

ecoNova Scotia

FOR CLEAN AIR AND CLIMATE CHANGE

Annual Report 2008



Executive Summary	2
Introduction and Background	3
Activity Update	6
Results	13
Lessons Learned	15
Next Steps	16
Conclusion	17
Appendix A	
Project Details: Environmental Technology Program (ETP)	18
Appendix B	
Project Details: Municipal Program (MP)	19

Executive Summary

ecoNova Scotia for Clean Air and Climate Change (formerly known as the Nova Scotia EcoTrust) supports projects that reduce air emissions. Projects and initiatives under ecoNova Scotia started rolling out in November 2007 with the financial assistance of the Canada Trust, a Government of Canada Program. Support for projects will be available until March 31, 2011.

This report summarizes ecoNova Scotia's accomplishments. It notes lessons learned and lays out a strategy for future successes.

Highlights of ecoNova Scotia's accomplishments over the past 12 months:

- 43 projects supported
- \$15.5 million committed
- \$54 million in projects costs leveraged
- Projected greenhouse gas emissions reductions of 161,000 tonnes/year¹
- Projected air pollutant² reductions of 601,571 kg/year
- These reductions are the equivalent of taking 29,272³ cars off the road

These are substantial results. Nova Scotia has set a target to reduce greenhouse gas emissions to 10% below 1990 levels by 2020. That means, at our current emissions levels, we will need to eliminate about 5 million tonnes per year! The projects that ecoNova Scotia will support will bring us 3.22% closer to that goal.

¹ By 2020

² Air pollutants include SO_x, NO_x, and PM

³ Based on EPA's assumption that the average car emits 5.5 tonnes/year: <http://www.epa.gov/OMS/climate/420f05004.htm>

In other words, every \$100 of ecoNova Scotia funds spent buys:

- Over 1.04 tonnes of GHG reductions each year
- Over 3.88 kg of air pollutant reductions per year
- Over \$350 in investment in Nova Scotia based projects

The progress is impressive and there is more to come. These successes will be compounded over the next three years. As more projects are supported, more air emissions will be cut. Support from ecoNova Scotia will help accelerate the province toward its stated goal: To have one of the cleanest and most sustainable environments in the world by 2020.

For more information on ecoNova Scotia and the projects it supports, please visit our web site:

www.gov.ns.ca/ecoNovaScotia

or contact us at:

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Introduction and Background

How and why did ecoNova Scotia start?

The Government of Canada created the “Trust Fund for Clean Air and Climate Change⁴” on March 31, 2007 for the purpose of reducing greenhouse gas and air pollutant emissions across Canada. The approximately \$1.5 billion fund, held in trust, was allocated to the provinces and territories of Canada based on population. Nova Scotia’s share of the trust fund was just under \$42.5 million. These funds have been transferred to provincial accounts.

The federal government’s only requirement was that the fund’s use result in real reductions of greenhouse gas emissions and air pollutants. Recognizing that the challenges and opportunities for reducing greenhouse gas and air pollutant emissions vary across the country, the federal government did not specify ways the fund was to be used. The Government of Nova Scotia identified several projects for its portion of the fund, including: a tidal power demonstration project, a Municipal Clean Air and Climate Change Program, an Environmental Technology Program, and the Capital Health natural gas conversion project.

Who manages ecoNova Scotia?

Nova Scotia Environment was delegated responsibility for the Trust Fund. A steering committee was established to structure the details of the initiatives to be supported. The steering committee is co-chaired by the provincial departments of Environment and Energy. Its members come from Conserve Nova Scotia, Economic Development, Service Nova Scotia and Municipal Relations, Treasury and Policy Board, and the Department of Finance. Other departments and agencies are brought in to assist as needed.

The following organizational chart details the Project Approval Process for ecoNova Scotia:



The ecoNova Scotia staff (a fund coordinator and engineer plus administrative support) handles the day-to-day operation of the fund and its projects under the direction of the manager of the Air Quality Branch of Nova Scotia Environment.

The Steering Committee oversees the use of the ecoNova Scotia fund. It evaluates both previously identified projects and new project proposals received. Projects are reviewed by the Steering Committee and recommendations are made to the Deputy Minister and Minister of Environment for expenditures under \$250,000. Expenditures over \$250,000 must be approved by the Deputy Ministers’ Forum on Sustainable Prosperity and Executive Council.

⁴ The fund was originally announced as the “Canada EcoTrust for Clean Air and Climate Change”. Link to announcement: <http://www.ecoaction.gc.ca/news-nouvelles/20070512-eng.cfm>

How will it be spent?

The ecoNova Scotia Steering Committee developed a business plan for the use of the Trust Fund that was approved by Executive Council in October 2007. It includes support for projects that were previously identified priorities for the province, such as tidal energy and the conversion of Capital Health facilities to natural gas. It also recognizes that our communities, businesses and institutions play an important role in reducing air emissions.

