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Newfoundland and Labrador Energy Efficiency Program Study

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Newfoundland and Labrador Energy Efficiency Program Study Part A

Enhancing energy efficiency opportunities in Newfoundland and Labrador

This document was prepared for the Government of Newfoundland and Labrador, Office of Climate Change, Energy Efficiency and Emissions Trading by IndEco Strategic Consulting Inc. and Hollett and Sons Inc.

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Introduction

In 2007, the Provincial Government released The 2007 Energy Plan: Focusing Our Energy, which will guide and define the development of energy resources in Newfoundland and Labrador (NL).[1] As set out in the Plan, promoting greater energy efficiency[2] is a key priority of the Government of Newfoundland and Labrador (GNL). In this regard, the government has two broad policy objectives. At the Council of Federation meeting in 2007, the provincial and territorial governments committed to achieving a 20% increase in energy efficiency by 2020. At the New England Governors and Eastern Canadian Premiers (NEG-ECP) meeting in 2010, all jurisdictions agreed to reduce energy demand by 20% by 2020 from business-as-usual projections. Current projections by the Provincial Government indicate that, in the absence of any additional measures, total energy demand is expected to remain relatively stable to 2020.

From 1990 to 2003, total energy demand in NL grew by approximately 13%. Newfoundland and Labrador's energy consumption, including households, the commercial sector, public administration, industrial and manufacturing facilities, and transportation (but excluding offshore natural gas consumption) increased from 148,600 terajoules (TJ) in 1990 to a peak of 153,200 TJ by 2003. In 2008, approximately 41% of energy was consumed in transportation, 31% in the industrial and manufacturing sector, 14% by the residential sector, 8% by commercial businesses and institutions, and 3% for federal, provincial and municipal public administration. About 66% of secondary energy demand in 2008 is related to the consumption of refined petroleum products, 27% to electricity, and 7% to other fuels such as coal and coke and wood biomass as well as non-energy uses such as asphalt, petrochemicals for feedstock and greases.[3]

Since that time, energy demand has remained relatively stable, declining by 3% between 2003 and 2008.[4] Provincial energy consumption has since declined to 144,800 TJ by 2009, driven in large part by reduced industrial demand.

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[1] The 2007 Energy Plan: Focusing Our Energy, page 59

[2] In this report energy efficiency refers to actions that reduce total energy consumption (often referred to as energy conservation), that reduce energy use per function (or level of service) or both. For the purposes of this report, energy efficiency excludes demand response, which is defined here as actions taken to shift energy consumption from one point in time to another, and which may or may not result in a reduction in total energy consumption.

[3] Provided by Office of Climate Change, Energy Efficiency and Emissions Trading, Government of Newfoundland and Labrador, and calculated from Report on Energy Supply and Demand 2008, Statistics Canada.

[4] Provided by Office of Climate Change, Energy Efficiency and Emissions Trading, Government of Newfoundland and Labrador, and includes residential and industrial (mining and oil and gas extraction, manufacturing, forestry and logging and support activities for forestry and construction).

Since 2007, in accordance with the provincial Energy Plan, the government and the electric utilities have implemented initiatives to improve energy efficiency, including:

- Since 2008, GNL has implemented two programs to encourage energy efficiency retrofits in private homes: The Department of Natural Resources has implemented the Newfoundland and Labrador EnerGuide for Houses Program, and the Newfoundland and Labrador Housing Corporation has implemented the Residential Energy Efficiency Program targeted at low-income households (i.e., those with household incomes up to $32,500);
- Newfoundland and Labrador Hydro Corporation (Hydro) and Newfoundland Power Inc. (NL Power) in 2008, jointly prepared The Five-Year Conservation Plan: 2008-2013. Consistent with the Plan, Hydro and NL Power are funding energy efficiency programs targeted at their customers in the commercial, industrial and residential sectors;
- GNL committed to building standards that exceed the current Model National Energy Code for Buildings by 25 percent, and where possible, achieve LEED silver standard;
- GNL has introduced fuel efficiency standards for purchases of new light vehicles and hybrid vehicles; and
- A coastal Labrador energy efficiency pilot was conducted in Hopedale and Port Hope Simpson in 2009 to provide residents and the commercial and institutional sector with advice and information on energy efficiency. In 2011, phase two of this pilot is being implemented in Nain and Mary's Harbour. Phase two will include the elements of the 2009 pilot, and will also include encourage and assist homeowners to participate in the EnerGuide for Houses and Residential Energy Efficiency Programs.

While these initiatives are a major step forward in energy efficiency, more needs to be done in order to achieve GNL energy efficiency objectives. The province is now in the process of developing an Energy Efficiency Action Plan, in which GNL is seeking to increase energy efficiency related investments through a combination of enhanced programming, regulatory frameworks, government leadership and service delivery structures.

To assist in the development of the Energy Efficiency Action Plan, the Office of Climate Change, Energy Efficiency and Emissions Trading (CCEEET) released a request for proposal to provide information related to the development of the Strategy. This information includes a comprehensive inventory of residential, commercial, institutional and, industrial energy efficiency programs as well as a breakdown of associated expenditure by sector, activity, and source of funding (referred to as Part A of the work). It also includes a more in depth examination of 8 to 11 programs that together offer NL a broad portfolio of programs across the commercial, institutional, and industrial sectors to address the needs of the of Newfoundland and Labrador. From these 8 to 11 programs, NL will select 9 programs which will be examined in much greater detail for consideration by

GNL (Part B of the work). CCEEET retained IndEco Strategic Consulting (IndEco) to carry out Part A and Part B of this work, which is to be completed between February and June 2011.

This report is the culmination of the first phase of this work, the Part A report, which examines energy efficiency programs across the country, the regulatory and policy environment into which these programs fit, and describes the program spending on energy efficiency, to the extent information was available at the time of writing this report.

Part B report will contain the more in depth program analysis. The Final Report will contain an executive summary of Parts A and B and present the findings regarding the program research and analysis.

The following organizations, by province have been contacted as part of this study.

Table 1 Organizations contacted for Part A report

Jurisdiction	Organization
British Columbia	Ministry of Energy, Mines and Petroleum Resources (LiveSmart BC)
	BC Hydro
	FortisBC
Alberta	Climate Change Central
	FortisAlberta
	ATCO
Saskatchewan	Saskatchewan Research Centre
	SaskPower
Manitoba	Manitoba Hydro
Ontario	Ontario Power Authority
Quebec	Hydro Québec
	Agence de l'efficacité énergétique will
New Brunswick	Efficiency New Brunswick
Nova Scotia	Efficiency Nova Scotia
Prince Edward Island	Office of Energy Efficiency
Newfoundland Labrador	Newfoundland Power
	Newfoundland Labrador Hydro
	Ministry of Natural Resources
	Newfoundland and Labrador Housing Corporation

Jurisdiction	Organization
Northwest Territories	Arctic Energy Alliance
Yukon	Government of Yukon

Governance structures for electricity efficiency and conservation programming in each Canadian province

To understand the governance structures for electricity energy efficiency and conservation programming in each Canadian province, IndEco conducted a series of interviews with key ministry staff, electric utilities, and utilities commissions through March 2011 to June 2011. We sought to answer the main questions of what is the governance structure, how do the key players work together, and has this structure been successful in driving energy efficiency/conservation in the province? Where appropriate, we supplemented the information garnered in the interviews with material referenced and/or provided by the interviewee.

For each of the provinces, we set out to describe the governance structure for electricity efficiency and conservation through the legislation, regulations, directives, codes, plans, and policies that are currently in effect. Where a particular governance component (i.e. codes, plans, etc.) is not in effect, we have provided a statement indicating this situation (i.e. "As of the date of this report, the province does not have any regulations specifically related to electricity efficiency or conservation."). For provinces where all interviews have not yet been completed, the governance structure headings are in place, but no text is provided below; these information gaps will be addressed in the final report after all interviews have been completed.

The following chart illustrates a generic governance structure for energy efficiency and conservation. Individual jurisdictions displayed variations from this general structure, tailoring their governance of energy efficiency and conservation to local needs.

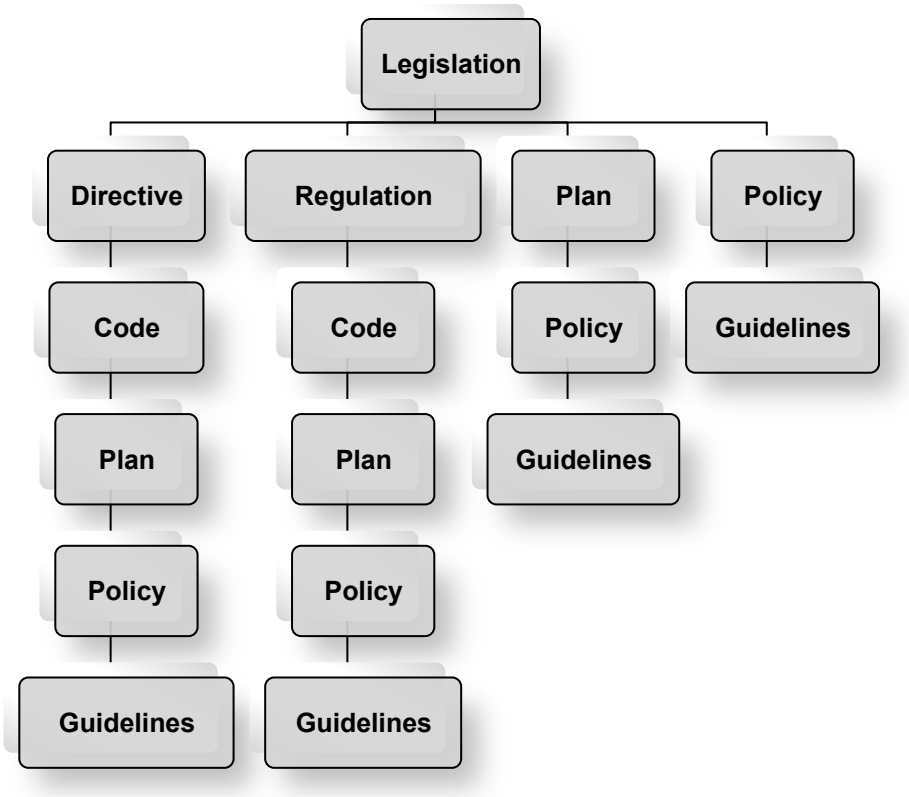

Figure 1 Generic governance structure

British Columbia Energy Efficiency Programs

Legislation

The Clean Energy Act, 2010[5] (CEA), passed in June, 2010, puts into law key objectives of the government's two Energy Plans (2002, 2007) and its Climate Action Plan (2008). The key parts of the CEA include provincial electricity self-sufficiency by 2016, and an increase in the demand-side management target (DSM) to 66% of load growth (over 50% of gap between supply and demand). Much of the CEA will guide the British Columbia Utilities Commission (BCUC), the utility regulator, in approval of utility applications.

In British Columbia, *The Energy Efficiency Act, 1996* [6] primarily addresses the energy efficiency standards of energy devices. A person must not manufacture, offer for sale, sell, lease or otherwise dispose of an energy device unless the device meets prescribed energy efficiency standards and has a prescribed label.

The Utilities Commission Act, 1996[7] mandates utilities to file with the BCUC a long-term resource plan (typically 2-3 year horizon) that

5 Clean Energy Act available from http://www.leg.bc.ca/39th2nd/3rd_read/gov17-3.htm. Accessed March 30, 2011.

6 Energy Efficiency Act available from http://www.empr.gov.bc.ca/EEC/Strategy/EEA/Pages/default.aspx. Accessed March 30, 2011.

7 Utilities Commission Act available from http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96473_01. Accessed March 30, 2011.

includes a plan of how the utility intends to reduce demand, and a forecast of the demand if no demand-side measures are undertaken versus if cost-effective demand-side measures are undertaken. The Act does not stipulate the means of determining cost-effectiveness, but through a special direction to the BCUC, the government indicated that the Total Resource Cost (TRC) test should be used to measure cost-effectiveness of measures.[8] The utilities are required to file an expenditure schedule, but the expenditures for demand-side measures are not required to be included.[9] The BCUC must accept the plan or reject the plan in whole or in part. In 2010, the Utilities Commission Act was amended to require Cabinet rather than the BCUC to approve utility IRPs.

Regulations

Since about 2005, British Columbia has used regulations as a means of leading energy efficiency and conservation efforts ahead of federal regulations. BC has done this by implementing regulations equivalent to federal regulations, but earlier than the federal deadlines. An example of this is the federal regulation to phase-out inefficient lighting by January 2012. The BC government passed the Energy Efficiency Standards Regulation in 2009[10] (under the Energy Efficiency Act). BC believes it is able to accomplish early implementation of regulations, as the province has historically been early to promote efficient products. Utilities are permitted to increase market demand for efficient devices that will be regulated under a regulation through utility-run energy efficiency programs. Utilities can then attribute part of the post-regulation energy savings to the utility program, thus allowing the utility to spend more on the program.

The electric utilities of BC are on a rate-of-return regulation for rate setting, thus do not have an explicit mechanism for lost-revenue recovery due to electricity conservation efforts. Their rate of return is mandated, and costs (which typically include demand-side management expenditures) are reviewed by the BCUC. There are no incentives available to utilities for energy efficiency and conservation performance.

Energy efficiency is also accelerated in BC through the building code. The British Columbia Building Code (BCBC)[11] was first passed in 2006 and is a regulation of the Local Government Act, based on the model Nation Building Code of Canada (2005) and the model National Plumbing Code of Canada. The BCBC sets out technical provisions for the design and construction of new buildings and for the alteration, change of use and demolition of existing buildings. The Code was first updated in 2008, as part of the Energy Efficient

8 BC is currently investigating the merits of the Societal Cost Test for evaluating the cost-effectiveness of energy efficiency measures.

9 However, from a practical point of view and a cost-recovery perspective, we heard from BC Hydro that it is prudent for them to obtain BCUC approval of demand-side management expenditures. The utilities have a revenue requirement filing (includes demand-side management expenditures) with the BCUC to seek approval of rate increases.

10 Regulation available from http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_389_93#Schedule2. Accessed March 30, 2011.

11 BC Building Code available from http://www.bccodes.ca/bccode_building.htm. Accessed March 30, 2011.

Building Strategy, with the addition of energy efficiency and water efficiency objectives. Currently, there are proposed changes that will require single-family and row houses to be more airtight and better insulated to minimize/reduce wasted energy. EnerGuide 80 energy performance will be achievable with the minimum equipment performance specified in the Energy Efficiency Act.[12]

Directives

As of the date of this report, there are no directives related to electricity efficiency or conservation.

Codes

As of the date of this report, there are no codes related to electricity efficiency or conservation.

Plans

In 2002, the BC government released its first energy plan. In 2005, BC implemented 'Energy Efficient Buildings: A Plan for BC' to address specific barriers to energy efficiency in the building stock through a number of voluntary policy and market measures. Both of these plans are incorporated in the 2007 release of 'The BC Energy Plan; A Vision for Clean Energy Leadership.'[13] This plan set ambitious conservation targets, to acquire 50% of BC Hydro's incremental resource needs through conservation by 2020. It also recognizes that regulated standards for buildings are a central component of energy efficiency programs in leading jurisdictions throughout the world. The plan supports reducing energy consumption by raising awareness and enhancing the efforts of utilities, local governments and building industry partners toward energy efficiency and conservation.

Policies

The following policy actions come from the 2007 Energy Plan:

- Ensure a coordinated approach to conservation and efficiency is actively pursued;
- Implement energy efficiency standards for buildings in 2010;
- Undertake a pilot project for energy performance labelling of homes and buildings in coordination with local and federal governments, First Nations, and industry associations; and
- Increase participation of local governments in the Community Action on Energy Efficiency program[14] and

12 These changes should become effective in the fall of 2011, according to the BC government—available from http://www.housing.gov.bc.ca/building/green/faq.htm#01. Accessed March 30, 2011.

13 BC Energy plan available from http://www.energyplan.gov.bc.ca/. Accessed March 30, 2011.

14 The Community Action on Energy Efficiency (CAEE) initiative is a pilot program that provides financial and research support to select BC municipalities to advance energy efficiency through local government policy instruments and building upgrade incentives. It is anticipated that the CAEE initiative will form a robust, long-term framework that will help the Ministry of Energy, Mines and Petroleum Resources (MEMPR) meet the energy efficiency targets set out in the provincial strategy for buildings.

expand the First Nations Remote Community Clean Energy Program.

Guidelines

In 1993, the BCUC introduced a requirement for all utilities in the province to undertake integrated resource planning (IRP) as a way of analyzing the growth and operation of utilities that considers both supply and demand in deciding the best provision of service to customers. The BCUC released very general guidelines[15] for the preparation of IRPs.

Programs

Three organizations within the Province of British Columbia (BC) develop and deliver energy efficiency programs for the residential, commercial and industrial market sectors. They include the BC Ministry of Energy, Mines and Petroleum Resources, BC Hydro and FortisBC.

The *LiveSmart BC Energy Incentive Program*, was launch by the BC Ministry of Energy, Mines and Resources in May 2008 to support the energy conservation plans outlined in *The Energy Efficient Buildings Strategy: More Action, Less Energy*. The *Energy Efficient Buildings Strategy: More Action, Less Energy* set energy targets to maximize efficiency and minimize environmental impact. LiveSmart BC provides rebates and incentives to encourage individuals, families and small businesses in their efforts to reduce their greenhouse gas emissions and save on future energy costs.

The inception of the *Power Smart* program in 1989 marked a significant milestone in BC Hydro's conservation efforts. Today, *Power Smart* offers a variety of programs for residential, commercial and industrial customers. BC Hydro will help meet the Province's ambitious target of reducing the expected demand for electricity by at least 66 per cent by the year 2020 through conservation and energy efficiency.

PowerSense, an energy efficiency program of FortisBC, is one of Canada's longest-running energy efficiency programs[16]. The residential programs offer customers the opportunity to save money on their electrical bill, while reducing the overall electricity demand. FortisBC's commercial programs help reduce energy demands and costs by assisting program participants to identify building and process improvements.

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15 BCUC IRP Guidelines available from http://victoria.tc.ca/bcutilities/IRPGuide.html. Accessed March 30, 2011.

16 http://www.greenbuildingsfoundation.org/energy/fortis.php

Table 2 Key players for electricity efficiency and conservation for British Columbia

Name	Brief overview	Links
Ministry of Energy, Mines & Petroleum Resources	• Provincial government • Electricity and Alternative Energy Division is responsible for province-wide energy conservation and efficiency measures, policy advice and direction related to electric utility regulations, and the LiveSmart BC Energy: Efficiency Incentive Program	http://www.gov.bc.ca/ener Energy Efficiency Act: http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96114_01#section2
British Columbia Utilities Commission (BCUC)	• Independent regulatory agency of the provincial government that operates under and administers the Utilities Commission Act • Primary responsibility is the regulation of British Columbia's natural gas and electricity utilities • Regulates intra-provincial pipelines and universal compulsory automobile insurance	http://www.bcuc.com/
BC Hydro	• Provincial crown corporation • Has government as shareholder • Received government indication that conservation should be first priority for energy acquisition • Cost-effectiveness of measures, programs and portfolio is expected, but not required, to be based on TRC • Required to file IRP for approval by government cabinet	http://www.bchydro.com/
Fortis BC	• Investor-owned distribution utility • Distributes electricity, natural gas, piped propane and alternative energy • Rates set by BCUC, based on cost of service and performance-based-regulation	http://www.fortisbc.com/
LiveSmart BC	• Established to run the federal ecoEnergy program (customized to BC) • In 2010, received 3 additional years of funding	http://www.livesmartbc.ca/

LiveSmart BC

LiveSmart BC creates a single access point for provincial, utility and federal incentives by highlighting the best opportunities for energy savings and reducing greenhouse gas emissions.

Residential Program

LiveSmart BC launched the *Energy Incentive program* on April 1 2010 in cooperation with BC Hydro, FortisBC and Terasen Gas. The program provides residential home owners energy audit services and incentives for: upgrading primary space heating, other space heating including thermostats and heat recovery ventilators, water heating, attic insulation, exterior wall insulation, basement insulation, other insulation such as crawl spaces, windows, doors and skylights for heated spaces only, air tightness and draft proofing and distributed power generation through net metering.

An extra bonus for increasing the residential home's overall EnerGuide rating is also offered to those homeowners undertaking eligible retrofits. In addition to the incentives for each retrofit, if at least two eligible improvements are undertaken which increase the home's overall EnerGuide rating, as outlined below, the homeowner can be eligible for the following incentives:

- Increase the EnerGuide rating of the home by 40 points and receive $1000 in Interior and Northern areas or $700 in South Coastal areas (must achieve a minimum post-retrofit rating of 60)
- Increase the EnerGuide rating of the home by 20 points and receive $500 in Interior and Northern areas or $400 in South Coastal areas (must achieve a minimum post-retrofit rating of 50)

Table 3 LiveSmart BC residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
British Columbia	BC Ministry of Energy, Mines and Petroleum Resources' LiveSmart BC	Residential	LiveSmart BC: Energy Incentive Program	Program offers residential home energy audits and a listing of eligible retrofit measures	Incentives levels vary by measure and by customer location within the province[17]	Provincial government
	BC Ministry of Finance	Residential	Exemption for Material and Equipment Used to Conserve Energy (energy efficient residential furnaces, boilers and heat pumps)	Furnaces, boilers and heat pumps are exempt from the provincial sales tax (Social Service Tax) if they are ENERGY STAR® qualified or, in the case of oil-fired forced air furnaces, if they have a Seasonal Energy Utilization Efficiency (SEUE) rating of at least 85%.	PST Tax exemption will not apply if HST applies to the transaction[18]	Provincial government

[17] http://www.livesmartbc.ca/homes/incentives.html

[18] http://www.sbr.gov.bc.ca/documents_library/bulletins/SST_011.pdf

Commercial Program

The *LiveSmart BC Small Business Program* is compromised of four elements :

- Business energy advisors: who are available to work with eligible small business that spend up to $50,000 per year on electricity. The energy advisors identify potential energy and money saving opportunities, including lighting, hot water, heating and ventilation improvements. The advisors help businesses access other available incentives coordinate the installation of the equipment on behalf of the owner;
- Direct install program: targets small businesses that spend up to $20,000 per year on electricity and coordinates and funds 100 per cent of the cost to install select products such as energy efficient lighting and lighting controls and pre-rinse spray valves to conserve hot water in commercial kitchens;
- Enhanced product incentives: There are product incentive programs available throughout the Province for those small business that spend less that $200,000 per year on electricity, providing cash rebates on more than 10,000 energy efficient technologies including lighting, refrigeration, and commercial cooking equipment;
- LiveSmart Champion Program: Available to businesses that spend up to $50,000 per year on electricity. This is an open call for businesses to develop innovative ways to conserve energy in their specific sectors. Projects will be chosen and funding provided based on energy savings, innovation, replicability and impact on the community. This program started in February 2011.

Table 4 LiveSmart BC small commercial program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
British Columbia	BC Ministry of Energy, Mines and Petroleum Resources' LiveSmart BC	Small Commercial	LiveSmart BC: Small Business Program Energy Incentive Program	Four program elements including energy advisory services; direct install services; product incentives; and LiveSmart Champion program	Incentives; free installation of certain free technologies for eligible small businesses	Provincial government

BC Hydro

Residential Program

BC Hydro offers five residential programs. They include a rebate program on the purchase of ENERGY STAR® labelled appliances, a residential low income program (two program offerings) and a new residential construction program.

The *Power Smart Appliance Rebate* program has a qualifying product list. The rebates include:

- A $50 rebate for select ENERGY STAR® labelled clothes washers
- A $50 rebate for select ENERGY STAR® labelled refrigerators
- A $25 rebate for select ENERGY STAR® labelled dishwashers
- A $25 rebate for select ENERGY STAR® labelled freezers.

BC Hydro offers two *Power Smart for Low Income Households* programs to help low income households: *Energy Conservation Assistance* program and the *Energy Savings Kits* program.

The *Energy Conservation Assistance* program offers a free in-home energy audit and the installation of energy saving measures including:

- Energy saving light bulbs (compact fluorescent lamps) indoor and outdoor
- Faucet aerators for the kitchen and bathroom
- Low-flow showerhead
- Water heater pipe wrap and blanket
- Draft proofing, such as weatherstripping, caulking and outlet gaskets
- Insulation for attics, walls and crawlspaces
- Low-wattage night light
- ENERGY STAR® refrigerator

To be eligible for the program:

- The applicant must be a BC Hydro residential customer living in a low-income household with moderate to high electricity consumption (more than 8,000 kWh/yr)
- A combined household income that is below the Low-Income Cut-Off (LICO)[19] as published by Statistics Canada. Low-income cut-offs vary by where you live and by the number of people in your household.

BC Hydro and Fortis BC partnered to provide the *Energy Savings Kit Program* for low income households. The free kit contains:

- Three compact fluorescent light bulbs (CFLs)

[19] *2009 LICO Scale (before tax household income). Source: Statistics Canada

- Weatherstripping to put around windows and doors and help keep out drafts
- Fridge and freezer thermometers to help set refrigerators and freezers at an ideal temperature where food stays cold, but not wasting extra energy
- A low-flow showerhead

To be eligible for the program:

- A combined household income that is below the Low-Income Cut-Off (LICO)[20] as published by Statistics Canada.

The *Power Smart New Home Program* supports the nationally accepted EnerGuide rating systems by providing financial incentives and cooperative marketing to new residential home construction. The program is not available where EnerGuide 80 is mandated by municipal bylaws or building code

Incentives for Single Family Detached, Row/Townhouse/Duplex include:

- NEW EnerGuide rating of 80 or higher – up to $1500 per home
- ENERGY STAR® Appliance Package – up to an additional $200 per home

The appliance package includes the following ENERGY STAR® products: refrigerator, dishwasher, front-loading clothes washer, minimum 6 compact fluorescent light bulbs and bathroom ventilation fan.

Other Programs

BC Hydro offers exclusive Power Smart programs to customers in remote, non-integrated communities. These programs are specialized to address the unique needs of remote communities and are based on existing program offerings both in the residential and commercial market sectors.

In partnership with the Ministry of Energy, Mines and Petroleum (MEMPR) and the First Nations Summit Society (FNSS), BC Hydro is offering free energy saving kits to customers in qualified communities. Kits can be delivered or installed at no charge to the customer.

BC Hydro also offers a refrigerator recycling program which offers residents a $50 incentive for the old, inefficient refrigerator. The incentive level is $20 higher than available to non-remote communities.

The commercial new construction program has funding available to support the design and construction of energy-efficient buildings. Both new construction and major building retrofits are eligible in qualified communities.

Building audits is a program so to be offered to the remote, non-integrated communities.

[20] Ibid

IndEco has not created a separate table for these program offerings as they are based on current programs. IndEco can follow up with BC Hydro to determine any program modifications if NL is interested in pursuing further information on these programs.

Table 5 BC Hydro residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
British Columbia	BC Hydro	Residential	Power Smart Appliance Rebate	Provide rebates for ENERGY STAR® clothes washer, refrigerators, dishwashers and freezers; On-line application available to download, complete with receipts ,and mail in within 90 days of purchase[21]	Mail in rebate; $50 for ENERGY STAR® clothes washers and refrigerators, $25 for ENERGY STAR® dishwashers and freezers	Utility
			Fridge Buy Back	Provide incentive to recycle old fridge	$30 rebate to a maximum of 2 fridges; bar size, sub zero and commercial freezers are excluded	Utility
			Energy Conservation Assistance	Provide qualified low income households a free home energy evaluation and free installation of free energy saving products	Free	Utility
			Energy Savings Kit	Provide qualified low income households a self	Energy savings kit is free; Housing	Utility

[21] http://www.bchydro.com/rebates_savings/appliance_rebates/appliance_rebate.html

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Offer	install free kit including CFLs, weatherstripping, fridge and freezer thermometers; low flow showerhead; also available in bulk for distribution by qualified subsidized Housing providers; qualified Housing providers are also eligible to receive funding to perform the direct installation of the kit	providers receive funding to pay for the energy savings kit valued at approximately $30/kit	
			Power Smart New Home Program	Encourages builders and developers to build energy efficient homes (single-family detached, row/townhouse/duplex) to EnerGuide rating of 80 or higher and ENERGY STAR® appliance package; Multi-unit building are also eligible for ENERGY STAR® appliance package	Up to $1500 per home meeting an EnerGuide rating of 80 or higher; $200 appliance package per home; Incentives up to $200 per suite in multi-unit buildings for the purchase of ENERGY STAR® appliance package	Utility

Commercial Programs

BC Hydro offers several commercial energy efficiency programs including the *Product Incentive Program, Direct Install Program, Power Smart Partner Program, Power Smart Power Express Program, Continuous Optimization for Commercial Buildings,* and the *New Construction Program*.

Product Incentive Program

To participate in the *Product Incentive Program*, commercial customers must be:

- a BC Hydro business customer who spends less than $200,000 annually on electricity and who does not have a key account manager, or
- a multi-unit residential customer applying for projects in common areas only

In addition to the incentives offered by BC Hydro, LiveSmart BC is currently funding a 10% incentive on top of current program incentives.

The commercial project must meet the following criteria:

- meet the minimum spending threshold of $50 total financial incentives per application
- only use approved products identified in BC Hydro's e.Catalog
- be installed by qualified installers

Installations in new construction projects are not eligible for incentives under this program.

Direct Install Program

The *Direct Install Program* assists eligible and very small commercial customers achieve energy savings. Power Smart has enlisted several representatives in select areas around the province to assist customers with identifying energy saving opportunities in their facilities.

Power Smart Partner Program

The *Power Smart Partner Program* is open to commercial, government and institutional facilities that spend at least $200,000 annually on electricity. The program offers a variety of services, tools and funding for large commercial customers including:

- **Energy Study**: This includes a comprehensive look at a facility's energy using systems, with detailed recommendations by providing:
  - Co-funding with the potential for 100% funding of the energy study
  - A list of pre-qualified consultants capable of performing detailed commercial energy studies. (Note: To qualify for

funding, the consultant must be a registered member of the Power Smart Alliance.)

- Access to Power Smart's technical and energy management resources throughout the energy study process

- **Energy Management Assessment**: This involves the provision of an energy management assessment and a rating of the organization's energy performance. Details include:
  - A diagnostic workshop which brings together senior management from across the company for strategic process review. Managers respond to a series of questions to establish the organization's energy management performance. The workshop, by being held annually, tracks progress and highlights new opportunities
  - A detailed report that rates the organization's performance on 22 elements, identifies the five most critical areas for improvement and outlines recommended actions
  - A benchmark analysis is conducted that compares the organization's site to others within the same industry along with best practice targets

Energy Manager Online: This involves providing information about the Energy Manager Program, and resources for Energy Managers.

Funding and support to implement energy efficiency measures: This involves providing implementation funding which is available to large commercial, government and institutional customers to reduce the capital cost of implementing electrical energy efficiency projects. The participant's project must be hardwired or permanent in nature, and have a simple payback of greater than two years before factoring in the incentive amount and save a minimum of 50,000 kWh/year by implementing a proven energy saving technology, where the project performance is measurable and sustainable. The participant can bundle projects from different sites with different end uses in order to qualify for funding.

The organization could receive funding for up to 75% of the incremental cost of lighting, mechanical, HVAC and other energy efficiency projects. The funding level is also based on a tiered approach, meaning projects that were previously too costly may now be eligible for richer incentives.

No component of the project can be initiated without an Incentive Agreement in place with BC Hydro. If the project has started prior to an Incentive Agreement, it will not be eligible for any incentives from BC Hydro.

Data Centre & Server Initiative. This involves providing methods, tools and funding to consolidate data servers, allowing fewer units to perform the functions of several including:

- Funding for data centre assessment studies to identify consolidation opportunities and the best approaches to improving the energy efficiency of the data centre.

- Project implementation incentives to install consolidation and energy conservation measures. Projects that qualify for incentives must achieve a minimum energy savings of 100,000 kWh per year per project (This is equivalent to decommissioning approximately 50 219-watt servers) and a have minimum payback of two years.

High-Bay Lighting Initiative. This involves providing financial incentives to facilities with projects that would save at least 100,000 kWh to identify, design, and install more effective and energy-efficient lighting in high-bay facilities such as warehouses, athletic facilities and large retail stores. The incentives depend on the Power Smart lighting products installed and the amount of electricity saved. Funding up to a maximum of 60% of total project costs for new energy-efficient fluorescent lighting and controls is available.

