.



Nova Scotia's electricity efficiency and conservation plan builds on our past successes. Based on experience with current programs and learning from other jurisdictions, this plan lays out a set of concrete actions that will make efficiency programs more effective for all Nova Scotians.

Objectives of the Plan

The objective of energy efficiency in Nova Scotia is to save energy, lower costs for all ratepayers, and reduce greenhouse gas and air emissions. The objective of this plan is to ensure that electricity efficiency investments are made in a way that is more affordable, competitive, accountable, and transformative.

This will be done by

1. Making energy efficiency programs more *affordable*

The efficiency charge will be removed from electricity bills in 2015.

To reduce the annual costs of energy efficiency programs, measures will be put into place to better align efficiency investments with the benefits to all ratepayers. This will help ensure that program spending on energy efficiency is in line with the enduring energy savings. The new energy efficiency model will also help clarify the current confusion over the organization's tax status, which now costs ratepayers about \$4 million a year.

To increase access to energy efficiency programs, Nova Scotia Power shareholders have committed to fund a low-income program for electrically heated homes. The government will continue its program for low-income Nova Scotians whose homes are heated by oil and other fuels. These programs will reduce electricity and energy costs, year after year, for low-income households. We will also remove barriers to innovative financing tools such as Pay-as-you-Save (PAYS) financing and low-interest business loans for energy efficiency upgrades.

2. Increasing *competition* in the electricity sector

Nova Scotia Power will be required by law to purchase energy efficiency resources only when they will result in lower costs for ratepayers. We are creating a new model for program delivery in the province so the brand "Efficiency Nova Scotia" becomes a franchise that sells long-term energy savings in direct competition with energy supply options. If it costs less to save energy than it costs to produce energy, saving energy wins.

We will also make changes to the law so that the right to use the name Efficiency Nova Scotia will be licensed for the first nine years. After the first license period, the performance of the license holder will be evaluated, and the right to operate as Efficiency Nova Scotia could be open to other bidders. This model is similar to the approach used in Vermont, one of the leading jurisdictions in energy efficiency savings.

3. Ensuring the *accountability* of efficiency programs

The Utility and Review Board (UARB) will provide oversight for electricity efficiency programs. With guidance from future Integrated Resource Planning (IRP) processes, the UARB will determine what cost-effective efficiency and conservation activities must be undertaken. Efficiency Nova Scotia will then sell energy efficiency to Nova Scotia Power under a negotiated contract. The franchise holder will be responsible for any cost overruns in program spending, and if they under-perform, the license could be opened up to competition.

4. *Transforming* the market for energy efficiency products and services

Energy efficiency programs encourage people to choose energy efficient products and make investments in homes and buildings that lead to long-term energy efficiency savings. Eventually these behaviours become the new norm. More people will participate in the market for efficient products and services, and the prices will come down. As this transformation occurs, the government will update regulations to set new efficiency standards that essentially raise the bar for efficiency programs. For example, energy used by refrigerators has been cut in half over the last 15 years, due to regulations. In a number of areas, the government will work with other jurisdictions to reduce the need for incentives, by setting new minimum efficiency standards.

Plan of Action

The government, along with key partners, will take significant steps to change how we do business when it comes to energy efficiency. This will include the creation of a new energy efficiency delivery model, enhanced funding for low-income households, more openness for innovative financial tools, and stronger minimum energy efficiency standards.

A New Energy Efficiency Franchise

Energy efficiency programs are currently delivered by Efficiency Nova Scotia Corporation, an independent non-profit company that receives funding both from ratepayers for electricity efficiency programs and from government for non-electric programs. Efficiency targets and funding levels for electricity programs are determined by the Utility and Review Board (UARB), through their stakeholder processes and long-term planning (see text box for further details). A new energy efficiency model will be created that changes how Efficiency Nova Scotia operates and how energy efficiency programs are paid for. This will be done in a way that removes the efficiency charge from electricity bills and improves the independence of the new energy efficiency organization, with continued oversight by the UARB.

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Nova Scotia Power's 2014 Integrated Resource Plan

An Integrated Resource Plan, or IRP, is the method used by electric utilities around the world to facilitate long-term planning and decision making.

The IRP uses a model of the Nova Scotia electrical system and identifies potential resource plans. The input assumptions and scenarios to be modeled are developed with stakeholders. The model is typically run over a 25-year planning horizon. Inputs include load growth estimates, current and anticipated regulatory requirements including air emission and GHG caps and reliability standards, future fuel costs, and economic conditions.

