CONSULTATION PAPER

NOVA SCOTIA
Department of Energy

Consultation Paper:
Nova Scotia's *Renewed Energy Strategy and Climate Change Action Plan*

OCTOBER 2007

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A vision for energy

To help guide Nova Scotia's energy policy, we want to hear from our people, our communities, and our businesses.

This document is intended to inform public discussion around two upcoming documents:

- a renewed *Energy Strategy*
- a *Climate Change Action Plan*

The first will focus on broad energy policy; the second, on Climate Change—especially action to reduce greenhouse gas emissions. Both documents share the same goal: a sustainable, prosperous Nova Scotia.

Responding to climate change has two parts:

- mitigation, which involves reducing greenhouse gas emissions
- adaptation, which involves planning for changes, such as a rise in temperature and in sea level

The first part, mitigation, is dealt with in this paper, because it is closely tied to energy use. The province is addressing the second part, adaptation, through a number of government initiatives and strategies, both current and planned, that cross a variety of departments. For that reason, these consultations and the *Climate Change Action Plan* to be released next year deal primarily with mitigation. Once the risks, impacts and required adaptive measures are more fully understood, we will release a second part to the Plan dealing with climate change adaptation.

This consultation process will include public forums and direct stakeholder consultation. All feedback will inform the development of both the renewed *Energy Strategy* and the *Climate Change Action Plan*. Consultation on both is scheduled for the fall of 2007, with release dates scheduled for the spring of 2008.

Our desire is to help spur conversation in our board-rooms, our kitchens, and our communities about the rewards and consequences of how we use energy, and to turn that conversation into action as we go forward.

Thank you for your participation.

PREMIER'S MESSAGE

Like many people growing up in Nova Scotia, I have always felt that our economy and our environment can't be separated. Nova Scotia is beautiful—it's one of the big reasons we all want to live here.

It makes sense, then, that if we want a healthy economy, we need a healthy environment.

That is why I'm proud to say that in 2007 my government made 21 aggressive environmental commitments in an act called Environmental Goals and Sustainable Prosperity.

This act has implications for all aspects of life in Nova Scotia.

In the world of energy, the act has significant implications. It includes the following key goals by the year 2020:

- 10 per cent less greenhouse gas emissions than 1990 levels
- economic performance to the Canadian average or better

These are ambitious goals, particularly because we are striving to increase our rate of growth and decrease our use of energy at the same time.

Developing our own energy resources and diversifying our energy sources with renewable and clean fuels will help us achieve these goals.

This consultation paper begins a public conversation on how to get there—to meet our goals by 2020.

It will be challenging. It will require creativity, innovation, and hard work.

And I am confident we will succeed, because these are exactly the qualities that make us Nova Scotians.

Premier Rodney MacDonald

MINISTER'S MESSAGE

As Nova Scotians, we all want our province to continue to grow and prosper. Essential to that prosperity is a secure, reliable, and ultimately sustainable energy supply.

Profound changes are coming in how we deal with energy. And if we do nothing, those changes are potentially disastrous.

At the same time, we cannot simply divorce ourselves from oil, gas, and coal—our economy and energy demand will require them for some time.

Given this reality, how can we manage our energy supply to the greatest benefit of Nova Scotia?

We need a strategy and a plan grounded in reality, in the opportunities the energy market can provide for Nova Scotians, and in the changes we must make to thrive in the future.

That plan needs your input.

We want to hear how you think we can meet today's energy needs without compromising our economy or our environment tomorrow.

Thank you for taking part.

Bill Dooks
Minister of Energy
Minister Responsible for Conserve Nova Scotia

Where to send submissions

We welcome input on this discussion paper. Your input will help inform both the *Energy Strategy* and the *Climate Change Action Plan*.

Submissions can be made electronically by e-mail to either:
energystrategy@gov.ns.ca (for the Energy Strategy), or climatechangeaction@gov.ns.ca (for the Climate Change Action Plan).

Submissions can be made in writing to:
Nova Scotia Department of Energy
Energy Strategy/Climate Change Action Plan
400-5151 George Street
PO Box 2664
Halifax, NS B3J 3P7

All submissions will be considered public documents and may be published on the government website.

Any submission that contains confidential information subject to protection under the provisions of the province's Freedom of Information and Protection of Privacy (FOIPOP) Act, should clearly indicate which sections of the submission are to be treated as confidential consistent with the provisions of the act.

The deadline for written submissions is December 12, 2007.

A series of public workshops around the province is also being planned in November.