Behavioural and organizational program: **Workplace Conservation Awareness.** This involves helping an organization build its own Power Smart Employee Energy Awareness program.

Power Smart Partner Express

Power Smart Partner Express is an incentive program for smaller and simpler implementation projects which is being offered to all customers with Key Account Managers. Incentives are calculated based on actual hours of operation, actual energy savings per project, and actual payback.

Continuous Optimization Program for Commercial Buildings

Continuous Optimization Program for Commercial Buildings assists commercial building owners in retro-commissioning their building, then helps maintain and continually improve the level of efficiency in their building operations. The program starts with a building audit listing recommended energy efficiency measures, implementation costs, energy savings and paybacks; implementation must include recommended measures that have a simple payback of two years or less, in order to maintain eligibility and retain the audit funding incentive. Because the recommended measures are typically low-cost or no-cost and have such short paybacks, no incentives are provided for implementation.

The program requires determining whether energy consumption is on or off target, and to find and correct operational issues when consumption is higher than expected. BC Hydro will assist by providing the support through measurement and analysis, load profiling, benchmarking, quantified energy savings and other measurement and analysis methods. As well, the program includes building operator training funding to have a service provider conduct in-house training for building operations personnel in the use of the Enterprise Energy Management reports and the steps needed for continuous optimization. There is also funding for having the service provider visit the building every three months for the first year, to ensure that building operators continue to undertake the recommended activities for ongoing energy savings.

Eligible buildings include commercial buildings that:

- Are greater than 50,000 square feet;
- Have a Building Energy Management system in good working order
- Provide documentation including mechanical and electrical schematics; control drawings; testing, adjusting and balancing reports; and operation and maintenance reports
- Have well-maintained equipment and systems
- Have no major retrofits or tenant improvements planned for the next one to two years

New Construction Program

Power Smart's *New Construction Program* offers incentives, resources, and technical assistance to help developers and designers of new commercial and multi-unit residential building projects to create high-performance, energy-efficient buildings.

The *New Construction Program* also offers new commercial or multi-unit residential buildings assistance with whole building design and provides funding for energy studies and for capital investments. The program is made up of four components

- Whole Building Design which:
  - Assists commercial, institutional and multi-unit residential new developments or major building retrofits that can save 50,000 kWh, and are in the early stages of the design process
  - Identifies energy saving strategies early in the design process
  - Evaluates alternative design and cost options to make a business case for implementation
  - Offset a large part of the incremental capital costs of the energy-efficient equipment or measures in the proposed high-performance design
- Energy Study Funding which:
  - Funds up to 100% of an energy study to develop a high-performance design that delivers energy savings compared with a conventional building design
  - Funds 50% for an approved energy study cost provides a bonus for the remaining 50% of study cost if half of the savings identified and recommended in the energy study are implemented.
- Capital Incentives which:
  - If the energy efficiency measures identified in the study involve added costs, then BC Hydro may also provide capital incentives to help qualified projects implement the improved efficient design. Capital incentives are calculated based on the amount of electrical energy savings the building will achieve. The higher the percentage of electricity savings achieved, in proportion to predicted conventional building design (baseline), the higher the

level of capital incentive to be received based on a multiple tier level of incentives.

System Design Program

System Design is a program for new or major retrofits in commercial, institutional or multi-unit residential buildings that can save at least 50,000 kWh and which have not ordered or purchased the specific system. If the energy efficiency measures in the system design involve added costs, then BC Hydro may also provide capital incentives to help qualified projects implement the improved design, based on the amount of savings the building will achieve.

Energy Efficient Lighting System Design Program

Energy Efficient Lighting System Design provides financial incentives for energy efficient lighting design in small to large commercial, institutional and multi-unit residential buildings, with potential electricity savings of at least 10,000 kWh and for which the customer has not ordered or purchased the lighting equipment/system(s). Incentives include:

- Energy-Efficient Lighting Design Study. A $1,000 incentive for creating a lighting design that exceeds building code by 10% or greater savings and the required documentations that show this energy efficient lighting design.
- Energy-Efficient Lighting Capital Incentive. Capital incentives to install the new lighting based on the total electrical savings of an energy-efficient design that exceeds building codes

Prescriptive Pilot Offer Program

Prescriptive Pilot Offer offers discounted pricing on qualifying high-efficiency lighting products[22], at participating distributors, for new construction projects that are smaller than 1,800 square meters (or 19,000 square feet). New commercial, institutional and multi-unit residential building developments, smaller than 1,800 square meters, and located in BC Hydro service territory or City of New Westminster (excludes projects and communities served by Fortis BC) are eligible. The eligible products must be purchased before December 31, 2011, or until program funding is exhausted.

[22] http://www.bchydro.com/ecatalog/eCatServlet?cmd=all_cnc_incentives&rId=&ip=10&sb=2&dir=1&p=2

Table 6 BC Hydro commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
British Columbia	BC Hydro	Commercial	Product Incentive Program	BC Hydro business customer who spends less than $200,000 annually on electricity and who does not have a key account manager, or a residential strata customer (applying for projects in common areas only). Products include lighting, controls and sensors, heating, cooling, ventilation, commercial kitchen and refrigeration, ice rink technologies, livestock waterer, and standard pump[23] Complete installation and online application within 120 days of invoice date and mail all invoices and permits	Rebate based on technologies[24]	Utility
			Power Smart	Comprehensive program	Co-funding with the	Utility

[23] http://www.bchydro.com/etc/medialib/internet/documents/psbusiness/pdf/a07-080j_pip_all_incentives.Par.0001.File.A07-080j-all-incentives.pdf

[24] http://www.bchydro.com/rebates_savings/product_incentive_program/eligible_technologies.html

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Partner Program	for commercial customers including energy assessment tools, funding and support for implementation, behavioural and organizational programs; Includes data centre and server consolidation and high bay lighting in warehouse storage and logistics facilities	potential for 100% funding of comprehensive energy study; up to 75% funding of the incremental cost for the implementation of energy efficient equipment including lighting, mechanical and HVAC; incentives for server consolidation are based total electricity savings with a minimum savings of 100,000 kWh per year per project; funding up to a maximum of 60% of total project costs for projects to install new energy-efficient fluorescent lighting and controls based on the total electrical savings of the project	
			Power Smart Express Program	Large commercial, government and institutional customers	Incentives calculated on actual hours of operation, actual	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				who would like to do simple retrofits	energy savings per project, and actual payback time	
			Power Smart Direct Install Program	Limited information on this program		Utility
			Continuous Optimization Program	A new program that assists commercial building owners in retro-commissioning their building, then helps maintain and continually improve the level of efficiency in building operation	Funded audit; no implementation incentive as recommendations are generally no-cost, low-cost with a simple payback of two years or less	Utility
			New Construction	Financial incentives, resources and technical assistance to building owners, developers and the design industry to create high-performance, energy-efficient buildings Includes Whole Building Design program, System Design Program, Energy Efficient Lighting Design, and the Prescriptive Pilot	Funds up to 100% for the development of a high performance design; 50% of an approved study and an additional 50% if half of the recommendations are implemented; additional capital funding to help implement high performance design is	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				Offer	available based on the amount of energy to be achieved; new or major retrofits are eligible for capital funding incentives based on the amount of energy savings to be achieved; $1000 incentive for an energy efficient lighting design which exceeds building code by 10%; capital funding incentives are determined on total electrical savings of an energy-efficient design that exceeds building codes; prescriptive pilot offers discounted pricing on selected high efficiency lighting	

Industrial Programs

The industrial program is made up of four components[25], each of which offers services and incentives to assist industrial customers integrate energy efficiency into their facility operations.

The program components are:

- *Plan* - integrates energy management and efficient design into facilities; this is a recommended starting point for companies looking to implement continuous energy improvement into facilities. This component of the industrial program provides funding and expert resources.

Table 7 Plan component- incentives and expert resources

Initiative	What is it	Eligibility
Industrial Energy Manager (with Sustainable Energy Management Planning)	A full-time or part-time energy manager to spearhead efficiency efforts	Customers who use more than $200,000 of electricity per year
Energy Manager for Associations	An energy expert to assess facility and management practices	Customers who use more than $50,000 of electricity per year
Energy Management Assessment	A benchmarked assessment of facility energy management practices	Customers who use more than $50,000 of electricity per year
New Plant Design	An integrated stream of offers to explore and implement efficient facility design	New facilities or facilities expanding by at least 5

[25] The Industrial program overview brochure is available at: http://www.bchydro.com/etc/medialib/internet/documents/psbusiness/pdf/ind_overview_brochure.Par.0001.File.industrial_overview.pdf

- *Discover* – identifies and assesses savings opportunities; this initiative offers funding to help build business cases for efficiency upgrades. The study and business case make it straightforward to get access to major upgrade funding.

Table 8 Discover - efficiency assessments

Initiative	What is it	Eligibility
Customer Site Investigation	A high-level assessment of an entire facility	Customers who use between $50,000 and $1 million of electricity per year
Plant-Wide Audit	A high-level assessment for larger plants	Customers who use more than $1 million of electricity per year
End-Use Assessment	A high-level assessment of a specific system	Systems that use more than 1GWh per year.
Energy Efficiency Feasibility Study	An in-depth investigation of solutions in a single system	Systems that use more than 1GWh per year
Mechanical Pulping Optimization	An integrated stream of offers for mechanical pulping mills	Pulp and paper customers
End-Use Bundles	An integrated stream of offers for the six most common industrial systems: pumps, compressed air, fans & blowers, lighting, refrigeration, process controls	Varies by system

- *Upgrad*e – builds efficiency into existing facilities. This component offers funding options for upgrade projects.

Table 9 Upgrade - funding options for upgrades

Initiative	What is it	Eligibility
Project Incentives	Financial incentives for efficiency upgrades	Permanent upgrades that meet the minimum savings thresholds
Conservation Rates	Tiered rates that reward energy efficiency	Customers billed under the Transmission Service Rate or the Large General Service Rate who use more than 550,000 kWh per year

- *Support* – increases efficiency savings through smart monitoring and employee awareness

Table 10 Support - employee awareness and smart monitoring

Initiative	What is it	Eligibility
Employee Energy Awareness	A campaign to raise awareness about efficiency in your organization	All industrial customers
Monitoring, Targeting & Reporting	A real-time energy monitoring system	Customers who use more than $500,000 of electricity per year
Metering & Instrumentation Lending Library	Borrowing critical metering equipment	Customers who use more than $200,000 of electricity per year.
Power Smart Partner Recognition	Showcasing commitment to energy efficiency	Customers who use more than $50,000 of electricity per year

Table 11 BC Hydro industrial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
	BC Hydro	Industrial	Program Offers	A range of major funding opportunities and expert resources to help B.C. industries increase profitability and take complete control of their energy. Program is a four stage cycle named: Plan, Discover, Upgrade and Support. 'Discover' offers plant wide audits; end use assessment energy efficiency feasibility study; mechanical pulping; pumps, compressed air, fans and blowers, lighting, refrigeration and process control optimization programs	Funding offer for each cycle; Detailed funding information to be provided as part of the review of BC's commercial and industrial program review	Utility

FortisBC

Residential Programs

FortisBC offers two residential energy efficiency programs: PowerSense Home Improvement Program (HIP) and the PowerSense New Home program.

To be eligible for the HIP program residential customers must:

- be a customer of FortisBC, or one of the following municipal utilities: Grand Forks, Kelowna, Penticton, Summerland or Nelson Hydro and;
- The home must be electrically heated (includes electric baseboard, electric forced air, electric boiler, and air source or ground source heat pumps).

Applying for rebates through both LiveSmart BC and the PowerSense Home Improvement Program is not allowed.

Table 12 FortisBC residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
British Columbia	FortisBC	Residential	PowerSense Home Improvement Program (HIP)	Energy efficient product rebates are available for energy efficient windows, insulation upgrades, compact fluorescent lighting (CFL's), air source heat pumps (ASHP), and ground source heat pumps (GSHP)[26]	Rebates; see footnote below	Utility
			PowerSense New Home Program	Provides residential rebates or loans on ENERGY STAR® windows, air source heat pumps, ground source heat pumps, solar hot water systems ENERGY STAR® appliances and a special CFL lighting incentive[27]	Rebates and loans; see footnote below	Utility

[26] http://www.fortisbc.com/Electricity/PowerSense/IncentivesPrograms/Documents/ps_HomeImp_Rebate_Form_SF_scr.pdf

[27] http://www.fortisbc.com/Electricity/PowerSense/IncentivesPrograms/Documents/ps_NH_Rebate_Form_SF_scr.pdf

Commercial Programs

FortisBC PowerSense offers six commercial programs including the *FortisBC/LiveSmart BC Lighting Installation Program (FLIP)*, *New Construction Program*, *Small Business Commercial*, and *Partners In Efficiency*.

FLIP

FLIP provides a free lighting assessment from a FortisBC approved contractor and up to $5,500 in assistance for the installation of new energy efficient lights, occupancy sensors and controls. To be eligible for the program the commercial customer must be operating within the FortisBC electricity service area or one of the municipal electric utilities of Kelowna, Summerland, Penticton, Nelson or Grand Forks and must have spent less than $20,000 on electricity over the last 12 months.

New Construction Program

The *New Construction Program* offers expert advice as well as rebates on energy efficient technologies and solutions for new facilities and encourages developers to meet or exceed the technical guidelines of the Model National Energy Code for Buildings (MNECB) by at least 25%.

Program assistance and financial incentives include:

- A free initial assessment of the building design's level of energy efficiency
- 50% of an approved study cost to a maximum of $5000 if a more detailed assessment is required. If assistance is greater than $1000, it is netted from the final rebate amount
- Rebates towards the incremental cost of efficiency measures compared to standard "baseline" construction
- The rebate is based on 5¢ per estimated annual kWh savings, with the maximum rebate calculated to achieve a two-year payback on incremental cost

Small Business and Commercial Program

The *Small Business and Commercial* program provides qualified customers a free walk-through energy audit conducted by a qualified technical advisor to identify where conservation opportunities exist.

Funding is available up to 50 percent, to a maximum of $5,000, of an approved consultant's fee to conduct a comprehensive energy study.

Rebates are based on one cent per estimated annual kWh saved times the lesser of five years or product life. The maximum rebate is 50 percent of the incremental project cost or the amount required to provide a two-year payback, whichever is less. Rebates are available for energy-efficient lighting products HVAC energy-efficient upgrades, irrigation pumps and equipment with energy efficient features such as variable speed drives, energy efficient motors and digital controls.

Partners In Efficiency Program

Partners In Efficiency is a program in which FortisBC has signed agreements with all municipalities in their franchise area, to ensure energy efficiency is included in the annual capital improvements plan.

The purpose of the agreement is to make certain FortisBC is included in a review of the municipality's capital expenditure plan on an annual basis to identify key projects that have an impact on energy use. FortisBC will assess the key projects for possible upgrades, provide estimated costs, savings and applicable rebates. FortisBC provides the rebates on upon project completion.

Table 13 FortisBC commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
British Columbia	FortisBC	Commercial	FortisBC/LiveSmart BC Lighting Installation Program (FLIP)	Lighting audit and up to $5000 in assistance for the installation of energy efficient lighting, occupancy sensors and controls	Audit and direct install program up to $5000 in assistance	Utility
			Commercial New Construction	Program includes funding for approved energy assessment studies and rebates toward the incremental cost of efficiency measures compared to standard baseline construction FortisBC encourages developers to meet or exceed the Model National Energy Code for Buildings by at least 25%	Free initial assessment; 50% funding for an approved study to a maximum of $5000; if assistance needed is greater than $10,000 this is netted from the final rebate; Rebate is based on 5¢ per estimated kWh savings with a maximum rebate calculated to achieve a two year payback	Utility
			Small Business and Commercial	Program includes funding for approved energy assessment	Free walk-through audit; funding up to 50% of an approved	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				study and rebates that offered toward the incremental cost of project costs	study; rebates are based on 1% of estimated annual kWh saved times the lesser of five years or product life; maximum rebate is 50% of incremental project costs or the amount required to provide a 2 year payback	
			Partners in Efficiency	FortisBC establishes relationships with the municipalities in their franchise area to review yearly capital spending and provide guidance on cost-effective solutions and available rebates	Consulting service	Utility

Industrial Program

FortisBC *Power Sense Industrial Program* offers expert advice as well as rebates on energy-efficient technologies and solutions for upgrades to existing plants or new construction.

This includes:

- Walk Through Audit
  - Qualified customers can request a free walk-through energy audit conducted by a qualified technical advisor to identify where conservation opportunities exist. If required, FortisBC will also fund up to 50 percent of an approved consultants fee to conduct a comprehensive energy study
- New Process Design
  - This helps industrial customers build energy efficiency into the design of new processes. If necessary, a more comprehensive study will be completed and FortisBC PowerSense will pay up to 50% of approved study costs
  - Based on findings, the customer has a choice of implementing suggested technology upgrades. Financial assistance for costs exceeding baseline technologies is available to implement approved energy efficiency measures
  - The rebate is based on 5¢ per estimated annual kWh savings, with the maximum rebate calculated to achieve a two-year payback on incremental cost

Table 14 FortisBC industrial program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
British Columbia	FortisBC	Industrial	PowerSense Industrial Program	Free walk through audit or 50% of approved study; design study up to 50% funding of approved study	Project costs for audits and studies Rebates based on 5¢ per estimated annual kWh savings, with the maximum rebate calculated to achieve a two-year payback on incremental cost	Utility

Transportation Programs

LiveSmart On The Road

This program programs web-based tips for drivers on how to reduce fuel consumption and greenhouse gases through alternative modes of transportation.

Ministry of Environment Green Fleets BC

Green Fleets BC is a partnership program, launched in 2007, led by the Fraser Basin Council and funded by the British Columbia Ministry of Environment as part of the Ministry's Air Protection program. The program supports the provincial government's target of reducing greenhouse gas emissions by 33% by 2020.

Idle-Free BC is a program hosted by the BC Climate Exchange and represents a partnership between the Ministry of the Environment, Fraser Basin Council and Biofleet. The program provides resources to build awareness among fleets and the public about the economic, environmental and health costs of idling and support them in implementing their own idling reduction programs. The program is targeted primarily targeted at municipalities and provides best practices, example anti-idling by-laws, vehicle stickers, street signs, and identifies training opportunities.

Bio Fleet, as a partner in the Idle-Free BC program, is a program that provides info about bio diesel. BioFleet has been helping fleet managers understand biofuels since 2003, providing a common platform for sharing information and experience. The program aims to demystify biofuels and their role in helping users reduce greenhouse gas emissions while maintaining fleet performance.

The BC Ministry of Environment's *Scrap-It Program* offers qualifying vehicle owners incentives to scrap their older vehicles. The program provides incentives to help British Columbians replace higher polluting vehicles with cleaner forms of transportation, thereby reducing greenhouse gas emissions and lowering exhaust pollutants across the province. All scrapped vehicles and their components are permanently and properly recycled.

Incentives support the purchase of a low emission vehicle, transit passes, credit with a car sharing organization or the purchase of a new bicycle.

Table 15 BC Transportation programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
British Columbia	LiveSmart	Transportation	LiveSmart on the Road	A number of informational web pages providing tips to truckers, public transit users and cyclists on the benefits of reducing fuel consumption and greenhouse gases through the use of alternative modes of transportation[28]		Provincial government
	Ministry of Environment, Fraser Basin Council		GreenFleets BC	Green Fleets BC is a partnership program led by the Fraser Basin Council, and funded by BC Ministry of the Environment, which. helps fleets in British Columbia find solutions by: providing information on fuel efficient technologies		Provincial government

[28] http://www.livesmartbc.ca/transportation

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				and lower carbon fuels; sharing stories of fleets that have successfully made changes to reduce costs and emissions; providing tools to evaluate fuel efficient alternatives; connecting fleets together via an information sharing network; leading and coordinating demonstration programs		
			Idle-Free BC	Program to promote the unnecessary idling fleet vehicles to prevent the waste of fuel and reduce the emissions that degrade local air quality and contribute to climate change. Vehicle	Resources include signage to be posted in idle free zones; HASTE idle free cookbook[29]; bylaws, policies and promotional materials	Provincial government

[29] The Hub for Action on School Transportation Emissions (HASTE) Idle Free Cookbook offers three recipes to reduce idling in schools and communities, depending on the level of funding and time available. HASTE also offers free idling resources to schools, including street signs for schoolyards, key chains and window decals, to help remind drivers to TURN IT OFF!

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				idling reduction programs can save fleet operations up to 20% on annual fuel budgets		
		Transportation	BC SCRAP-IT® PROGRAM	A voluntary early retirement vehicle program that provides incentives to help British Columbians replace higher polluting vehicles with cleaner forms of transportation. The program is designed to reduce greenhouse gas emissions and to lower exhaust pollutants across the province. All scrapped vehicles and their components are permanently and properly recycled. Applicant has 30 days to scrap the vehicle at a number of authorized scrap	Incentives include: Auto Manufacturers & Dealers - $550* (*includes $300 cash and a $250 discount at the point of sale); TransLink 3 Zone MultiPass - Lower Mainland - a 9 month 3 zone multipass; BC Transit ECOPASS – Victoria - a 1 year ECOPASS valid on the Victoria Regional Transit System; New Bike - up to $500 off the purchase of a new bike. A 10% discount, up to	Provincial government

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				dealers	$100 at the point of sale and the remainder, 40%, up to $400 directly from SCRAP-IT when new bike is purchased; West Coast Express Passes – 4 municipalities offering 3 to 5 month passes; Car Sharing Credit - a $750 credit with one of the 3 organizations; Ride Sharing credit - a $750 credit with RideShare; $300 "Cash"	

Alberta Energy Efficiency Programs

Legislation

As of the date of this report, there is no legislation related to utility-driven electricity efficiency or conservation.

Regulations

ATCO Electric is regulated through the Alberta Utilities Commission (AUC). Rates are adjusted through a General Tariff Application. ATCO is presently on cost of service, meaning rates are set based on the cost of serving customers. They are hoping to move to Performance Based Regulation in 2013. ATCO voluntarily runs education and outreach programs related to energy efficiency and conservation and has no required separate filings with the AUC associated with these programs, nor are these programs required to meet any cost-effectiveness tests. Energy efficiency and conservation program expenditures are simply a line item in ATCO's operations and maintenance (O&M) costs, which are approved by the AUC.

Presently, ATCO has a submission before the AUC that indicates ATCO's interest in expanding its energy efficiency and conservation efforts and seeks feedback from the AUC on this matter.

Directives

As of the date of this report, there are no directives related to energy efficiency and conservation.

Codes

As of the date of this report, there are no codes related to energy efficiency and conservation.

Plans

As of the date of this report, there are no plans related to energy efficiency and conservation.

Programs

Climate Change Central is a non-profit organization that provides opportunities for the residents of Alberta to take action on climate change through consumer rebate programs, demonstration projects and educational outreach. The organization has also been instrumental in the collective effort of developing a provincial carbon market, the first in Canada.

In November 1999, the Alberta government formally established Climate Change Central as a public/private not-for-profit organization to take action on climate change. At that time, the

Premier announced the agency's operating funding, senior board executives and a process for establishing a board of directors. Climate Change Central has become the primary clearinghouse for rebate offers for both gas and electric utilities in Alberta.

ATCO Electric, part of the ATCO Group of Companies, serves 207.000 customers in northern and east central Alberta. ATCO's EnergySense program was established in 2001 for both electric and natural gas customers. The focus of the EnergySense program is to provide energy assessments to both residential and commercial customers. Rebates for recommended energy efficiency upgrades are available through Climate Change Central. ATCO Electric also provides an educational outreach program to promote conservation.

FortisAlberta is an electric distribution company providing electricity to almost half a million electricity customers in more than 200 communities in Alberta. FortisAlberta does not provide additional energy conservation rebate programs beyond those coordinated through Climate Change Central. FortisAlberta offers energy savings tips, an energy calculator and the use of power monitors to select libraries within their service territory to assist in the measurement of electricity use. The approximate program spending is $200,000.[30]

Table 16 Key players for electricity efficiency and conservation for Alberta

Name	Brief overview	Links
Ministry of Energy	• Provincial government • Manages the development of the province's non-renewable resources including coal, minerals, natural gas, petrochemicals, conventional oil and oil sands and renewable energy (wind, bioenergy, solar, hydro, geothermal, etc.) • Established Climate Change Central in 1999 as a public/private not-for-profit organization to take action on climate change, including offering energy efficiency rebates and incentives	http://www.energy.alberta.ca/
Alberta Utilities Commission	• Approves voluntary utility expenditures on conservation and energy efficiency through operation and maintenance budget review as part of rate setting	http://www.auc.ab.ca/Pages/Default.aspx
ATCO Electric Ltd.	• Investor-owned corporation • Voluntarily designs and delivers energy efficiency and conservation programs • Conservation program expenditures treated as O&M expenditures (rate-based)	http://www.atcoelectric.com/

[30] Email from Newfoundland Power's conversation with FortisAlberta

FortisAlberta Inc	• Investor-owned corporation (wholly owned subsidiary of Fortis Inc.) • Does not offer energy efficiency and conservation programs but directs customers to Climate Change Central	http://www.fortisalberta.com/
Climate Change Central	• The Ministry of Energy established Climate Change Central in 1999 as a public/private not-for-profit to take action on climate change • Responsible for and offers consumer rebate programs, demonstration projects and educational outreach programs, including those related to energy efficiency	http://www.climatechangecentral.com/

Climate Change Central

Residential Programs

Climate Change Central offers energy efficiency programs which are applicable to all of the Province of Alberta, and also offer a rebate coordinating function for municipally funded energy efficiency programs. The programs available to all residents of Alberta include a *Clothes Washer* rebate program, *Home Energy Evaluation, Insulation,* a *New Home Program and Furnace and Boiler program*. Table 17 below describes each of these programs in more detail.

Table 17 Climate Change Central residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Alberta	Climate Change Central	Residential	Clothes Washer Rebate	The provincial clothes washer program is ending on March 31, 2011. To be eligible, the participant must order and purchase an ENERGY STAR® clothes washer on or after January 1, 2009 and on or before March 31, 2011. Applications and receipts must be submitted online to Climate Change Central (or postmarked) by June 30, 2011.	Rebate $100	Not-for-profit agency
			Furnace and Boiler Program	The provincial program offers rebates on ENERGY STAR® qualified high efficiency and zero clearance natural gas furnaces and on ENERGY STAR® qualified oil boiler with an annual fuel utilization efficiency (AFUE) of 85% or better	Rebate of $600 on oil boilers; varying levels of rebates available for natural gas furnaces	Not-for-profit agency
			Home Evaluation Program	Alberta will maintain the ecoENERGY program infrastructure to offer rebates to residential customers who participated in the program	A $100 rebate to all homeowners who complete a pre-retrofit evaluation by a Natural Resources	Not-for-profit agency

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				until the program close in March 31, 2012	Canada-certified energy advisor on or after January 1, 2009 An additional $100 rebate to all homeowners who complete a post-retrofit evaluation by a Natural Resources Canada-certified energy advisor on or after January 1, 2009	
			Insulation	Insulation rebate program available to all homeowners who perform qualifying insulation upgrades as identified in their home evaluation report (see above); Qualifying work includes ceiling insulation, exterior wall insulation, exposed floor insulation, basement header insulation and foundation insulation (inclusive of basement insulation and crawl space insulation)	Rebates up to $3,150[31]	Not-for-profit agency

[31] http://www.climatechangecentral.com/files/myrebates_documentation/Insulation/Insulation_Type.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			New Home construction	Rebate programs available for new residential EnerGuide labelled single-family or multi-family row home (excluding stacked multi-family construction) on or after January 1, 2009	Rebates:$1500 for new homes receiving an EnerGuide rating of 80 or 81; $3,000 for new homes receiving an EnerGuide rating of 82 to 85; or $10,000 for new homes that meet or exceed EnerGuide 86	Not-for-profit agency

Commercial Program

Light it Right is a commercial lighting incentive pilot program coordinated through Climate Change Central. The target audience for this program are: restaurants, retail, multi-unit residential, offices, hotels, warehouses and recreation centres. The purpose of the program is to replace existing lighting with high efficiency lighting and ballasts. Table 18 below describes the program in more detail.

Table 18 Climate Change Central commercial program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Alberta	Climate Change Central	Commercial	Light it Right	Available to five commercial building types including restaurants, retail buildings, multi-unit residential, offices/hotels and warehouses/recreation centres Participant books assessment on a first come, first served basis; cost of assessment is $250 half of which will be refunded when participant applies for rebate	Rebate[32]	Not-for-profit agency

[32] http://lightitright.ca/wp-content/uploads/2011/02/incentive_list-Feb2011.pdf

ATCO Electric

Residential Programs

ATCO Electric offers residential home assessments and blower door tests.

ATCO Electric also offers an education outreach program that is available for Grade 4 students, and a mobile energy conservation information centre for the general public. Table 19 below describes the program in more detail.

Table 19 ATCO Electric residential and educational outreach programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Alberta	ATCO Electric	Residential	Home Energy Assessment	Home energy assessment for residential homes. The initial home energy assessment costs $300 plus GST, and the follow-up evaluation costs $150 plus GST. If ATCO EnergySense is completing the follow-up evaluation but did NOT complete the initial home energy assessment, an additional $50 fee will apply.	A $100 rebate is available through Climate Change Central to offset the cost of the energy assessment. An additional $100 rebate is available through Climate Change Central to offset the cost of post-audit evaluation	Not-for-profit agency
			Blower Door Assessment	The blower door test is an option for residential customers who may be concerned with the air-tightness The blower door test costs $200 plus GST, and residents receive an extensive checklist of air-leakage problem areas and suggestions for applicable solutions	No funding	Utility
			Educational Outreach	ATCO EnergySense provides an educational outreach program		Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				for Grade 4 students and a mobile energy efficiency education program for all residents and businesses in Alberta		

Commercial Program

Facility energy assessments are provided through the *ATCO EnergySense* program for both natural gas and electric customers.

An initial determination of the cost of the assessment is made based on the type and size of facility and purpose of the assessment. Funding applications for commercial retrofits under the ecoENERGY Retrofit Incentive for Buildings, available through Natural Resources Canada (NRCan), have been discontinued as of January 22, 2011. NRCan is no longer accepting applications after this date and all projects must be completed by March 31, 2011 to receive the incentive. Table 20 below describes the program.

Table 20 ATCO Electric commercial program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Alberta	ATCO Electric	Commercial	Energy Assessments for Business	ATCO EnergySense provides a building energy audit including the examination of utility data and a final report which includes a written summary of the current building envelope, electrical, and mechanical equipment, and estimated cost and savings of implementation of energy efficient recommendations and projected payback period of retrofits; potential greenhouse gas emission reductions; detailed charts compiling current electrical and mechanical equipment; a breakdown of electricity and natural gas cost and consumption	NRCan funding under the ecoENERGY Retrofit Incentive program was discontinued January 22, 2011 The cost of the assessment is borne by the commercial customer	Utility

Government of Alberta

Transportation Program

The *Green Transit Incentives Program* (GreenTRIP) is a one-time capital funding program that will support public transit in Alberta. This $2B dollar fund is earmarked to provide $800M to the Capital region, $800M to Calgary and surrounding area and $400M to other Alberta municipalities. This program is intended to provide Albertans with a wider range of sustainable public transit alternatives which will help increase transit ridership, reduce traffic congestion and thereby reduce greenhouse gas emissions.

The program is available to owner/operators of public transit services, which may include municipalities, regional entities, non-profit organizations, Métis settlements and the private sector. Submissions for GreenTRIP funding must include a business case that describes the sustainability of the project.

Climate Change Central

Transportation Program

In Canada, transportation accounts for 30 per cent of total greenhouse gas (GHG) emissions. In Alberta, commercial freight accounts for about half of road transportation emissions and not surprisingly, diesel fuel use accounts for over 80 per cent of freight-related GHG emissions in the province. In total, freight transport in Alberta accounts for 16.6 megatonnes of GHG emissions each year.

The province has invested $2 million over 18 months to deliver rebates and education that will help maximize fleet performance. As part of the program, 25 companies will receive comprehensive fleet analysis, and four fuel-efficiency workshops will be offered throughout Alberta.

The *Trucks of Tomorrow* program is a Government of Alberta program; there is a memorandum of understanding between the two provincial transport departments for how the program is delivered by Climate Change Central (C3), an Alberta-based, not-for-profit organization. The program was designed based on input from trucking associations and other stakeholders for preferred technology types to include in the program. The equipment on the list is based on the US EPA's SmartWay program's list of verified equipment. There are six categories of equipment available under this program as outline in Table 21.