As a result, approximately half of the fund will be allocated to previously identified opportunities and half will be made available to projects led by communities, businesses, and institutions. The following budget details these allocations:

ecoNOVA SCOTIA BUDGET — COMMITTED PROJECT (to be reviewed annually)

Environmental Technology Program	
Open to Application ⁵	\$9.5 million
Tidal Energy Demonstration Project	5.0 million
Capital Health Conversion to Natural Gas	3.5 to 5 million
Wind Integration Study	0.350 million
Future Projects	4.0 million
Municipal Program ⁶	7.5 million
Government House-In-Order	4.15 million
Contingency	6.0 million
Administration	1.0 million
Total	\$42.5 million

It is important to note that this budget can be adjusted to ensure benefits are maximized and support is given where needed most. It will be reviewed annually to ensure expenditures adhere to ecoNova Scotia objectives and to maximize environmental and economic benefits to Nova Scotia.

What are the objectives for ecoNova Scotia?

The objectives of ecoNova Scotia were formatted to match the air emissions objectives outlined in the *Environmental Goals and Sustainable Prosperity Act — 2007*, including:

- a reduction of greenhouse gas emissions of at least 10% below 1990 levels by 2020;
- a reduction of emissions of nitrogen oxides by twenty per cent by the year 2009, relative to emissions in the year 2000;
- a reduction of sulphur dioxide emissions by fifty per cent by the year 2010, from sources existing in 2001;
- a reduction of mercury emissions by seventy per cent by the year 2010 relative to pre-2001 levels;
- meeting the Canada Wide Standard for airborne fine-particulate matter by 2010; and
- meeting the Canada Wide Standard for ground-level ozone by 2010.

The goals listed above form the basis for action by the Government of Nova Scotia on climate change and air quality and, as such, are also the basis for the goals and objectives of ecoNova Scotia for Clean Air and Climate Change. Projects that help the province achieve these goals can be considered for ecoNova Scotia funding.

Other broad principles for the utilization of the fund were incorporated, including:

- Innovative/demonstrative development and/or use of environmental technologies
- Economic benefits in Nova Scotia
- Investment by other public and private sector organizations (ecoNova Scotia limits contributions to 50% of project costs in most cases)
- Significant impact beyond the immediate scope of the project proposed

⁵ The Environmental Technology Program is open to application from Nova Scotia businesses, organizations or institutions.

⁶ The Municipal Program is open to application from any of Nova Scotia's 55 municipal units.

How are projects evaluated?

When projects and initiatives are identified for ecoNova Scotia funding, they are evaluated against the objectives and principles outlined above. A standardized scoring process has been instituted for the Environmental Technology Program and the Municipal Program to allow for a fair and efficient evaluation of all applications.

Outside of those two programs, initiatives are assessed by the ecoNova Scotia Steering Committee. If the committee finds they meet the objectives and principles of ecoNova Scotia, they are recommended for support. All potential projects are also assessed by how much they may affect the ecoNova Scotia budget. The goal is to support projects until March 2011, therefore, larger requests may be modified to preserve the integrity of the fund until that date.

What projects have you supported so far?

ecoNova Scotia has committed to support 43 projects. Details of these projects are in the following section.

Activity Update: Summary

As of October 2008, ecoNova Scotia has committed to support 43 projects with a total of \$15.5 million in project grants. The following table summarizes the commitments and expenditures incurred to date as compared to the original budget:

COMMITMENTS AND EXPENDITURES INCURRED TO DATE AS COMPARED TO THE ORIGINAL BUDGET

Category		Budgeted	Committed/Expenditures	Remaining
Environmental Technologies	Environmental Technology Program (ETP)	9,500,000	2,094,333	7,405,667
	Tidal Energy Demonstration Project	5,000,000	5,000,000	0
	Capital Health natural gas conversion	5,000,000	3,500,000	1,500,000 ⁷
	Wind Integration Study	350,000	350,000	0
	Future Projects ⁸	4,000,000	0	4,000,000
Municipal Program (MP)		7,500,000	2,501,266	4,998,734
Government House-In-Order		4,150,000	0	4,150,000
Contingency		6,000,000	2,000,000	4,000,000
Administration		1,000,000	95,500	904,500
Totals		\$42,500,000	\$15,541,099	\$26,958,901

The activities in this chart are explained in detail below.

This budget will be reviewed at least annually to ensure that allocations reflect need. Upon recommendation from the steering committee, funds may be re-allocated to better capitalize on real opportunities for air emissions reductions and projects with significant benefit to the province.

⁷ The conversion of Capital Health facilities to natural gas will receive \$3.5 million. If the scope of the project was expanded to elicit further emissions reductions, another \$1.5 million was available. For details, see page 9.

⁸ Other initiatives to be supported by ecoNova Scotia have been previously identified, but the final details have yet to be released.

Activity Update: Details

The following section will provide details on the projects and initiatives supported by ecoNova Scotia as outlined above.