People interested in participating are invited to sign up for the **energy strategy e-mail list** at:
www.gov.ns.ca/energy/energystrategy

OUR CURRENT STRATEGY

The *Energy Strategy (2001) Seizing the Opportunity* had three major goals:

- **Powering our Economy** by encouraging exploration and development of offshore/onshore petroleum resources, development of renewable resources, and the gradual deregulation of the electricity marketplace
- **Improving our Environment** by reducing air pollutants from energy generation, improving knowledge of our offshore environment and environmental impacts of offshore development, and laying a foundation for measures to address climate change
- **Securing our Future** by using our experience in the offshore to build globally competitive expertise and export businesses in the broad energy sector, and using net revenues from the offshore for enduring purposes such as debt reduction and investments in research and development for energy and its environmental impacts

Values and Principles of *Energy Strategy (2001)*

- commitment to public consultation
- balancing the public good with consumer choice
- value of competition in energy markets
- value of the private sector for energy investment
- principle that Nova Scotians are the primary beneficiaries from our offshore energy developments where jurisdiction is shared with Federal government
- sustainability of our environment and economy
- increased energy diversity, conservation and efficiency

The Energy Strategy (2001) envisioned an energy industry *"balancing economic growth, social goals, and respect for the environment for generations today and tomorrow."*

That vision remains true today. But the world has changed. There have been dramatic changes in energy supply, demand, and prices—along with the reality of climate change.

We have witnessed changes in technology, with even larger changes looming on the horizon, changes in economic and environmental impacts, and a changing awareness around personal energy use.

That's why today, in 2007, we are returning to invite citizens, businesses, organizations, and other governments to share their perspective on our direction and approach.

Let's examine some of the key facts.

THE WORLD OF ENERGY

Energy heats our homes, powers our workplace, fuels our cars, and drives much of our economy. It is fundamental to life as we know it. And Nova Scotia faces all the challenges and opportunities that come with producing and consuming energy.

Sources

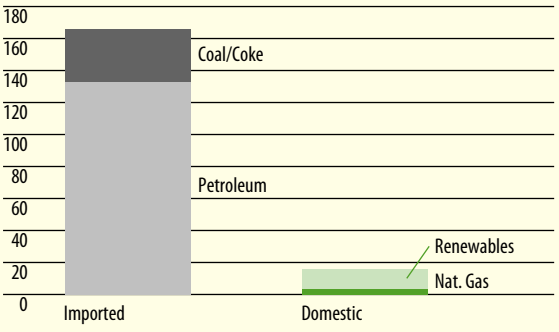
Right now, Nova Scotia's domestic energy supply (renewable and non-renewable) is small compared to its energy imports. Our domestic supply provides

- heating (natural gas, biomass)
- electricity generation (hydro power, biomass, wind, tidal, natural gas, domestic coal)
- vehicle fuel (biofuels from fish-oil)

But as the chart below illustrates, most of our energy supply is imported in the form of coal and petroleum (for electrical generation) and petroleum products (for transportation).

Nova Scotia Total Energy Use

Import and Domestic 2005 *(petajoules)*



Economic benefits

Domestic sources of energy (non-renewable and renewable) provide business opportunities and employment. Offshore natural gas also provides significant public revenues. This includes

- employment (over 8000 person years since 1998)
- royalties (over $400 million forecast for 2007/08)
- economic spinoffs (over $2 billion in exploration and development since 1996)

We need to continue to encourage investment in all our domestic energy sources in the most prudent way possible.

Demand

This is a major challenge. Demand for energy in Nova Scotia is growing faster than population growth. But there are technologies, building designs, and practices that are affordable and effective in reducing energy use. We must decide what are the most effective policies to encourage energy efficiency and conservation.

Environment

Energy use is clearly connected to climate change and air pollution. Fossil fuels create greenhouse gas (GHG), and greenhouse gas contributes to climate change. As a coastal province, Nova Scotia is vulnerable to many of the effects of climate change including impacts on our homes, our power grid, and our offshore oil and gas infrastructure. Air quality is also greatly affected by fossil fuel use.

Security

We can help balance market fluctuations and supply disruptions by developing a diverse energy supply with both local and regional energy sources. Regardless of what we use and where we get it, Nova Scotians need a reliable supply of energy.

Renewables

The current cost of many green energy sources (such as wind, solar, and tidal) is more than conventional energy supplies. Nova Scotians want more green energy, but they also need the price of essentials like power and home heat to stay affordable. We need to find ways to help those without the financial resources to make the investments that lead to energy efficiency and conservation savings.