Table 21 Government of Alberta GreenTRIP program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Alberta	Provincial government	Transportation	GreenTRIP program	Green Transit Incentives Program is a one-time capital funding incentive program to support new and expanded public transit; the private sector can participate in public transit projects provided the transit services are financially sustainable without provincial operating subsidies; all projects must provide comprehensive business case substantiating the need and benefits of the project, outlining the sustainability of the project and demonstrating how benefits will be accomplished and verified Examples of capital projects include: light rail transit; inter-city commuter rail service; planning for and acquisition of transit or rail corridors; park and ride	2 billion budget fund; incentive funding paid on progress of the transit project[33] Applicant is required to contribute 1/3 of the total capital cost	Provincial government

[33] http://www.transportation.alberta.ca/Content/docType539/Production/GreenTRIP-FAQs.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				facilities; business terminals; purchase of public transit vehicles; implementation of transit intelligent transportation system components		
	Climate Change Central	Transportation	Trucks of Tomorrow	Provincial program helping commercial trucks reduce fuel use, greenhouse gas emissions and to save money in the process. Eligible participants include: an owner/operator or a manager of a fleet. Rebates are offered to companies up to a maximum of $30,000; to be eligible to participate in the program the applicant must have the legal authority to modify the trucks or trailers; represent an Alberta company that operates vehicles base-plated in Alberta with a gross vehicle weight of 7,258 Kg or greater and whose registration is valid as of the date of applications; fuel efficiency equipment must be	Rebate program for: hybrid drive trains $7000 available to 10 companies; Cab Heaters/Coolers $400 (one per truck); auxiliary power units $1,500 (one per truck); Gap Fairings $300 (one per trailer); Skirts $500 (one pair per rebate); End Fairings $400 (one per trailer); Fleet Analysis [34] reviews are available to 10	Not-for-profit agency

[34] http://www.trucksoftomorrow.com/documents/Fleet%20Analysis_Final.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				purchased and installed between June 1, 2010 and December 31, 2011; coolant heaters (hydronic heaters) must be installed in such a way that they bring heat into the cab when the engine is off	small, 10 medium and 5 large fleets on a first-come, first-served basis for a nominal fee of $200.	

Saskatchewan Energy Efficiency Programs

Legislation

As of the date of this report, there is no legislation directly related to energy efficiency and conservation. The *Power Corporation Act*[35] first passed in 1978 and most recently updated in 2011, is an act respecting SaskPower. Under the purposes and powers of SaskPower, it includes, " the promotion of, participation in or undertaking and carrying out of programs designed to encourage the prudent, judicious and economic use and conservation of electrical energy, steam and heat"[36] but does not include targets or budgets related to such programming. The *Oil & Gas Conservation Act, 2007*[37] primarily relates to the prevention of waste and the regulation of operations for the production of oil and gas.

Regulations

As of the date of this report, there are no regulations related to energy efficiency or conservation.

Directives

As of the date of this report, there are no directives related to energy efficiency or conservation.

Codes

In 2007, the Saskatchewan Premier, Industry and Resources Minister, and Environment Minister released The Saskatchewan Energy and Climate Change Plan.[38] One specific initiative included in the plan is to develop a performance standard of at least 30% greater than the Model National Energy Code for all new government buildings with significant energy consumption. The plan is further discussed below.

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[35] The Power Corporation Act. Available from: http://www.publications.gov.sk.ca/details.cfm?p=760. Accessed June 27, 2011.

[36] The Power Corporation Act. Page 7. Available from: http://www.publications.gov.sk.ca/details.cfm?p=760. Accessed June 27, 2011.

[37] Government of Saskatchewan website. Available from: http://www.publications.gov.sk.ca/details.cfm?p=745. Accessed June 27, 2011.

[38] The Saskatchewan Energy and Climate Change Plan. Available from: http://www.gov.sk.ca/news?newsId=78e66c74-c0a2-4041-813f-54e666cdf591. Accessed June 27, 2011.

Plans

The Saskatchewan Energy and Climate Change Plan[39] was designed to cut the province's greenhouse gas emissions by 32% by 2020 and 80% by 2050. The five areas covered under the plan are conservation and efficiency; carbon dioxide capture and storage in the oil and gas and electricity sectors; increased use of renewable energy, including wind, solar power, and hydrogen, and further development of ethanol and biodiesel resources; reduction of methane and other emissions in the oil and gas industry, and methane and nitrous oxide emissions in the agriculture industry; and creation of more natural carbon sinks in forests and soils.

The specific initiatives in the plan that are relevant to energy efficiency and conservation include:

- Making all of SaskPower's new and replacement electricity generation facilities either emissions-free or fully offset by emission credits;
- A conservation program to reduce SaskPower's electricity load by 300 MW by 2017;
- A 1.4 billion litre biofuels industry;
- A Government and Crown vehicle purchase policy that requires all vehicles to be hybrid-electric, alternative or flex fuel, or within the top 20% efficiency in their class; and
- Extension of the Saskatchewan EnerGuide for Houses Program and the Saskatchewan Home Energy Improvement Program to 2011.

In 2007, Saskatchewan also released its Green Strategy[40] aimed at promoting green, renewable energy and energy conservation, and supporting the reduction of greenhouse gas emissions across all sectors. The strategy includes a list of over 100 actions. In 2007-2008, the provincial budget for the implementation of the Green Strategy was $7.5 million; $4.9 million of this is for the Green Initiatives Fund, for the development, implementation, and promotion of environmental innovation. A variety of initiatives will be funded under The Green Energy and Energy Conservation portion of the Initiatives Fund, including:

- Farm Energy Audit Program ($400,000) - will provide farmers and ranchers with assistance in reviewing how they use energy and how they can reduce costs, improve efficiency and reduce their impacts on the environment.
- Energy Efficiency for Business, Communities, Agriculture and Non-Profit Organizations ($1.1 million) - financial

[39] The Saskatchewan Energy and Climate Change Plan. Available from: http://www.gov.sk.ca/news?newsId=78e66c74-c0a2-4041-813f-54e666cdf591. Accessed June 27, 2011.

[40] Saskatchewan Green Strategy. Available from: http://www.gov.sk.ca/news?newsId=57b440b5-31ff-402d-8a24-f243695e33ae. Accessed June 27, 2011.

incentives to assist with energy conservation projects and installation of renewable energy systems.

- Energy Efficiency Program for New Housing ($1 million) - will provide a grant to assist with the purchase of a new home built to the EnerGuide 80 standard, which includes ENERGY STAR® and R2000 homes. EnerGuide 80 homes are 30-40 per cent more efficient than those built to minimum code standards.
- Solar Water Heating Rebate ($300,000) - SaskEnergy will deliver an additional rebate of $500 - bringing the provincial rebate to a total of $1,500 - to homeowners who install a domestic solar water heating system. The rebate is part of the province's contribution to the EnerGuide program.
- Energy Efficiency in Saskatchewan's Provincial Parks - $400,000 will be provided to the provincial park system to incorporate innovative green technology into park facilities, showcasing green solutions for park visitors and reducing the greenhouse.
- Climate Change Education Challenge - Saskatchewan students and schools will participate in a challenge to take action to address the impacts of climate change for energy efficiency prizes.

Policies

As of the date of this report, there are no policies related to energy efficiency or conservation.

Programs

SaskPower and the Saskatchewan Resource Council (SRC) both deliver energy efficiency programs on behalf of the Government of Saskatchewan.

SaskPower , a provincial crown corporation has been delivering electric power to the Province of Saskatchewan since 1929. SaskPower, in conjunction with SaskEnergy, the provincial natural gas crown corporation, offer energy efficiency programs to the residents and businesses of Saskatchewan.

SRC is Saskatchewan's leading provider of applied R&D and technology commercialization. SRC was established in 1947 to advance the development of the province in the physical sciences. SRC has five business divisions including energy, from which they have developed energy efficiency and conservation programs for businesses in Saskatchewan. SRC delivers such initiatives under contract, and do not invest SRC dollars in programming.

Table 22 Key players for electricity efficiency and conservation for Saskatchewan

Name	Brief overview	Links
Ministry of Energy and Resources	• Provincial government • Development of Saskatchewan's energy, mineral and forestry resources • Emphasis on oil, gas and mineral resources	http://www.er.gov.sk.ca/
SaskPower	• Crown corporation • Governed by The Power Corporation Act • Offers electricity energy efficiency and conservation programs to its customers	http://www.saskpower.com/
Saskatchewan Research Council	• Established by the province • Province's leading provider of applied R&D and technology commercialization	http://www.src.sk.ca/index.cfm

SaskPower

Residential Programs

SaskPower offers four residential *eneraction* incentive programs including *the ENERGY STAR® Loan Program*, *the Energy Efficient Rebate for New Homes, Saskatchewan EnerGuide for Houses Program* and the *PST Exemption on Energy-Efficient Household Appliances,* two lighting exchange programs: *Light String Exchange and* the *Halogen Floor Lamp exchange,* and two recycling program: *Mercury Thermostat Recycling and Refrigerator Recycling Program*. Table 23 below describes the programs in more detail.

Table 23 SaskPower residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Saskatchewan	SaskPower	Residential	The ENERGY STAR® Loan Program	Loan program that covers the purchase and installation of an ENERGY STAR® qualified air conditioner with a SEER rating of 14.5 or higher, or a ventilation system	Loan prime + 2% offered through SaskEnergy Network members on approved credit; Maximum loan per customer is $15,000; term of loan is 5 years	Utility
			Energy Efficient Rebate for New Homes	Saskatchewan residents who purchase or build a newly constructed energy-efficient home after April 1, 2007 that is either ENERGY STAR® qualified, R-2000 certified or has an EnerGuide for New Homes rating of 80 or above	$1,000 for the purchase of a new home that is ENERGY STAR® qualified, R-2000 certified or has an EnerGuide for News Home rating of 80 or above	Utility
			Saskatchewan EnerGuide for Houses	Home energy assessment program offering rebates on eligible retrofit recommendations	The Province of Saskatchewan pays for one-half the cost of the	Provincial Government

[41] http://www.saskenergy.com/saving_energy/NEW%20grant%20chart%20(March%208%202011)-formatting%20&%20new%20date.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				Residential home owners and owners of low-rise multi-unit residential or mixed use commercial and residential buildings that are no more than three storeys high, and at least 50 percent of the floor space is residential are also eligible	pre-retrofit evaluation, up to $150 and one-half the cost of the post-retrofit evaluation, up to $100 See foot note for link to approved retrofits and rebate levels[41]	
			PST Exemption on ENERGY STAR® appliances	Point of purchase PST tax exemption of the purchase of ENERGY STAR® appliances and heating equipment including refrigerators, freezers, dishwashers, clothes washers, furnaces, boilers ground-source heat pumps and air-source heat pumps	Tax Exemption	Provincial Government
			Light String Exchange	Holiday program to replace regular incandescent bulb light strings with LED light strings		Utility
			Halogen	Partnership with retailers		Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Floor Lamp Exchange	around the province to offer Halogen Floor Lamp Exchange		
			Mercury Thermostat Recycling	Recycling program for the safe disposal of mercury thermostats		Utility
			Refrigerator Recycling Program	Recycling program of old, inefficient refrigerators		Utility

Commercial Programs

SaskPower offers five *eneraction* commercial programs including *Commercial Lighting Program, Commercial HVAC Program* in conjunction with SaskEnergy*, Energy Performance Contracting, Municipal Ice Rink Program,* and the *Parking Lot Controller Program*. Table 24 below provides program details.

Table 24 SaskPower commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Saskatchewan	SaskPower	Commercial	Commercial Lighting Incentive Program	Contractors receive discounted pricing incentives on verified qualified lighting installations	Discount pricing on qualified products from approved electrical supply distributors[42]	Utility
			Commercial HVAC Programs	SaskPower in conjunction with SaskEnergy offer financial incentives to small and medium sized businesses to retrofit their inefficient furnaces, boilers and roof top units to energy-efficient, ENERGY STAR® qualified equipment	Furnace incentives are: $500 for the first eligible furnace. Any subsequent purchase and installation of an eligible furnace at the same address/building will receive an incentive of $250; boiler incentives are: $600 for the first eligible boiler. Any subsequent purchase and installation of an eligible boiler at the same address/building will receive an incentive of $300	SaskPower and SaskEnergy

[42] http://www.saskpower.com/save_power/assets/verification_form.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					Rooftop unit incentives are: $600 for the first eligible rooftop unit. Any subsequent purchase and installation of an eligible rooftop unit at the same address/building will receive an incentive of $300	
			Municipal Ice Rink Program	Detailed energy usage reporting through an in-house monitoring and control system, which identifies the facility's operational inefficiencies in real time; retrofit assessment that identifies recommended improvements, which includes a detailed cost/benefit	This program does not provide any grants or financial incentives for equipment, but does provide assistance with the application for funding from existing provincial and federal energy efficiency initiatives	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				analysis		
			Parking Lot Controller Program	A parking lot controller regulates the electricity flow to the electrical outlet based on the outside temperature	Discount incentive paid to the contractor[43]	Utility
			Energy Performance Contracting	In partnership with Honeywell, SaskPower provides a comprehensive solution that includes: facility audits; project engineering and design; financing options and contract development; staff or operator training and equipment commissioning; measurement and verification of savings		Utility

[43] http://www.saskpower.com/save_power/assets/verification_form.pdf

Saskatchewan Research Council

The Saskatchewan Research Council (SRC) provides commercial programs to the businesses of Saskatchewan. These include the *Municipal Energy Conservation Program*, *Energy Efficient Lighting Program* and the *Energy Efficient Heating Program and Demand Side Management for Rinks*. Table 25 below provided program details.

SRC Commercial Programs

SRC has 3 commercial programs: Municipal Energy Conservation Program, Energy Efficient Lighting Program and Energy Efficient Heating Program.

Municipal Energy Conservation Program

The *Municipal Energy Conservation Program* is a comprehensive room by room inventory and audit of municipal buildings which analyzes all lighting and heating equipment, and pumps and motors. The detailed audit report outlines the current equipment installed, recommended upgrades and the associated energy and cost savings. Following completion of the report, an application for funding through SRC may be submitted if any of the recommended changes are made. The maximum amount of reimbursement available in any one fiscal year (April 1 to March 31) is $100,000 per municipality.

Energy Efficient Lighting Program

SRC will pay a one-time fee for the purchase of pre- and post-energy consumption utility records from the municipalities regarding the replacement of existing lighting systems with energy efficient lighting improvements as identified in the facility reports provided by SRC to the municipality. This fee is set at a maximum of 25% of the total project costs.

Energy Efficient Heating Program

SRC will pay a one-time fee for the purchase of pre- and post-energy consumption utility records from municipalities regarding the replacement of existing heating systems with energy efficient heating improvements as identified in the facility reports provided by SRC to the municipality. A heating recommendation report from SRC is required. Payments will be limited to a maximum of $1000 per furnace and up to $1200 per boiler and will apply to the following types of equipment:

- ENERGY STAR® qualified gas furnace that has 92.0% AFUE or better and an electronically commutated, DC variable speed fan motor;
- ENERGY STAR® qualified oil furnace that has an 85.0% AFUE or better and an electronically commutated, DC variable speed fan motor; or
- ENERGY STAR® qualified oil or gas boiler that has an 85% AFUE or better

Demand Side Management (DSM) for Rinks

SRC will pay a one-time fee of a maximum of 25% of the total project costs (equipment and labour) for the purchase of pre- and post-energy consumption utility records from municipalities and municipal organizations regarding the installation of the following equipment:

- Second pump, or two speed pump
- Variable speed drive for condenser
- Variable speed drive for brine pump
- Heat reclaim on the refrigerant gas to provide hot water for the flood water and possibly for the showers
- Occupied/unoccupied sensor to allow the ice temperature to increase by 2°C when the rink is unoccupied
- Rink ice temperature sensor so that the brine pump does not have to run continuously to provide a brine temperature
- Occupancy sensors in dressing rooms and referee rooms to control lighting
- Power factor correction
- 20% - premium efficiency motors (replace large horsepower motors with premium efficiency motors and resize pulleys to maintain proper rotational speed of the compressor)

Table 25 Saskatchewan Research Council commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Saskatchewan	Saskatchewan Research Council	Commercial	Municipal Energy Conservation Program	A room by room inventory of municipal buildings to analyze all lighting and heating equipment, pumps and motors; audit report provides recommended equipment upgrades and the associated energy and cost savings; funding for approved upgrades	The inventory and audit report are free. Funding upgrades is capped at $100,000 per municipality	
			Energy Efficient Lighting Program	One-time payment for the purchase of energy consumption data 18 months prior and 10 years following the installation of light retrofits	Payments limited to a maximum of 25% of project costs	
			Energy Efficient Heating Program	One-time payment for the purchase of energy consumption data 18 months prior and 10 years following the installation high efficiency furnaces	Payments limited to $1000 per furnace	
			Demand Side Management (DSM) for	One-time payment for the purchase of energy consumption data 18 months prior and 10 years following	Payments limited to a maximum of 25% of project	

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Rinks	the installation of specified equipment	costs	

Government of Saskatchewan

Transportation program

The transportation sector in Saskatchewan accounts for 15% of Saskatchewan's GHG emissions. The Saskatchewan government supports the following transportation conservation programs:

- CarPool.ca assists in the formation and management of carpools. It uses home & destination locations, driving route and other personal information to help commuters identify potential carpool partners. The system is fast, secure and simple to use.
- Regina Car Share Cooperative provides a convenient and affordable alternative to owning a car. Car sharing provides access to vehicles when needed, without the responsibilities that ownership can bring.
- The Saskatchewan Transportation Company (STC) provides passenger bus transportation and parcel express services throughout the Province of Saskatchewan. The STC offers a variety of programs to make bus travel both a convenient and affordable alternative form of transportation.
- City Bus Schedules provide city bus schedules in the local municipalities.
- The Saskatchewan Cycling Association provides information and advice on commuting by bicycle. The Association also links to local cycling clubs around Saskatchewan.
- Own Your Own Car? provides driving tips to save the driver gas and money, while reducing the driving GHG footprint.
- Buying a New Car? The provincial government developed the 'go green on the road' initiative in 2007 to encourage Saskatchewan residents to be more environmentally friendly. Owners of hybrid and fuel-efficient vehicles may be eligible for a rebate on their basic insurance premiums and registration fees.
- The Idle Free Zone program helps schools, health facilities, municipal offices, community and recreation centres and government offices to encourage staff, clients, and visitors to turn their vehicle engines off when not driving.

The Saskatchewan Government also offers the Go Green rebate, which lowers insurance bills by 20 per cent for fuel-efficient vehicles. Through the Saskatchewan Government Insurance (SGI), the province's self-sustaining auto insurance fund, the province is offering a 20% rebate on 2011 Auto Fund insurance and registration costs to owners of hybrid and qualifying fuel-efficient vehicles.

The rebate also applies to vehicles meeting Transport Canada's ecoAUTO thresholds for fuel efficiency, for model years 2006 and newer.

Table 26 Government of Saskatchewan transportation programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Saskatchewan	Provincial government	Transportation	2011 Green Rebate program	Saskatchewan General Insurance offers a rebate for the purchase of hybrids or qualifying fuel-efficient vehicles, The rebate applies to all hybrid vehicles, as well as vehicles meeting Transport Canada's ecoAUTO thresholds for fuel efficiency, for model years 2006 and newer. Owners of hybrid and qualifying fuel-efficient vehicles will receive a 20 per cent rebate on their 2010 Auto Fund insurance and registration costs.	Go Green rebate that lowers insurance bills by 20 per cent for fuel-efficient vehicles; average rebate of about $210 this year	Provincial government

Manitoba Energy Efficiency Programs

Legislation

Manitoba's current legislation on energy, *The Energy Act, 1994* has the following objectives: [44] to promote the development of energy resources, to ensure a reliable supply of energy to consumers at the least possible cost, and to promote the conservation and efficient use of energy. This Act outlines the duties, responsibilities and defines the mandate of the Ministry of Innovation, Energy, and Mines (MIEM). The MIEM is responsible for a suite of energy matters including: developing policies, plans and strategies and providing information and advice related to energy matters; forecasting the short- and long-term energy requirements of the province; and promoting and facilitating energy efficiency and conservation to producers, suppliers and consumers of energy. The department is required to prepare a report, "Energy in Manitoba," at least once every five years that includes a description of efficiency of use, current and emerging issues and trends related to energy, and forecasts of the short- and long-term energy requirements of the province.

The purpose of the *Climate Change and Emissions Reductions Act, 2008*[45] is to address climate change, to encourage and assist Manitobans in reducing emissions, to set targets for reducing emissions, and to promote sustainable economic development and energy security. This Act set an initial emissions reduction target of at least 6% less than Manitoba's total 1990 emissions, by December 31, 2012. This reduction is coupled with the statement that Manitoba Hydro, beginning in 2009, must not use coal to generate power, except to support emergency operations. This Act allows the Minister to establish or participate in programs to reduce emissions and instructs the Minister to prepare a report in 2010 and 2012 (and every 4th year after 2012) that, among other things, describes the government's policies, programs, incentives and measures for assisting in the reduction of emissions.

Regulations

Manitoba's Building Code is a regulation under *The Buildings and Mobile Homes Act, 2009*.[46] The building code is currently being amended to include energy efficiency updates.[47] The intent is to develop and implement minimum energy efficiency requirements for new buildings and houses, and new additions to and major renovations of existing buildings. The Office of the Fire Commissioner is responsible for the development of all building codes in the province and is hosting the consultation process. The Manitoba

44 Manitoba Energy Act 1994 available from http://web2.gov.mb.ca/laws/statutes/ccsm/e112e.php. Accessed March 30, 2011.

45 Climate Change and Emissions Reductions Act 2008 available from http://web2.gov.mb.ca/laws/statutes/ccsm/c135e.php. Accessed March 30, 2011.

46 The Buildings and Mobile Homes Act (2009) available from http://web2.gov.mb.ca/laws/statutes/ccsm/b093e.php. Accessed March 30, 2011.

47 Notice of consultations on amendments to Manitoba's Building Code available from http://www.gov.mb.ca/labour/ofc/codeconsultations/. Accessed March 30, 2011.

Energy Code Advisory Committee's report on the recommendations is available online;[48] one notable recommendation is the amendments requiring a level of building energy efficiency up to 25% better than the Model National Energy Code for Buildings, 1997 (see Green Building Policy, 2007, below).

As of the date of this report, there are no regulations related to electricity stemming from the Energy Act.

Directives

As of the date of this report, there are no directives related to energy efficiency and conservation.

Codes

The *Climate Change and Emissions Reductions Act, 2008* calls for the introduction of energy efficiency standards in the 2010 Manitoba Building Code. Until then, the province remains among the majority of Canadian provinces, which have no stipulated energy performance requirements in their building codes.[49]

Plans

The Province of Manitoba does not have an energy plan, or specific public policy regarding domestic energy needs, and conservation targets. Nor is there a new renewable portfolio standard or mandated objective for new sources of renewable energy production in the province.[50]

Policies

The government of Manitoba is responsible for product standards and overall policies related to energy efficiency. Manitoba does not have an overall energy efficiency policy, rather, the government department (MIEM) has sub-policies that apply to specific sectors (e.g. bio fuels).

Manitoba's Ministry of Infrastructure and Transportation has a Green Building Policy (2007).[51] The policy is designed to ensure that new, provincially-funded buildings are less costly to operate and maintain, use less energy, and produce fewer greenhouse gases and other emissions than conventional buildings. Building requirements include use of an integrated design process, minimum 33% better energy efficiency than the Model National Energy Code for Buildings,

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48 Recommendations for amendments to the Manitoba Building Code available from http://www.gov.mb.ca/labour/ofc/codeconsultations/recommendations.html. Accessed March 30, 2011.

49 Canadian Property Management. November 2008. Article available from: http://www.canadianapartmentmagazine.ca/Regulations/ManitobaCodetoIncludeEnergyEfficiency.aspx. Accessed June 24, 2011.

50 Manitoba Wildlands, a non-profit environmental and public research organization. Available from: http://www.manitobawildlands.org/develop_hydro.htm. Accessed June 28, 2011.

51 Green Building Policy available from http://www.gov.mb.ca/mit/greenbuilding/. Accessed March 30, 2011.

life-cycle costing of the building, minimum LEED Silver certification, and preference for low or zero carbon renewable energy source.

Programs

Manitoba Hydro is a crown corporation and the province's major energy utility. They offer a wide range of energy services and programs to their customers, either directly or through their subsidiaries. In addition to electricity, Manitoba Hydro is the major distributor of natural gas in the province, serving 532,00 electric customers and 264,000 natural gas customers.

Manitoba Hydro is the delivery agent for energy efficiency and conservation programs within the province.

Table 27 Key players for electricity efficiency and conservation for Manitoba

Name	Brief overview	Links
Ministry of Innovation, Energy, and Mines	• Provincial government • Energy policy is divided into sub-sectors (e.g. biofuels) • No overall energy policy	http://www.gov.mb.ca/stem/
Manitoba Hydro	• Crown corporation • Serves nearly all consumers in province • Electricity rates are set by the Manitoba Public Utilities Board • Operate in regulated DSM environment where DSM is expected by the regulator, DSM plans are prepared and DSM is funded through ratepayers	http://www.hydro.mb.ca/
Manitoba Public Utilities Board	• Utilities regulator • Regulates the rates charged by Manitoba Hydro, auto insurance, some gas and propane utilities and all water and sewer utilities outside Winnipeg	http://www.pub.gov.mb.ca/

Residential Programs

Manitoba Hydro has a variety of *Power Smart* savings, rebate and loan programs which address the needs of their residential customers as well as programs for First Nations communities and seniors over the age of 55. The programs include: *First Nations Program, Home Comfort and Energy Savings Program (Power Smart Residential Loan), Home Insulation Program, Power Smart Home Energy Evaluation, Lower Income Energy Efficiency Program, New Home Program, Water and Energy Savings Program, WISE (Wisdom in Saving Energy) Program* and an *Energy Finance Plan*.

Manitoba Hydro also offer two multi-unit family lighting efficiency programs: *CFL Program for Multi-Family Housing* and *Energy Efficient Lighting Program for Multi-Family Housing*. Table 28 below provides program details below for both sectors.

Table 28 Manitoba Hydro residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Manitoba	Manitoba Hydro	Residential	First Nations Program	Each First Nations community is matched with an energy efficiency specialist to select qualifying homes and recommend energy efficient measures Energy saving measures may include insulation and basic energy efficiency upgrades such as: compact fluorescent light bulbs; insulated pipe wrap; draft proofing; faucet aerators; low-flow showerheads Training for community members to do the upgrades is provided. Energy saving seminars can be arranged to provide community members with information on energy efficiency	N/A	Utility
			Home Comfort & Energy	The Power Smart Residential Loan covers the following energy	Annual interest rate is fixed at 4.9 per cent (O.A.C.) for the first 5	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Savings Program (Power Smart Residential Loan)	efficient upgrades: windows and doors; residential space heating equipment; Insulation; air leakage sealing; ventilation; lighting; residential water heating equipment; water conservation; upgrades must be made to levels recommended by utility; the loan does not apply to central air conditioning	years Applicants may borrow up to $7,500 per residence; up to $4,500 of that may be put toward the purchase of a high efficiency natural gas furnace The maximum term is 5 years for all energy efficiency upgrades and 15 years for the purchase of a high efficiency natural gas furnace	
			Home Insulation Program	Residential homeowners can apply to qualify for the insulation program rebates. Once the homeowner's initiative has been approved they can complete the installation and apply for the rebate	Rebates are available for adding insulation to meet Power Smart recommended levels: Attic insulation: $0.02 /R /square foot; Un-insulated wall cavities: $0.04 /R /square foot; Walls, re-siding: $0.10 /R /square foot;	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					Basement walls: $0.02 /R /square foot; Crawlspaces: $0.08 /R /square foot for walls; $0.06 /R /square foot for horizontal skirt requirement (note: both requirements must be met in order to qualify for a rebate)	
			Power Smart Home Energy Evaluation	Home evaluation services to assess most cost effective energy efficiency upgrades either through self-reporting or an on-site evaluation	Customer can purchase a mail-in energy assessment form for $19.95 +GST; complete a free on-line energy assessment; or have an on-site energy assessment for $180.00 +GST	Utility
			Lower Income Energy Efficiency Program	Qualifying homeowners will receive: free in-home energy efficiency review and basic energy saving items including low-flow showerheads and compact fluorescent lights; free	Free in home energy assessment and energy savings kit; free insulation upgrades; financing for high efficiency furnace	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				qualifying insulation upgrades based on audit recommendations; a new high efficiency natural gas furnace for only $19/month for a fixed term; to qualify residents must meet income thresholds[52]		
			New Home Program (ended February 28, 2011)	Application and house plans are submitted to Manitoba Hydro; Specific technical construction and appliance standards must be met in order to be eligible; certification fees are payable by the homeowner or builder	Gold level home can be eligible for customer incentive which is a voucher for up to $1,000 towards the purchase of a front-loading washing machine or a $600 rebate on a Manitoba Hydro energy bill. A 10 per cent rebate on Canada Mortgage and Housing Corporation mortgage loan insurance premium and eligibility to extend the amortization period with no additional mortgage insurance premium surcharge, and an	Utility

[52] Based on 125 per cent of Statistics Canada's Low Income Cut Off Thresholds for 2009.

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					EnerGuide for New Homes label	
			Water & Energy Savings	Power Smart Water and Energy Saver Kits that contain: 1–2 low-flow showerheads; 2 low-flow faucet aerators; 3 metres of water heater pipe wrap; Teflon tape; water heater temperature gauge and refrigerator/freezer thermometer; residents must apply for the energy savings kit	Free	Utility
			WISE (Wisdom in Saving Energy)	Winnipeg seniors who are 55+ receive a free in-home energy visit by a trained senior volunteer; the senior volunteer will collect information on insulation levels, furnace, water heater, lighting, and appliances; install compact fluorescent light bulbs, water-saver showerhead and aerators, as well as pipe and outlet insulation	Free	Utility
			Energy	A fixed interest finance	Minimum loan amount	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Finance Loan	plan that may be used for renovations including central air, mid-efficient natural gas/electric furnaces and water heaters, direct vent natural gas fireplaces, security lights and fixtures; upgrades to electrical service entrance and panel board equipment; wiring circuits and associated equipment	$500; maximum loan amount $5000; maximum term is 5 years and current interest rate is 8.5%; monthly loan payments are applied to energy bill	
			Multi-Family Housing Lighting Program	CFL Program for managers of apartment buildings, condominium complexes, personal care homes, First Nation housing or another type of multi-family housing complexes	Rebates: $1.00 per ENERGY STAR® qualified standard spiral compact fluorescent light bulb and $3.00 per ENERGY STAR® qualified specialty compact fluorescent light bulb installed	Utility
			Energy Efficient Lighting Program for Multi-Family Housing	Program available to managers of apartment buildings, condominium complexes, personal care homes, First Nation housing or another type of multi-family housing	Rebates for ENERGY STAR® qualified lighting fixtures including: Ceiling mount/$6.00 Wall mount/ $6.00 Suspended/$6.00 Chandelier/$6.00	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				complexes	Outdoor/$6.00 Ceiling fan with light /$6.00 Recessed/$6.00 T5 under cabinet / $6.00 Dimmer switch/ $10.00 LED night light/ $1.00	

Commercial Programs

Manitoba Hydro offers a variety of Power Smart programs including: *Commercial Building Envelope Program, Commercial Building Optimization Program, Commercial Clothes Washer Program, Commercial Custom Measures, Commercial HVAC Program, Commercial Kitchen Appliances Program, Commercial Lighting Program, Commercial Refrigeration Program, Commercial Network Energy Management Plan, Power Smart Energy Manager Program for Schools (PSEM), Power Smart Shops, Recreation Facilities, Religious Building Initiative,* and *Power Smart Design Standards*

The majority of commercial programs are described in detail in Table 29 below. The following programs will be described in more detail in the text because they have a level of complexity that require further description, than could be accommodated in the table.

Commercial Custom Measures

The *Commercial Custom Measures* program addresses energy efficient projects that are not part of an existing Power Smart commercial program.