ENVIRONMENTAL TECHNOLOGY PROGRAM (ETP)

The ecoNova Scotia Environmental Technology Program has \$9.5 million available to support projects initiated by Nova Scotia businesses, institutions and organizations. The ETP accepts project applications every three months. Three rounds of applications have been evaluated. Results include:

ecoNova Scotia Commitment

\$2,094,333 in grants committed to 11 projects

Total Project Costs

This will leverage over \$5.6 million more from other private and public sources for total project costs of over \$7.7 million — all invested in Nova Scotia

Direct GHG Emissions Reductions

51,863 tonnes per year (projected)

Direct Air Pollutant Reductions

222,754 kg per year (projected)

Cars Off the Road

9,430

Other Benefits

Support of 'made-in-Nova Scotia' projects and technologies, job maintenance and creation, opportunities for export

Projects approved under this program are evaluated using a standardized scoring process. This takes into account the objectives of ecoNova Scotia as well as the strength of the business plan. Projects must be innovative and/or demonstrative to be successful.

The air emissions reductions calculated directly relate to the projects as proposed. This does not take into account the emissions reductions realized by transforming the market in Nova Scotia, or the reductions realized outside of Nova Scotia due to technology exports.

Applications to this fund are expected to increase substantially over the next two years as stakeholders become more engaged and aware. Six funding rounds remain.

Information on specific projects supported is in Appendix A. More information on this program is at www.gov.ns.ca/ecoNovaScotia



Carbon Sense Solutions and Shaw Brick will demonstrate technology that captures air emissions in pre-formed concrete products. GHG emissions could be reduced by as much as 20,000 tonnes/year.

TIDAL ENERGY DEMONSTRATION PROJECT

The potential to generate electricity from Nova Scotia's world class tides was highlighted in a 2006 study by the Electric Power Research Institute Inc. (EPRI). As a matter of fact, the Bay of Fundy could be the most potent⁹ site for tidal energy generation in North America or even the world.

But there are many questions to be answered before we begin to develop this renewable energy resource. Primarily, we must understand how this new technology will interact with the ecology of the Bay of Fundy as well as how the technology can survive in this demanding environment.

To gain a better understanding of the true potential for tidal energy in Nova Scotia, ecoNova Scotia will support the development of a "Tidal Energy Demonstration Project" in the Minas Basin. Some details:

ecoNova Scotia Commitment

\$5,000,000

Approximate Costs for Facility Only

\$14,000,000

GHG Emissions Reductions

12,166 tonnes per year (projected)¹⁰

Air Pollutant Reductions

35,740 kg per year (projected)

Cars Off the Road

2,212

Other Benefits

Development of a new industry in Nova Scotia and attraction of investment in renewable energy projects.

These figures represent the demonstration project only, which will see three separate technologies with a capacity of 4 MW demonstrated in the waters of the Minas Basin. If successful, tidal energy could supply as much as 10% of Nova Scotia's electricity needs, or 300 MW of clean, renewable energy. This could result in exponential emissions reductions and equate to millions of dollars more invested in the province.

ecoNova Scotia has committed \$4.7 million to the construction of the facility where this technology will be demonstrated, and \$300,000 to facilitate the regulatory development and environmental research required to move this project forward.

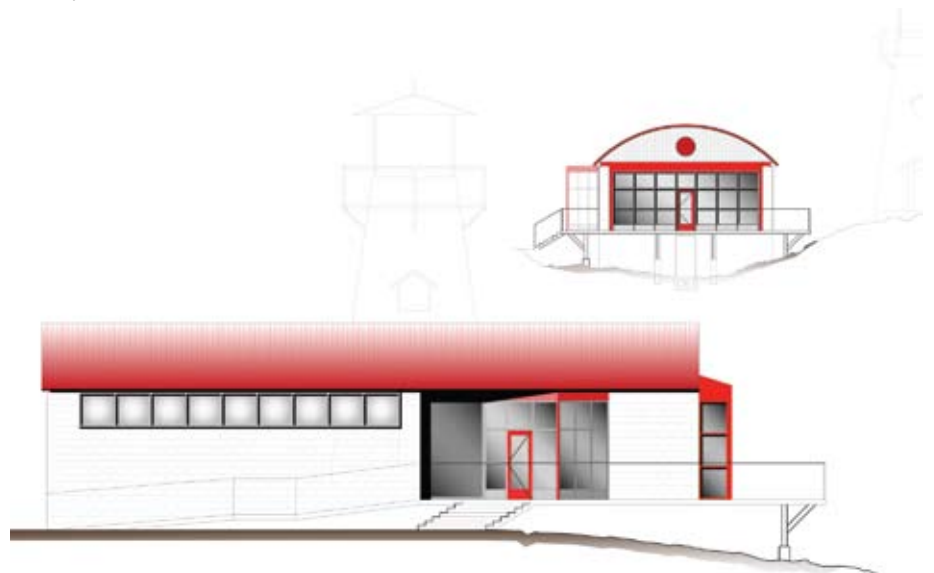


Illustration of the facility where the tidal energy project will be monitored.

⁹ <http://www.gov.ns.ca/energy/renewables/public-education/tidal.asp>

¹⁰ Based on technologies rated at a total of 4 MW and a capacity factor of 40%.

CAPITAL HEALTH CONVERSION TO NATURAL GAS (VG and Camp Hill Facilities)

Natural gas has been available as an alternate fuel source in Nova Scotia for several years. It offers an advantage over other fossil fuels. It burns more efficiently, resulting in fewer greenhouse gas and air pollutant emissions per unit of energy.