RECENT CHANGES IN ENERGY

All of the factors discussed above were present in 2001, but a number of major changes in energy have taken place since developing our current strategy. These include

- a continual rise in energy prices for our homes and our economy
- major shifts in our knowledge and policy from energy exploration
- public awareness and desire to address climate change and energy use
- emerging technologies

Energy prices: higher prices are likely here to stay

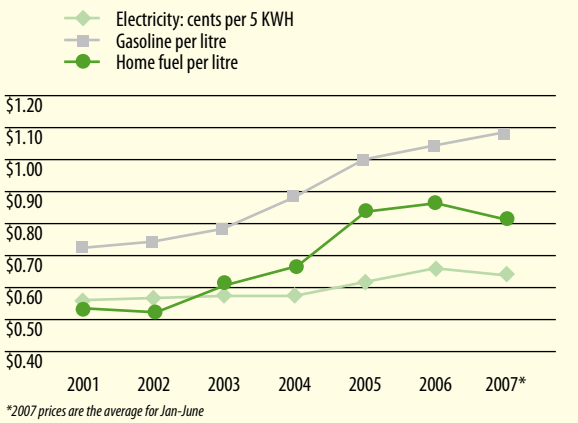
Due to major global changes in supply and demand, the price for fossil fuels has risen dramatically over the past six years. In Nova Scotia this has meant a substantial increase in the price of gasoline, home heating fuel, and to a lesser degree, electricity. See chart and table below.

Meanwhile, accessible and inexpensive supplies of fossil fuels are on the decline and this has introduced unpredictability to the marketplace. Sharp rises in fossil fuel prices due to natural disasters and political instability have often been short-term, but prices are settling permanently at levels higher than before. The complexity of prices includes the fact that price increases tend to encourage both resource exploration and development as well as energy efficiency and conservation.

Higher home heating costs hit all households. In an effort to mitigate the impact of higher fuel prices in 2007, the Nova Scotia Government eliminated the provincial portion of the tax (HST) on electricity and home heating oil. But we must find ways to be more efficient and reduce our fuel consumption, since the global trend to substantially higher prices for energy is expected to continue as inexpensive sources of fossil fuels continue to decline.

Nova Scotia Energy Prices

2001-2007 *(tax included)*



**2007 prices are the average for Jan-June*

Table 1: Nova Scotia consumer price increases for energy: prices are annual average and include taxes

Energy Source	2001 Price	2007 price Jan–June	% Increase 2001–2007	% Increase above inflation
Gasoline (litre, regular)	$0.73	$1.07	47%	34%
Furnace fuel (litre)	$0.54	$0.81	50%	37%
Electricity (Kwh- residential)	$0.1119	$0.1297	16%	4%

*2007 is average price for Jan–June.

The price increases in Nova Scotia are mainly a result of increases in global energy demand in the rapidly developing economies of China and India, as well as the more mature economies of North America and Europe. Oil and gas supply has become tighter and more volatile as more is being sourced from expensive or politically unstable areas. These have led to increased prices in all competing sources, including coal.

Since **88 per cent** of our **electrical** power currently comes from fossil fuels, the cost of our electricity is also rising, although at a slower pace, since coal is still the least expensive and most available fossil fuel.

And **92 per cent** of our **total energy** needs (transportation, residential and farm heating, electricity use, and industrial production) comes from fossil fuels. Most of these are imported. Given the global price trend and its impact on our lives and economy, our challenge is to be far more efficient with energy use and to develop local or regional sources, thereby reducing our over-dependence on imported fossil fuels.

Exploration: major shifts in our knowledge and policies

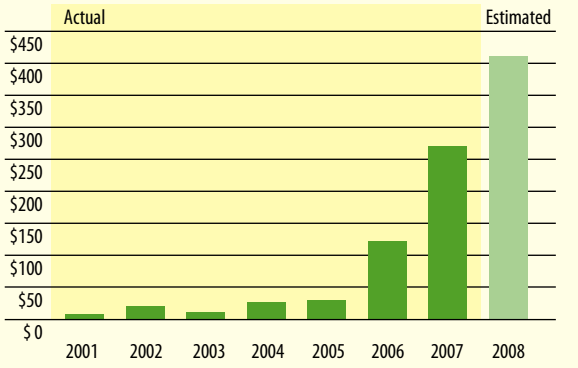
One of the major shifts in policy and public perspective since 2001 is the realization that the geology of our offshore energy resources has not been as well understood and predictable as expected.