The applicant is to read the Feasibility Study Agreement[53] which details the roles, responsibilities, incentives and incentive conditions. A review of the customer's proposed project will be conducted by utility staff to ensure the that the project contain eligible measures. Following this review and approval to proceed, the customer must complete the feasibility study assistance application.[54]

The utility must approve the feasibility study application before the feasibility study can take place. Financial assistance will not be provided if the feasibility study or project has started without utility approval. For qualifying feasibility studies, assistance up to 50 per cent of the first $5,000 and up to 25 per cent of the remaining portion, to a maximum incentive of $10,000 is provided.

A professional engineer or architect, who is registered to practice in Manitoba, must complete a feasibility study. The study estimates the cost, savings, and economics of incorporating the custom measure (including the combined and interactive costs and savings of the measure on all energy sources, water/sewer, maintenance and labour costs, etc.). Following completion of the study, the applicant must submit proof of full payment of the engineer's/architect's fee, after which the applicant will receive the feasibility study assistance cheque.

To apply for the incentive, the applicant must complete the *Commercial Custom Measures Program* application and agreement[55] and all supporting documentation and preliminary design drawings.

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[53] http://www.hydro.mb.ca/your_business/custom_measures/PF2956F_feas_agreement.pdf

[54] http://www.hydro.mb.ca/your_business/custom_measures/PF2956F_feas_study_app.pdf

[55] There is no on line link to the application form. If requested by NL, IndEco will follow up with Manitoba Hydro.

Installation of the project may start following approval of the incentive. Following completion of the project a final inspection and completion declaration must be completed. The completion declaration certifies that all the equipment for which a system installation incentive has been applied has been installed and is fully operational.

To receive final approval for the payment of the incentive the applicant must submit the following to the utility:

- completion declaration;
- completion questionnaire;
- copies of the paid project invoices;
- copy of certificate of approval (electrical inspection);
- copy of the natural gas installation permit;
- copy of occupancy certificate (not required for existing retrofits where one is not issued).

Available incentives include:

- Incentives for energy savings
  - $0.20/kWh saved – annual electric
  - $0.30/m3 saved – annual natural gas
- The maximum eligible incentive is $250,000 for all electrical measures, and $100,000 for all natural gas measures included in the project. The incentive is limited to 50% of the total project or the amount required to reach a one-year payback on incremental cost

Power Smart Energy Manager Program for Schools (PSEM)

The *Power Smart Energy Manager Program for Schools (PSEM)* provides information, training, and support for Manitoba school divisions to hire dedicated Energy Managers.

The school division will need an individual employed by the division, who is dedicated solely to the PSEM program. It is expected that a PSEM will reduce operating costs significantly enough to pay his or her salary, plus provide for additional savings that can be redirected to other areas. Also required as part of the program is the commitment and active support of senior administration to efficient energy usage and energy savings reporting to the utility.

The school division benefits by having an individual on-site dedicated to realizing and maintaining long-term dollar savings through the efficient use of all forms of energy, water and other resources.

Savings achieved in building operating budgets can be redirected to more specific education-related needs or reinvested in more energy efficient equipment. The PSEM will implement best practices including behavioural changes, system maintenance and reviews and cost-effective retrofit improvements to promote ongoing energy efficiency in the schools.

The utility will contribute an Energy Management Program implementation toolkit, technical training and ongoing support for the PSEM, support in establishing and maintaining an energy

accounting system to track resource consumption and costs, informational material for classroom use and salary financing at 6.5% over five years, with the option of no payments in the first year.[56]

[56] A New Buildings program is being introduced April 1st which will replace many of the existing component programs. This program will be included in the final version of the draft report for Part A, and those programs no longer available will be noted.

Table 29 Manitoba Hydro commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Manitoba	Manitoba Hydro	Commercial	Commercial Building Envelope Program	Incentives to encourage building owners to install energy efficient measures into their commercial buildings	For renovation projects: incentives for up to 75 per cent of the incremental cost of insulation upgrades and up to 80 per cent of the incremental cost of installing energy efficient windows[57]	Utility
			Commercial Building Optimization Program	Retro-commissioning program; typical projects can save up to 15 per cent of total building energy costs with a simple payback period averaging less than two years	Incentives [58]	Utility
			Commercial Clothes Washer Program	Installation of energy efficient clothes washers	An incentive of $180 per ENERGY STAR® qualified front-loading commercial clothes washer	Utility

[57] http://www.hydro.mb.ca/your_business/building_envelope/building_envelope_roof.pdf
http://www.hydro.mb.ca/your_business/building_envelope/building_envelope_windows.pdf

[58]http://www.hydro.mb.ca/your_business/building_optimization/building_optimization_info.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Commercial Custom Measures	Custom Measures program addresses energy efficient projects that are not part of an existing Power Smart commercial program	Minimum project electrical energy savings of 15,000 kWh or 7,500 m3 per year of natural gas savings; incentives for feasibility study 50% of the first $5,000 and 25% of the remaining portion up to a maximum of $10,000 Incentives for energy savings: $0.20/kWh saved – annual electric; $0.30/m3 saved – annual natural gas The maximum incentive is $250,000 for all electrical measures, and $100,000 for all natural gas measures; limited to 50 per cent of the total project or the amount required to	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					reach a one-year payback on incremental cost	
			Commercial HVAC Program	Replace existing inefficient equipment with high efficiency technologies	Financial incentives are available for boilers, chillers and CO2 sensors Incentive calculation for chillers: Integrated Part Load Value (IPLV) INCENTIVE = Baseline IPLV* (kW/ton) – the Chiller Efficiency IPLV (kW/ton) x Rated Tons x $450; $200/CO2 sensor	Utility
			Commercial Kitchen Appliances Program	Replace current, inefficient kitchen appliances with new high efficiency ones	Rebate of $2500 for electric steamers	Utility
			Commercial Lighting Program	Expertise and incentives to customers that install energy efficient lighting in new construction and	Incentives[59]	Utility

[59] http://www.hydro.mb.ca/your_business/lighting/information_sheets/incentives.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				renovation projects; Technologies include: T8 and T5 fluorescent lighting; compact fluorescent lighting; LED exit signs; metal halide lighting; high pressure sodium lighting; occupancy sensors; LED backlit signage; day lighting		
			Commercial Refrigeration Program for Retail Stores and Restaurants	Refrigeration equipment must be used in a commercial capacity	15 different incentives available[60]	Utility
			Commercial Network Energy Management Plan	Rebate program to install network management software; the software program shuts down computers when they are inactive	A rebate is available to cover 100 per cent of the cost of the eligible software program and installation costs up to a maximum of $15 per software licence	Utility
			Power Smart Energy Manager	Provides information, training, and support for school divisions to hire	The utility will provide: an Energy Management	Utility

[60] http://www.hydro.mb.ca/your_business/refrigeration/incentives.shtml

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Program for Schools (PSEM)	dedicated Energy Managers	Program implementation toolkit; technical training and ongoing support for the PSEM; support to establish and maintain an energy accounting system to track resource consumption and costs and informational material for classroom use Salary financing at 6.5% over five years, with the option of no payments in the first year	
			Power Smart Shops	Energy assessment for independently owned and operated restaurants, convenience stores, retail shops, or small offices	Free	Utility
			Recreation Facilities	Ice arena and curling rink operators can help reduce	Free	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				operating costs with the Facility Survey for Ice Arenas and Curling Rinks[61]; survey reviewed by Manitoba Hydro staff who provide an evaluation report which describes the potential energy saving measures		
			Religious Building Initiative - Low Interest Loan	Program offers an Energy Efficiency Guide for Religious Buildings[62] and a low interest loan for energy efficiency retrofits	Low-interest loans to assist with the cost of building assessments as well as the implementation of appropriate energy improvements. The loan is 8.5%; monthly payments are incorporated into the facility's electric or natural gas bill For facilities with energy bills of less than $10,000, the maximum loan is	Utility

[61] http://www.hydro.mb.ca/your_business/recreation_facilities/recreation_survey.pdf

[62] http://www.hydro.mb.ca/your_business/religious_buildings/religious_building.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					$15,000 per facility For facilities with energy exceeding $10,000, the maximum loan is $30,000 per facility	
			Design Standards	Design standards that new or renovated buildings must meet or exceed to be considered Power Smart. The standards take the form of Power Smart efficiency requirements, prescriptive measures by building type, eligible products and systems, and recommended good practice[63]	Free	Utility

[63] http://www.hydro.mb.ca/your_business/design_standards/design_standards.pdf

Industrial Programs

Manitoba Hydro offers a *Performance Optimization Program*, *Energy Efficiency Screening Studies* and two *Engineering Studies* which include *Eco-Efficiency Solutions Program and Lighting Studies*.

The *Energy Efficiency Screening Studies* and the *Lighting Studies* included the in *Engineering Studies* are described in Table 30 below. Program descriptions for the *Performance Optimization Program* and the *Eco-Efficiency Solutions Program* are described in more detail in the text below because they have a level of complexity that requires further description, than could be accommodated in the tables.

Performance Optimization Program

The *Performance Optimization Program* provides industrial and large commercial customers with the technical support and financial incentives that are necessary to identify, investigate and implement system efficiency improvements throughout a facility. The program promotes energy efficiency through the optimization of three phase electrical power end-use systems including compressed air, pumps and fans, industrial refrigeration, process heating, electro-chemical processes and plant-wide energy management systems.

Program forms and application can be found at the website listed below.[64]

The participation process includes a free facility walkthrough to identify potential efficiency improvements. Depending on the outcome of the walkthrough, the customer can then complete a feasibility study incentive application.

Upon approval, the customer can proceed with the feasibility study which includes upgrade recommendations and verification of savings potential. The study incentive is calculated as follows:

- 50% of initial $10,000 of feasibility study cost;
- 25% of remaining cost;
- to a maximum study incentive of $15,000.

Approval to proceed with the implementation is received from Manitoba Hydro and the project must be completed within 12 months of project approval.

Implementation incentives are calculated as follows:

- Energy - $ 0.10/kWh annual energy
- Demand - $200/kW winter demand; $200/kW summer demand
- Limited to 50% of total project cost; or the amount required to achieve a 1 year payback on incremental cost; or $250,000

[64] http://www.hydro.mb.ca/pop/forms_applications.shtml

Eco-Efficiency Solutions Program

The *Eco-Efficiency Solutions Program* provides a "walk-through" by an energy systems staff person from Manitoba Hydro to assess the project opportunities of the facility. The assessment takes into account the impact of prospective projects on saving energy while reducing water use and the generation of wastewater, greenhouse gases, and solid waste. Manitoba Hydro will provide a report highlighting the potential opportunities identified by the assessment.

The industrial customer, proceeding with implementation of the recommendations, and wishing to obtain additional support from Manitoba Hydro, will need to hire an engineering consultant to prepare a detailed assessment report. The report will identify the best projects to tackle in light of cost savings, pay back, and environmental benefits. An energy systems expert from Manitoba Hydro will review the consultant's report and discuss how to put the report's recommendations into effect. This expert will also work to identify and apply for any financial support that could be made available to help implement projects.

Table 30 Manitoba Hydro industrial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Manitoba	Manitoba Hydro	Industrial	Performance Optimization Program	Increased energy efficiency through the optimization of electro-technology processes and motor-drive systems; technical support and financial incentives are offered for feasibility studies as well as implementation	Feasibility study: 50% of the initial $10,000 of feasibility study cost & 25% of the remaining study cost to a maximum of $15,000 Incentives calculated as the lesser of the following: Energy $0.10/kWh annual energy Demand $200/kWh winter demand; $200/kW summer demand Limited to: 50% of total project cost; or the amount required to achieve a 1 year payback on incremental cost; or $250,000	Utility
			Energy Efficiency	Energy efficiency screening studies are offered to	Free	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Screening Studies	address overall energy efficiency potential and to identify specific electric and natural gas energy saving opportunities within an industrial facility.		
			Engineering Studies	*Eco-Efficiency Solutions Program* seeks to enhance the competitiveness of industrial sector while ensuring a high level of environmental quality[65] *Lighting Studies* provide essential lighting service and technical training. [66]	Free walk-through and applicable incentives based on the project	Utility

[65] http://www.hydro.mb.ca/your_business/eco_efficiency_solutions/how_it_works.shtml

[66] http://www.hydro.mb.ca/your_business/lighting_studies/index.shtml

Ontario Energy Efficiency Programs

Legislation

In Ontario there exists provincial legislation, *The Green Energy and Green Economy Act, 2009* (GEA),[67] May 2009, which created a framework for electricity efficiency and conservation in the province. The framework sets out the mandate of various government agencies as well as the mandate of the nearly 87 electric distribution utilities in the province regarding energy efficiency and conservation.

The Minister of Energy (MoE) is responsible for drafting legislation, regulations, and directives; setting government policy on energy; and ensuring that the electricity system is reliable, efficient, and secure. The GEA assigns additional responsibilities to the MoE. The MoE is to advise on energy and priorities for energy research, as well as oversee the effective coordination of all energy matters within government. The GEA authorizes the MoE to enter into agreements to promote energy conservation and energy efficiency. For promotions involving energy conservation programs, the expenses are paid for through allocations to be determined by the Ontario Energy Board based on its selection of classes for allocating the expenses. The objective of these programs can include: decreasing consumption of two or more fuels, switching fuels, decreasing electricity demand, funding research and development to further conservation or efficient fuel use, and targeting specific geographical, social, income, or other sectors.

The GEA sets out guiding principles for the government of Ontario in "constructing, acquiring, operating and managing government facilities."[68] These principles include reporting on energy use and greenhouse gas (GHG) emissions, ensuring energy efficiency in the planning and design of government facilities, and making environmentally and financially responsible investments in government facilities.

The GEA, through amendments to other legislation, requires the Environmental Commissioner to make annual reports on progress of activities in Ontario to reduce the use of or to make more efficient use of electricity, natural gas, propane, oil and transportation fuels. These reports will include:

- results of initiatives to reduce or make more efficient use of prescribed fuels;
- progress in meeting government-established targets for prescribed fuels; and
- barriers to implementation of conservation and efficiency of prescribed fuels, including those found in Ontario, federal

67 This act repeals the Energy Conservation Leadership Act, 2006, and the Energy Efficiency Act. Many of the provisions of these repealed statutes are re-enacted in this act.

68 Bill 150, The Green Energy and Green Economy Act, March 2009. p. i. Accessed from http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&BillID=2145 on March 14, 2011.

and municipal legislation, regulations and policies, as well as local by-laws.[69]

The GEA provides the Minister of Energy with additional authority to issue directions to the Ontario Power Authority (OPA). The Electricity Restructuring Act (2004)[70] established the OPA with a mandate to ensure the adequacy of Ontario's electricity supply over the long term. The OPA is a private, not for profit, wholly owned corporation of the Ontario government with a board of directors. The government exercises authority over the OPA through the appointment of the president of the corporation and through the statutory authority to issue directions to the OPA. The Electricity Act requires the OPA to obtain approval from the Ontario Energy Board for its fees and charges (essentially its overhead budget), but excludes approval of its conservation and demand management (CDM) programs and associated budgets. The only formal approval of OPA conservation/energy efficiency programs is through its board of directors. The OPA is also required by statute to prepare, every three years, an integrated power system plan, which is consistent with the government's required electricity supply mix, and to obtain Ontario Energy Board approval of the plan through a public hearing process.[71] Since the OPA was created, the provincial government has viewed the OPA as having the lead role in electricity energy efficiency and conservation programming, with, since 2007, the electricity distribution utilities playing a major role in delivering OPA province wide programs in their respective service territories through contractual arrangements with the OPA.

The OPA designs CDM programs for electricity distributors to deliver (OPA contracted province wide programs) as well as other programs that the OPA delivers through procurement contracts with other channel partners.

All OPA expenditures including those for conservation and energy efficiency programming come from the Global Adjustment Mechanism (GAM). The GAM is also called the "Provincial Benefit" and appears as a line item on the electricity bills of utility customers and direct connect customers—sometimes it is a charge, sometimes it is a credit. The GAM is the difference between the rates paid by Ontario governmental authorities (the OPA and the IESO) to regulated and contracted electricity generators and the spot market prices for electricity consumed in Ontario. If the amount paid by Ontario governmental authorities for the generation is higher than the market price for the electricity, customers are charged a "Provincial Benefit." If the amount paid by Ontario governmental authorities for the generation is lower than the market price for such electricity, customers are credited a "Provincial Benefit."

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69 The Environmental Commissioner of Ontario's blog. Accessed from http://www.eco.on.ca/blog/2010/02/18/the-ecos-new-role-in-energy-conservation/ on March 14, 2011.

70 The Electricity Restructuring Act. Accessed from http://www.e-laws.gov.on.ca/html/source/statutes/english/2004/elaws_src_s04023_e.htm on March 28, 2011.

71 To date the OPA has not obtained approval for any IPSP. The OPA expects to submit its IPSP for approval in the fall of 2011.

The amounts paid by the Ontario governmental authorities that are factored into the GAM include:

- Nuclear generation and certain hydroelectric generation operated by Ontario Power Generation (OPG),
- Non-utility generation contracts administered by the Ontario Electricity Financing Corporation,
- Generators and suppliers of conservation services contracted to the OPA, [72] and
- Board-Approved CDM programs approved by the Ontario Energy Board and delivered by electric utilities in their service territories.[73]

The GAM reduces the volatility of electricity prices, thus enabling the Ontario government to offer price certainty to new generation projects and to demand management projects. The OPA is responsible for the financial reporting of the GAM.

Regulations

As of the date of this report, there are no regulations specific to energy efficiency and conservation programming in Ontario.

Directives

The Minister of Energy sent a direction to the Ontario Energy Board on March 31, 2010 which directed the OEB to amend each electricity distributor's licence to add a condition requiring the distributor to achieve specific electricity peak demand and energy savings targets based on provincial targets set by the government. The distributors are to achieve these targets through the delivery of CDM programs over a four-year period (January 1, 2011 to December 31, 2014). The OEB established targets for each electricity distributor, such that the total for all distributors is equal to 1330 MW of provincial peak demand persisting at the end of the four-year period and 6000 GWh of reduced electricity consumption accumulated over the same period. These targets support the government's commitment to eliminate coal-fired generation by the end of 2014 and the government's commitment to conservation.

Codes

The Minister of Energy directed the OEB to issue a code (the CDM Code, September 2010) that includes rules relating to the reporting requirements and performance incentives associated with non-OPA distributor CDM programs and to the planning design, approval, implementation and the evaluation, measurement and verification (EM&V) of these programs (referred to as Board-Approved programs, as they require OEB approval).

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72 Ontario Power Authority website. http://www.powerauthority.on.ca/understanding-electricity-prices/opa-cash-flows-global-adjustment-mechanism-gam Accessed March 29, 2011.

73 Minister of Energy directive to the Ontario Energy Board. March 31, 2010.

The CDM Code makes it clear that the electric utilities are expected to deliver OPA province wide programs and then to develop and deliver complementary non-duplicative Board-Approved programs to meet the needs of their customers, if they are concerned that the OPA programs alone would not meet their targets by the end of 2014. Funds for these Board-Approved Programs are approved by the OEB, but come out of the Global Adjustment Mechanism, not distribution rates. The CDM Code provides a performance incentive for distributors to achieve their energy demand and savings targets: the incentive is triggered once 80% of each target is achieved, and then the targets are severed; the incentive is capped at 150% of each target.

The Minister's Directive to the OEB of March 2010 and the OEB itself, when it released the CDM Code, committed to keeping the electricity distributors whole so that they do not experience revenue losses due to CDM delivery. However, the OEB has yet to determine the specific lost revenue adjustment mechanism to be used, and has asked utilities to track losses, as they had done in the past (2005- 2010), under the previous lost revenue adjustment mechanism.

The OPA was directed by the Minister of Energy to design, deliver, and fund province wide CDM programs according to specific criteria.[74] The programs must be for residential, commercial and institutional (including agricultural and multifamily buildings) and industrial distribution system-connected consumers and target end-uses that are common within these consumer categories. These programs are delivered by the electric utilities, while the OPA must deliver CDM programs to the direct connect consumers. All CDM programs must be cost-effective at the program level[75]. The OPA, through the GAM, funds these programs and is responsible for EM&V of program results. In the master agreement that structures the agreement between the OPA and LDCs for the delivery of OPA's CDM programs by distributors, the OPA has created an incentive mechanism to encourage utilities to spend less than the budget allocation they receive from the OPA for program administration. This is to complement the performance incentive the utilities are eligible for under the CDM Code.

Plans

Ontario's energy planning is divided into short-term and long-term planning. The primary responsibility of the Independent Electricity System Operator (IESO) is the short-term, minute-to-minute energy planning. One of the main responsibilities of the Ontario Power Authority is long-term energy planning. In 2007 the OPA prepared a 20-year energy plan (the Integrated Power System Plan, IPSP), focused on creating a sustainable energy supply, targeted to improve current natural gas and renewable assets at a sustainable and realistic

74 Minister of Energy directive to Ontario Power Authority on April 23, 2010.

75 The OPA screens its CDM programs based on the Total Resource Cost Test and the Program Administrator Cost Test. The distributors, through the CDM Code, are required to apply the tests that the OPA uses.

cost. The IPSP adopted the government provincial conservation target of reducing demand by 6,300 MW by 2025.[76]

The Ministry of Energy updated the 2007 IPSP Plan with Ontario's Long-Term Energy Plan; Building Our Clean Energy Future.[77] This plan includes updated targets: 7,100 MW of conservation and reduction of overall demand by 28 TWh by 2030. The Plan cites conservation as the best and first resource for energy supply, and sets the supply mix for 2030 to include 14% of Ontario's generation coming from conservation. A detailed supply mix directive to the OPA to be used for its updated IPSP is expected in the near future.

Policies

The Ministry of Energy develops and advises on all aspects of energy policy for Ontario, including electricity, natural gas, oil and alternative energy. There are currently no specific policies in Ontario relating to electricity efficiency or conservation. Policy direction is included in directives and plans.

Guidelines

As of the date of this report, there are no provincial guidelines related to energy efficiency and conservation programming in Ontario. The OPA has released guidance documents that electricity distributors are required to use (which are CDM Code and Directive mandated): EM&V protocols, calculations related to cost-effectiveness tests, and input assumptions to be used for cost-effectiveness tests (unless the distributor can demonstrate that it has more accurate assumptions which should be used).

Programs

Two organizations within the Province of Ontario develop and deliver energy efficiency programs for the residential, commercial and industrial market sectors. They include the Ontario Power Authority and the Ontario Ministry of Energy.

Ontario Power Authority (OPA), created in 2004, is a private not for profit wholly owned corporation of the Ontario government. The OPA has the lead role in electricity energy efficiency and conservation programming. Since 2007, the electric distribution utilities have played a major role in delivering OPA province wide programs in their respective service territories.

The saveONenergy programs are offered through the local electric distribution utilities and funded through the Ontario Power Authority.

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76 The IPSP was filed with the OEB for approval but was withdrawn September, 2008, when then-Minister George Smitherman directed the OPA to review various aspects of the IPSP to improve conservation and renewable performance; the OEB proceeding was adjourned on October 2, 2008. The OPA was expected to re-file in March, 2009, but this did not happen.

77 Ontario's Long-Term Energy Plan; Building Our Clean Energy Future. Available from http://www.mei.gov.on.ca/en/energy/ Accessed March 28, 2011.

The Ontario Power Authority designed and delivered, through the local electric utilities, four electricity conservation programs from 2008-2010: The Great Refrigerator Roundup Program, Electricity Retrofit Incentive Program (ERIP), Power Savings Blitz (PSB), and Peaksaver. Electric utilities, through annually-reviewed contracts with the OPA, could choose to offer these programs in their service territories. The program budgets were set by the OPA and funded through the Global Adjustment Mechanism. These programs have been revised and expanded into the new suite of programs branded under saveONenergy, and consequently, historic OPA program information is no longer available. For the purposes of this report, the province-wide new program offerings available from the OPA have been included. For reference, The *Great Refrigerator Roundup Program* is now *Fridge and Freezer Pickup*, *ERIP* is now *Retrofit Program*, *Power Savings Blitz* is now *Small Business Lighting*, and the updated *Peaksaver* program has not yet been finalized (electric utilities can choose to extend Peaksaver contracts until the end of June, 2011).

The OPA also offers the *Conservation Fund* and the *Technology Development Fund*. Under development are programs that the OPA will offer through channel partners other than local electric distribution utilities.[78]

The *Conservation Fund*[79] provides support for new and innovative electricity conservation initiatives designed to enable Ontario's residents, businesses and institutions to cost-effectively reduce their demand for electricity. The results of these initiatives inform the development of new conservation initiatives. The Conservation Fund will consider supporting a maximum percentage of project costs. Applicant cash and in-kind contributions must therefore provide a minimum level of guaranteed leverage of OPA funds and in-kind contributions must be auditable. While other sources of funding can be used as leverage, duplicate funding of OPA-supported tasks is not permitted.

The *Technology Development Fund*[80] assists innovative energy technologies that will improve the supply and conservation of electricity - are in the pre-commercial stage - and require funding for development, demonstration or verification. Although the maximum funding contribution that will be made to each project depends on the particular funding stream, all funding streams requiring cost sharing by the applicant and their partners. In-kind contributions may also be considered as part of the project funding, provided that it is reasonable and auditable.

The Ontario Ministry of Energy (MoE) is responsible for development of the province's electricity generation and transmission system, and

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[78] At the time of writing, IndEco was aware of an OPA First Nations program under development

[79] http://www.powerauthority.on.ca/sites/default/files/page/Conservation%20Fund%20Guidelines%20-%20%202011_0.pdf

[80] http://www.powerauthority.on.ca/sites/default/files/page/Technology%20Development%20Fund%20Guidelines%20-%202011.pdf

is responsible for other energy-related facilities. A top priority for the OME is to ensure that Ontario's electricity needs are met in a sustainable manner by developing renewable energy sources and fostering a conservation-oriented culture.

Table 31 Key players for electricity efficiency and conservation for Ontario

Name	Brief overview	Links
Ministry of Energy (MoE)	• Provincial government • Objectives established by legislation (*Green Energy and Green Economy Act, 2009*) • Recommend priorities for energy efficiency/conservation, renewable energy, and infrastructure • Develop and encourage projects and programs related to energy efficiency/conservation, renewable energy • Directed OEB to establish CDM Code and set targets for electric utilities as condition of licence	http://www.mei.gov.on.ca/en/index.php Long-Term Energy Plan: http://www.mei.gov.on.ca/en/energy/
Ontario Energy Board (OEB)	• Independent, self-financing crown corporation • Regulator of electricity and natural gas sectors • Quasi-judicial body, makes independent decisions that can be overturned in court on points of law • Established the CDM Code which establishes the rules for Board-Approved Programs • Approves electric utility Board-Approved programs and budgets	http://www.ontarioenergyboard.ca/OEB/ CDM Code: http://www.oeb.gov.on.ca/OEB/Industry/Regulatory+Proceedings/Policy+Initiatives+and+Consultations/Conservation+and+Demand+Management+%28CDM%29/CDM+Code
Ontario Power Authority (OPA)	• Established by *The Electricity Restructuring Act, 2004* • Funded by Global Adjustment Mechanism • Responsible for long-term electricity planning • Designs electricity conservation programs—implemented by OPA and electric utilities through contractual arrangements • Designs and implements other energy efficiency /conservation programs through other delivery channels through contractual arrangements	http://www.powerauthority.on.ca/
Independent Electricity System	• Not-for-profit corporate entity established in 1998 by the Electricity Act of Ontario	http://www.ieso.ca/

Name	Brief overview	Links
Operator (IESO)	• Responsible for short-term, minute-to-minute electricity planning; forecasts demand every 5 minutes and collects best offers from generators	
Environmental Commissioner of Ontario (ECO)	• Appointed by the Legislative Assembly • Ontario's independent environmental watchdog • Monitors and reports on compliance with the *Environmental Bill of Rights, 1993* and the government's success in reducing GHGs and achieving greater energy conservation (e.g. reviews OPA program evaluations)	http://www.eco.on.ca/eng/
Electric utilities	• Responsible for delivery of OPA contracted province wide programs in their service territories and for designing, gaining OEB approval and then implementing Board-Approved programs that complement OPA programs • Must meet the energy and peak demand savings targets to fulfill their licence requirements	

Residential Programs

The OPA, through program delivery by the local electric utilities, offers the *Heating and Cooling Incentive Program, Home Energy Assessment Tool, Fridge and Freezer Pickup, a COUPONS program* and a *Residential New Construction Program and Peaksaver*. Table 32 below describes the programs in more detail.

Table 32 Ontario Power Authority residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Ontario	Ontario Power Authority	Residential	Heating and Cooling incentive	Incentive program to replace existing heating and cooling equipment with new high efficiency furnaces with electronically commutated motors (ECM) and ENERGY STAR® qualified high efficiency air conditioners with SEER ratings of 14.5 or higher and EER ratings of 12 or higher	Rebate program includes $250 for the installation of a high efficiency furnace with an ECM motor; $250 for a high efficiency air conditioner with a SEER rating of 14.5 or an EER rating of 12; $400 for a high efficiency air conditioner with an SEER rating of 15 and EER rating of 12.5	Global adjustment mechanism
			Home Energy Assessment Tool	Online tool allows residents to complete a virtual energy assessment of their home by	Free tool	Global adjustment mechanism

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				entering key home characteristics; can select option to provide either a simple or more detailed assessment		
			Fridge and Freezer Pickup	Any utility customer with qualifying fridges and freezers—those that are 15 years or older between 10-27 ft^3, non-ammonia based, and in working order—can have them picked-up for free; customers can also have window air conditioners and dehumidifiers that are 10 years or older and in working order removed from their premises	Free pick-up and decommissioning/recycling	Global adjustment mechanism

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			COUPONS	Direct mail of coupons that include discounts for: Lighting control products, ENERGY STAR® qualified speciality CFLs; ENERGY STAR® qualified standard spiral CFLs, power bars with integrated shutoff/timer, ENERGY STAR® qualified light fixtures, ENERGY STAR® qualified ceiling fans. Programmable thermostats for electric baseboard heaters, weatherstripping, heavy duty outdoor time, outdoor umbrella stands or clothes	Discount coupons	Global adjustment mechanism

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				line kits, insulation blankets for electric water heaters, pipe wrap for hot water pipes		
			New Home Construction	Incentives are available to home builders and renovators for the installation of energy-efficient measures in the home, as follows: prescriptive, performance based, and custom	Incentives include: all off switch $50/measure; ENERGY STAR® qualified central air conditioner[81] $30; high efficiency furnace[82] $50; lighting control products (timers, senses, switches) $3/measure; ENERGY STAR® qualified niche lighting products $15/per measure; ENERGY STAR® Qualified indoor light fixtures (hard-wired) 1 or 2 socket fixture $3/measure; 3 or more $10/measure; The total obtainable for each prescriptive measure is capped at 50% of the	Global adjustment mechanism

[81] Minimum 15 SEER and 12.5 EER as identified by the OPA**

[82] High efficiency as identified by the OPA***

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					actual cost Performance based incentives include: a new home that achieves an EnerGuide 83 or 84 performance rating is eligible for $500; a new home that achieves an EnerGuide 85 or better performance rating is eligible for $1,000 Custom incentives are the greater of $800/kW for First Year Demand Savings, or $0.10/kWh for First Year Energy Savings. The total dollars available for custom measure incentives are capped at 50% of the total project cost	
			Peaksaver	Demand response program for central air conditioners (CACs); residential and	$25 for signing up	Global adjustment mechanism

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				small business customers (<50kW) who sign-up to have a device installed on their central air conditioner; during peak demand events, the CACs are cycled-down 1-2 degrees for a maximum of 4 hours during weekdays; events do not occur on weekends or holidays		

Commercial Programs

The commercial portfolio of programs available to business include *Small Business Lighting, Direct Service Space Cooling, Retrofit Program, Building Commissioning, High Performance New Construction, Audit Funding*.

Small Business Lighting

The *Small Business Lighting program* provides qualifying businesses up to $1,000 worth of free energy-efficient lighting and equipment upgrades. The program offers a free lighting assessment and installation of new energy-efficient lighting and equipment otherwise known as a retrofit (including the cost of materials and labour). The assessment also identifies savings opportunities beyond the $1000 worth of free lighting upgrades and the customer has the option to proceed with the additional lighting measures at the time that the free measures are being installed, but the customer must pay in full for the lighting upgrades beyond the $1000 limit. An appointment will be made for a licensed electrical contractor to come and complete the retrofit.

Businesses eligible for the program must have an electricity demand of less than 50 kW. Examples of the business types include: clothing stores, independent restaurants, dry cleaners, medical offices, beauty salons, convenience stores, garages and other small retailers.