These benefits are amplified when applied to large consumers, such as the VG and Camp Hill facilities of Capital Health, in Halifax. These facilities consume over 18 million litres of heavy fuel oil each year to provide heat and hot water to Atlantic Canada's largest hospital complex.

With the support of ecoNova Scotia, Capital Health will convert these facilities from burning heavy fuel oil to natural gas over the next 12 months. Project details:

ecoNova Scotia Commitment

\$3,500,000

Total Project Costs

Up to \$6,000,000

GHG Emissions Reductions

15,000 tonnes per year

Air Pollutant Reductions

244,900 kg per year (SO₂, NO₂ and PM)

Cars Off the Road

2,727

Other Benefits

Cleaner air for the people who live, work and play on the Halifax peninsula and surrounding area

This project was the catalyst for the extension of the Heritage Gas distribution system to the Halifax peninsula. Capital Health represented the large anchor load needed to justify the expenditure to put gas pipelines under Halifax harbour.

In the months that natural gas has been available on the peninsula, over 229 other customers have signed on. This results in further greenhouse gas emissions reductions of 5,000 tonnes per year and air pollutant reductions of 83,498 kg per year¹¹. These reductions are the equivalent of taking another 900 cars off the road. Emissions reductions will continue to increase as the gas distribution network expands and more people switch.

An additional \$1.5 million was nominally allocated to this project if the scope were to be expanded to elicit further emissions reductions — cogeneration or district heating, for example. As the project will be a straight conversion of existing facilities, the Steering Committee will recommend options for re-allocation of the remaining funds.



Switching to natural gas will lower the hospital's carbon footprint and result in cleaner air in Halifax.

¹¹ Based on conversion from light fuel oil (No. 2) only.

WIND INTEGRATION STUDY

Nova Scotia has in place aggressive targets to increase the amount of electricity generated from renewable sources. The Renewable Energy Standard (RES)¹² requires electricity producing entities in the province to incorporate renewable energy in their generation mix. By 2013, over 20% of electricity will come from clean, renewable energy.

The most feasible option available to meet that obligation in the short term is wind energy. In fact, we have seen the number of commercial turbines in the province grow from two in 2002 to 60 today. But wind energy presents some challenges especially as it relates to our electricity distribution system, “the grid”.

Wind energy can be intermittent and it is difficult to accurately predict energy production on an hour-by-hour and day-by-day basis. Because of its intermittent nature, it can also affect the capacity of our grid to deliver electricity when and where it is needed. We are left with the question: ‘how much wind energy can we develop in Nova Scotia without adversely affecting the grid?’ To address these issues and others, the Department of Energy, with the support of \$350,000 from ecoNova Scotia, commissioned the ‘Nova Scotia Wind Integration Study’.¹³

The study was completed in 2008. It evaluates the impact of the current Renewable Energy Standard and examines opportunities after 2013 for wind energy. The highlights of the report’s findings include:

- by 2010, total electricity production from renewable energy could reach 16% with no impact on the grid
- this represents a 550,000 tonnes per year reduction in GHGs (100,000 cars off the road)
- by 2013, total electricity production from renewable energy could reach 22% with moderate impact on the grid
- this represents an additional 750,000 tonnes per year reduction in GHGs (136,000 cars off the road)
- expansion of intermittent renewable energy in Nova Scotia beyond this point will require significant investment to upgrade the transmission system — this investment could be partially or fully offset by the avoided cost of emitting GHGs

The results of this comprehensive study will be used to guide future policy and regulation of the government as it relates to renewable energy and electricity production.

FUTURE PROJECTS

Some initiatives identified as potentially eligible to receive support from ecoNova Scotia have not been announced. The details of these projects are still being determined. These projects will be rolled out as details are finalized.

¹² For information on Nova Scotia’s RES, click on the link, or visit: <http://www.gov.ns.ca/energy/renewables/renewable-energy-standard/>

¹³ To download the report, click on the link or visit: <http://www.gov.ns.ca/energy/resources/EM/Wind/NS-Wind-Integration-Study-FINAL.pdf>

MUNICIPAL PROGRAM (MP)

ecoNova Scotia's Municipal Program has \$7.5 million available to support projects initiated by Nova Scotia's 55 municipal units. The MP accepts project applications every three months. Three rounds of applications have been evaluated and approved. Results include:

ecoNova Scotia Commitments

\$2,501,266 in grants committed to 28 projects

Total Project Costs

This will leverage over \$2.9 million more from other private and public sources for total project costs of approx. \$5.5 million — all invested in Nova Scotian communities

Direct GHG Emissions Reductions

6,809 tonnes per year (projected)

Direct Air Pollutants Reductions

8,825 kg per year (projected)

Cars Off the Road

1,238

Other Benefits

These grants will support community-based projects, helping our municipalities lower energy costs and act as an example to their constituents



Fire stations in HRM will be cleaner and greener.

Projects approved under this program are evaluated using a standardized scoring process. This takes into account the objectives of ecoNova Scotia as well as the strength of the business plan.

The air emissions reductions calculated directly relate to the projects as proposed. This does not take into account the emissions reductions realized by transforming the market in Nova Scotia.