Offshore energy activities have been a very significant benefit to our economy, to our livelihoods, and to our fiscal stability. Our natural gas production can also help reduce our dependency on imported fuels.

Continued exploration and development expands our knowledge about our energy resources, so we must take additional steps to ensure this knowledge continues to grow.

Nova Scotia Offshore Royalties

($millions: total at Fiscal Year end)



The latest budget update[1] for Fiscal 2007–08 shows petroleum royalties at $410 million, the third largest provincial source of revenue after individual income taxes and HST (Harmonized Sales Tax).

But 2007–08 is expected to be the peak year for this natural gas project. Next year, production is expected to decline.

Increased awareness and action on energy, climate change, and the environment

Environmental sustainability and, in particular, the concern about climate change have emerged as a crucial public issue.

Although climate change resulting from greenhouse gas (GHG) emissions is mainly an energy issue, it is also linked to non-energy sectors such as agriculture, forestry, and urban planning. Solutions will require a broader framework for action on energy and other sectors, and needs to be consistent with our provincial goals for sustainable prosperity, natural resources, land use, population, and biodiversity, as well as our social responsibility to those most vulnerable.

[1] NS Dept. of Finance, August 9, 2007 Budget Forecast Update

Note: *For a broader examination of climate change issues in Nova Scotia, please see the document "Climate Change in Nova Scotia" available at www.gov.ns.ca/energy.*

To help mitigate climate change, the renewed *Energy Strategy* will continue to focus on

- **Using less energy:** Our demand for energy is increasing. If we want to cut emissions, we need to reverse this trend. Energy efficiency and energy conservation programs will help us achieve this.
- **Using renewable energy:** We can also cut emissions by using greener sources of energy. The wind, sun, tides, and earth are potentially significant sources—and emission free.
- **Using cleaner fossil fuels:** To meet all our energy demands, we still need fossil fuel. To adapt and make it sustainable, we need practical approaches now, such as using natural gas, recycling wasted heat, and adjusting how we use transportation. We also need to explore ways to trap emissions from coal.
- **Leading by example:** As the largest purchaser and employer in the province, government can play a role not only in cutting emissions, but also creating a market for greener products and services.

In October 2006, Conserve Nova Scotia was given responsibility to implement energy efficiency programs for the residential, commercial, industrial and transportation sectors. In spring 2007 Nova Scotia passed the Environmental Goals and Sustainable Prosperity Act *(EG&SP)*. It provides a mandate for key environmental goals related to energy and other sectors. The goals include improvements in air quality and a firm target for total GHG emissions in the province.

The *EG&SP* Act requires a firm cap on total GHG emissions in the province: **total greenhouse gas emissions must be 10 per cent below 1990 levels by the year 2020**. This will be a major challenge for all of us. These are firm policy and legal foundations for both the renewed *Energy Strategy* and a *Climate Change Action Plan*.

With respect to other air emissions from energy use, Nova Scotia not only receives a majority of its air pollution from upwind sources, but we also create our own pollution.

Even with improvements made in many areas to reduce emissions, Nova Scotia still has summertime smog, acid precipitation, smoke, and persistent pollutants such as mercury. The province has already addressed commitments to reduce air pollution made in the Energy Strategy (2001). We must make further improvements to meet both our own targets and the new requirements emerging from the Federal Framework for Industrial Air Emissions.

Emerging but uncertain technologies

New technology is important to energy strategy. It influences costs for

- energy exploration and development (geoscience and drilling)
- mitigation of energy impacts (e.g., efficiencies and carbon sequestration)
- development of new and existing energy sources (renewables)

Emerging technologies lack certainty—they may open or close possibilities in the energy market. For example,

- New exploration technologies have opened up previously out-of-reach frontiers, such as the vast supplies of oil in the deep waters off the Gulf of Mexico and West Africa. The lower cost of the resulting development and production technologies could have a profound impact on Nova Scotia's prospects.
- Technologies for the capture and storage of carbon from coal are promising, but still commercially unproven. Their costs may represent a potential barrier, or a major opportunity, for regions like Nova Scotia that are currently dependent on coal for electricity, but also have plentiful local supplies

For renewable sources, new designs and greater economies of scale might bring down the cost of wind turbines, geothermal and solar systems, and photovoltaic panels that directly produce electricity. Future breakthroughs may also come in energy storage and ocean energy technologies, such as in-stream tidal power.