Direct Service Space Cooling

The *Direct Service Space Cooling program* provides free servicing of air conditioning systems and refrigeration units up to $750 per facility. Servicing for air conditioning units includes: cleaning condenser coils, inspecting and cleaning filters, lubrication, checking refrigerant piping and charge levels, refilling as necessary. Servicing for refrigeration units includes: coil cleaning and lubrication.

Businesses eligible for the program include non-residential customers with a qualifying air conditioning system and who have not contracted for or received any servicing over the past year.

Demand Response

The *Demand Response program* provide incentives to businesses for reducing electricity usage during peak demand events. Demand Response can be met by temporarily turning off lights, air conditioning, motors, or other equipment, shifting production to non-peak periods, or drawing electricity supply from an onsite generator (some limitations apply).

The program participant can set the maximum kW of Demand Response they can provide up to a maximum of 200 hours per year.

Two programs are offered: a voluntary program and a contractual program. The average incentive under the voluntary program is $20k per year and $110k per year with the contractual program.

Under the voluntary program, the program participant will receive activation notices and can choose whether to participate.

With the contractual program, the program participant must meet mandatory demand reduction when a activation notice is received. Eligible program participants include non-residential customers with facility peak demand >50 kW who have an interval meter providing hourly data.

Participants must be available approximately 1,600 hours/year and must have selected to participate in one of two of the pre-defined schedules: : from 12 p.m. to 9 p.m. on business days, or from 4 p.m. to 9 p.m. on business days for all non-summer months, and from 12 p.m. to 6 p.m. on business days for all summer months.

Retrofit Program

The *Retrofit program* provides financial incentives to replace existing equipment with high efficiency equipment and to install new control systems that will improve the efficiency of operational procedures and processes. Businesses can choose from three program tracks based on their need. These tracks include: Prescriptive track, engineered track or custom track.

Prescriptive track

The Prescriptive track provides a defined list of end-use measures that come with a corresponding per-unit incentive. Small projects must be worth a minimum prescriptive incentive of a $100.

Prescriptive measure worksheets and incentive values can be found on the saveONenergy website.[83]

Engineered track

The engineered track consists of a series of preset calculation worksheets that help estimate reductions in peak demand and/or electricity consumption that apply to the installation of more energy-efficient equipment or solutions. Based on the reductions in peak demand and/or electricity consumption, the worksheet will calculate the incentive amount. The following engineered worksheets are available online or from the local electric utility[84]:

- Commercial Interior Lighting Engineering Worksheet
- Commercial High Bay Lighting Engineering Worksheet
- Commercial Directional Lighting Engineering Worksheet
- Unitary A/C Engineering Worksheet (i.e. rooftop units and split systems)
- Variable Speed Drive on Fan Engineering Worksheet
- Variable Speed Drive on Pump Engineering Worksheet
- Compressed Air Engineering Worksheet

[83] https://saveonenergy.ca/Business/Program-Overviews/Retrofit-for-Commercial/Relevant-Documents.aspx

[84] https://saveonenergy.ca/Business/Program-Overviews/Retrofit-for-Commercial/Relevant-Documents.aspx

For the engineered track, the project must have an estimated demand reduction of 1 kW or first-year annual energy savings of 2,000 kWh. Projects must deliver energy savings for at least 48 months.

The incentives for the engineered track include:

- Lighting per unit incentives
  - The greater of either, $400/kW of demand savings or
  - $0.05/kWh of first year electricity savings (to a maximum of 50% of project costs
- Non-lighting including lighting controls per unit incentive
  - The greater of either, $800/kW or $0.10/kWh of first year electricity savings (to a maximum of 50% of project costs)

Custom track

The custom track is available for more complex or innovative solutions not covered in the prescriptive or engineered track, and not on the pre-defined list. Technology, equipment and system improvements are evaluated on their demand and energy-performance. Incentives are paid after installation, and once the savings have been measured and verified.

The incentives are based on the information specific to the project, including:

- A description of the facility baseline electricity use
- A description of the equipment being replaced
- A description of the new equipment
- Disposal costs of old equipment
- The operating schedule (days per week, hours per day, time of day)
- The cost of the new equipment

For the custom track, the project must have an estimated demand reduction of 1 kW or first-year annual energy savings of 2,000 kWh. Projects must deliver energy savings for at least 48 months.

Individual measure worksheet and incentive values can be found on this website link.[85]

The *Retrofit Program* for Commercial or Institutional Facilities is open to owners or lessees[86] of:

- Commercial spaces or buildings, such as offices, retail and grocery stores, restaurants, hotels and warehouses
- Institutional buildings, including hospitals, universities, municipal halls and arenas
- Multi-family buildings, such as apartments (including low income and social housing) or condominiums
- Agricultural facilities, including dairy, swine or poultry farms, greenhouses and nurseries

[85] https://saveonenergy.ca/Business/Program-Overviews/Retrofit-for-Commercial/Relevant-Documents.aspx

[86] Lessees must have the owner's consent or authorization

- Building Commissioning
- The *Building Commissioning program* offers incentives to hire a Commissioning Agent to conduct a four-stage optimization of existing chilled water systems (chillers). The program includes incentives for:
- Scoping study incentive: up to $2,500
- Investigation incentive: up to $30,000
- Implementation incentive: up to $5,000 plus up to 50% of purchasing and installing equipment costs
- Hand-off/completion incentive: up to $2,500
- Eligible program participants include commercial and institutional customers who have a water chiller and meet eligibility criteria

High Performance New Construction

The *High Performance New Construction* program rewards builders and their project decision-makers with incentives for offsetting the cost of energy-efficiency measures, achieving lower long-term operating costs, greatly improved marketability and enhanced occupant comfort.

The *High Performance New Construction* program supports up to 100% of the cost of modelling a building (up to $10,000) for the building owner. Approved projects are eligible for incentives in one of two program approaches – a prescriptive component, which encourages incorporation of pre-approved technologies and a custom component with incentives based on modelled energy performance.

Prescriptive

Incentives are based on standard efficiency measures calculated using worksheets for Lighting, Motors, Unitary A/C, Agribusiness, and alternative measures for Space Cooling and Multi-Residential In-Suite Appliances. Building owners will receive up to $250 for every kilowatt saved and up to $60 per appliance.

Custom

Incentives are based on assumed energy and demand savings from modelling software results, used to determine the best energy-efficiency measures to incorporate in a new building or major renovation.

Incentives include:

- Building owners:
  - Up to 25% above Code: $250 for every verified kilowatt saved
  - Between 25% to 50% above Code: $300 for every verified kilowatt saved
  - Greater than 50% above Code: $400 for every verified kilowatt saved
  - Note: a Custom project must be eligible for a minimum of $5,000 in incentives

- Design decision-maker (Architects, Engineers, Consultants, etc.)
  - Greater than 25% above Code: $50 for every verified kilowatt saved
  - Greater than 50% above Code: $100 for every verified kilowatt saved

Eligible new buildings and major renovation projects in office buildings, industrial buildings, retail spaces, multi-residential buildings, housing complexes, colleges, universities, schools, hospitals, long-term care facilities, hotels and motels can participate. Agricultural building projects are also encouraged to apply.

To qualify, the projects must comply with Part 3 of the Ontario Building Code (OBC), and be intended for commercial, institutional, industrial or multi-residential occupancy. Single-family dwellings are not eligible.

Business customers are eligible for incentives to complete energy audits assessing the potential for energy savings to be achieved through equipment replacement projects, operational practices, or participation in demand response initiatives and other building systems and envelopes.

Audit Funding

The *Audit Funding* incentive covers up to 50% of the cost of an energy audit, based on requirements that take into account the size and complexity of the buildings. A comprehensive evaluation of the building's energy performance will determine opportunities for improvement.

Incentives, which are up to $25,000 for this initiative are as follows for eligible building owners:

For eligible building owners:

- Electricity survey and analysis
  - For buildings up to 30,000 sq. ft., $0.10 per sq. ft. up to a maximum of 50% of Electricity and Survey analysis costs, whichever is less
  - For buildings larger than 30,000 sq. ft., $3,000 for the first 30,000 square feet and $0.05 per sq. ft. for each incremental sq. ft. up to a maximum of 50% of Electricity and Survey Analysis costs or up to $25,000, whichever is less
- Detailed analysis of capital intensive modifications
  - For buildings with greater than 50,000 sq. ft., $ 0.05 per sq. ft. up to a maximum of 50% of Detailed analysis of capital intensive modifications costs or up to an additional $10,000, whichever is less

Incentives for eligible tenants are:

- Electricity survey and analysis for buildings with less than 50,000 sq ft.

- The incentive pays for audits of lighting, office equipment and plug loads
- The incentive is $0.03 per sq. ft. up to a maximum of 50% of the Electricity survey and analysis for an eligible tenant costs or up to $7,500, whichever is less

Social and Assisted Housing Programs

Social and assisted housing providers can also take advantage of financial incentives under the *Commercial Program* to make assisted and social housing buildings more energy-efficient. These incentives can be used to undertake energy audits to identify potential energy savings opportunities, and make upgrades to equipment. Resources are also offered to help tenants adopt energy-saving habits. Building operator training is also available to assist on-site staff with the ongoing maintenance of building equipment.

The project can receive financial incentives from only one program funded by the OPA. The OPA - funded portion of projects cannot be included in any rent increase application.

The program includes the following eligible building types:

- Public and municipal housing located in the Province of Ontario
- Supportive housing and shelters
- Non-profits
- Cooperatives and affordable housing
- Buildings containing six or more residential dwelling units, defined as self-contained living spaces for one household with private kitchen, bathroom and bedroom(s)
- Buildings that receive electricity from a licensed Ontario local electric utility supplied by the Ontario electricity system

Owners or authorized representatives of an existing Ontario multi-family residential building are also eligible to apply. Buildings zoned as mixed-use (multi-residential and commercial space) are also eligible.

For social and assisted housing (excludes private multi-unit buildings), there is a top of commercial incentives to 50% of the actual eligible costs, up to a maximum of 55% of estimated eligible costs less the participant incentives that would otherwise be payable.

Energy Savings

The *Audit Funding* as described under the *Commercial Programs* provides financial incentives to conduct a comprehensive building audit to determine the best energy-saving opportunities, including less-than-efficient equipment. The audit report will identify the equipment upgrades that can save energy, and estimate the energy-savings potential and budget cost.

The *Retrofit Project* programs will provide funding based on the number of each equipment type or “measure” that is to be replaced, and the amount of electricity that will be saved.

As described in the *Commercial Programs* section, retrofits can fall into three tracks – Prescriptive, Engineered or Custom.

Prescriptive measures

In the *prescriptive measures* track, the incentive is already defined in incentive dollars-per-item installed. Eligible prescriptive measures include:

- Interior and exterior lighting in common areas
- Exit signs
- Occupancy sensors
- Hot water systems (including solar)
- Ground source heat pumps
- Non-electric chillers
- ENERGY STAR® appliances

Engineered and custom tracks

As outlined under the Commercial Programs, incentives for custom and engineered measures incentives are calculated based on the actual energy savings in kilowatt-hours (kWh) that will result from installing a particular measure. An energy audit of the building must first be completed. The application form includes worksheets to calculate the savings and the eligible incentives. The amount of the incentive is calculated based on improved energy performance. The incentive for projects in the engineered and custom tracks is 5 cents per kWh and/or $400 per kW peak reduction for lighting measures; and 10 cents per kWh and/or $800 per kW peak demand reduction for all other measures.

Eligible engineered and custom measures include:

- Lighting redesigns in common areas
- HVAC retrofits or overhauls (chillers)
- Building envelope upgrades
- Building automation controls
- Variable speed drives and more
- Resident education

Residents can have a significant impact on reducing energy consumption in assisted and social housing buildings. The *Social and Assisted Housing* program offers funding of $200/kW, calculated based on saving from building upgrades to support tenant education. A resident education kit will be provided following application approval and the start of the project.

Training

Building operator training to support improved operation of the heating, mechanical and electrical systems is be available to building operators, managers and maintenance staff. This training will provide staff with an in-depth look at the best ways to manage the facility, and best practices in energy efficiency and conservation opportunities.

Table 33 Ontario Power Authority commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Ontario	Ontario Power Authority	Commercial	Commercial	The Commercial program is available to small and large commercial buildings; small and large retail; multi-family residential buildings including condominiums; warehouses Small commercial and small retail businesses are eligible for the Small Business Lighting Program, Direct Service Installation, Demand response and Retrofit program; Large commercial and large retail businesses and warehouses are eligible for the Retrofit, High Performance New Construction and	Incentives levels vary by program, and by program track, and by eligible participant. Please see the detailed incentive information in the section above	Global adjustment mechanism

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				Audit funding programs; Multi-family/condominium projects are eligible for the Retrofit, High Performance New Construction and Audit Funding programs; Please see the detailed incentive information in the section above		
			Social and Assisted Housing	Leveraging the Audit Fund and Retrofit Project initiative, social and assisted housing can take advantage of funding for building audits and retrofit incentives available; in addition to the audit fund and available incentives, social and assisted housing can receive	Audit funding and incentives[87] Assisted and social housing buildings are eligible for advanced funding of as much as 50% of the estimated participant incentives for equipment	Global adjustment mechanism

[87] See page xxx of Commercial Programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				funding for resident education. Building operator training is also available for building maintenance staff	replacement projects	
			Existing Building Commissioning	Buildings with a chiller hire a commissioning agent to undertake a chiller optimization project following pre-defined stages: Scoping Study, Investigation Phase, Implementation Phase, Hand-off/Completion Phase. Incentives are available for each stage and the customer must complete all four stages	Scoping Study incentives are the lesser of the amount paid to commissioning agent to prepare report and $2,500 Investigation Phase incentives are $24 per ton of cooling of the chilled water system up to a maximum of $30,000 Implementation Phase incentives are the lesser of the amount paid to	Global adjustment mechanism

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					the commissioning agent to prepare implementation report and $5,000 Hand off/Completion Phase incentives are the lesser of the amount paid to the commissioning agent to prepare the report and $2,500	

Industrial Programs

The industrial *saveONenergy* programs are set to target seven specific subsectors: iron and steel, pulp and paper, petroleum, mining, automotive, cement and non-metallic metals, and food and beverage.

The programs available to these subsectors are the same as the commercial programs: *Retrofit, High Performance New Construction* and *Audit Funding* with the same incentive values. Please refer to the commercial program description for these program details.

A new program available to industrial customers is the *Process and Systems Upgrade Program*. The program is designed to provide funding and technical expertise to help industries investigate and assess energy saving opportunities and modernize key systems not only for energy efficiency but also for enhanced productivity, product quality, and reliability.

The program contains the following initiatives:

- Energy Efficiency Upgrades including:
  - Preliminary Engineering Study
  - Detailed Engineering Study
  - Project Incentives
- Energy Management and Monitoring including:
  - Energy Manager
  - Key Account Manager
  - Monitoring and Targeting
  - Metering and Instrumentation Library

Energy Efficiency Upgrades

A *Preliminary engineering study is* a general assessment of a key process or single system comparing the cost-effectiveness of various upgrades. Funding of up to $10,000 per study is available.

Detailed engineering studies provide in-depth technical and financial information needed to build a solid business case for the energy efficiency project. Funding of up to $50,000 per study is available.

The program allows capital incentives for projects that are designed to improve the payback rate of efficiency projects, making them competitive with other capital projects that will yield greater a than 100 MWh in annual savings. The incentive is based on forecasted electricity savings as well as capital project costs, using the lowest of:

- $200 per MWh for annualized electricity savings, or
- 70% of the eligible project costs, or
- Achieving a one-year simple payback

Participants can apply using one of two approaches to receiving incentives:

- Advanced incentive payment option: Payments are made during construction and must be supported by a letter of credit from the participant
- Deferred incentive payment option: Payments are made after measurement and verification tests have proven the existence of forecasted energy savings.

Energy Management and Monitoring

Energy Manager

An on-site energy manager is able to take control of energy costs by monitoring energy usage and expenditures, leading employee awareness programs, and by leading large energy efficiency upgrade projects.

An embedded Energy Manager can be funded based upon the following criteria:

- Funding up to 80% of the embedded energy manager's actual annual salary to a maximum amount plus up to 80% of actual reasonable expenses to a maximum amount per year;
- Embedded Energy Manager and implement 0.3MW of peak demand savings and 0.3MW x Facility Load Factor x 8,760 hours in energy savings each year. Of this, 33% of savings must be achieved without third party incentives;
- Must be hired by the company;
- Must enrol in energy management-related training programs;
- Must develop an energy management plan and provide quarterly reporting;
- Must commit to implementing projects with a less than one year payback.

If a full time energy manager is not required, the program can provide energy management expertise for a short term at a customer facility. These energy managers may be employed by a local electric utility and are available for *Process and Systems Program* potential participants for a defined period of time to start identifying opportunities, develop energy-management plans and completing incentive applications.

Key Account Manager

The role of the Key Account Manager (KAM) is to support the electric utility in fulfilling their obligations related to all of the industrial program initiatives. The KAM is considered to be a key element in assisting industrial customers in overcoming traditional barriers related to energy management and help them achieve savings, since the KAM can build relationships and become a significant resource of knowledge for customers.

A KAM may be part-time—has at least five but less than ten distribution customers each having at least 5 MW of annual peak demand, or full-time—has ten distribution customers each having at least 5 MW of annual peak demand. KAMs and can work on behalf of

one or more electric utilities. KAMs are funded by the OPA. The OPA will pay an electric utility up to $150,000 (inclusive of salary, wages and benefits, etc) for a full-time KAM. If the KAM is part-time, the funding payment will be based on the number of distribution customers the KAM is serving (i.e. if serving 6—that is, 60% of 10, utility will receive 60% of $150,000, or $90,000). KAMs are required to participate in mandatory training programs including:

- Dollars to Sense program, an energy management workshop run by Natural Resources Canada;
- Detailed end-use program;
- Basic Energy Manager program (unless the KAM can provide evidence that the KAM has already completed a similar program or has equivalent experience);
- Certified Energy Manager Program (unless the KAM is already designated as a Certified Energy Manager by the Association of Energy Engineers).

Monitoring and Targeting

Industries applying for capital incentives are also required to develop a measurement and verification (M&V) plan for assessing performance of the project.

The local electric utility will provide funding toward 80% of actual eligible costs (less any third party contributions), of up to $75,000 per site to purchase, and install and make operational a monitoring and targeting system. The facility must contribute a minimum 20% of the actual project cost.

To be eligible for this program the facility must:

- Have a resident energy manager to ensure the monitoring and targeting system is managed
- Have a minimum annual electricity consumption of 15,000 MWh from the previous calendar year
- Demonstrate by the end of the second year of operation, 0.2 MW in peak demand savings and 0.2 MW x Facility Load Factor x 8,760 hours in energy savings
- Commit to implementing projects with less than a one-year payback period
- Agree to provide annual reports of opportunities implemented as a result of the monitoring and targeting system, for a period of five years

Metering and Instrumentation Library

The *Metering and Instrumentation library* is made available for local electric utilities to assist the company in the development of opportunities for energy efficiency. The Meter Lending library will initially consist of the following instrumentation:

- Data Loggers
- Electrical meters
- Infrared thermometers & thermal camera

- Process flow meters
- Pressure transmitters
- Stroboscopes and
- Ultrasonic detectors for air leaks

Industrial Accelerator

Industrial electricity users directly connected to the IESO controlled grid, and therefore are not customers of any local distribution utility, may be eligible for Ontario Power Authority's new energy efficiency program, *Industrial Accelerator*[88].

Project incentive applications may be for a project, a micro-project, a portfolio, or a self-generation project. *Industrial Accelerator* provides financial incentives to eligible industrial facilities to invest in electricity-efficiency projects. The incentives are designed to improve the payback rate of efficiency projects so that they are competitive with other capital projects. Incentive amounts are based on the predicted energy savings that a project might create.

Financial incentives of up to $10 million for capital projects are based on the lesser of:

- $230 per MWh for annualized electricity savings, or
- 70% of the eligible project costs, or
- Achieving a one-year simple payback

Projects can include capital investments resulting in reduced electricity demand and consumption as well as self-generation projects using approved fuel sources. Detailed engineering studies for viable energy projects are fully funded. Preliminary engineering studies are funded up to $10,000 per project.

Participants have the choice of receiving their incentive payments in instalments during project construction (progress payments), or after the project is completed and energy savings have been measured and verified (deferred payments). Participants who choose to receive their incentive payments up front will provide a letter of credit as security. If participants choose deferred payments, the incentive instalments are held back as security until the project is in service and the savings have been verified.

For every project, a measurement and verification plan will be created by the Ontario Power Authority. Baseline energy consumption for the project will be determined during the detailed engineering study. Collections of metered and electrical process data will provide the measurements for the baseline. Following installation, project metering will provide the input to the preparation of the measurement and verification reports. The variance between the installed project meter data and the project baseline will be used to verify the electricity savings projected by the detailed engineering study.

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88 http://www.industrialaccelerator.ca/pdfs/industrial_accelerator/Program%20Rules%20version%2006.24.2010%20v2.0%28Clean%29.pdf

Table 34 OPA Industrial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Ontario	Ontario Power Authority	Industrial	Process and Systems	Program is made of numerous components including; funded engineering studies; incentives for capital energy efficiency projects; hiring of a full-time, on-site energy manager or use of a temporary energy manager if required; on-site key account manager to work directly with customers; funding to monitor and target energy performance; monitoring equipment lending library	Incentive $5000 for preliminary engineering studies; $10,00 for detailed engineering studies; incentives to offset capital project costs; funding of up to 80% of actual salary and up to 80% of reasonable expenses to hire a full time energy manager; funding of up to $150,000 to hire a key account manager; funding of up to $75,000 to purchase, install and make operational a monitoring system; meter lending library of equipment to measure and monitor energy performance	Global Adjustment Mechanism
			Industrial Accelerator	Industrial Accelerator targets transmission connected facilities to reduce energy demand and improve energy productivity	Financial incentives of up to $10 million for capital projects are based on the lesser of: $230 per MWh for annualized electricity savings, or 70% of the eligible project costs, or achieving a one-year	Global Adjustment Mechanism

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					simple payback Projects can include capital investments resulting in reduced electricity demand and consumption as well as self-generation projects using approved fuel sources. Detailed engineering studies for viable energy projects are fully funded. Preliminary engineering studies are funded up to $10,000 per project	

Ontario Ministry of Energy

Residential Programs

The Ministry of Energy offers the *Ontario Home Energy Savings Program* to residential properties in Ontario. Table 35 below provides program details.

Table 35 Ontario Ministry of Energy residential program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Ontario	Ministry of Energy	Residential	The Ontario Home Energy Savings Program (program is closed)	Incentive program for household energy audits and energy efficiency upgrades	Incentive for a home energy audit of the lesser of 50% of the cost of the audit or $150; provides financial rebates for various energy efficient upgrades (e.g. high efficiency furnaces, insulation products) as recommended by the audit results; rebates are capped at $5000	Provincial government

Québec Energy Efficiency Programs

Legislation

The Québec Government history of energy efficiency policy and programs goes back to 1977 when the Bureau of Energy Savings was created. The role of the Bureau evolved until 1996 when a new energy policy was published in 1996. In 1997, *An Act respecting the Agence de l'efficacité énergétique*,[89] was passed, which formed the Agence de l'efficacité énergétique (herein referred to as the Agency) and transferred the responsibility of provincial energy efficiency programs from the provincial government (the Bureau of Energy Savings, part of the Ministry of Natural Resources) to the Agency. The role of the Agency is to promote the development of new energy technologies for all forms of energy and all sectors of activity, and to draft a comprehensive plan for energy efficiency and new technologies. The main goal of the Agency is to transform the market to one of greater energy efficiency.

Regulations

Regulations passed under the *Act respecting the Agence de l'efficacité énergétique*, 1997 are available on the Agency's website.[90]

Directives

As of the date of this report, there are no directives relating to energy efficiency and conservation.

Codes

The province of Quebec has a Building Code and Safety Code.[91] In order to ensure the quality of construction work and public safety, the Building Act provides for the adoption of a Building Code and a Safety Code for buildings, equipment intended for use by the public, and electric, plumbing, and pressure installations as well as installations intended to use, store, or distribute gas. The Building Code applies to plan and estimate designers (architects, engineers, technologists) and contractors, the Safety Code is intended for owners of buildings, equipment, and facilities.

These two codes are adopted chapter by chapter and are progressively replacing the seven laws and over thirty regulations that were previously in effect. The goal of this process is to simplify regulations, and better define the responsibilities of owners and construction professionals. The Energy Conservation Chapter is currently in progress.

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89 http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=2&file=/A_7_001/A7_001_A.html. Accessed April 15, 2011.

90 Regulations available (in French) from: http://www.aee.gouv.qc.ca/en/the-aee/legislation-regulations/. Accessed June 28, 2011.

91 Building Code and Safety Code chapters in force. Available from: http://www.rbq.gouv.qc.ca/en/laws-regulations-and-codes/building-code-and-safety-code.html. Accessed June 28, 2011.

Plans

In 2006 Québec developed "Using Energy To Build The Québec of Tomorrow; Québec Energy Strategy 2006-2015."[92] The objectives of this strategy include making better use of energy as a lever for economic development, and energy rates must be set at a level that ensures proper management of resources, thus improving price signals. This strategy also broadened the mandate of the Agency to support and promote innovation in the energy field.

Policies

In 2006, the government of Québec published an energy policy which dictated a new form of financing the Agency. The Agency is funded by energy distributors (according to their market shares) and the Green Fund. The Agency, through their annual regulatory proceeding before the Régie de l'énergie, receives approval for the year's programs (programs are screened for cost-effectiveness using the Total Resource Cost test). The fuel types included in each program must be clearly articulated, as the energy distributors must finance a program according to the fuel types included (i.e. if a program is entirely focused on electricity, Hydro Québec would be solely responsible for funding it).

In 2006, Québec also released the Climate Change Action Plan.[93] This plan is funded by the provincial distributors of oil and gas, through their contributions to the Green Fund. The current targets for this action plan are to reduce greenhouse gas emissions to 20% below 1990 levels by 2020. The Agency is implementing programs included in the plan, thus receive some funding from the Green Fund equal to about half of the Agency's total funding.

Programs

There are two organizations within the Province of Québec that provide energy efficiency programs: Hydro-Québec and Agence de l'efficacité énergétique.

Hydro-Québec generates, transmits and distributes electricity, mainly using renewable energy sources, in particular hydroelectricity. Hydro-Québec offers energy efficiency conservation programs in each of the of residential, commercial and industrial market sectors. It is serves approximately 4,012,000 customers within the Province of Québec.

The Agence de l'efficacité énergétique was formed in 2006 following the release of the new energy plan. The purpose of the energy strategy was to identify targets in energy efficiency, not just for electricity and natural gas, but also for petroleum.

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92 http://www.mrnf.gouv.qc.ca/english/publications/energy/strategy/energy-strategy-2006-2015.pdf. Accessed April 15, 2011.

93 http://www.mddep.gouv.qc.ca/changements/plan_action/autres-initiatives-en.htm. Accessed April 15, 2011.

The Agence is funded by the energy distributors within the Province, including for example Hydro Québec, and Irving Oil.

Table 36 Key players for electricity efficiency and conservation for the Province of Québec

Name	Brief overview	Links
Régie de l'énergie	• The Régie de l'énergie is an economic regulation agency • Strives to ensure that energy needs are satisfied while promoting sustainable development as well as individual and collective equity. • The Régie fixes and modifies the rates and conditions for the transmission of electric power by the electricity carrier, the distribution of electric power by the electricity distributors, and the supply, transmission, delivery and storage of natural gas by the natural gas distributors	http://www.regie-energie.qc.ca/en/index.html
Hydro-Québec	• Generates, transmits and distributes electricity, mainly using renewable energy sources, in particular hydroelectricity • Serves approximately 4,012,000 customers	http://www.hydroquebec.com/en/index.html
Agence de l'efficacité énergétique	• Formally established in 2006 • The focus of the Agence is on sustainable development, and the promotion of energy efficiency and the development of new technologies for all forms of energy in every sector of activity • The Agence is financed through the energy distributors in Quebec. The budget for 2010-11 was $100M	http://www.aee.gouv.qc.ca/en/home/

Hydro-Québec

Residential Programs

Hydro-Québec offers four residential energy efficiency programs including *ENERGY WISE Home Diagnostic, Residential Lighting, Electronic thermostats* and *RECYC-FRIGO* described in Table 37.

Table 37 Hydro-Québec residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Québec	Hydro-Québec	Residential	ENERGY WISE Home Diagnostic	On-line energy assessment tool including a report on energy saving practices and upgrade recommendations	Free	Utility
			Residential Lighting	Mail-in rebate program for the purchase of ENERGY STAR® CFLs and ENERGY STAR® lighting fixtures;	Rebate $5 for every $10 spent on the purchase of CFLs to a maximum of $25; rebate of $15 per lighting fixture to a maximum of 15 fixtures or $225	Utility
			Electronic thermostats	Mail-in rebate program for the purchase of electronic thermostats for electric baseboard heating; instant point of purchase rebates available at participating retailers	Mail-in rebate to a maximum of $65 for the purchase of electronic thermostats:$45 for five ; and $10 for each of sixth and seventh thermostats; Mail-in rebate to a maximum of $65 for the installation of electronic thermostats installed by a master electrician: $45 for five thermostats and $10 for each of the sixth and seventh installed thermostat	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			RECYC-FRIGO	Refrigerator and freezer recycling program for those appliances that are in working order and more than 10 years old to a maximum of 3 appliances	$30 incentive	Utility

Commercial Programs

Hydro-Québec offers five commercial energy efficiency programs including: *Customized Component and Prescriptive Component, Efficient Product Installation Program for Small Businesses (SAVEnergyPro*) which ended on March 11, 2011*, Commercial Refrigeration Equipment, Innovation Projects – AVENUES* and *Innovation Projects – IDEAS*.

The programs are described in Table 38. The *Customized Component and Prescriptive Component*, also included in Table 38

A number of commercial and industrial programs were discontinued as of December 31, 2010 including: *Empower Program for Industrial Systems, Industrial Initiatives Program and Industrial Analysis and Demonstration Program (Major Customers)*, and *Efficient Products Program – Lighting and Motors*. They have been replaced with the programs described in Table 38.

Customized Component and Prescriptive Component

The *Customized Component and Prescriptive Component* program has been mandated by Hydro-Québec to be run by ÉnerCible. ÉnerCible is responsible for the marketing, implementation and management of the program as well as following up on the activities linked to the participants projects.

Customized (catered) component

The *Customized (catered) component* offers is a custom program offering support and incentives to meet the particular needs of a participant's project. The goal of this program is to improve the building's overall energy consumption.

The program covers energy efficiency projects carried out in all new or existing commercial buildings in Québec. Buildings must meet one of these conditions:

- New building
- Existing building with total area over 1,000 m2 ;
- Multiple-unit residential building (MURB) of four or more storeys
- Building belonging to one of the main chains or a major commercial real estate development
- Private institutional building (private school, long-term care centre, etc.)

The project is considered eligible if a letter of intent has been presented to ÉnerCible, capable of generating energy savings attributable to various uses of electricity or to the building's thermal envelope, implement one or more eligible measures in the single building and have not received prior financial assistance from one of Hydro-Québec's energy efficiency programs.

Project savings for existing buildings can be calculated using DOE2, eQuest, EnergyPlus, engineering calculations or actual metering. Project savings for new buildings must be modelled using SIMEB,

which is a energy modelling software that was developed and provided by Hydro-Québec.

ÉnerCible will determine the financial assistance according to the project's specific needs and Hydro-Québec profitability criteria.

Prescriptive component

The *Prescriptive component* provides pre-defined measures to meet the needs of small buildings.

The program covers energy efficiency projects carried out in all new or existing commercial buildings in Québec. Buildings must meet one of these conditions:

- New buildings of 5,000 m²
- Existing buildings with a total area of 1,000 to 5,000 m²
- Multiple-unit residential building (MURB) of four or more storeys
- Building belonging to one of the main chains or a major commercial real estate development
- Private institutional building (private school, long-term care centre, etc.)

The project is considered to be eligible if a letter of intent has been presented to ÉnerCible, along with the required project's technical documentation.

The approved tool for calculating financial incentives is the prescriptive component software (PVP) developed by Hydro-Québec and provided by ÉnerCible.