Applications to this fund are expected to increase substantially over the remaining six rounds as municipal units complete the required energy and emissions inventory/audit.¹⁴ When the fund was launched, only 5 municipalities in the province had completed that work and were eligible for capital grants. As of October 2008, 25 municipalities have, or are in the process of, completing this work.

Information on specific projects supported can be found in Appendix A. More information on this program can be found at www.gov.ns.ca/ecoNovaScotia

GOVERNMENT HOUSE-IN-ORDER

The Government of Nova Scotia is one of the largest employers in the province. It owns and operates a vast inventory of buildings, vehicles, computers, etc.; all of these require energy. To be a good environmental role model, the government has developed policies to reduce emissions from its own operations. New government buildings must be built to maximize energy efficiency and minimize water consumption, and new vehicles must meet minimum fuel efficiency standards.

One of the biggest opportunities for government to reduce its own air emissions is to retrofit existing buildings to increase energy efficiency. ecoNova Scotia will contribute \$4,150,000 to a project that will retrofit a suite of government buildings. This will reduce greenhouse gas and air pollutant emissions from government operations and demonstrate the benefits of such comprehensive projects.

As this project is still under development, it is not included in the calculations of this annual report. Details will be announced as they become available.

¹⁴ Municipalities must measure their internal energy use and emissions, and identify opportunities to reduce both through an audit of their operations before they can access grants for capital projects. The Municipal Program supports these projects up to \$10,000 or 80% of total costs. 19 have been supported to date.

CONTINGENCY FUND

Recognizing that opportunities for the ecoNova Scotia fund may continue to present themselves, a portion of the ecoNova Scotia fund was set aside to ensure resources were available should exceptional projects be identified. To date, this allocation has been used to fund one project:

Minas Basin Pulp and Power Ltd. of Hantsport will build and operate a biomass-fired cogeneration facility as part of a larger initiative to reduce its environmental impact while stabilizing its operations. They will replace 15 million litres of heavy fuel oil with 150,000 tonnes of biomass (wood fiber) per year to produce steam for their operations and 5 to 7 MW of electricity.

ecoNova Scotia Commitments

\$2,000,000

Total Project Costs

\$20,500,000 million (includes the cogeneration facility and a plastics-to-diesel plant)

Direct GHG Emissions Reductions

75,000 tonnes per year (projected)¹⁵

Direct Air Pollutants Reductions

89,352 kg per year (projected)

Cars Off the Road

13,636

Other Benefits

Will support a rural-based Nova Scotian company as it transitions to sustainable operation, and will result in 20 new jobs

The remaining funds in this category will be reviewed by January 2009 and may be redistributed to other ecoNova Scotia initiatives if needed. Details on projects will be announced as they are made available.



Minas Basin Pulp and Power

ADMINISTRATION

To ensure the efficient and responsible maintenance, oversight and promotion of the ecoNova Scotia fund, \$1,000,000 — 2.35% of the total fund — was allocated to administration costs. To date, approximately \$95,000 of that has been spent on:

- ecoNova Scotia Coordinator — temporarily in place August 2007, hired April 2008
- ecoNova Scotia Engineer — hired September 2008
- Administration support services
- Printing and promotions
- Office equipment

Administration costs were estimated at \$100,000 for the first (partial) year, and \$300,000 for each remaining year. As with all allocations, this will be reviewed annually and adjusted as necessary.

¹⁵ Includes reductions from the replacement of heavy fuel oil and the production of electricity. More accurate figures will be available as the project develops.

ecoNova Scotia: Results

Based on current activity, every \$100 of ecoNova Scotia funds spent will result in:

- 1.04+ tonnes of GHG emissions reductions
- 3.88+ kg of air pollutant emissions reductions
- \$350+ invested in Nova Scotian projects

Environmental Benefits

These projects will significantly cut greenhouse gas and air pollutant emissions in Nova Scotia. We predict that, by 2020, these projects will directly reduce:

- greenhouse gas emissions by 161,000 tonnes/year, and
- air pollutants by 601,571 kg/year.

These emissions reductions are the equivalent of taking 29,243 cars off the road.

This represents an ecoNova Scotia investment of about \$96/tonne for GHG reductions and \$26/kg for air pollutant reductions.

Some of these reductions will be realized immediately as projects are completed (for example, the energy efficiency upgrades that are being implemented by HRM, the Town of New Glasgow, and the Windsor Curling Club). Some reductions will build up over time, as will be the case with the development and distribution of new residential-scale wind turbines and solar hot water panels.

These emissions reductions relate to only the projects directly supported by ecoNova Scotia. Many projects will also result in ‘spin off’ reductions as they transform technology and standard practices in the province, encouraging other innovations. For example, the conversion of Capital Health facilities to natural gas will directly result in 15,000 tonnes of greenhouse gas emissions reductions. It has also enabled access to natural gas for customers on the Halifax peninsula. Two hundred and twenty nine customers have signed on so far. That means another 5,000 tonnes of GHG reductions per year. There will be still more emissions reductions as more customers sign on.

Another example is the impact of the Municipal Program. Supporting projects of our municipal units will help make it a standard practice in communities to account for air emissions and energy consumption. Building retrofits, new construction, and other projects across the province will now incorporate “best practice” energy efficiency and renewable energy technologies.