The model optimizes the base case resource plan and then runs sensitivities on alternate scenarios. This testing helps identify the lowest cost resource plan that meets customer demand and energy requirements and environmental obligations in a cost-effective, safe and reliable manner across a reasonable range of foreseeable futures.

The outputs of the model guide decisions related to the amount of energy efficiency and the operation, maintenance and construction/retirement of assets (power plants, transmission and distribution assets).



Under this model, energy efficiency will be treated like any other electricity system investment: efficiency resources will be purchased if they're shown to be the lowest cost long-term investment option. An Electricity Efficiency Franchise will be created, and granted by the government to a franchisee. The franchisee will deliver electricity efficiency and conservation programs, with guaranteed energy savings under contract to Nova Scotia Power. The Efficiency Nova Scotia brand will be licensed for a period of nine years, with ongoing evaluation, verification, and audits. After nine years, it is possible that the franchise could be opened up to a competitive process, depending on the performance of the franchisee.

NSPI will be required to procure energy efficiency programming if it is determined to be more cost effective over the long-term than other electricity supply options. The UARB will have the authority to determine what is most cost-effective, with guidance from the IRP process. Efficiency Nova Scotia will sell energy efficiency programs to Nova Scotia Power under a negotiated contract for a three-year term. The cycle of three-year periods was established to roughly match the expected cycle of integrated resource planning.

The new energy efficiency franchise model will have many benefits:

Increased competition: Nova Scotia Power will be required to purchase energy efficiency if it is the lowest cost supply option. This will continually weigh energy efficiency against the cost of producing more electricity, and ensure that ratepayers only pay for efficiency programming if it is cheaper than supply over the long term.

Lower program costs: Program costs will likely decrease as a result of a more efficient and effective organization and administrative structure.

Improved accountability: The organization operating as Efficiency Nova Scotia will be responsible for any cost overruns associated with its programs. Also if the organization under-performs, the government can revoke the franchise licence and open it up to competition.

More Transparency: The Utility and Review Board will continue to provide rigorous and independent oversight of Efficiency Nova Scotia. The board will be required to approve investments in demand-side resources only when they are proven to be more cost effective than supply-side alternatives. The model will also strengthen the UARB's ability to ensure transparency from Efficiency Nova Scotia and Nova Scotia Power.

Action 1: The separate efficiency charge will be removed from consumer electricity bills as of January 2015.

Action 2: In 2014, the Government of Nova Scotia will pass new legislation that outlines revisions to the way energy efficiency is purchased and delivered in the province.

Action 3: The year 2015 will be a transition year, to allow time for a smooth transition to the new model. To provide certainty in advance of an updated IRP (expected Fall 2014), funding during the 2015 transition year will be capped at \$35 million. The UARB may approve efficiency and conservation programs up to this amount if they cost less than the price of producing the energy that is saved. Spending levels for subsequent years will be determined through the UARB process.

Action 4: No later than the end of 2022, the government will review Efficiency Nova Scotia's overall performance compared to similar energy efficiency franchise holders in North America.

The independent review will

- Benchmark Efficiency Nova Scotia's performance compared to similar energy efficiency franchise holders
- Assess the overall cost effectiveness of the new electricity efficiency policies and programs
- Assess the overall cost effectiveness of non-electric programs

Enhanced Low-Income Programs

There are currently about 29,000 low-income homes in Nova Scotia¹. To date about 23 per cent of these homes have been retrofitted for energy efficiency upgrades. This leaves 6,600 electrically heated homes and 15,400 non-electrically heated homes left to be retrofitted. The long-term plan is to upgrade all the low-income homes for energy efficiency over the next 10 years. Energy efficiency upgrades for low-income houses will result in energy savings of about \$500 to \$900 per year. Once a retrofit is complete, low-income families will continue to save on energy costs year after year, and as energy prices increase these savings will become larger and more important to those helped by this program.

Nova Scotia Power has volunteered to fund a 10-year low-income energy efficiency program for electrically heated homes. The cost of the program will be a charitable contribution by the organization, which will not be recovered from ratepayers. The government will continue to fund non-electric low-income energy efficiency programs.

Action 5: Nova Scotia Power will voluntarily fund a low-income energy efficiency program for electrically heated homes, at \$37 million over a ten year period.

Action 6: As part of its non-electric energy efficiency funding, the government will develop programs to retrofit low-income non-electric homes.

Innovative Financing Tools

Many people and businesses can afford energy efficiency upgrades. However, there are many reasons why they choose not to invest in making their homes and businesses more energy efficient. A homeowner might be planning to move within the next five years and, therefore, will not receive the full benefit of energy efficiency upgrades. A business might not have the upfront capital needed to invest in energy efficiency upgrades, even if these upgrades would lead to lower long-term operating costs.