Table 38 Hydro-Québec commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Québec	Hydro-Québec	Commercial	Customized Component and Prescriptive Component	Incentive program[94] for custom and prescriptive projects	Incentive for custom and prescriptive measures. Maximum incentive values are not published in the participants guide	Utility
			Efficient Product Installation Program for Small Businesses (SAVEnergyPro)	Program for small business ended March 11, 2011 following a decision by the Régie de l'énergie to revise the financial assistance provided to small businesses under this program		Utility
			Commercial Refrigeration Equipment	Commercial refrigerator and freezer rebate program; purchased products must be on eligible products listing	Rebate program offering $400 for commercial refrigerators; and $650 for commercial freezers	Utility

[94] http://www.programmebatiments.com/pdf/guideparticipant_commercial_en.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Innovation Projects – AVENUES	Program[95] to support the development of underdeveloped business strategies or implementation of technologies that are not yet in widespread use; eligible customers include individuals, companies, government agencies or nongovernmental organizations that are classed as residential, commercial, institutional or industrial (small or midsized company); a consortium of partners may submit a proposal, as long as the designated principal is the contractor; eligible projects include new technologies, new approach or new application of existing technologies Note: Innovation projects approved for AVENUES may not be submitted for another Energy Efficiency Plan	Financial assistance to: I100% of the total cost of an unsolicited project, up to $500,000; and 100% of the total cost of a project submitted in response to a request for proposal	Utility

[95] http://www.hydroquebec.com/business/efficiency/doc/innovation/piste/guide_demandeur.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				program.		
			Innovation Projects – IDEAS	Program[96] to support experimental testing or product demonstration; eligible customers include individuals, companies, government agencies or nongovernmental organizations that are classed as residential, commercial, institutional or industrial (small or midsized company); Eligible projects include experimentation and demonstration projects that test or present new technologies, new approach or new application of existing technologies; demonstrate the potential for considerable energy savings and have good potential to penetrate the Québec market Note: Electricity self-generation or generation projects are not eligible;	75% of the total cost of an experimentation project, up to $75,000; 75% of the additional costs of a demonstration project, up to $250,000	Utility

[96] http://www.hydroquebec.com/business/efficiency/doc/innovation/idee/guide_demandeur.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				innovation projects approved for IDEAS may not be submitted for another energy efficiency program		

Industrial Programs

Hydro-Québec offers five industrial energy efficiency programs under two umbrella portfolios. *Electricity Consumption Analysis and Continuous Measurement* and *Energy Management* are grouped under the program umbrella of *Industrial System Program – Support for Analysis*. *The Industrial Systems Program – Support for Investment* includes *Prescriptive Measures, Upgrades, New Plant, Expansion or Addition of Product Lines,* and *Technology Demonstration*.

Also available to industrial customers are the following programs which were described in the Commercial section: *Efficient Product Installation Program for Small Businesses (SAVEnergyPro) Commercial Refrigeration Equipment, Innovation Projects – AVENUES, and Innovation Projects – IDEAS*.

A number of commercial and industrial programs were discontinued as of December 31, 2010 including: *Empower Program for Industrial Systems, Industrial Initiatives Program and Industrial Analysis and Demonstration Program (Major Customers)*, and *Efficient Products Program – Lighting and Motors*. They have been replaced with the programs described in Table 39.

Table 39 Hydro-Québec industrial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Québec	Hydro-Québec	Industrial	Electricity Consumption Analysis	Grant program[97] to review the design of a new facility, analyze the current facility's electricity consumption or optimize processes and electromechanical systems identify energy improvement opportunities and energy efficiency projects; condition of this support is that the eligible customer must submit the analysis report to Hydro-Québec and undertake to implement some or all of the recommendations in the audit report; eligible customers include individuals or corporation that own, operate or occupy an industrial building associated with a goods-	Financial assistance: 50% of costs and $25,000 per analysis; cumulative maximum as of 2011: $100,000 per site	Utility

[97] English version of participant guide to soon be available; IndEco will insert link when English version of participant guide available

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				producing industry; municipal and off-grid systems are also eligible; eligible projects include analysis projects involving the implementation of energy efficiency measures that will reduce specific electricity consumption (per unit produced)		
			Continuous Measurement and Energy Management	Grant program[98] to develop an energy management plan consisting in a series of organizational, technical and behavioural measures and to purchase and install measuring instruments; all eligible clients can obtain this financial assistance providing, among other things, that once the project is over	Financial assistance per site or per industrial service contract: 50% of the costs of development and implementation of the upgrade plan (lasting at least a year), up to $50,000; 50% of the costs of purchasing and	Utility

[98] English version of participant guide to soon be available; IndEco will insert link when English version of participant guide available

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				they inform Hydro-Québec of the recommendations put into effect; eligible customers include individuals or corporations that owns, operates or occupies an industrial building associated with a goods-producing industry that has an annual electricity bill of more than $750,000; municipal and off-grid systems are also eligible	installing the measurement equipment, to a maximum of $75,000; Cumulative maximum starting in 2011: $125,000	
			Prescriptive Measures	Prescriptive program[99] for lighting, compressed air, variable-frequency drives (VFDs), water chillers; Eligible customers include individuals or corporations that own, operate or occupy an	Financial assistance based on the smaller of these two amounts: 20¢/kWh (above market baseline) or 100% of additional costs	Utility

[99] English version of participant guide to soon be available; IndEco will insert link when English version of participant guide available

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				industrial building associated with a goods-producing industry; municipal and off-grid systems are also eligible; eligible projects include lighting projects that cuts the building's electricity consumption by at least 10,000 kWh per year; any other projects that cuts the building's electricity consumption by at least 25,000 kWh per year, except for the following: projects involving compressors (max. 300 hp), variable-frequency drives (VFDs) (max. 200 hp) or water chillers (max. 200 tons of cooling); a project may not consist of just one type of eligible prescriptive measure; purchases may be combined to reach the electricity savings threshold for each eligible measure	(above standard installation0	

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Upgrades	Grant program[100] to replace and upgrade systems and processes to make operations more efficient and reduce the amount of electricity used per unit produced; Eligible customers include: individuals or corporations that own, operate or occupy an industrial building associated with a goods-producing industry; municipal and off-grid systems are also eligible; eligible projects include projects that cut electricity consumption by at least 25,000 kWh per year, with a payback period of 1 to 10 years	Financial assistance-two caps on financial assistance, depending on project size Rates M, G and G-9 First cap: the smaller of these two amounts: 30¢/kWh, or 75% of eligible costs, or amount required to reduce payback period to 1 year; maximum per project: $0.5 million Second cap: the smaller of these two amounts: 25¢/kWh, or 75% of eligible costs or	Utility

[100] English version of participant guide to soon be available; IndEco will insert link when English version of participant guide available

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					amount required to reduce payback period to 2 years; maximum per project: $1.5 million Rate L First Cap: the smaller of these two amounts: 20¢/kWh or 75% of eligible costs or amount required to reduce payback period to 1 year; maximum per project: $1 million; Second cap: the smaller of these two amounts: 15¢/kWh or 75% of eligible costs or amount required to reduce payback period to 2 years; maximum per project: $5 million	

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			New Plant, Expansion or addition Production Lines	Grant program[101] to build a plant or add a production line to an existing facility with the goal of reducing the amount of electricity used per unit produced; eligible customers include individuals or corporations that own, operate or occupy an industrial building associated with a goods-producing industry; municipal and off-grid systems are also eligible; eligible projects include projects that cuts electricity consumption by at least 25,000 kWh per year, with a payback period of 2 to 10 years	Two caps on financial assistance, depending on project size; Rates M, G and G-9 - the smaller of these two amounts: 25¢/kWh or 75% of eligible cost above market baseline or amount required to reduce payback period to 2 years; maximum per project: $1.5 million; Rate L - the smaller of these two amounts: 15¢/kWh or 75% of eligible cost above market baseline or	Utility

[101] English version of participant guide to soon be available; IndEco will insert link when English version of participant guide available

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					amount required to reduce payback period to 2 years; maximum per project: $5 million	
			Technology Demonstration	Grant program[102] to test on-site within facility operations, technology that could make operations more efficient; eligible customers include individuals or corporations that own, operate or occupy an industrial building associated with a goods-producing industry that has an annual electricity bill of more than $200,000; municipal and off-grid systems are also eligible; eligible projects include projects involving a highly efficient, commercially available technology not	Financial assistance provided on a case-by-case basis, as follows: up to 50% of project costs; to a maximum of $300,000	Utility

[102] English version of participant guide to soon be available; IndEco will insert link when English version of participant guide available

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				currently used in Québec because it is unknown or associated with certain risks; projects that cut electricity consumption by at least 25,000 kWh per year, or, in the case of a lighting project, 10,000 kWh per year		

Agence de l'efficacité énergétique

Residential Programs

The Agence de l'efficacité énergétique (AEE) offers four residential energy conservation programs: *Éconologis®, Novoclimat®* (new home construction), *Novoclimat®* (builder /renovator) *program* and *Rénoclimat®* . These programs are described in Table 40.

Table 40 Agence de l'efficacité énergétique residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Québec	Agence de l'efficacité énergétique	Residential	Éconologis®	Éconologis® is an energy efficiency program for low-income households[103] with free individualized advice and the installation of free electronic thermostats installed free of charge; program is offered from September to March only; the technician may perform one or more of the following measures: caulking and weatherstripping windows; installing sills and weatherstripping on doors; insulating electrical outlets on outside walls; installing low-flow showerheads; adjusting the temperature of hot water tanks; installing aerators on water taps; installing CFLs; eligible for all heating fuels except wood; cannot participate in program if participant has taken advantage of the program or a similar program within the last 5 years for the same residence	Free	Not-for-profit-agency

[103] http://www.aee.gouv.qc.ca/fileadmin/medias/pdf/econologis/WEB_seuils_10-11_2010-07-23.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Novoclimat® New home construction	Novoclimat® is a new home program for those interested in buying a home with a high energy efficiency rating. It helps consumers reduce their heating costs by at least 25%; home is eligible for Novoclimat® rating provided it is constructed by an AEE certified contractor and meets program requirements; for multi-unit residential construction (5 units or more and 7 storeys or less) must use Novoclimat®-certified ventilation expert for the installation of the ventilation system	Financial assistance - $2,000 for a house that has been Novoclimat®-certified and built entirely on site by a Novoclimat®-certified contractor; $2,000 for a pre-fabricated home assembled entirely by a Novoclimat®-certified contractor. The house can receive Novoclimat® certification if the contractor provides a turnkey service; $1,500 for a pre-fabricated home where the customer does a portion of the assembly and installation work that pertains to Novoclimat®	Not-for-profit agency

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					requirements. The house cannot receive Novoclimat® certification but could be granted a performance certificate	
			Novoclimat® builder /renovator program	Program offers financial assistance, and training programs to ensure builders, architects and engineers and ventilation specialists receive Novoclimat® accreditation	Financial assistance [104] varies by type of house (standard construction or pre-fabricated) and whether incentive is given to the developer or the home owner; multi-unit residential developers also receive incentives based on the design and number of units	Not-for-profit agency

[104] http://www.aee.gouv.qc.ca/fileadmin/medias/pdf/novoclimat/TAB_subventions_novoclimat_2010-07-05.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					per building	
			Rénoclimat®	Home energy audit for those home owners wishing to undertake renovations and install energy efficient upgrades; the second energy evaluation must be carried out within 18 months of the date of the first evaluation and the second evaluation is free of charge if the EnerGuide rating of the home increases by 2 points or more; if this is not the case, the homeowner will be charged $149.95 plus taxes (rate for a standard house); Participants who will receive their first evaluation on or after March 1st, 2011 will be required to pay $25 for their second evaluation	Subsidy program for home energy audits; AEE provides a $150 subsidy for single-family homes $200 subsidy on duplex homes and $250 for triplex homes Rebates vary by renovation[105]	Not-for-profit agency

[105] //www.aee.gouv.qc.ca/fileadmin/medias/pdf/renoclimat/OP_tableau_mazout_propane_electricite_WEB.pdf

Commercial and Industrial Programs

The Agence de l'efficacité énergétique offers two commercial energy conservation programs funded by the Green Fund of the PACC action plan (Plan d'action sur les changements climatiques 2006-2012). The programs are the *Refrigeration Optimization Program (OPTER) - Supermarket Component* and the *Refrigeration optimization program (OPTER) for owners of hockey arenas and curling rinks,* as described in Table 41.

A *Refrigeration Optimization Program (OPTER)- Agrifood Industry* is also included in Table 41.

The Agence de l'efficacité énergétique also offers a *Heavy Oil Consumption Reduction Program* for the commercial and industrial market sectors as well as the *Support for the Manufacturing Sector* program which helps manufacturers make the move toward sustainable development and improve their competitiveness by reducing their consumption of certain target fuels (light fuel oil, propane and butane). Both of these programs are also included in Table 41.

The Heavy Oil Consumption Reduction Program

This program, designed by the Agence de l'efficacité énergétique (AEE), helps heavy oil consumers move toward sustainable development while improving their competitive position by reducing their consumption. Financial assistance is offered to carry out various analyses as well as implement energy efficient measures relating to heavy fuel oil or to switch to other forms of energy containing fewer pollutants, such as natural gas, forest biomass and electricity. This program is financed by the Green Fund and falls under Action 1 of the 2006-2012 Climate Change Action Plan.

Eligibility

Any corporation operating a business within the province of Quebec where heavy oil is consumed and which meets the requirements of the program is eligible.

Program components

The program supports the reduction of heavy oil consumption through fuel switching to forest biomass, natural gas, electricity, other solid, liquid and gaseous fuels. Also supported is the reduction of heavy oil consumption through the implementation of energy efficient measures. Process rejects used for energy production and renewable energy development are also eligible provided that the applicant directly uses the recovered or produced energy (self-sustaining) production. Depending on the specific needs or nature of the project, the applicant may opt for one or more component of the program.

Fossil fuels (unless they are polluted or contaminated) and fuels that can be recycled are excluded

For projects that fuel switch to all fuels other than natural gas, the applicant is eligible for analysis and implementation funding.

Natural gas includes the analysis, natural gas connection assistance for new users, assistance for retrofitting other fuel sources to natural gas and assistance for promoting customer loyalty among natural gas users

Eligible projects

Eligible projects include those that reduce consumption of heavy fuel oil by :

- replacing equipment with more energy efficient equipment;
- modifying existing equipment or installing new equipment.

Allowable costs

The program's allowable costs include:

- costs relating to the purchase and upgrade to energy efficient equipment, including the equipment required to measure consumption versus the implementation of conventional equipment
- costs relating to engineering, installation, start-up and measuring work performed by the applicant's personnel, including the remuneration of operators, up to the allowable limit previously approved at the time the agreement was drawn up
- work performed by external engineering firms
- costs relating to the installation and start-up of equipment when performed by a third party under contract
- costs relating to measurement, quantification and verification work performed by an external firm before and after the installation of equipment
- as regards the replacement of equipment: additional costs relating to the implementation of energy-efficient equipment versus the implementation of conventional equipment.

Financial assistance

The financial assistance granted by the AEE for implementation work or work carried out to switch to another energy source is limited to the least of the following amounts:

- assistance required to bring back the return on investment to one year;
- $40 per ton of reduced GHG emissions per year and per project for the duration of the applicant's commitment which may not exceed 10 years;
- 75% of total implementation costs;
- maximum of $5M per project (unlimited per site);
- the original amount requested by the applicant.

The financial assistance granted by the AEE can be combined with assistance from complementary programs offered by partner organizations (government ministries and agencies). However, the

cumulative amount of financial contributions received may not exceed 75% of the allowable costs as the applicant must also contribute a minimum of 25% to these costs.

The Support for the Manufacturing Sector

The *Support for the Manufacturing Sector Program* helps manufacturers make the move toward sustainable development and improve their competitiveness by reducing their consumption of certain target fuels (light fuel oil, propane and butane). Financial assistance is available for conducting analyses, and for implementing energy efficiency measures for these target fuels. This program is financed by the Green Fund of the PACC action plan (Plan d'action sur les changements climatiques 2006-2012).

Eligibility

Businesses with premises in Québec that consume targeted fuel sources for its heating and manufacturing requirements are eligible for the program which is aimed exclusively at the manufacturing sector.

Program incentives

The AEE provides financial assistance for conducting energy analyses, value analyses, feasibility studies and analyses of proper integration of better fuel consumption practices. Financial assistance is also available for the implementation of measures that lead to an ongoing reduction in the consumption of the target fuels.

The financial assistance provided by the AEE can also be combined with aid from complementary programs offered by partner organizations. However, the accumulation of financial contributions may not exceed 75% of the eligible costs of analysis or of the implementation project, and the applicant must always contribute a minimum of 25% of total costs.

Analysis

The purpose of the Analysis section is to determine the possibilities of improving the energy efficiency of an industrial site or building.

Eligible analyses or studies are:

- energy analysis of target fuels
- analysis of various fuels in terms of overall value
- feasibility study of target fuels
- an analysis, carried out by a specialized firm, of the integration of fuel consumption procedures for an existing plant, the addition of a production line or for the expansion of a manufacturing plant.

Eligible costs

- the cost of outside consultation
- compensation of in-house employees directly involved in analysis work
- the cost of renting equipment or measuring devices.

Financial assistance

Depending on the type of analysis, the AEE offers financial assistance that is limited to the lesser of the following amounts:

Energy analysis, value analysis or feasibility study

- a maximum of 50% of the eligible cost of the analysis of target fuels
- a maximum accumulation of $25,000 per site.

Integration analysis

- a maximum of 50% of the eligible costs of the analysis of target fuels
- a maximum accumulation of $100,00 per site.

Implementation

Eligible projects

Eligible projects are those that:

- replace equipment with more efficient equipment as regards consumption of target fuels
- modify existing equipment so as to reduce consumption of target fuels
- install new equipment for existing procedures that leads to a reduction in consumption of target fuels.

Eligible project costs include:

- the cost of purchasing and upgrading equipment, including the cost of measuring energy consumption
- the cost of installing and starting up new equipment, when carried out by a third party in accordance with a signed contract
- the cost of any engineering work and of installation, implementation and measurement that is carried out by the applicant's personnel, including their wages
- the cost of measurements conducted by an outside firm before and after the implementation of proposed measures
- the cost of engineering work carried out by an outside firm
- in the event that old equipment is replaced, the incremental costs entailed in the acquisition, installation and engineering of the new, energy efficient equipment.

Financial assistance

Financial assistance granted by the AEE for project implementation is limited to the lesser of the following amounts:

- the amount necessary to reduce the ROI to one year
- a maximum of 75% of eligible implementation costs
- $250,000 per project up to a cumulative maximum of 1.5 M $ per site

- the original amount requested by the applicant.

Table 41 Agence de l'efficacité énergétique commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Québec	Agence de l'efficacité énergétique	Commercial	Refrigeration Optimization Program (OPTER) - Supermarket Component	Program[106] provides support to owners of refrigeration systems in supermarkets by helping them optimize facilities; the goal of the program is to reduce GHG emissions from refrigeration infrastructures by promoting the use of effective technologies; the program helps to: reduce the amount of refrigerants used, notably by installing secondary loops; promote the use of more ecological refrigerants; integrate refrigeration, heating, and ventilation systems to reduce GHG emissions from fuel burning equipment in supermarkets	This program is financed by the Green Fund of the PACC action plan (Plan d'action sur les changements climatiques 2006-2012); Participants may receive up to $125,000, based on the project's potential to reduce GHG emissions	Not-for-profit agency
			Refrigeration optimization	Program to improve the use of energy efficient	This program is financed as part of	Not-for-profit

[106] http://www.aee.gouv.qc.ca/fileadmin/medias/pdf/guide_requerant_opter_supermarches_en.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			program (OPTER) for owners of hockey arenas and curling rinks	refrigeration equipment; program components include: training of building owners and operators, a feasibility study to highlight opportunities for energy efficient upgrades and implementation	the PACC action plan (Plan d'action sur les changements climatiques 2006-2012); Feasibility component: incentives issued once feasibility report is received; the incentive is the lesser of 50% of the eligible costs; $5,000 for curling rinks, $7,000 for skating rinks, $8,000 for multiplexes; incentives can be combined with incentives from other programs, however the maximum incentive level cannot exceed 75% of eligible costs; Implementation component: incentives are issued in two instalments - 90% of the incentive is issued once the equipment	agency

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					installation plan and report are accepted; remaining amount is issued once the final implementation report is received. The incentive is the lesser of incentives based on the GHG reduction potential; eligible equipment costs: $45,000 for curling rinks, $65,000 for skating rinks, $95,000 for multiplexes	
			Refrigeration Optimization Program (OPTER)-Agrifood Industry	The program targets pilot projects that assess the heat recovery ability from refrigeration systems and the amount that synthetic refrigerant use can be reduced; eligible participants are those invest in a new industrial refrigeration system (either a replacement of an existing system, an expansion, or a new install)	Incentives will cover the incremental equipment costs between the pilot equipment and standard equipment; installation costs are not covered; maximum incentive amount is $400,000; these projects are not eligible for any other incentives offered by	

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					the AEE	
			Heavy oil consumption reduction	The program helps heavy oil consumers move toward sustainable development while improving their competitive position by reducing their consumption. Financial assistance is offered to carry out various analyses as well as implement energy efficient measures relating to heavy fuel oil or to switch to other forms of energy containing fewer pollutants, such as natural gas, forest biomass and electricity.	This program is financed by the Green Fund and falls under Action 1 of the 2006-2012 Climate Change Action Plan. The financial assistance granted for implementation work or work carried out to switch to another energy source for each component under the program is limited to the least of the following amounts: assistance required to bring back the return on investment to one year; $40 per ton of reduced GHG emissions per year and per project for the duration of the applicant's commitment which	Not-for-profit agency

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					may not exceed 10 years; 75% of total implementation costs; maximum of $5M per project (unlimited per site) or the original amount requested by the applicant. The financial assistance granted by the AEE can be combined with assistance from complementary programs offered by partner organizations (government ministries and agencies). However, the cumulative amount of financial contributions received may not exceed 75% of the allowable costs as the applicant must also contribute a minimum of 25% to	

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					these costs.	
			Support for the manufacturing sector	This program helps manufacturers move toward sustainable development and improve their competitiveness by reducing their consumption of certain target fuels (light fuel oil, propane and butane). Financial assistance is available for conducting analyses, and for implementing energy efficiency measures as regards these target fuels. Program is directed exclusively at the manufacturing sector with the province	This program is financed by the Green Fund of the PACC action plan (Plan d'action sur les changements climatiques 2006-2012). Financial assistance is limited to the lesser of the following amounts:; the amount necessary to reduce the ROI to one year; a maximum of 75% of eligible implementation costs; $250,000 per project up to a cumulative maximum of 1.5 M $ per site; the original amount requested by the applicant	Not-for-profit agency

Assistance and Demonstration Programs

The Agence de l'efficacité énergétique (AEE) offers an *Energy Innovation Assistance Program* described in Table 42 below.

Table 42 Agence de l'efficacité énergétique research and demonstration program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Québec	Agence de l'efficacité énergétique	Research and demonstration	Energy Innovation Assistance Program	Program to encourage the development of new technologies or innovative processes focussing on energy efficiency or emerging energy sources by financially supporting project developers; those eligible to apply to the program are: individuals, corporations or agencies, whether governmental or non-governmental; projects are evaluated on several criteria including: project quality (technological component),	One project may receive financial assistance for separate activities; maximum amount granted for one project cannot exceed $1M Financial assistance granted (the lesser of the two amounts): Research, experimentation, development or upgrade and transfer: 75% of eligible expenses up to $100,000 for college or university research centres and 25% of eligible expenses; up to $100,000 for other applicants Demonstration – energy efficiency project: 50% of eligible expenses or $250,000 Demonstration – emerging energy: 50%	Not-for-profit agency

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				energy impacts, socio-economic and environmental impacts, market potential and project completion guarantee; projects must achieve a minimum score of 65% to be considered; the decision of the AEE is final; projects must not exceed a period of longer than 36 months; examples of energy efficiency projects include: buildings, cogeneration, industrial processes and transportation, hybrid and electric vehicles; The AEE cannot accept more than one project per fiscal	of eligible expenses or $1M Measurement: 100% of eligible expenses or $15,000; Pre-market: 50% of eligible expenses or $50,000 Market release: 50% of eligible expenses or $10,000 The financial assistance can be combined with a grant from another governmental agency with the exception of the financial assistance received within the scope of the Technoclimat program of the AEE; applicants are required to invest in at least 25% of the eligible project costs (with the exception of measurement activities)	

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				year from the same applicant except for projects involving solely research, experimentation, development, upgrade or transfer activities		

Ministère des Transports du Québec

Transportation Programs

The Ministère des Transports du Québec has established the Government Assistance Program for Improving Energy Efficiency in Freight Transportation. This program is part of the implementation of Action 9 of the 2006-2012 Action Plan on Climate Change of the Gouvernement du Québec, Québec and Climate Change, A Challenge for the Future.

The program's objective is to favour the acquisition of energy efficiency-enhancing equipment and new technologies in order to reduce greenhouse gas (GHG) emissions in freight transportation. The implementation of this program will support businesses that wish to reduce their fuel consumption and thus their GHG emissions. See Table 43.

The trucking component of the program will fund two types of activities:

- acquisition, installation, modification or replacement of certain devices or equipment allowing improvement of energy efficiency;
- research and projects or pilot projects which show potential regarding energy efficiency and GHG reduction in freight transportation.

Eligible participants for energy efficient equipment grants include businesses, individuals and organizations in the freight transportation sector that are listed in the Commission des transport du Québec *Register of owners and operators of heavy vehicles* with satisfactory safety ratings. Vehicles covered in the application must also be registered in Québec and considered heavy vehicles as per the *Act respecting owners, operators and drivers of heavy vehicles*.

The research and pilot component of this program is to provide financial assistance to research and pilot projects that show potential in energy efficiency and the reduction of GHG emissions in freight transportation.

Eligible participants are businesses, individuals and organizations in the freight transportation sector whose main office is in Québec.

Table 43 Ministère des Transports du Québec

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Québec	Ministère des Transports du Québec	Transportation	Energy Efficiency in Freight Transportation - Trucking Component	The program is designed to support the acquisition of energy efficiency-enhancing equipment and new technologies in order to reduce greenhouse gas (GHG) emissions in freight transportation. The implementation of this program will support businesses that wish to reduce their fuel consumption and thus their GHG emission; applicants must contribute at least 33% of eligible expenses; financial	Grant program for the purchase and installation of the following devices: Onboard generators and electrical backup systems - grant equivalent to 30% of eligible expenses to a maximum of $3000 – one grant per new device; backup heating and air conditioning systems - grant equivalent to 30% of eligible expenses to a maximum of $900 – one grant per new device; onboard computers - grant equivalent to 30% of eligible expenses to a maximum of $600 – one grant per new device. The device must be able to gather	Provincial government

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				assistance may not exceed $200,000 per year; the program ends March 31, 2013	data correlating fuel consumption and heavy vehicle driving; aerodynamics-enhancing equipment grant equivalent to 30% of eligible expenses to a maximum of $1500 – one grant per new device; side skirts for semi-trailers ; other equipment - grant of 30% of eligible expenses to a maximum of $2000 for devices whose energy efficiency has been proven by approved methods – grant to be approved by review committee	
			Energy Efficiency in Freight Transportation - Trucking Component	Research and pilot projects that demonstrate potential for energy efficiency and GHG emissions reduction; the	Financial assistance equivalent to 50% of eligible expenses to a maximum of $50,000 to support the implementation of a research or pilot project	Provincial government

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				projects may fall under one of three categories; research and development project; experimental project; pilot or demonstration project applicants must contribute at least 33% of eligible expenses; financial assistance may not exceed $200,000 per year; the program ends March 31, 2013		

New Brunswick Energy Efficiency Programs

Legislation

The *Energy Efficiency Act, 1995*,[107] includes standards for prescribed products, labelling and packaging, and inspection to meet regulations. The Lieutenant-Governor in Council may make regulations regarding any product that uses, could use or could affect the use of energy and is manufactured, sold, or leased in the Province.

The *Energy Efficiency and Conservation Agency of New Brunswick Act, 2005*[108] (Energy Efficiency Act) was created for five main purposes:

- To promote the efficient use of energy and the conservation of energy in all sectors of the Province;
- To develop and deliver programs and initiatives in relation to energy efficiency and conservation;
- To promote the development of an energy efficiency services industry;
- To act as the primary organization for the promotion of energy efficiency and conservation in the Province; and
- To raise awareness among energy consumers of energy use and the associated economic and environmental consequences.

This new Agency will be charged with making by-laws relating to the purchase of supplies and services required by the Agency, and for the establishment, composition and functions of a committee to provide advice to the Agency's Board of Directors on matters relating to energy efficiency and conservation.

Regulations

There are General Regulations[109] under the Energy Efficiency Act, which were released in 1995. These provide details regarding the labelling and packaging of products, inspection fees, and product testing.

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[107] *Energy Efficiency Act, 1995*. Available from: http://www.gnb.ca/0062/acts/acts/e-09-11.htm. Accessed June 28, 2011.

108 Government of New Brunswick website. Available from: http://www.gnb.ca/legis/bill/editform-e.asp?ID=395&legi=55&num=3. Accessed June 27, 2011.

[109] General Regulations under the Energy Efficiency Act, 1995. Available from: http://www.gnb.ca/0062/regs/e-9-11reg.htm. Accessed June 28, 2011.

Directives

As of the date of this report, there are no directives related to energy efficiency and conservation.

Codes

As of the date of this report, there are no codes related to energy efficiency and conservation.

Plans

New Brunswick has in place a Climate Change Action Plan (2007-2012),[110] part of the National Implementation Strategy to reduce greenhouse gas emissions. This is the province's plan for reducing greenhouse gas emissions through a series of targets and policy actions, as well as engagement of stakeholders and the public. The plan includes actions in the following areas: renewable energy and energy efficiency; transportation; waste reduction and diversion; industrial sources; government leading by example; adaptation; and partnerships and communication. According to the plan, province-led initiatives will result in greenhouse gas emission reductions of 5.5 megatonnes (millions of tonnes, Mt) annually in 2012. With the assistance of federal initiatives, the plan will result in a reduction of New Brunswick's greenhouse gas emissions to 1990 levels in 2012. The 2009-2010 Climate Change Action Plan Progress Report highlights include:

- Efficiency NB
  - Completed the commercial building energy labelling pilot project that was started in 2007-2008; 62 municipal / government buildings have received energy consumption labels. These labels provide a means of indicating how well a building is performing compared to buildings of a similar type.
  - Created a new Energy Efficiency Project Implementation Stimulus Fund that administered a further 3.4 million dollars of the New Brunswick Climate Action Funds to 11 different industrial facilities for a total of 16 projects. These projects are expected to reduce annual GHG emissions by 155,716 tonnes.
- Department of Energy
  - Developed a Community Energy Policy (discussed below) that will provide an opportunity for the development of up to 75 MW of distributed renewable energy projects throughout the province.
- NB Power
  - Committed to exploring new lighting technologies and saving energy

[110] New Brunswick Climate Change Action Plan. Available from: http://www.gnb.ca/0009/0369/0015/0001-e.asp. Accessed June 27, 2011.

by testing new LED lights in 24 locations across the province.

In May 2011, the New Brunswick government received the final report from the New Brunswick Energy Commission,[111] a group created by the provincial government with a mandate to conduct a broad public consultation and report to government on a long-term energy plan. The report contains more than 50 recommendations focused on developing a 10-year energy plan and makes recommendations in the areas of electricity, natural gas, petroleum products, energy efficiency, renewable energy, regulatory matters, development and research, and for improving education and raising awareness. Five key objectives were identified during the public engagement process:

- developing a plan for low and stable priced energy;
- ensuring the security of energy supplies;
- setting high standards of reliability in the generation and delivery of electricity;
- producing, distributing and transmitting energy in an environmentally responsible manner; and
- strengthening and expanding the role of the independent energy and utility regulator.

The next step is to use this document in the development of a 10-year energy plan.

Policies

Efficiency New Brunswick, mandated to promote electricity efficiency and conservation, worked with the Department of Supply and Services, the Department of Social Development, and the Department of Energy on the development of the Provincial Green Building Policy. The policy was announced in April 2010 and serves to guide the design and construction of energy efficient and environmentally sustainable buildings owned or funded by the province of New Brunswick. This work was completed under the Climate Change Action Plan.