Economic Benefits

The investment of ecoNova Scotia funds in the projects outlined above will result in significant economic benefits. The \$15.5 million committed to projects will leverage an additional \$38.5 million in other funds — resulting in \$54 million in economic activity in Nova Scotia over the next 3 years. These numbers will increase as more projects are identified and funded.

This means that for every \$100 of ecoNova Scotia funds invested, \$350 in total will be spent on projects in the province — a ratio of 1:3.5. This includes only projects which have received firm commitments. These numbers will improve as ecoNova Scotia continues to invest in good projects.

These projects will also directly and indirectly create jobs. For example, the Minas Basin Pulp and Power project is expected to create 20 jobs. Additional job creation will be realized as projects supported move from the development phase to the commercial application. Several projects under the Environmental Technology Program could result in new manufacturing jobs, and the tidal energy demonstration project will need people to manage, maintain and analyze it.

Indirectly, this economic activity will create demand for Nova Scotia's skilled trades people, consultants, and academics. Engineering, design and completion of new buildings and retrofits will require architects, engineers and construction workers. Product commercialization and demonstration projects will require research, manufacturing, testing and project management. Spin-off jobs could be substantial.

This activity will also help create an industry in Nova Scotia that is trained and prepared to respond to the demand for “green” projects. It will encourage the adoption of a sustainable business model.

Social Benefits

The social benefits of ecoNova Scotia will be substantial, but more difficult to quantify. Obviously the expenditure of \$54 million will help move Nova Scotia to a more sustainable and stable economy — one based on environmental technologies. The several projects being supported that will result in new products will create high value jobs that can strengthen the financial situation of many.

Reducing air emissions will result in better local air quality and better health for our citizens. For example, converting the Capital Health facilities from heavy oil to natural gas will reduce emissions of harmful local air pollutants by 250,000 kg per year in the heavily populated Halifax peninsula. This will improve the health and well-being of many. The same benefits will be realized from projects that replace fossil fuel generated energy with cleaner sources, such as renewable energy.

Strengthening our communities through the Municipal Program will help them deal better with rising energy costs. It will help them adopt a more sustainable lifestyle. Municipal units are developing and managing community-based initiatives that will see substantial energy retrofits of buildings, construction of energy efficient facilities, and projects that aim to help their constituents.

Lessons Learned

ecoNova Scotia has been supporting projects for 12 months and over that time has improved the way it manages, administers, and evaluates its operations. The following points highlight the lessons learned over the past year.

Resources

Initiation of the ecoNova Scotia fund began in earnest when the necessary human resources were in place. The scope of ecoNova Scotia has increased substantially from a few previously identified projects, to 43 projects — and that number will continue to grow for at least the next year. Proper management, administration, promotion and evaluation of ecoNova Scotia will require, at minimum, a coordinator, an engineer and an administration support person — all dedicated solely to this project.

Interdepartmental Communication

Several of the previously identified projects are being led by departments other than Nova Scotia Environment. For example, the tidal energy demonstration project falls under the direction of the Department of Energy and the Capital Health project under Department of Health. To address this issue, interdepartmental memorandums of understanding will be established between Environment and the other departments. These MOUs will clarify roles and responsibilities; outline a framework for the use of ecoNova Scotia funds; and allow for more effective communication in the future.

Regular Review and Evaluation

The ETP and MP funds of ecoNova Scotia allow for grant application from key stakeholders. Although these programs were designed to be clear and effective avenues to support air emission reducing projects, execution of the programs over three rounds has identified the need for several adjustments. The Steering Committee reviews the framework of the

ETP and MP after each round and recommends changes to improve their effectiveness. This has resulted in more efficient, better managed programs.

Governance

The role of the Steering Committee has evolved over the past year. In the beginning, it was in place to help develop the format of the ecoNova Scotia fund. Now that a framework is in place, their role has changed to one which evaluates individual project proposals and oversees the whole ecoNova Scotia fund. The Steering Committee now holds regular meetings, tracks its decision-making process, and understands the exact reporting framework required by government for accountability.

Communications & Promotions

While ecoNova Scotia has been successful in meeting its objectives so far, continuous communication and promotion of its programs' successes are needed. The ecoNova Scotia staff has conducted presentations to key stakeholder groups over the past year including: the Union of Nova Scotia Municipalities, the Industrial Research Assistance Program, Acadia University, the Nova Scotia Association of Regional Development Authorities, provincial departments and agencies, and others. ecoNova Scotia will continue to provide presentations to stakeholders and will also produce and distribute a quarterly 'newsletter' highlighting new projects and providing updates on others. We will also produce and distribute 'case studies' for individual projects as they are completed.

Next Steps

To ensure the continued success of ecoNova Scotia, a number of key activities are scheduled. These include:

1. Conduct a Budget Review

By December 2008, ecoNova Scotia should review current commitments. As ecoNova Scotia must identify projects by March 31, 2010 and spend all funds by March 31, 2011, available time to identify projects is rapidly shrinking.