Conversion of solid biomass into liquid fuel known as cellulosic fuel is a potential breakthrough that would be very significant for our forest resources and for transportation fuels. Technologies for existing bio-fuels, including ethanol and bio-diesel continue to advance.

Some bio-fuel sources are raising major concerns globally, such as ethanol from corn. These sources have high energy inputs relative to their outputs, and they affect food costs because these energy sources compete for agricultural land.

Efficiency technologies are progressing rapidly. Gas-electric hybrid vehicles are becoming popular, and others such as advanced lighting, and "net zero" energy homes and buildings are on the horizon.

It is reasonable to expect that in the longer term—2020 to 2050—there will be significant technological breakthroughs and commercial cost variation, but we don't know what or when. The challenge is to make savvy long-term investment decisions around energy production—and to avoid making expensive mistakes.

LONG-TERM PLANNING (2010-2050)

Energy planning is challenging because of the long time investments involved—and the even longer-term consequences. For example, starting a new major electrical generating plant and associated transmission facilities may take two to ten years for planning, permitting, and construction, and then run for more than 40 years, since it must be financed over that time. Shutting the plant down prematurely would be a sudden major cost to all users. For offshore energy, the time between licensing, exploration, discovery, and development can take 10 years or more. This means that we must examine all energy, climate change, and air quality issues within an immediate, medium, and long-range perspective.

The immediate range is existing policies for the next few years where we have energy related goals and targets in place. Nova Scotia has legislated deadlines that include

- nitrogen oxide (NOx) reduction (2009)
- sulphur dioxide (SO2) reduction (2010)
- renewable energy standards (2013)
- greenhouse gas reduction (2020)
- mercury reductions (2010)

These regulations will require changes and costs for all citizens, depending on technology development and other variables.

Many jurisdictions are also looking at setting targets for 2050. In June 2007, the G8 countries of Canada, the United States, Russia, Japan, Germany France, Italy, and the UK, set a goal of reducing GHGs by 50 per cent by 2050 (from 1990 levels). To have credibility, such long-term goals need to be backed up by a plan for action. A renewed *Energy Strategy* and a *Climate Change Action Plan* for Nova Scotia must include a long-term vision and goals with flexibility in the midst of major uncertainties in technology, energy supply, and prices.

REVIEW OF POLICY CHALLENGES

The unpredictable nature of technological change, unstable global conditions for energy prices, supply and demand, and the lengthy planning horizon needed for energy brings a high level of risk for an energy strategy.

How can effective policy and planning best occur within this volatile and unpredictable environment?

This paper proposes that key solutions will include measures that address energy efficiency and conservation, as well as strategies and plans to diversify our energy supply by expanding on our local and regional renewable resources as well as supporting private sector investment to help find new supplies of gas onshore and offshore.

A focus on diversified energy supplies needs to consider energy sources by type and geography. Distributing our generating capacity within the province and importing power from neighbors in the Atlantic region could contribute significantly to stability of supply. We will consider rules to encourage import of power from clean sources as part of our effort to meet GHG targets, and stability of supply. But the short-term price of almost all alternatives to coal will be higher—and reducing our dependence on coal will take time.

Finally, experience shows that government intervention in market prices best takes place only when there are clear market failures or substantial social consequences. While higher energy prices encourage conservation and help us meet our environmental responsibilities, the higher energy prices affect people in different ways. Some studies show that "fuel poverty" is basically a problem of housing costs and the quality of construction[2]. Thus lower-income consumers may need support in improving the quality of and energy efficiency of their homes. Energy intensive businesses are also disproportionately affected by higher prices and the cost of transition.

[2] Energy Action; March 06: *Fuel Poverty in the US and UK*, www.nea.org.uk

OPTIONS FOR A RENEWED ENERGY STRATEGY

This section explores a number of policy options to address the issues in section one. The options are not definitive; they are intended to inspire discussion rather than limit it. For the most part, these options are based on our ongoing dialogue with the energy community.

We are trying to build a renewed energy strategy that encompasses climate change and sustainable prosperity. Based on ongoing feedback, we are proposing that the strategy explore issues related to: renewable resources; air quality; energy conservation and efficiency; electricity; natural gas; energy opportunities; government action; and government intervention. Each issue includes background information, planning considerations, and suggested policy objectives and options.