In 2000, an interdepartmental Energy Policy Working Group, led by the Department of Energy, prepared the New Brunswick Energy Policy White Paper, 112 with the assistance of an energy market consultant. Similar work undertaken in other jurisdictions was extensively reviewed as part of the process. The White Paper describes the framework for a provincial energy policy for 2000-2010. The energy policy is an exercise in striking a balance among competing goals, which include:

- ensure a secure, reliable and cost effective energy supply for residential, commercial and industrial users;
- promote economic efficiency in energy systems and services;

[111] Government of New Brunswick news release. Available from: http://www2.gnb.ca/content/gnb/en/news/news_release.2011.05.0566.html. Accessed June 27, 2011.

[112] New Brunswick Energy Policy White Paper was approved by Cabinet in December 2000. Available from: http://www.gnb.ca/0085/intro.htm. Accessed June 28, 2011.

- promote economic development opportunities;
- protect and enhance the environment; and
- ensure an effective and transparent regulatory regime.

Key statements in the White Paper include:

- a wide range of non-utility electricity generation projects, which are often characterized by high energy conversion efficiency and relatively low capital costs, will be permitted;
- a comprehensive energy efficiency strategy for all sectors of the economy will be developed and implemented;
- the Province will lead by example in energy efficiency measures by taking energy efficiency into account when considering procurement options and working with other agencies to extend the scope of the Provincial Buildings Initiative to include buildings such as hospitals, nursing homes and buildings owned or operated by crown corporations as well as municipalities; and
- the Province will produce a provincial Climate Change Action Plan.

The Province has made a firm commitment to support the energy policy objectives by creating an Energy Secretariat. A fundamental component of the Energy Secretariat's mandate is to be the continuing body of expertise that will develop and implement the energy policy objectives described in the White Paper.

Programs

Efficiency New Brunswick is the stand-alone agency created in 2006, which promotes and supports energy efficiency across residential, commercial and industrial energy users within the province.

Table 44 Key players for electricity efficiency and conservation for New Brunswick

Name	Brief overview	Links
Department of Energy	• Provincial government • The Electricity and Renewables Branch has the key functions of developing and implementing electricity policy, administration of related statutes and regulation, market and economic impact analysis, research and market development of renewable power and energy efficiency resources, implementation of climate change initiatives, public information and supply and demand monitoring • Through its Agency, Efficiency New Brunswick, the	http://www.gnb.ca/0085/index-e.asp http://www.efficiencynb.ca/home.html

Name	Brief overview	Links
	Department promotes and supports energy efficiency across residential, commercial and industrial energy users in the province	
New Brunswick Power	• Does not offer energy efficiency or conservation programs • All energy efficiency and conservation programs are offered through Efficiency New Brunswick	http://www.nbpower.com/Welcome.aspx?lang=en
Efficiency New Brunswick	• Mandated to promote energy efficiency measures in residential and business sectors, to develop and deliver programs and initiatives in relation to energy efficiency, to promote the development of an energy efficiency services industry, to act as a central resource for the promotion of energy efficiency in NB, and to raise awareness of how energy efficiency measures can lead to a more reliable energy supply for NB	http://www.efficiencynb.ca/home.html

Residential Programs

Efficiency New Brunswick provides four residential programs including the *Existing Homes Energy Efficiency Upgrades Program, New Homes Program, Existing Multi Unit Residential Building Upgrades Program* and *New Multi Unit Residential Buildings Program Information and Rebates*. These programs are described below in Table 45.

Table 45 Efficiency New Brunswick residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
New Brunswick	Efficiency New Brunswick	Residential	Existing Homes Energy Efficiency Upgrades Program	Provides homeowners with a grant or an interest-free loan to help make their houses more energy efficient[113]	$400 subsidy toward the cost of NRCan's residential energy assessment service; option of a grant: 20% of eligible upgrade costs (including HST) to a maximum of $2000, or an interest free loan of up to $10,000 repayable over a maximum 6-year term.	Not-for-profit agency
			New Homes Program	Financial assistance to first owners of new homes that meet either EnerGuide rating of 80; R-2000; or meet all mandatory Efficiency New Brunswick standards[114]; encourages the use of high	$1000 for meeting one of 3 efficiency levels; $2000 for electric central heating and meet one of the 3 efficiency levels and have an ENERGY STAR® rated central heating system; $3000 for non-electric central heating and one of the 3 efficiency levels and have an ENERGY STAR® rated non-electric central heating system; additional ENERGY STAR® incentive of $250 is available to homeowners who install energy efficient lighting and purchase two ENERGY STAR® rated home appliances; *New Homes*	Not-for-profit agency

[113] http://0101.nccdn.net/1_5/139/1dd/02a/Existing-Homes-Guidelines.pdf

[114] http://0101.nccdn.net/1_5/17c/034/0f9/Checklist-for-building.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				efficiency non-electric central heating options such as natural gas, oil, geothermal, and/or wood systems	*EnerGuide Rating Service Rebate*: pays up to 50% of the cost of a New Home EnerGuide Rating to a maximum of $250 when completed application form submitted	
			Existing Multi Unit Residential Building Upgrades Program	Provides financial assistance in the form of subsidies and grants to owners of residential buildings who want to make their buildings more energy efficient	Subsides for building assessment based on number of units in the building – range from $350 to $850; Grants will be calculated at 20% of the cost of recommended upgrades completed (including HST), with a maximum grant per number of units per building – range from $3,000 to $15,000; Owner-occupied 2-3 units are eligible to receive a $100 coupon to reduce the cost of the residential assessment fee and opt for an interest free loan of up to $15,000 repayable over a maximum of 6 year term instead of a grant	Not-for-profit agency
			New Multi Unit Residential Buildings	Provides various financial incentives to	Building Envelope Incentive: $250 per unit for buildings built to meet minimum energy efficiency specifications or $500 per unit for	Not-for-profit agency

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Program Information and Rebates	developers of new multiple-unit buildings that meet an EnerGuide rating of 80 or better and incorporate additional upgrade measures related to windows and doors, insulation and efficiencies related to heating and ventilation equipment[115]	buildings that meet energy efficiency PLUS specifications[116]; central heating incentive -$1,000 per unit grant for buildings heated with high-efficiency low green house gas emitting central heating systems or $2,000 per unit for buildings heated by ground source heat pump or other low GHG option; Maximum building incentive: buildings that fall under Part 9* of the National Building Code of Canada (NBCC), the maximum incentive from Efficiency NB is limited to the least of a) 24 times the per unit incentive or b) a maximum of $35,000. For non Part 9 buildings, the total incentive is limited to the least of a) 40 times the per unit incentive or b) a maximum of $60,000 An additional ENERGY STAR® bonus incentive of $75 per unit for an ENERGY STAR® rated refrigerator or $125 per unit for an ENERGY STAR® rated refrigerator and clothes washer	

[115] http://0101.nccdn.net/1_5/179/372/3d4/Energy-Efficiency-Specifications.pdf

[116] http://0101.nccdn.net/1_5/13e/062/087/New-MURBS.jpg

Existing Commercial Buildings Retrofit Program

The *Energy Smart Commercial Buildings Retrofit Program* provides financial incentives of up to $3,000 towards an evaluation to determine the potential for energy efficiency upgrades in a commercial building and a maximum of $50,000 towards the energy retrofitting project costs.

Eligible buildings include all existing commercial buildings located in the province of New Brunswick. These include:

- Arenas
- Retail buildings
- Hotels
- Restaurants
- Office buildings
- Grocery stores
- Institutional buildings (schools, hospitals, universities)
- Large multi-unit residential buildings (footprint larger than 6,456 square feet or 600 square metres)
- Recreational facilities
- Municipal buildings
- Others

Incentives vary by building category as outlined below:

Table 46 Existing Commercial buildings retrofit incentives

Building Categories	Building Size	Audit Incentive	Retrofit Incentive
Class 1 (Small)	Up to 15,000 square feet or 1,394 square metres	50% of energy audit cost up to $1,000	$15/GJ[117] saved (up to a maximum of $30,000)
Class II (Medium)	15,000 to 75,000 square feet or 1,394 to 6,968 square metres	50% of energy audit cost up to $2,000	$10/GJ saved (up to a maximum of $50,000)
Class III (Large)	75,000 square feet and larger or 6,968 square metres and larger	50% of energy audit cost up to $3,000	$10/GJ saved (up to a maximum of $50,000)
Waste Water Treatment Plants		50% of energy audit cost up to $2,000 regardless of building size plus	Waste water treatment plants (WWTP) and associated pumping stations: $10/GJ saved

[117] Based on estimated annual energy savings determined by audit

Building Categories	Building Size	Audit Incentive	Retrofit Incentive
(WWTP):		50% of energy audit cost up to $1,000	(up to a maximum of $50,000 regardless of building size)

The program has the following conditions:

- Project must have payback periods of less than one year when bundled with complementary incentives will not qualify for funding under this program
- Applicant must provide a minimum of 12 months of historical utility data for your building
- Applicant must have an energy audit conducted by an Energy Management Service Provider registered with Natural Resources Canada. The project cannot begin prior to conducting an energy audit and receiving pre-approval from Efficiency NB
- Applicant must agree to grant Efficiency NB permission to access future utility data upon written request

New Commercial Buildings Incentive Programs

Start Smart *New Commercial Buildings Incentive Programs* provides financial incentives of up to $60,000 to offset the costs associated with designing sustainable high efficiency buildings.

The incentive for an eligible building that meets the criteria is calculated as a one-time financial contribution.

There are two paths for new commercial building construction:

Start Smart Performance Path (Energy Modelling)

The building must be modeled in reference to the Model National Energy Code for Buildings – 1997 (MNECB) to determine the estimated annual energy cost avoidance, and have achieved a performance of 30% or better than the minimum requirements.

A Screening Tool for New Building Design[118] is available to quickly estimate the energy performance of a proposed building design relative to the Model National Energy Code of Canada for Buildings (MNECB) and the rules established by NRCan New Buildings Validation. By conducting the preliminary screening, an assessment of the impact of a single measure or a combination of measures to maximize the energy efficiency of the design can be made.

The Start Smart Performance Path is best suited for buildings with a total floor area greater than 4646 m² (50,000ft²) and buildings that are being modelled as part of another program such as LEED®.

[118] http://screen.nrcan.gc.ca/

Available funding is up to two times the estimated annual energy savings to a maximum of $60,000 per eligible building. Incentives are paid out at the start of building construction (80%) and at final inspection (20%).

Designs must meet or exceed the MNECB by 30% or more. All computer model simulations must be submitted and validated by NRCan through New Building Validation.

The Performance Path is best suited for buildings with a total floor area greater than 4646 m2 (50,000 ft2).

Some examples of eligible buildings are:

- Retail buildings
- Warehouses
- Hotels
- Restaurants
- Office buildings
- Grocery stores
- Institutional buildings (schools, colleges, universities)
- Large multi-unit residential buildings (footprint greater than 6,456 square feet or 600 square metres)
- Recreational facilities
- Small and medium-sized manufacturers
- Others

Start Smart Prescriptive Path (Core Performance)

The Start Smart Prescriptive Path (Core Performance) is program designed to achieve significant, predictable energy savings in new commercial buildings. The Core Performance Guide Efficiency NB Edition is the first customized guide in Canada. The guide has been customized to NB climate and design best practices.

Start Smart Prescriptive Path provides financial incentives of up to $60,000 to offset the costs associated with designing sustainable high efficiency commercial buildings that comply with the Core Performance Guide Efficiency NB Edition. No energy modelling is required.

To be eligible for incentives, the eligible building must comply with the design process strategies and core performance requirements as outlined in the Core Performance Guide Efficiency NB Edition. Additional incentives are available for eligible buildings that also are in compliance with some or all of the enhanced performance strategies.

Compliance with the design process strategies and core performance requirements indicates that the building has achieved a predictable energy savings of 30% better or more than MNECB (1997). In general, the core performance requirements are most appropriate for new buildings and major renovations ranging from 950-6600 square metres for offices, warehouses, schools and retail, but the concepts can be applied to projects of any size and building type.

Financial incentives are available to eligible buildings that comply with the Core Performance Guide Efficiency NB Edition Sections 1 and 2 (Design Process Strategies and Core Performance Requirements). Additional incentives are available for incorporating additional measures as per Sections 3 and 4 (Enhanced Performance Strategies and Energy Modelling). Incentives are limited to a total maximum of $60,000 per eligible building.

Designs must comply with the Core Performance Guide Efficiency NB Edition Design Process Strategies and Core Performance Requirements. For additional incentives, eligible buildings must meet some or all of the enhanced performance requirements.

All new constructed commercial buildings with a total floor area between 950 m^2 and 6600 m^2 (10,000 ft^2 and 75,000 ft^2) are eligible provided that they comply with the Core Performance Guide Efficiency NB Edition and follow the program steps.

New commercial buildings that are outside these areas may be accepted on a case by case basis. Some examples of eligible buildings are:

- Retail buildings
- Warehouses
- Office buildings
- Institutional buildings (schools, colleges, universities)

Table 47 Efficiency New Brunswick commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
New Brunswick	Efficiency New Brunswick	Commercial	Existing Commercial Buildings Retrofit Program	Provides financial incentives towards an evaluation to determine the potential for energy efficiency upgrades in a commercial building and energy retrofitting project costs[119]	Incentive up to$3,000; maximum of $50,000	Not-for-profit agency
			New Commercial Buildings Incentive Program	Provides incentives of up to $60,000 to offset the costs associated with designing sustainable high efficiency buildings; two methods for building design: Performance Path (energy modelling required); Performance Prescriptive Path (no energy modelling required)	IndEco to follow up with Efficiency New Brunswick to understand incentive structure	Not-for-profit agency
			Incentive Programs and Energy Management Solutions	Program to address the needs of municipal organizations and their buildings; eligible for the Existing Commercial Building Retrofit Program	Incentive up to$3,000; maximum of $50,000	Not-for-profit agency
			Energy Management	The Energy Efficiency Capital Planning Tool[120] and its	Free	Not-for-profit

[119] http://0101.nccdn.net/1_5/339/2e8/283/EnergySmartGuide.pdf

[120] To obtain planning tool and guide, municipalities are to contact Efficiency New Brunswick

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			for Municipalities	accompanying guide was developed in order to assist municipalities and rural communities with planning and prioritizing the renewal of their physical assets and to show how savings from energy efficiency programs can be used to offset the cost to repair or replace deteriorating assets. The guide provides information on the fundamentals of capital planning and a simplified tool to help communities prioritize capital requirements		agency

Industrial Programs

Small and Medium Industrial Program

The *Small and Medium Industrial Program* is open to organizations that operate an industrial facility in New Brunswick, spend over $300,000 on energy (all fuels), and use at least 50% of energy for processing operations.

There are two main types of studies supported by the Small and Medium Industrial Program:

Opportunity Identification Study: An audit aimed at understanding energy usage and at identifying and determining the preliminary feasibility potential energy efficiency project opportunities within a facility

Business Case: A detailed feasibility assessment undertaken to build an investment-grade business case for the implementation of energy efficiency capital projects

Eligible projects include capital projects if they result in the following types of benefits:

- Measurable, sustainable energy efficiency or fuel substitution performance improvement;
- Reduced energy intensity; and/or
- Decreased greenhouse gas (GHG) emissions

Incentives include capital development and capital implementation. The capital development incentives include:

- Opportunity identification incentive: 50% of the cost of the opportunity identification study to a maximum of $15,000;
- Business case incentive: 50% of the cost of the detailed feasibility assessment to a maximum of $30,000 per facility

The capital implementation incentives include:

- the lesser of $20/GJ of actual energy savings or the amount required to reduce the net simple payback period to 1 year, taking into account incentives from all external sources or $50,000 per facility for the duration of the program

Large Industrial Program

The *Large Industrial Program* employs a custom approach with three streams of activities: Project Pipeline, Energy Management Information Systems (EMIS), and Capacity Building.

Project Pipeline

The project pipeline is aimed at providing a structured path that facilitates the identification, development, implementation and measurement of results from capital energy efficiency measures that are in alignment with the Industry Investment Criteria.

Incentives available to project pipeline are:

- Opportunity identification incentive: 50% of eligible costs to a maximum of $50,000 for preliminary energy audit and pre-feasibility report
- Business case incentive: 50% of eligible costs to a maximum of $250,000 for a detailed feasibility study and detailed feasibility report
- Energy Savings Measurement and Verification (M&V) incentive: 50% of the eligible costs to a maximum of $50,000 for the implementation of an M&V system

EMIS

An Energy Management Information System (EMIS) is a performance management system that makes energy performance visible to different levels of the organization so that actions can be taken to create financial value for the company.

Incentives available for EMIS are:

- *EMIS Audit Incentive* – 100% of eligible costs incurred to a maximum of $15,000 to conduct an EMIS audit to identify energy management information system opportunities; this activity must result in an EMIS Audit report
- *EMIS Implementation Plan Incentive* – 50% of eligible costs to a maximum of $35,000 toward the cost of conducting an EMIS audit aimed at building a business case for investment in an EMIS system. This activity must result in an EMIS implementation report
- *EMIS Implementation Incentive* – 50% of the system costs up to maximum of $100,000 for the implementation of EMIS system

Capacity Building

The Efficiency NB Industrial Program aims to contribute to a sustained energy efficiency culture in New Brunswick. In addition to financial incentives, the program provides resource material and support to build the capacity of industry and their service providers to apply best practice in the development of their energy efficiency projects.

This stream complements the financial incentives offered in the Project Pipeline and EMIS streams. Capacity development resources are available through the program to support each of the incentive activities. These resources fall into the following categories:

- Efficiency NB Industry Account Support – provides advice and technical assistance where required to coordinate incentive activities to help advance industry projects:
- Manuals and Guides – relate to the particular incented activity
- Tools – support the guidance material for the incentive activity

- Training Workshops – support the manuals and tools for the incentive activity

Industry Eligibility

The Program is open to organizations that operate an industrial facility that have a minimum average electrical load of 2MW and meet all of the Facility Eligibility Criteria laid out in the Program Guide.[121]

Projects are eligible if they result in the following types of benefits:

- Measurable, sustainable energy efficiency or fuel substitution performance improvement
- Reduced energy intensity
- Decreased greenhouse gas (GHG) emissions
- Enhanced availability and communication of energy management information
- Demonstration of results of energy savings projects

Projects include:

- Energy efficiency
- Peak demand management
- Fuel switching to renewable fuels, waste to energy
- Energy management information system implementation
- Monitoring and verification

The maximum total incentive for this program is $500,000 per client.

Program & Time Frame

The current program will run until March 31, 2012, and is available to all qualifying industries. Requests for participation in the program will be considered as they are received, and approval and allocation of qualified incentive funds for projects will occur on a first-come, first-served basis.

[121] http://0101.nccdn.net/1_5/2a1/0e0/360/lg_industry_program_guide_v1.4_en.pdf

Table 48 Efficiency New Brunswick industrial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
New Brunswick	Efficiency New Brunswick	Industrial	Small and Medium Industrial Program	Assists eligible industrial organizations to improve their competitiveness, productivity, and environmental performance through the implementation of energy efficiency improvements	Capital development incentives for: opportunity identification -50% of the cost of the study to a maximum of $15,000; business case - 50% of the cost of the detailed feasibility assessment to a maximum of $30,000 per facility Capital implementation incentive: the lesser of $20/GJ of actual energy savings or the amount required to reduce the net simple payback period to 1 year, taking into account incentives from all external sources or $50,000 per facility for the duration of the program	Not-for-profit agency
			Large Industrial Program	The Large Industrial Program is based on three streams of activities: Project Pipeline, Energy Management Information Systems (EMIS), and	Capital Project Incentives Opportunity Identification incentive: 50% of eligible costs to a maximum of $50,000 for preliminary energy audit and pre-feasibility report; Business Case incentive: 50% of eligible costs to a maximum of $250,000 for a detailed feasibility study and detailed feasibility report; Energy Savings Measurement and Verification (M&V) incentive: 50% of the eligible costs to a maximum of $50,000 for the	Not-for-profit agency

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				Capacity Building	implementation of an M&V system	

Nova Scotia Energy Efficiency Programs

Legislation

The province of Nova Scotia passed the *Energy Act, 2004* and this Act was amended in 2010.[122] One notable amendment is the provision for the Minister of Energy to establish and administer policies, programs, standards, guidelines, objectives, codes of practice, directives and approval processes related to energy; all other amendments relate to renewable energy.

Through *Efficiency Nova Scotia Corporation Act, 2009*, [123] Efficiency Nova Scotia was established as a not-for-profit organization to develop and administer programs that will help Nova Scotians reduce their energy consumption and improve their energy efficiency.

Prior to this Act, Nova Scotia Power ran electricity efficiency and conservation programs on an interim basis, funded by rate payers (as a line item on electricity bills).[124]

Regulations

Nova Scotia Power first submitted an integrated resource plan (IRP) for approval by the regulator, the Nova Scotia Utility and Review Board, in 2007. An update was completed in 2009 and a target for 2020 for greenhouse gas emissions to be 25% below 2009 levels. Nova Scotia's demand-side management program measures must pass a TRC test[125], and program contents and budgets are approved through an annual filing.[126] There are currently no incentives available to Nova Scotia Power for electricity efficiency performance and achievement of targets.

Directives

As of the date of this report, there are no directives related to energy efficiency and conservation.

Codes

Under the Nova Scotia Building Code Act,[127] the province released its Building Code Regulations in 2009. Schedule E, entitled Part 10

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122 Amendments to NS Energy Act available from http://nslegislature.ca/index.php/proceedings/bills/electricity_act_amended_bill_64/. Accessed March 31, 2011.

123 Efficiency Nova Scotia Corporation Act 2009 available from http://nslegislature.ca/legc/bills/61st_1st/3rd_read/b049.htm. Accessed March 31, 2011.

124 Prior to Nova Scotia Power's demand-side management programs in 2008, they prepared an integrated resource plan that showed it is only 1/3 as expensive to save electricity than it is to generate electricity.

125 Within Nova Scotia Power's 2012 filing, they requested that each program would have to pass the TRC test, as opposed to each program measure having to pass the test. Also, they would like to move to the Program Administrator Cost test instead of the TRC test.

126 Nova Scotia Power also meets for a half-day once per month with the Nova Scotia utility and Review Board. Through these meetings, they make ongoing changes to programs, including reallocation of money and changes to targets.

127 Building Code Act, 1989. Available from: http://nslegislature.ca/legc/statutes/buildcod.htm. Accessed June 28, 2011.

Energy Efficiency, includes minimum energy efficiency requirements for common appliances and end-uses in a building (e.g. air conditioning, tank water heaters, motors, heat pumps, etc.).

Plans

In 2010, Nova Scotia released a Renewable Electricity Plan[128] that primarily focuses on increasing the amount of electricity produced from renewable sources, and does not address electricity efficiency. The plan does, however, set out a detailed path for how the province can gradually move away from predominantly fossil fuel derived electricity (largely from coal).

Policies

There are a number of policies that have been developed with energy efficiency in mind. In 2007, the government made a commitment to green the provincial vehicle fleet.[129] In 2008, the government committed to ensuring that new buildings constructed by the province and those that the province contributes finances towards are designed and constructed to high environmental and energy efficiency standards. The province's Leadership in Energy and Environmental Design (LEED) Policy[130] directs all new provincial buildings to achieve a LEED Silver rating.

Programs

Efficiency Nova Scotia Corporation is responsible for developing and administering programs that will help Nova Scotians reduce their energy consumption and improve their energy efficiency. It was established through legislation in late 2009.

Table 49 Key players for electricity efficiency and conservation for Nova Scotia

Name	Brief overview	Links
Department of Energy	• Provincial government • Created in June 2002, the Nova Scotia Department of Energy is a consolidation of the Nova Scotia Petroleum Directorate and the energy-related activities of the Nova Scotia Department of Natural Resources • Responsible for the development of the province's energy resources	http://www.gov.ns.ca/energy/background.asp
Nova Scotia Utility and Review Board	• Independent quasi-judicial body with regulatory and adjudicative jurisdiction flowing from the Utility and Review Board Act	http://www.nsuarb.ca/index.php?option=com_frontpage&Itemid=1

128 NS Renewable Electricity Plan available from http://www.gov.ns.ca/energy/electricity/regulations.asp. Accessed March 31, 2011.

129 NS Green Fleet Policy available from http://www.conservens.ca/green-gov/green-fleet.asp. Accessed March 31, 2011.

130 NS LEED Policy available from http://www.conservens.ca/green-gov/leed.asp. Accessed March 31, 2011.

Name	Brief overview	Links
	• Under the Public Utilities Act, the Nova Scotia Utility and Review Board exercises general supervision over all electric utilities operating as public utilities within the Province • Sets rates, tolls and charges; regulations for provision of service; approval of capital expenditures in excess of $250,000	
Nova Scotia Power Incorporated	• Privately-run utility • Responsible for electricity conservation programming from 2008 to 2010	http://www.nspower.ca/en/home/default.aspx
Efficiency Nova Scotia	• Non-profit government corporation • As of end of 2010, primary electricity efficiency programming body • Programs funded mainly by rate payers, with small amount of funding from government	http://www.efficiencyns.ca/

Residential Programs

Efficiency Nova Scotia offers four residential programs: *Appliance Retirement Program, Low Income Homeowners, EnerGuide for Existing Houses and PerformancePlus*. The programs are described below in Table 50.

Table 50 Efficiency Nova Scotia residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Nova Scotia	Efficiency Nova Scotia	Residential	Appliance Retirement Program	Only full-size, working appliances aged 10 years or older will be eligible for rebates; refrigerators must be over 10 cubic feet. Appliances will be tested on site	Rebate cheque for refrigerator and freezer, $35; room air conditioner and dehumidifier, $10	Not-for-profit agency
			Low Income Homeowners	Free upgrades to electrically-heated homeowners on a low income[131]	Free	Not-for-profit agency
			EnerGuide for Existing Houses;	Residential home evaluations and rebates to upgrade the energy efficiency of the home; pre and post audits must be completed to be eligible for the incentives	Rebate program[132]	Not-for-profit agency
			PerformancePlus	New residential construction of electrically heated homes	Rebates through Conserve Nova Scotia's PerformancePlus and R-2000	Not-for-profit agency

[131] 2009 LICO chart (effective until June 2011)

[132] http://www.conservens.ca/resources/energuide/ConserveHomesRebate-APR2010-web-7.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					programs for electric space and water heating efficiency[133]	

[133] http://www.efficiencyns.ca/for_homes/energy_savings_programs/performanceplus/rebates/

Commercial Programs

Efficiency Nova Scotia offers six commercial programs including: *EnerGuide for Multi-Unit Residential Buildings, Appliance Replacement Program, Powered Right, Small Business Lighting Solutions, Smart Lighting Choices,* and *Business Energy Rebates*.

The programs are described below in Table 51.

Table 51 Efficiency Nova Scotia commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Nova Scotia	Efficiency Nova Scotia	Commercial	EnerGuide for Multi-Unit Residential Buildings	Apartment buildings with less than 20 units/3 storeys are eligible[134]	Maximum provincial rebate is $4500/building	Not-for-profit agency
			Appliance Replacement Program	Landlords or property managers of multi-unit dwellings are eligible for savings on the purchase of new refrigerators to replace their existing 10 year old or older refrigerators	Up to $200	Not-for-profit agency
			Powered Right	A direct install program including the installation of: ENERGY STAR® qualified CFLs; ENERGY STAR® LED exit lights; occupancy sensors; programmable thermostats; power bars with timers; hot water tank wraps		Not-for-profit agency
			Small Business	A free onsite assessment and installation of new, energy	80% of cost covered by the program;	Not-for-profit

[134] http://www.conservens.ca/resources/energuide/ConserveMURBRebateMay2010.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Lighting Solutions	efficient lighting [135]	remaining 20% to be paid by participant at 0% interest (on approved credit) over a 2 year period	agency
			Smart Lighting Choices	A lighting incentive program to help businesses and contractors to choose energy efficient lighting; eligible products include: high performance T8 lamps (HP T8), reduced wattage T8 lamps, and high performance ballasts	Financial incentives to the participating lighting distributors, to price premium energy efficient lighting products at the same cost as a less efficient product	Not-for-profit agency
			Business Energy Rebates	Cost-effective ways to reduce electricity; eligible products include: lighting, motors & variable speed drives; refrigeration; compressed air equipment; HVAC equipment[136]	Rebate varies by product; rebate information is found with the application forms, which are footnoted under the program description	Not-for-profit agency

[135] http://www.efficiencyns.ca/images/uploads/NSPower_SB_Lighting_Solutions.pdf

[136] http://www.efficiencyns.ca/for_businesses/energy_savings_programs/business_energy_rebates/apply/

Industrial Programs

Efficiency Nova Scotia offers two industrial programs: *Commercial and Industrial Programs Commercial* and *Industrial Custom and Commercial and Industrial New Construction*.

Commercial and Industrial Custom

The *Commercial and Industrial Custom* (C&I Custom) program offers financial incentives, technical assistance and zero % financing to help companies to embark on customized electrical energy saving projects. Efficiency Nova Scotia will work with eligible companies one-on-one to customize the program approach.

The project will typically follow a four-step process:

Preliminary Energy Audit/Scoping Study

Customers who have already identified saving opportunities may not require a preliminary audit. Others may require a cursory audit that seeks ways to lower electrical energy use and demand. To assist with the Scoping Study, Efficiency Nova Scotia can help customers find third party technical assistance; and pays 50% of customer costs (to a maximum of $1,000) for an energy audit.

Feasibility Assessment

A feasibility study may be needed to develop detailed savings and cost estimates. The feasibility study must be carried out by a professional engineer, employed by the customer or by an external firm hired by the customer. The study report will be brief. To assist in this phase, Efficiency Nova Scotia can:

- Pay up to $15,000 of customer costs for a feasibility study
- Provide a template and content guidelines for use in completing the study
- Provide test equipment that the customer or their consultant can borrow at no cost
- Efficiency Nova Scotia may accept an existing feasibility study that meets content guidelines and remains relevant, although no incentive will be paid toward the cost

Project Implementation

The incentive amount paid for each project will vary, depending on the specific needs of the customer, cost-effectiveness, the equipment involved and other factors. A maximum incentive of $500,000 will be paid for a single project. Incentives can be paid as a lump sum or at predefined project milestones to match project cash flow.

Verification

Applicants are responsible for providing information to verify costs and savings.

Eligibility

The *C&I Custom* program is available to medium and large commercial and industrial customers with a typical peak electrical demand of 250 kW or higher. Eligible projects should save at least 20,000 kWh of electrical energy per year.

Typical customers that can participate include the following:

- Education (elementary and secondary schools, universities, colleges, specialty)
- Healthcare
- Resource-based industry (fisheries, aggregates, mining, lumber, agricultural and other)
- Manufacturing and processing industries
- Municipalities (facilities and municipal systems)
- Office
- Retail
- Military
- Sports complexes
- Others, as applicable

Incentive amounts will be tailored to the requirements of each project, based on cost-effectiveness, the equipment involved and other factors. The maximum incentives for any project may be up to:

- $1,000 for a preliminary energy audit/scoping study
- $15,000 for a feasibility study
- $500,000 or 50% of eligible costs for implementation

Part of the incentive package may include an offer to provide financing for the eligible electrical efficiency projects - interest-free, repaid through equal payments on the participant's NS Power bill for up to 24 months. The maximum amount financed will vary by project.

Funding Option

The Energy Savings Account (ESA) is a funding option available through the C&I Custom program. It is intended for commercial and industrial customers who choose to manage their energy efficiency upgrades independently. Efficiency Nova Scotia will set aside a portion of the amount the customer would pay in energy efficiency to pay for the customer's incentives through the C&I Custom program.

Program eligibility includes CI customers that:

- Spent $1 million or more in 2009 on electricity
- Are not enrolled in any other Efficiency Nova Scotia energy efficiency programs

Commercial and Industrial New Construction

The *Commercial and Industrial New Construction* (CINC) program provides technical assistance and offers financial incentives to help commercial and industrial (C&I) customers create more energy efficient buildings. At the heart of the program is the Core Performance Guide which brings together criteria defining high

performance in building envelope, lighting, HVAC, power systems and controls.

All participants will follow a three-phase process:

Application

- The customer identifies the opportunity, confirms eligibility and submits a new construction application

Design Development

- Energy saving measures are identified and analyzed; the customer submits required documentation (plans, specifications and costs); and the final incentive estimate and implementation package is agreed upon

Implementation

- Project Development Agreement (PDA) is executed; the customer advises of progress; a site visit and final inspection is conducted and then the incentive is paid

Program Paths

There are two path options to choose from depending on the complexity of the project.