¹ Nova Scotia Department of Community Services (2013). Statement of Mandate 2013–2014

A range of innovative financing options will be explored and made available to homeowners and businesses to assist with the upfront cost of major energy efficiency upgrades. Pay-as-you-Save (PAYS) financing is an exciting model under consideration. PAYS financing is a unique tool that allows the financing of energy efficient measures to be paid back through utility bills or property bills. The government recently supported a successful example of this model in the Solar City initiative developed by Halifax Regional Municipality.

Action 7: The government will work with Efficiency Nova Scotia and municipalities to test and pilot further innovative financing projects across Nova Scotia. The pilots will be expanded and transitioned into permanent programs if they are proven successful.

Action 8: Starting in 2015, the government will work with Efficiency Nova Scotia and Nova Scotia Power to expand the low cost on-bill financing options available for business efficiency upgrades to be repaid on electricity bills.

Stronger Minimum Energy Efficiency Standards

In line with other leading jurisdictions and in recognition of the proven benefits of energy efficiency and conservation, the government intends to improve the minimum energy performance of buildings and products that can be purchased in Nova Scotia. Where energy efficient products are available and affordable, minimum standards will be required rather than incentivized. Nova Scotia's regulations will be updated regularly to keep up with advances in technology and the work in other jurisdictions. We will work closely with other leading jurisdictions to harmonize energy efficiency standards, where possible, and consult with key stakeholders to ensure that standards are implemented in a way that ensures the market is ready for these products and services.

Action 9: In 2014, the government will review the Energy-efficient Appliances Regulations to ensure that appliances sold in Nova Scotia meet the same high energy-performance standards as leading jurisdictions. The Energy-efficient Appliances Regulations will be updated regularly to keep up with advances in technology.

Action 10: By 2018, the government will examine options to strengthen Nova Scotia's Building Code to include energy performance requirements that are 15 per cent better than required under the current National Energy Code. The government will also consider increasing the minimum EnerGuide standard for new homes in Nova Scotia to an Energuide score of 83 or equivalent.

Efficiency upgrades to save on heating oil and gas costs

Electricity is only one energy cost for our homes and businesses. Many Nova Scotians heat with other sources, such as heating oil, and saving energy costs for these homes would not be eligible for electricity efficiency programs. To ensure that access to energy efficiency programs is more equitable for all Nova Scotians, the Government of Nova Scotia will continue to provide funding support for programs that help manage the costs of other heating sources, such as oil, propane, natural gas, and wood.

Action 11: The government will provide funding for the delivery of energy efficiency programs that help Nova Scotians save on other costly energy sources, such as oil, propane, natural gas, and wood.

The Benefits of Energy Efficiency

Energy efficiency has many economic, environmental, and social benefits. Energy efficiency is the cheapest and cleanest way to meet our electricity and energy needs. The economic activity associated with efficiency upgrades and expertise stays in the province, creating good jobs. It helps Nova Scotians and Nova Scotia businesses save money, which makes electricity more affordable and our companies more competitive.

Reducing electricity consumption helps keep rates stable. Saving electricity is cheaper than producing electricity, and also delays the longer-term need to build new power infrastructure. For example, saving one kilowatt hour (kWh) in Nova Scotia costs between three and five cents², but generating one kWh can cost upwards of twice as much. Put another way, every dollar spent on Energy Efficiency saves more than two dollars in costs to the electricity system. These investments in efficiency, along with our shift to renewable energy, will help provide longer-term electricity price stability.

As part of a plan to address climate change and air pollution, Nova Scotia has developed electricity sector targets for greenhouse gas emissions and air pollutants. The government has capped greenhouse gas emissions at 4.5 megatonnes (MTs) for 2030³. This will require the electricity sector to reduce emissions by about 5.5 MTs from 2007 levels, which were 10MT. Energy efficiency is one of the key components that will enable us to reach these targets. Since 2008, energy efficiency has contributed roughly 550,000 tonnes of annual greenhouse gas reductions⁴.