2. Review ETP and MP funds

The ETP and MP funds are open to application from the public every three months. There will be nine funding rounds in total, and while current commitments have not overextended their budgeted \$17 million, uptake of these programs is expected to increase over the next two years. The Steering Committee may have to evaluate the ability of the remaining ETP and MP funds to meet future commitments and make adjustments as necessary.

3. Develop a Communications Plan

Promotion of ecoNova Scotia's programs and successes is needed. This issue should be addressed in the development and execution of a communications plan which targets key stakeholders and develops materials to raise awareness of our successes.

4. Develop a Review Process for Completed Projects

So far, ecoNova Scotia has committed to support 43 Projects and this number will continue to grow over the next year. Once these projects are completed, a standardized system of review should be developed and executed. This review process should be open, fair and communicated to all partners and verify the projected benefits as outlined in the proposals. It should include an analysis of actual versus projected emissions reductions, expenditures, economic and social benefits as well as detail any lessons learned.

5. Verification of Benefits

The calculations contained in this report represent the current status of all ecoNova Scotia projects. This information was compiled by ecoNova Scotia staff and reviewed by the steering committee. It is recognized that ecoNova Scotia projects may evolve over time, altering scope and impact. ecoNova Scotia projects should be reviewed and the benefits regularly verified — possibly at the March 31, 2011 deadline for expenditures.

6. Annual Report Updates

The annual report should update all funded projects and detail actual versus proposed emissions reductions. This report should be available to the public to communicate ecoNova Scotia's results and promote its programs.

7. ecoNova Scotia Continuation

The success of ecoNova Scotia has been substantial so far. The province will encourage the federal government and other partners to support further reductions and innovations past March 2011 via an "ecoNova Scotia II".

Conclusion

Over the past 12 months, ecoNova Scotia has had great success! The projects being supported will:

- Result in absolute greenhouse gas and air pollutant reductions, and build the potential for more;
- Help Nova Scotian communities, businesses and institutions contribute solutions to our environmental challenges;
- Usher in the next generation of environmental technologies; and
- Move Nova Scotia to a more sustainable economy

This unique environmental fund was made possible by the Government of Canada. In future, ecoNova Scotia for Clean Air and Climate Change will support more projects that exceed these achievements and bring even greater environmental and economic health to the province of Nova Scotia.

For more information on ecoNova Scotia and the projects it supports, please visit our web site:
www.gov.ns.ca/ecoNovaScotia

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Appendix A

Project Details: Environmental Technology Program (ETP)

The chart below provides details of committed project grants under the Environmental Technology Program as of October 2008. Proponents are listed in alphabetical order and round approved in parenthesis.

Proponent	Description	ETP Grant	Total Project Costs	Environmental Benefits*
Carbon Sense Solutions (2)	Commercial demonstration of technology that captures carbon in pre-formed concrete (in partnership with Shaw Brick)	\$141,718	\$344,831	CO ₂ – 20000 t/yr if successful and applied throughout NS
Eon WindElectric (2)	Development of a cost effective residential scale wind turbine	\$73,317	\$152,633	CO ₂ – 488 t/yr based on projected sales of 300 units in NS
Nova Scotia Federation of Agriculture (1)	Will develop a system to audit energy use and identify opportunities to reduce consumption at NS farms —13 farms will be audited	\$37,000	\$83,000	CO ₂ – 120 t/yr from these farms alone — more predicted with uptake
Parrsboro Metal Fabricators (1)	Design and develop a commercial scale biomass boiler to encourage fuel switching	\$156,612	\$608,510	CO ₂ – 680 t/yr based on sales of 20 units in NS
Scotian Windfields Inc. (2)	Will demonstrate renewable energy storage technology with a wind project	\$350,000	\$1,770,000	CO ₂ – 425 t/yr SO _x – 6700 kg/yr NO _x – 1350 kg/yr
SF Rendering (2)	Develop, test and market a grass-based pellet for energy production	\$142,057	\$284,114	CO ₂ – 146 t/yr
South Shore Fieldhouse Society (3)	Build new indoor soccer field to include geothermal and other more efficient technologies	\$160,000	\$514,903	CO ₂ – 160 t/yr SO _x – 1718 kg/yr NO _x – 420 kg/yr
Université Sainte-Anne (2)	Will convert their oil-fired boiler to a combination biomass boiler and solar hot water system	\$614,000	\$1,928,000	CO ₂ – 1331 t/yr SO _x – 3800 kg/yr NO _x – 100 kg/yr
Thermo Dynamics (2)	Design improvements to existing thermal panel technology to become more cost effective — benefits based on sales of 10,000 panels in NS	\$81,000	\$178,000	CO ₂ – 25000 t/yr SO _x – 170000 kg/yr NO _x – 38000 kg/yr
TROPE Research Design (3)	Design and commercialize a new window panel for commercial buildings that more efficiently transfer heat from warm to cool areas	\$189,569	\$1,312,174	CO ₂ – 3450 t/yr based on sales of 3000 units in NS
Windsor Curling Club (1)	Construct new facility to incorporate more efficient technology	\$149,060	\$530,565	CO ₂ – 63 t/yr SO _x – 538 kg/yr NO _x – 128 kg/yr
TOTALS	11 projects	\$2,094,333	\$7,706,780	CO₂ – 51,863 t/yr SO_x – 182,756 kg/yr NO_x – 39,998 kg/yr

* Environmental benefits are presented in potential emissions reduction per pollutant in Nova Scotia projected out to 2020.