The **Core Performance** path:

- Is a prescriptive program to achieve significant and predictable energy savings in new commercial buildings
- It focuses on small to medium buildings (900 to 6,500 square meters [10,000 to 70,000 square feet]), but the concepts can be applied to all building sizes
- Is mostly applicable to office, school and retail buildings

If the building(s) are:

- 900 to 6,500 square meters (10,000 to 70,000 square feet), and one of the following office, school retail or warehouse

To achieve more energy savings through the Core Performance path, there are two additional steps the designer can use:

- Enhanced Performance Strategies: offers additional strategies for greater savings
- Energy Modeling: advanced step for those who want to go beyond ordinary standards. These are implemented through the Whole Building path

For projects that may be partially compatible with Core Performance, it may be necessary to identify a specific subset of the Core Performance criteria that is appropriate for the specific project.

Incentives include:

- An incentive of $10.76 per square meter ($1.00 per square foot) is available for completing the first two mandatory sections (Design Process Strategies and Requirements) Whole Building as outlined in the Core Performance Guide

- Additional custom incentive for implementing enhanced measures include $0.15 per kWh of first year electrical energy saved (to a maximum of $500,000 or 50% of eligible costs)

The **Whole Building Path** is:

- An alternative to the Core Performance path, for buildings that do not meet the size or building type requirements of the Core Performance Guide, are more complex in design, or are required to do energy modeling for another reason
- A performance-based program offering implementation incentives based on whole building energy simulation
- Incentives for buildings achieving greater than 30% performance over the Model National Energy Code for Buildings (MNECB) 1997

If the buildings are:

- 900 to 6,500 square meters (10,000 to 70,000 square feet), and one of the following:
  - Do not meet the size or building type requirements outlined in the Core Performance path,
  - Are more complex in design, and
  - Require energy modeling for another reason (such as the complexity of the design)

Then the incentives include:

- Incentive amounts are tailored to the requirements of each project, based on cost-effectiveness, the equipment involved and other factors.
- The maximum incentives for any project may be up to $500,000 or 50% of eligible costs for implementation. Financial assistance may also be provided to assist in a feasibility study. To be eligible for incentives, the applicant must follow the instructions in the New Construction Feasibility Study Guide[137]

[137] http://www.efficiencyns.ca/images/uploads/ENSC_CINC_FS_Guide_v1_0.pdf

Table 52 Efficiency Nova Scotia commercial and industrial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Nova Scotia	Efficiency Nova Scotia	Industrial	Commercial and Industrial (C&I) Custom	Helps C&I customers reduce energy consumption and embark on customized electrical energy saving projects; medium and large commercial and industrial customers are eligible with a peak electric demand of 250 kW; or new facilities (2000 sq meters or more) in design or construction phase[138]	$1000 for preliminary energy assessment; $15,000 for a feasibility study; and $500,000 or 50% of eligible costs for implementation	Not-for-profit agency
			Commercial and Industrial New Construction	Two construction paths: Core Performance and Whole Building; Core Performance is a prescriptive based program; while Whole Building includes design simulation and planning for the new facility	Incentives - Core Performance: $10.76 per square meter ($1.00 per square foot) for completing the first two mandatory sections (design process strategies and requirements) Whole Building as outlined in the Core Performance Guide; additional incentives	Not-for-profit agency

[138] http://www.efficiencyns.ca/images/uploads/NSP-C&I%20Fact%20Sheet%20v1_0.pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
					implementing enhanced measures include $0.15 per kWh of first year electrical energy saved (to a maximum of $500,000 or 50% of eligible costs); Whole Building Path: maximum incentives may be up to $500,000 or 50% of eligible costs for implementation; financial assistance may also be provided to assist in a feasibility study	

Prince Edward Island Energy Efficiency Programs

Legislation

The PEI Energy Corporation[139] was formed under the Energy Corporation Act[140] and is responsible for pursuing and promoting the development of energy systems and the generation, production, transmission and distribution of energy, in all its forms, on an economic and efficient basis. The PEI Energy Corporation also provides direction and advice to government on the formulation of policy, legislation and initiatives that pertain to energy. This group is primarily focused on producing electricity from wind and decreasing the province's dependence on imported fossil fuels.

The 2004 Renewable Energy Act required Maritime Electric Company Limited (MECL) to file an electricity energy efficiency plan and demand side management strategy with the Island Regulatory and Appeals Commission (IRAC), the utility regulator; the first plan was filed in 2006.[141] MECL has approval for a 2011-2015 DSM plan.

Regulations

As of the date of this report, PEI does not have any provincial regulations related to electricity efficiency or conservation.

The Office of Energy Efficiency (OEE), a division of the Department of Environment, Energy and Forestry, was established in early 2008 to assist Islanders in reducing their energy consumption. The OEE will be working with the provincial government to adopt minimum energy efficiency standards for appliances, equipment and other energy consuming devices. The OEE provides information about energy efficiency as well as incentive, loan and grant programs; programs must pass the TRC test.

PEI does not currently have a province-wide building code. The provincial government will be adopting energy codes and standards as part of the process towards the adoption of the National Building Code throughout the province. The code, with some exemptions for small buildings, will provide unified building standards across the province, which will complement standards for energy efficiency in buildings. Building standards and an implementation timeline will be set with escalating targets for energy efficiency over the next 5-10 years. The provincial government will also consider mandating the

139 PEI Energy Corporation website available from http://www.gov.pe.ca/eef/pec-info/dg.inc.php3. Accessed March 31, 2011.

140 PEI Energy Corporation Act available from http://www.gov.pe.ca/law/regulations/bydept.php3?dept=envengfor&website=envengfor. Accessed March 31, 2011.

141 PEI Energy Strategy; Securing our Future: Energy Efficiency and Conservation. 2008. Available from http://www.gov.pe.ca/publications/getpublication.php3?number=1464.. Accessed March 31, 2011.

energy consumption labelling of houses and buildings with special recognition of best practice and best-in-class.[142]

Directives

As of the date of this report, there are no directives relating to energy efficiency and conservation.

Codes

As of the date of this report, there are no codes relating to energy efficiency and conservation.

Plans

The Department of Environment, Energy and Forestry released, "Prince Edward Island Energy Strategy; Securing our Future: Energy, Conservation and Renewables"[143] in 2008. This document indicates that the successful implementation of new programs and initiatives in energy efficiency should lead to a 10% increase in efficiency across all sectors within 5 years. The provincial government committed to establishing a planning process in consultation with utilities and IRAC that prioritizes energy efficiency and encourages local utilities to procure all cost-effective energy efficiency (through investment in electricity energy efficiency programs), and to provide the legislative and regulatory framework that will encourage utilities to implement a least cost procurement mechanism.

Policies

The Department of Environment, Energy and Forestry in collaboration with the Maritime Electric Company prepared a 5-year energy strategy, the PEI Energy Accord,[144] that took effect March 1, 2011. The Accord is shaped by the following goals: lowering electricity rates, stabilizing electricity rates, and increasing PEI's reliance on locally-owned wind power. The Accord, while it contains a section on demand-side management, does not directly address electricity efficiency or conservation. The Accord does transfer responsibility for the creation, implementation and planning of DSM programs to the province.

142 PEI Energy Strategy; Securing our Future: Energy Efficiency and Conservation. 2008. Available from http://www.gov.pe.ca/publications/getpublication.php3?number=1464.. Accessed March 31, 2011.

143 PEI Energy Strategy available from http://www.gov.pe.ca/publications/getpublication.php3?number=1464. Accessed March 31, 2011.

144 PEI Energy Accord available from http://www.gov.pe.ca/eef/index.php3?number=1036200&lang=E. Accessed March 31, 2011.

Programs

Table 53 Key players for electricity efficiency and conservation for Prince Edward Island

Name	Brief overview	Links
Office of Energy Efficiency	• Provincial government • Mandate to provide Islanders with advice and programs that promote sustainable energy use and sound energy management • Serves as a one- stop center for provincial and federal energy efficiency programs and services • Developing new programs to cover the commercial, institutional and transportation sectors	http://www.gov.pe.ca/oee/
PEI Regulatory and Appeals Commission	• Independent quasi-judicial tribunal operating under the authority of the Island Regulatory and Appeals Commission Act • Regulates the rates of electric utilities	http://www.irac.pe.ca/
Maritime Electric Company Ltd.	• Maritime Electric owns and operates a fully integrated system providing for the generation, transmission and distribution of electricity to customers throughout Prince Edward Island • Has offered electricity conservation programs • Regulated by the PEI Regulatory and Appeals Commission	http://www.maritimeelectric.com/

Residential and Multi-residential Programs

The Office of Energy Efficiency provides six energy efficiency programs including: *PEI Energy Efficiency Loan Program, PEI Energy Efficiency Loan Program for Low-income households, PEI Energy Efficiency Loan Relief Program for Low-income households, Home Energy Low-income Program, PEI Energy Efficiency Grant Program, PEI Energy Efficiency Windows and Doors Grant Program.*

The Office of Energy Efficiency also provides a *Multi Unit Residential Buildings* program. The programs are described in Table 54.

Table 54 PEI Office of Energy Efficiency residential and multi-residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Prince Edward Island	Office of Energy Efficiency	Residential	PEI Energy Efficiency Loan Program[145]	Access to financing for energy efficiency upgrades excluding windows and doors	Loan 6% simple interest to a maximum of $10,000	Provincial government
			PEI Energy Efficiency Loan Program for Low-income households	Access to financing for energy efficiency upgrades excluding windows and doors	Interest free loan to a maximum of $10,000	Provincial government
			PEI Energy Efficiency Loan Relief Program for Low-income households	Loan relief program; residents with a household income of $0 to $15,000 are eligible for a loan with a forgivable portion of 50%; residents with a household income of $15001 to $35,000 are eligible for a loan with a forgivable portion of	Loan relief program	Provincial government

[145] http://www.gov.pe.ca/photos/sites/oee/file/oee_resform05(1).pdf

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
				25%; at the end of the term if the resident has fulfilled the program obligations the province will pay the remainder of the loan in full		
			Home Energy Low-income Program	Low-income residents who have applied for the PEI Efficiency Loan or Grant Programs are also eligible for comprehensive air sealing, installation of programmable thermostat; low flow shower head and a voucher for a free furnace cleaning	Free	Provincial government
			PEI Energy Efficiency Grant Program	Provides direct subsidies to homeowners for the implementation of energy efficiency upgrades	Grant equal to 15% of the total amount paid on upgrades to a maximum of $1,500 per household	Provincial government
			PEI Energy Efficiency Windows and Doors	Provides direct subsidies for the installation of energy efficient ENERGY STAR® qualified for PEI climate zone windows	$40 per installed window or door to a maximum of $500	Provincial government

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Grant Program	and doors		
			Multi-unit residential program	Provides financial assistance to owners of residential buildings who make energy efficient improvements; the grant is based on the energy efficiency upgrades that are identified on the PEI Multi-unit residential building (MURB) Program Energy Efficiency Upgrade List[146]	Grant: The grant is 15% of the cost of recommended upgrades completed, with a maximum grant as follows: 2-3 units $3,000; 4-6 units $6,000; 9 units $9,000; 10-12 units $12,000; 13 units $15,000; windows will not be included in the 15% grant calculation but will be eligible for a grant of $40.00 per window to a maximum of $1,000.00/ MURB; additional $300 is available to owner occupied 2–3 unit MURB's for replacement of heating system with high-efficiency ENERGY STAR® rated cold start boiler system with an indirect hot water heater or an our door air temperature sensor	Provincial government

[146] http://www.gov.pe.ca/photos/sites/oee/file/murb/PEI%20Energy%20Efficiency%20Upgrade%20List%20MURBS.pdf

Commercial Programs

The Office of Energy Efficiency offers two programs: *Energy Smart Commercial and Institutional Buildings Retrofit Program* and the *Business Energy Savings Program* described in Table 55.

Table 55 Office of Energy Efficiency commercial programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Prince Edward Island		Commercial	Commercial Sector and Institutional Buildings Program for Energy Incentives (CSIPEI)	Provides financial incentives for energy audit and retrofit project costs for commercial and institutional buildings and multi-unit residential up to 600 square metres	$3000 for an energy audit and report and$25,000 for retrofit project costs Small building (15,000 sq. ft) $15/ gigajoule (GJ) saved to a maximum of $15,000; Medium building (15,000 to 75,000) $10/GJ saved to a maximum of $20,000; Large building (75.000 sq. ft. or larger) $10/GJ saved up to a maximum of $25,000	Provincial government
			Business Energy Savings Program	A lighting retrofit program to help switch to high-performance lighting		Provincial government

Newfoundland and Labrador Energy Efficiency Programs

Legislation

There is currently no over-arching legislation for electricity efficiency and conservation in Newfoundland and Labrador.

The Electrical Power Control Act, 1994 directs the Public Utilities Board to enforce government policy in relation to the electricity industry and details the policy. Legislation directs the Public Utilities Board (PUB) to use cost of service methodology to derive rates, allowing an appropriate rate of return on a rate base of allowed costs. The PUB determines the allowed rate of return according to financial market conditions. The legislative requirement for the provision of least cost supply means utilities must consider electricity conservation before new generation. This was re-affirmed in the 2007 Energy Plan with the government commitment to maintain least-cost power as the primary objective in electricity rate setting in the province.[147]

Regulations

The utilities in NL are not required to offer demand-side management programs to customers. However, in 2007, NL Hydro was ordered to file a 5-year plan for electricity conservation;[148] Newfoundland Power (NP) was recognized as a partner in the development of the plan. Both utilities are required to annually file a report on progress made with conservation and demand management to the PUB. Utilities' demand-side management costs are approved as part of the regulatory filings (appear as line item under customer service) as part of setting rates (costs are paid through bundled retail rates). When necessary, filings specific to conservation have been made to obtain approval to defer certain CDM cost recoveries until the next rate filing.

In the 2007 Energy Plan, the importance of building codes and standards for electricity efficiency was noted. NL does not currently have a province-wide building code and for most areas of the province, building standards are a municipal responsibility. The government intends to implement a regulation/policy such that all new buildings and major renovations receiving funding from or being built by the provincial government (corporations or agencies, as well) exceed the current Model National Energy Code for buildings by 25%, and where possible, also qualify for a minimum LEED Silver standard.

147 The 2007 Energy Plan: Focusing Our Energy available from http://www.nr.gov.nl.ca/nr/energy/plan/index.html. Accessed March 31, 2011.

148 Decision and Order 2007 available from http://n225h099.pub.nf.ca/orders/order2007/pu/pu8-2007.pdf. Accessed March 31, 2011.

Directives

As of the date of this report, there are no directives relating to energy efficiency and conservation.

Codes

As of the date of this report, there are no codes relating to energy efficiency and conservation.

Plans

Newfoundland and Labrador released a provincial energy plan, Focusing Our Energy, in 2007.[149] The policy actions associated with this plan are discussed in the policy section below.

In January 2008, the Atlantic Premiers (through the Council of Atlantic Premiers, the Atlantic Energy Ministers' Forum, and the Conference of New England Governors and Eastern Canadian Premiers), released the *Atlantic Energy Framework for Collaboration*. This document highlights three priority areas for regional collaboration: enhancing energy efficiency programming, increasing renewable energy development, and assessing biofuel potential. This work is to be carried out by the Ministers responsible for energy in each Atlantic province and state.

Policies

The 2007 Energy Plan includes policy actions that the government will take. This plan focuses primarily on the supply-side of electricity generation, but does include several references to energy conservation. Currently, the province has adequate generation to meet the electricity demand and demand is forecast to grow at a moderate pace over the next few years. The government plans to develop the Lower Churchill hydroelectricity project, but the province has committed to conducting a comprehensive study of all potential long-term electricity supply options in the event that the Lower Churchill project does not proceed. To reduce reliance on the Holyrood Thermal Generating Station, which currently provides about one-quarter of the electric power capacity on the Island and produces a significant amount of greenhouse gas emissions, the provincial government has committed to maximizing energy efficiency programs. In further support of this objective, the government intends to streamline the regulatory process governing the electricity sector and while maintaining the fundamental regulatory principles, incorporating broader considerations such as conservation.

Programs

Four organizations within the Province of Newfoundland and Labrador develop and deliver energy efficiency programs for the

149 The 2007 Energy Plan: Focusing Our Energy available from http://www.nr.gov.nl.ca/nr/energy/plan/index.html. Accessed March 31, 2011.

residential and commercial market sectors. They include Newfoundland Power, Newfoundland Labrador Hydro, the Department of Natural Resources, and Newfoundland and Labrador Housing Corporation.

takeCHARGE Energy Savers Program a joint initiative between Newfoundland Power and Newfoundland and Labrador Hydro aimed at providing Newfoundlanders and Labradorians with information, tools and rebate programs to assist them in using energy wisely. Newfoundland Power serves 239,000 making up approximately 85% of all electricity consumers in the province.

Hydro, a Nalcor Energy company, is the primary generator of electricity in Newfoundland and Labrador. Hydro sells its power to utility, industrial and 35,000 residential and commercial customers in over 200 communities across the province. In addition to the *takeCHARGE Energy Savers Program* with Newfoundland Power, Hydro offers two residential programs.

The Department of Natural Resources, through the Mines and Energy Branches and the Forestry and Agrifoods Agency, delivers a variety of supports and services including energy, mining, forestry and agrifoods. Within the energy sector, the department delivers one residential program.

The Newfoundland Housing Corporation (NLHC) is committed to addressing the housing needs of the people of Newfoundland and Labrador who are most in need and to work in partnership with community groups that can contribute to an enhanced quality of life for their clients. NLHC offers one residential energy efficiency program.

Table 56 Key players for electricity efficiency and conservation for Newfoundland and Labrador

Name	Brief overview	Links
Department of Natural Resources	• Provincial government • The Energy Efficiency Division of the Department provides technical, economic, analytical and program design expertise on energy efficiency	http://www.nr.gov.nl.ca/nr/
Office of Climate Change, Energy Efficiency and Trading	• Provincial government • Has lead responsibility within Government for strategy and policy development on climate change, energy efficiency and emissions trading	http://www.exec.gov.nl.ca/exec/cceeet/index.html
NL Board of Commissioners of Public Utilities (PUB)	• Sets utility rates • Approves utility DSM plans	http://www.pub.nf.ca/
Newfoundland and Labrador Hydro (NALCOR)	• Utility • Primarily distributes in remote areas and supplies communities in Labrador • Regulated by PUB	http://www.nlh.nl.ca/
Newfoundland Power	• Utility • Distributes to majority of consumers on island portion of NL • Regulated by PUB	https://secure.newfoundlandpower.com/Default.aspx

Newfoundland Power

Residential Programs

Newfoundland Power offers three residential rebate programs through the *takeCHARGE Energy Savers Program*: *Insulation Rebate Program, Thermostat Rebate Program* and the *ENERGY STAR® Window Rebate Program* as described in Table 57.

Commercial Program

Newfoundland Power offers the *Commercial Lighting Rebate Program* described in Table 58.

Table 57 Newfoundland Power residential programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Newfoundland and Labrador	Newfoundland Power	Residential	Insulation Rebate Program	Insulation rebate program with specified levels of insulation to qualify for the rebate	Rebate is 0.1 cents/added R value /sq ft for attic insulation Rebate is 0.2 cents/added R value/sq. ft for basement insulation	Utility
			Thermostat Rebate Program	Only programmable thermostats or electronic thermostats with a temperature rating of +/- 0.5 degrees Celsius are eligible for the rebate	Rebate of $10 on programmable thermostats; $5 on electronic thermostats	Utility
			ENERGY STAR® Window Rebate Program	ENERGY STAR® Windows suited for the Newfoundland and Labrador climate	Rebate of $2 per sq. ft of installed window	Utility

Table 58 Newfoundland Power commercial program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Newfoundland and Labrador	Newfoundland Power	Commercial	Commercial Lighting Rebate Program	Helping commercial businesses by reducing the cost to upgrade from regular T8 systems to High Performance T8s	Rebate program for the replacement of lighting and ballasts[150]	Utility

[150] http://takechargenl.ca/Content/Data/Brochures/39/Commercial%20Lighting%202010.pdf

Newfoundland and Labrador Hydro Programs

Residential Programs

The *takeCHARGE Energy Savers Program* has been described in the tables under Newfoundland Power. In addition to these residential programs, Newfoundland Hydro also offers an additional program, *takeCHARGE Coupon Rebate*s, described in Table 59.

Industrial Programs

The *takeCHARGE Industrial Energy Efficiency Program* (IEEP) targets Hydro's transmission level industrials, which are currently 4 large customers. See Table 60 for the program description.

Table 59 Newfoundland and Labrador Hydro residential program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Newfoundland and Labrador	Newfoundland Hydro	Residential	Insulation Rebate Program	Insulation rebate program with specified levels of insulation to qualify for the rebate	Rebate is 0.1 cents/added R value /sq ft for attic insulation Rebate is 0.2 cents/added R value/sq. ft for basement insulation	Utility
			Thermostat Rebate Program	Only programmable thermostats or electronic thermostats with a temperature rating of +/- 0.5 degrees Celsius are eligible for the rebate	Rebate of $10 on programmable thermostats; $5 on electronic thermostats	Utility
			ENERGY STAR® Window Rebate Program	ENERGY STAR® Windows suited for the Newfoundland and Labrador climate	Rebate of $2 per sq. ft of installed window	Utility
			Energy Savers Appliance	Mail in rebate for ENERGY STAR® top-freezer refrigerators and ENERGY	Rebate of $50 for ENERGY STAR® top	Utility

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
			Rebates	STAR® dishwashers	freezer refrigerators and dishwashers	
			Energy Savers Coupon Rebates	Coupon program to provide rebates of $2-$15 off the purchase price of eight different energy saving products including compact fluorescent bulbs, ENERGY STAR® qualified indoor light fixtures; qualified outdoor motion sensor light fixtures; holiday LED lights; power bar with timer	Coupon rebates of $2-$15 off the purchase price of eight energy saving products	Utility

Table 60 Newfoundland Hydro and Labrador industrial program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Newfoundland and Labrador	Newfoundland and Labrador Hydro	Industrial	Industrial Energy Efficiency Program	Program includes full funding of a high level energy audit of the facility; feasibility study of a potential project which will be 50% funded by Hydro, up to a maximum of $50,000; project proposal where the feasibility study and other details of the project are submitted by the IC for evaluation by Hydro for capital funding	Available incentives will be the least expensive of the following three options: incentive based on first-year energy savings, at a rate of $0.1 / kWh Island, $0.045 / kWh Labrador; or an incentive sufficient to reduce the simple payback of the project to 1.5 years; or an incentive equal to 50% of eligible costs, up to $500,000	Utility

		assistance; Project Development Agreement where the facility and Hydro enter into a formal agreement outlining the project deliverables, expected energy savings, incentives to be provided by Hydro, and obligations of both parties

Department of Natural Resources Programs

Residential Programs

The Department of Natural Resources, and the Newfoundland and Labrador Housing Corporation each offer a residential program. The Department of Natural Resources offers *Newfoundland and Labrador EnerGuide for Houses*. The Newfoundland and Labrador Housing Corporation offers *Residential Energy Efficiency Program*. These programs are described in Tables 61 and 62.

Table 61 Department Ministry of Natural Resource residential program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Newfoundland and Labrador	Ministry of Natural Resources	Residential	Newfoundland and Labrador EnerGuide for Houses	EnerGuide for Houses Program offers a subsidy for home energy evaluations; grants to assist with energy efficient retrofits	Subsidy provides up to $300 for the evaluation and a grant of up to a maximum of $1,500 for completing recommended retrofits	Provincial government

Table 62 Newfoundland and Labrador Housing residential program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Newfoundland and Labrador	Newfoundland and Labrador Housing	Residential	Residential Energy Efficiency Program	Program assists low-income households in making energy retro-fits to homes; eligible homeowners must provide proof of ownership and have income levels of $32,500 or less	Grant is available for owners of single-family, row and semi-detached residential housing ; $3000/unit on the island and $4000/unit in Labrador	Provincial government

Northwest Territories Energy Efficiency Programs – Arctic Energy Alliance

The Arctic Energy Alliance (AEA) is a not-for-profit society that was incorporated under the Societies Act of the Northwest Territories on July 29, 1997 with a mandate "to help communities, consumers, producers, regulators and policymakers to work together to reduce the costs and environmental impacts of energy and utility services in the Northwest Territories".[151]

Residential and Commercial Programs

The AEA offers one incentive program that is offered to both residential and commercial/institutional customers: *Energy Efficiency Incentive Program (EEIP)*. The Alliance also offers a *Residential Service Advisory, Home Evaluation Program* and the *Borrow a Kill-A-Watt Meter™ program*. Table 63 below describes the program in more detail.

Community Programs

The AEA also promotes community plans including the development of community energy plans which are funded through Federal Gas Tax Agreement, Walter & Gordon Duncan Foundation, and the Green Municipal Fund (GMF) from the Federation of Canadian Municipalities (FCM). AEA has developed a tool kit that can be used by the communities.

There is also the Energy Conservation Program which supports projects that reduce usage of electrical and heat energy, and water. Maximum funding available for any project is $50,000. Retrofits of existing lighting, heating, ventilation, water or electrical systems can be funded up to an amount that is five times the expected annual savings in dollars. Studies, workshops or other activities that lead to future energy conservation projects will be considered.

[151] http://www.aea.nt.ca/about_us/vision_mission_goals/

Table 63 NT Arctic Energy Alliance residential and commercial/institutional programs

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Northwest Territories	Arctic Energy Alliance	Residential	Energy Efficiency Incentive Program	Rebate program for home appliances, heating appliances outboard motors, residential insulation doors, windows & drain water heat recovery systems	Rebates vary by appliance type[152]	Legislative Assembly of the Northwest Territories
			Residential Advisory Service	Free service provides clients with information, advice and answers on energy efficiency; a more in-depth audit may require a fee	Free	Legislative Assembly of the Northwest Territories
			Home Energy Evaluations	Home Energy evaluation		Legislative Assembly of the Northwest Territories
			Borrow a Kill-A-Watt Meter	The AEA has a number of kilowatt meters available to monitor home energy use	Free	Legislative Assembly of the Northwest Territories

[152] http://www.aea.nt.ca/uploads/files/128-eeip_guidelines.pdf

Yukon Energy Efficiency Programs

The Energy Solutions Centre is a branch of the Yukon Government's Department of Energy, Mines and Resources. The mandate of the branch is to encourage improvements in energy efficiency and the adoption of more forms of renewable energy. To accomplish this mandate, the branch participates in the design of energy policies, and delivers energy programs and projects that enhance the environmental, economic and social sustainability of the territory.

Residential Programs

The Energy Solutions Centre only offer one program, the *Good Energy Rebate Program,* described below in Table 64.

Table 64 Yukon's Energy Solutions Centre residential program

Province	Organization	Sector	Program name	Program activity	Type of funding	Source of funding
Yukon	Energy Solutions Centre	Residential	Good Energy Rebate Program	Rebate program for ENERGY STAR® appliances, heating appliances, water heating and transportation (outboard motors)	Rebate as various levels depending on the appliance or outboard motor[153] and the type of energy service (hydroelectric or diesel-powered)	Yukon Department of Energy, Mines and Resources

[153] http://www.energy.gov.yk.ca/pdf/eligible_products.pdf

Table 65 Per capita electricity conservation spending by province

Province	2007 Per capita spending ($)	2008Per capita spending (Absolute $/population)	2009 Per capita spending (Absolute $/population)	2010 Per capita spending (Absolute $/population)
British Columbia	$11.02[154]	$21.26	$37.43	$36.04
Alberta	$0.06	$0.07	$0.10	$0.10
Saskatchewan	Not available	Not available	$4.18	$9.47
Manitoba	$30.28	$30.78	$28.84	$26.39
Ontario	Not available	Not available	$17.67	Not available
Québec	$19.12[155]	$26.00	$32.48	$35.71
New Brunswick	Not available	$23.80	$21.65	$23.09
Nova Scotia	Not available	Not available	$12.62	$24.10
Prince Edward Island	Not available	Not available	Not available	Not available

[154] Spending for FortisBC not included

[155] Spending for Agence de l'efficacité énergétique not included

Province	2007 Per capita spending ($)	2008Per capita spending (Absolute $/population)	2009 Per capita spending (Absolute $/population)	2010 Per capita spending (Absolute $/population)
Newfoundland and Labrador	$1.77[156]	$2.13[157]	$12.04	$31.50
Northwest Territories	Not available	Not available	$6.01	$7.13
Yukon	Not available	Not available	Not available	Not available

[156] Spending for Department of Natural Resources, Newfoundland Labrador Hydro, and Newfoundland Labrador Housing Corporation not included

[157] Ibid

Appendix A – Program Manager contacts

Table 66 program contacts

Jurisdiction	Organization	Program Contact	Contact information
British Columbia	Ministry of Energy, Mines and Petroleum Resources	Andrew Pape-Salmon Director, Energy Efficiency Branch	andrew.papesalmon@gov.bc.ca (250) 952-0819
	LiveSmart BC	Cory Waters Manager, Energy Efficiency Programs	cory.waters@gov.bc.ca (250) 952-0656
	BC Hydro	Lyle McClelland Senior Business Strategy Advisor	lyle.mcclelland@bchydro.com (604) 453-9202
	FortisBC	Keith Veerman Manager - Energy Efficiency	keith.veerman@fortisbc.com (250) 469-8072
Alberta	Climate Change Central	Fred Walter Director of Energy Efficiency and Conservation	fwalter@climatechangecentral.com (403) 517-2734
	FortisAlberta	Jennifer Walsh Regulatory Affairs Manager	jennifer.walsh@fortisalberta.com (403) 514-4128
	ATCO	Mark Antonuk	mark.antonuk@atcogas.co (403) 245-7199
Saskatchewan	Saskatchewan Research Centre	Grant McVicar Director, Energy Conservation Director, BioEnergy & BioResources	mcvicar@src.sk.ca (306) 787-6033
	SaskPower	Gary Tollefson, Performance Contracting, Program Manager Manager, SaskPower	gtollefson@saskpower.com (306) 566-2895

Jurisdiction	Organization	Program Contact	Contact information
Manitoba	Manitoba Hydro	Cheryl Pilek	cdpilek@hydro.mb.ca (204) 360-4372
Ontario	OPA	Kyle O'Hearn[158] Marketing Manager, Business Markets Conservation Group	kyle.ohearn@powerauthority.on.ca (416) 969-6208
		Evelyn Lundhild Manager, Industrial Accounts, Demand Response and Industrial Programs	evelyn.lundhild@powerauthority.on.ca (416) 969-6009
Quebec	Hydro Québec	Isabelle Chartier Cheif - Stratégies et prospection Planification et intégration Direction efficacité énergétique	chartier.isabelle.3@hydro.qc.ca (514) 879- 4100 #3200
	Agence de l'efficacité énergétique	J. E. Alain Daneau Directeur Général	(418) 627-6379, x 8048
New Brunswick	Efficiency New Brunswick	Thomas Macdermott Energy Efficiency Analyst	thomas.macdermott@gnb.ca (506) 643-2874
Nova Scotia	Efficiency Nova Scotia	Chuck Faulkner Director, Efficiency Programs	cfaulkner@efficiencyns.ca (902) 470-3506
Prince Edward Island	Office of Energy Efficiency	Michael Proud	mproud@gov.pe.ca (902) 620-3690
	Maritime Electric	Kris Jackson	jacksonkr@maritimeelectric.com
Newfoundland Labrador	Newfoundland Power	Lorne Henderson Manager,Rates and Regulation	lhenders@newfoundlandpower.com (709) 737-2829
	Newfoundland Labrador Hydro	Simone Browne, Energy Efficiency	simone.browne@nlh.nl.ca (709) 737-1233

[158] Primary contact for OPA's commercial programs

Jurisdiction	Organization	Program Contact	Contact information
		Manager	
	Ministry of Natural Resources	Ashley McCarthy Energy Efficiency Program Specialist	ashleyemccarthy@gov.nl.ca (709) 729-1721
	Newfoundland Labrador Housing Corporation	Morley Linstead Manager; Home Assistance Programs	mglinstead@nlhc.nl.ca (709) 724-3293
Northwest Territories	Arctic Energy Alliance	Faye MacDonald Office Manager	fayem@aea.nt.ca (867) 920-3386
Yukon	Government of Yukon		(867) 393-7063

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