Proposed issues to be addressed by the renewed Energy Strategy include:

- **renewable resources** – sustainable energy, significant opportunities
- **air quality** – cleaner air, better health
- **energy conservation and efficiency** – investments that save
- **electricity** – energy security through diversity
- **natural gas** – a major economic and fiscal benefit for Nova Scotia
- **energy opportunities** – building business and technology
- **government action** – meeting its own obligations
- **government intervention** – influencing, enabling, and requiring action by others

RENEWABLE RESOURCES

Sustainable energy, significant opportunities

Renewable energy sources (wind, solar, ocean, bio-mass, bio-fuels, hydro) will play a larger and larger role in our future energy supply, both locally and regionally. This increase will come partly from marketplace demand, due to the rising cost of competing fossil fuels. The increase will also come from government regulation, requiring a more diverse supply to address both energy security and climate change.

Increasing the amount of renewable sources for electricity in Nova Scotia will

- diversify our electrical generation
- bring environmental benefits
- provide some economic opportunities locally
- help position the province to meet future energy demands

However, technical challenges and higher costs are associated with many renewable sources, especially intermittent and unpredictable sources such as wind. Intermittent renewables do not run at full capacity all the time, so actual power production often falls short of the total capacity. These sources require backup supply, and because Nova Scotia lacks a large hydro supply, our backup is often by fossil fuel–based power plants. Nova Scotia is now conducting a technical study to determine the optimal amount of wind capacity to keep the system reliable, sustainable, and affordable.

The direct cost of most renewable power is currently higher than coal. Adding renewable energy to our electricity system will likely raise prices for consumers. But those prices may be balanced by longer-term price stability as fossil fuel prices continue to rise and fossil fuel supply diminishes.

Since the release of the 2001 Strategy, approximately 60 megawatts of renewable power projects have been either built or are committed to be built. In 2007, NSPI called for proposals for an additional 130 MW of renewable energy generation.

Renewable Energy Standard: By 2013, up to 500 megawatts of new renewable energy capacity will be added to the system. That translates into over 100,000 homes powered by renewable energy, up to 750,000 tonnes of greenhouse gas emissions displaced from the atmosphere, and new business opportunities for independent power producers. It is also expected to generate up to $1 billion in new investment in the Nova Scotia economy.

Wind energy will fulfill most of the 2013 standard. Nova Scotia enjoys world-class average wind speeds, and the number of turbines in the province is expected to grow from 40 to over 250 in the next six years.

Tidal power in the Bay of Fundy may one day add strongly to our renewable power mix. Although tidal power is intermittent, it is predictable, and therefore valuable as a source of electrical energy. We currently have a 20 MW barrage tidal plant in Annapolis. But recent research estimates a potential 300 MWs from two sites in the Bay of Fundy (14 per cent of total capacity now in power grid) using emerging "in-stream" tidal technologies. This industry is in its infancy, and the future of tidal in the Bay of Fundy depends upon further studies to ensure the environmental sustainability of the project and the ability to develop it without abusing the livelihoods or rights of those who work those offshore areas. To address these issues, our tidal potential is being explored through an integrated process of regulatory development, a strategic environmental assessment, research and technology demonstration projects with stakeholders, and public input before the province commits to any large-scale commercial development.

Hydro power in Wreck Cove (225 MW capacity, almost 10 per cent of NSPI total capacity) has been a foundation of renewable power in the province for years. Large hydro resources in other provinces may be economically viable and could play a large role in both diversifying our supply and meeting our climate change goals.

Solar energy (thermal and photo-voltaic) will become increasingly viable options for homes and buildings as prices becomes more affordable.

Biogas energy from landfill sites has potential, but modern waste practices in Nova Scotia divert much of the material used to produce methane away from landfills.

Biomass from forestry waste is now burned in some locations, and it is a potentially larger source of energy in Nova Scotia. Although biomass fuel emits carbon dioxide, it is considered carbon neutral because as forests regenerate they use CO_2. However the impacts from particulates also need to be considered.

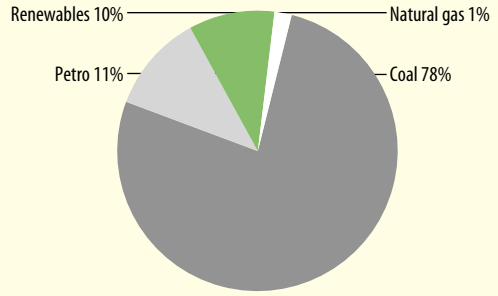
Biofuel can reduce vehicle and home heating emissions significantly. Biofuels are a developing technology and have some challenges to overcome. For example, some biofuels have less potential energy by volume than conventional fuels, and emissions of some air pollutants increases with biofuels. But innovation may open up opportunities for Nova Scotia in the future.