Appendix B

Project Details: Municipal Program (MP)

The chart below provides details of committed project grants under the Municipal Program as of October 2008. Proponents are listed in alphabetical order and round approved in parenthesis.

Proponent	Description	MP Grant	Total Project Costs	Environmental Benefits*
Annapolis County (2)	Energy Emissions Inventory & Audit**	\$ 10,000	\$ 31,031	Capacity building
Antigonish Municipality (1)	Energy Emissions Inventory & Audit	\$ 6,014	\$ 11,308	Capacity building
Antigonish Municipality (2)	Septage/sludge dewatering truck will reduce diesel consumption and close lagoons & methane emissions	\$ 150,000	\$ 300,000	CO ₂ – 157 t/yr SO _x – 81 kg/yr NO _x – 1238 kg/yr
Berwick (1)	Energy Emissions Inventory & Audit	\$ 6,000	\$ 8,000	Capacity building
Berwick (3)	Energy monitors will be placed on 200 homes to measure reductions from “seeing” real time usage	\$ 64,000	\$ 147,500	CO ₂ – 2100 t/yr
Bridgetown (1)	Energy Emissions Inventory & Audit	\$ 8,000	\$ 10,000	Capacity building
Bridgewater (2)	Energy Emissions Inventory & Audit	\$10,000	\$ 22,000	Capacity building
Cumberland Municipality (2)	Energy Emissions Inventory & Audit	\$ 10,000	\$ 12,500	Capacity building
Digby Municipality (1)	Energy Emissions Inventory & Audit	\$ 7,400	\$ 11,000	Capacity building
HRM (1)	Efficiency upgrades to the Metro Transit building in Burnside	\$ 284,577	\$ 579,155	CO ₂ – 507 t/yr SO _x – 1035 kg/yr NO _x – 6 kg/yr
HRM (1)	Installation of solar hot water panels at Centennial Pool	\$ 246,750	\$ 567,500	CO ₂ – 99 t/yr
HRM (1)	Efficiency upgrades to Sackville Sports Stadium	\$ 547,015	\$1,144,030	CO ₂ – 1104 t/yr SO _x – 1486 kg/yr NO _x – 32 kg/yr
HRM (2)	Comprehensive program for efficiency upgrades to 11 HRM facilities — energy savings will be banked to funded further activities	\$ 550,000	\$1,400,000	CO ₂ – 2366 t/yr SO _x – 4069 kg/yr NO _x – 371 kg/yr
Kentville (1)	Energy Emissions Inventory & Audit	\$ 10,000	\$ 15,000	Capacity building
Kings County (1)	Energy Emissions Inventory & Audit	\$ 10,000	\$ 14,100	Capacity building

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Project Details: Municipal Program (MP)... continued

Proponent	Description	MP Grant	Total Project Costs	Environmental Benefits*
Lunenburg Municipality (3)	Energy Emissions Inventory & Audit	\$ 8,000	\$ 10,000	Capacity building
Lunenburg Town (2)	Energy Emissions Inventory & Audit	\$ 4,400	\$ 5,500	Capacity building
Mulgrave (3)	Energy Emissions Inventory & Audit	\$ 9,120	\$ 11,400	Capacity building
New Glasgow (1)	Efficiency upgrades to town facilities	\$ 226,792	\$ 453,585	CO ₂ – 148 t/yr
New Glasgow (1)	Business program to educate and assist a minimum of 6 town businesses	\$ 10,348	\$ 20,695	CO ₂ – 84 t/yr
Parrsboro (1)	Energy Emissions Inventory & Audit	\$ 4,400	\$ 5,800	Capacity building
Pictou County (3)	Energy Emissions Inventory & Audit	\$ 8,785	\$ 10,981	Capacity building
Pictou Town (3)	Energy Emissions Inventory & Audit	\$10,000	\$ 12,529	Capacity building
Trenton (1)	Energy Emissions Inventory & Audit	\$ 8,707	\$ 19,591	Capacity building
Westville (3)	Energy Emissions Inventory & Audit	\$ 7,794	\$ 9,742	Capacity building
Wolfville (1)	Energy Emissions Inventory & Audit	\$ 8,000	\$ 10,000	Capacity building
Yarmouth Municipality (1)	Upgrade the new administration building to incorporate geothermal and other efficiencies	\$ 265,164	\$ 572,839	CO ₂ – 244 t/yr SO _x – 507 kg/yr
Yarmouth Town (2)	Energy Emissions Inventory & Audit	\$ 10,000	\$21,800	Capacity building
TOTALS	28 projects	\$ 2,501,266	\$ 5,457,586	CO₂ – 6809 t/yr SO_x – 7178 kg/yr NO_x – 1647 kg/yr

* Environmental benefits are presented in potential emissions reduction per pollutant in Nova Scotia projected out to 2020.

** Energy/Emissions Inventories & Audits involve measuring energy use and emissions directly attributable to municipal operations, as well as identification of opportunities to reduce energy use and emissions.



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