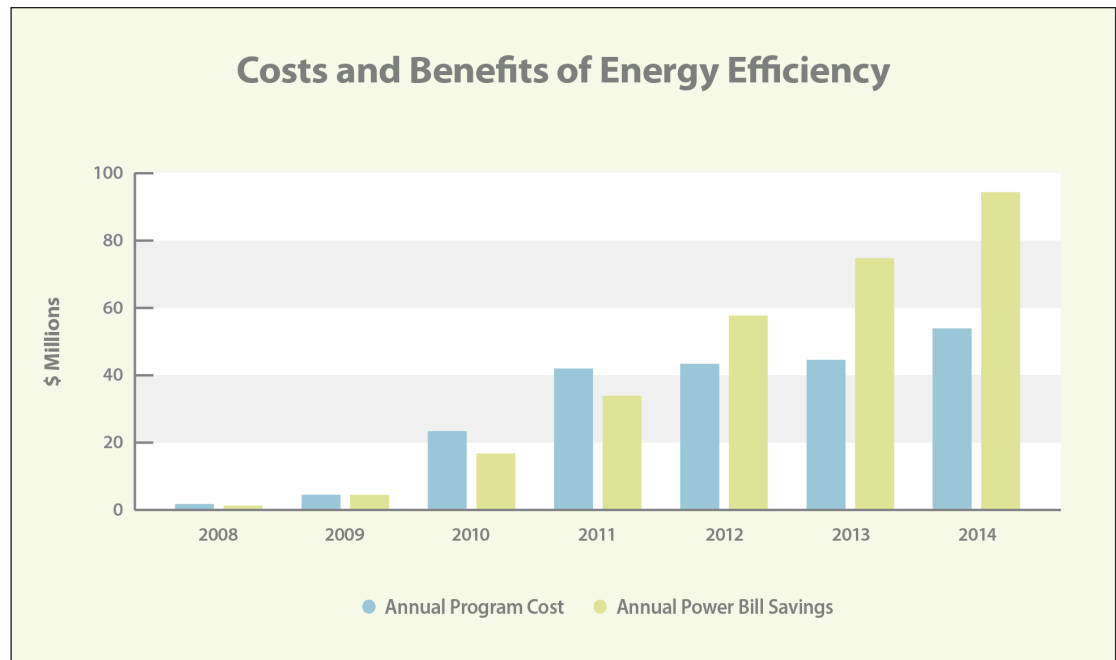
Nova Scotians and Nova Scotia businesses across the province are already wasting less energy and saving money as a result of energy efficiency programs established in the province. Between 2008 and 2013, energy efficiency initiatives reduced annual electricity load in Nova Scotia by 604 Gigawatt hours (GWh) or 5.1 per cent⁵. At current electricity price, this amounts to a savings of about \$70 million. These are savings that happen each year for the duration of the efficiency investment, which, in most cases, last about 10 years. Imagine buying a car that increases in value. This is what happens when you purchase energy efficiency. This makes electricity more affordable for Nova Scotians. This also makes Nova Scotia businesses and our economy overall more competitive.

² Navigant (2014). *Nova Scotia 2015–2040 Demand Side Management (DSM) Potential Study*.

³ Nova Scotia Department of Environment (2013). *Amendments to Greenhouse Gas and Air Quality Emissions Regulations*

⁴ Econoler (2012). *2011 DSM Evaluation Report*.

⁵ Emera Inc. (2012). *Annual Report*.



Many businesses insulate walls, conduct home audits, and install heat pumps and other energy efficient technologies. These businesses are based right here in Nova Scotia. In fact, over 60 businesses are focused on efficiency in Nova Scotia, and together they employ over 1100 people full time. The efficiency industry is growing five times faster than the rest of the economy⁶.

⁶ Canmac Economics Limited (2013). *The Nova Scotia Energy Efficiency Sector Economic Impact Study*.

The Outcomes

The Electricity Efficiency and Conservation Plan is designed to maximize the benefits of energy efficiency, reduce electricity costs, and ensure the long-term sustainability of efficiency programs in Nova Scotia. The plan is an investment in our future, and this investment will have significant short-term and long-term benefits.

Short-term benefits

- The efficiency charge will be removed from electricity bills starting in 2015.
- New electricity efficiency legislation will be introduced to make the current electricity efficiency model even more effective, and compete with other leading jurisdictions.
- Spending on energy efficiency programs will be more accountable.
- Low-income programs will be enhanced to ensure that everyone can access energy efficiency programs and services.
- Minimum energy efficiency standards and innovative financing tools will be introduced to broaden the energy efficiency toolkit.

Long-term benefits

- Investments in energy efficiency will help stabilize electricity rates and reduce future rate impacts that result from increasing energy prices and other external market forces.
- Low-income homes will be upgraded for energy efficiency improvements over a 10-year period.
- Energy efficiency will help the government achieve its 2020 and 2030 targets for greenhouse gases and air pollutants.
- A culture and industry of conservation will be fostered in Nova Scotia, where energy efficiency is the new norm that is built and improved upon continuously.