Cellulosic ethanol uses stalks of various plants, but this complex technology is still experimental. Nova Scotia has about 215,000 hectares of cleared farmland of which 40,000 hectares are under-utilized. One near-term possibility would be to cultivate canola plants on that land with potential production in the order of 48 million litres a year of biodiesel. To help expand these business ventures, as of July 2006, the province has exempted biodiesel produced in Nova Scotia from the 15.4 cent per litre Motive Fuel Tax.

The following charts show all electricity fuel sources in 2001, and a possible scenario for 2013, derived from forecasts by the *Canada Energy Outlook – 2006 update*. These forecasts may change and the picture out to 2020 and 2050 will likely see a significant further shift to renewables.

Sources of Electricity

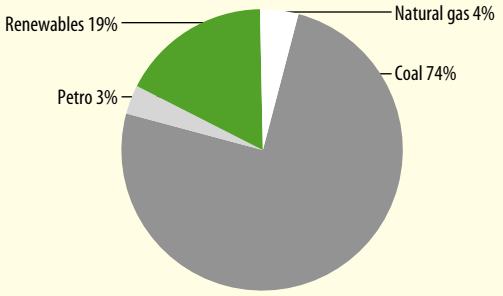
Nova Scotia 2001 (est.)



Source: NRCan, *Canada Energy Outlook – Update 2006*

Sources of Electricity

Nova Scotia 2013 (est.)



Source: NRCan, *Canada Energy Outlook – Update 2006*

Planning for renewable energy

- Objective: sustainable energy and significant opportunities [generating a significant portion of our energy from sustainable sources].
- Critical challenge: integrating existing and developing technologies that can operate economically.
- Factors to consider:
  - Cost: most renewable energy currently costs more than non-renewable sources (oil, gas, and coal)
  - Variability: wind, solar, and tidal energy all need a back-up power supply (there is a constant demand for power, but nature does not provide a constant supply)
  - Location: although most people support the idea of renewable energy, not everyone wants it near them (often referred to as NIMBY: not in my backyard)
  - Reliability: there may be a limit to how much renewable power our system can take without compromising reliability
  - Trade: some regions may be willing to pay more than others for renewable energy, causing prices to increase
  - Power Grid: electricity systems may need costly upgrades to handle more renewable energy
  - Natural limits: due to reliability, variability, and power grid issues, there may be a natural limit to the amount of renewable energy that can be safely generated
  - Community power: there are advantages to making and using power in the same place, but costs can be high because of lower economies of scale
  - Emissions: ironically, under some circumstance, putting more wind power onto the grid may not lower emission levels if there is an increased need to provide back-up power for that energy
- The renewed *Energy Strategy* needs to be consistent with both objectives of reducing greenhouse gases and diversifying our energy sources.

Options for renewable energy

- Set renewable energy standard requirements for intermittent and economically attractive sources such as wind at the maximum level possible consistent with the findings of the wind integration study results
- Purchase renewable energy from outside the province
- Continue competitive bidding process for renewable energy supplies to ensure lowest cost for consumers
- Fund research for emerging renewable technologies such as tidal
- Develop incentives and policy directions to encourage renewable energy projects including wind, biomass, and biofuels as technology becomes available

Questions: *Are these the proper objectives and viable options? What others may be added? What actions would enhance the success in achieving our objectives?*

AIR QUALITY

Cleaner air, better health

Energy use is a large source of air pollutants harmful to human and environmental health. The objective of the *Energy Strategy (2001)* was to reduce air pollutant emission from energy generation in a manner consistent with national standards. As a result, the Air Quality Regulations were amended to include

- a 25 per cent reduction in the Nova Scotia Power Inc. sulphur dioxide (SO_2) emission cap in 2005 with an additional 25 per cent reduction in 2010
- a cap on mercury emissions from power plants at 70 per cent below 2001 levels by 2010
- a 20 per cent reduction from nitrogen oxides (NOX) emission levels (in 2000) from power plants by 2009

The *Energy Strategy (2001)* also committed to "negotiate agreements with the federal government and other provinces to establish a framework for co-operative and coordinated action" on air pollutants. This work has recently increased in pace with the release of the Federal Framework on Industrial Air Emissions. Nova Scotia is committed to achieving significant emissions reductions through this collaborative process. It is expected to

- support a sustainable economy
- lead to long-term sustainability and security in energy supply
- make Nova Scotia attractive for environmentally aware business

The province is hoping this will demonstrate that Nova Scotia can have one of the cleanest and most sustainable environments in the world, while improving the province's economic performance.

Airshed management

An *airshed* is a geographic area having air resources measurably influenced by sources of air pollution from physical systems that transport and transform those pollutants. It is delineated by the degree of interconnection of ecological, economic, and social attributes. "Transboundary pollutants" cause smog to arrive in Nova Scotia from the Eastern United States and from as far west as Ontario. To reduce those effects, governments need to collaborate. Provincially, our own emissions can be managed with air quality regulations, approvals, and voluntary measures. On a smaller scale, there may be areas of the province that have obvious similarities in environmental effects or localized economies that require local actions to address the issues. In those cases, industry, municipal governments, or individual citizens may need to engage in special activities.

Climate change and air quality

For commercial and industrial activities that emit both GHGs and air pollutants, emission reduction for one could have the unintended consequence of increasing the emissions of the other. The federal government is striving to address this issue with their integrated Framework for Industrial Air Emissions, and the Nova Scotia government is conducting consultations on climate change, energy, and air quality.

In addressing the challenge of air pollutants and GHGs, it is important to recognize that small scale decisions are frequently made which together emit both air pollutants and GHGs. The conditions that favour decision-making for the least emitting technology or project solution need to be created. For example, when choosing a wood-burning appliance to heat a home, a high-efficiency appliance could heat the same space with less fuel, and it burns cleaner. This means greater savings in the longer-term and lower emissions of air pollutants and GHGs. However, the immediate cost of purchasing the more expensive, high-efficient device may be a disincentive. This reality affects many energy decisions and the renewed *Energy Strategy* will need to address these disincentives for change.

Planning for energy and air quality

- Objective: cleaner air, better health [reducing air pollutants that affect our health]
- Critical challenge: ensuring decisions on greenhouse gas reductions and renewable energy development are integrated with air quality improvement requirements
- Factors to consider:
  - federal rules on air quality
  - provincial requirements under the Environmental Goals and Sustainable Prosperity Act
  - emerging technologies for clean coal
  - the inter-relationships between air quality rules and GHG reductions
  - emerging science on the harm associated with air-borne emissions
- The renewed *Energy Strategy* needs to be consistent with objectives of reducing GHGs and improving air quality.

Options for energy and air quality

- Set new targets for air quality improvements beyond 2010.
- Work with the federal government to seek reductions in air-borne pollutants from neighbouring jurisdictions. Identify local air quality issues and collaboratively develop management plans for these areas.
- Make air pollution emissions a key criteria along with GHGs when making policy, project, or technology decisions.

Question: *Are these the proper objectives and viable options? What others may be added? What actions would enhance the success in achieving our objectives?*

ENERGY CONSERVATION AND EFFICIENCY

Investments that save

The impact of growing energy demand

Global trends have a profound impact on Nova Scotia energy options. And global energy demand continues to grow. World energy demand may **double** by 2050 as people in countries such as China and India begin to consume more—and this estimate assumes there will be significant efficiency gains by those countries to match the current performance of Organization for Economic Cooperation and Development (OECD) countries.

With increasing world demand and no large new supply, the price for fossil fuels and other energy sources will rise. Those high prices will encourage growth in both renewable sources and energy-saving technology. But we must also reduce our demand.

Between 2000 and 2005, the number of people living in Nova Scotia has remained about the same, yet energy demand grew **3.4 per cent**.

If energy conservation and efficiency are a crucial part of the solution, and the technologies for it are available, we must ask

- What actions will be affordable?
- What actions will encourage the market to make energy efficiency widespread?

Our current programs encourage both behavioural change and market transformation. Experience in other jurisdictions suggests our efficiency and conservation programs will be most successful if we make markets and entrepreneurial skill central to our efforts. We may also need new regulatory requirements to reduce demand.

Conserve Nova Scotia

To increase energy efficiency in Nova Scotia, the province created a new special operating agency in 2006, Conserve Nova Scotia. Its mandate is to plan, develop, and coordinate policies and programs for energy efficiency and conservation, including

- public education
- social marketing / behavioral change
- new programs to encourage energy efficiency

It serves as a focal point for all forms of energy efficiency measures through partnerships with federal, provincial, municipal, private-sector, and not-for-profit agencies. It is already active in creating and delivering effective energy efficiency and conservation programs in the residential, commercial, industrial, transportation, and government sectors in Nova Scotia.

Climate change and energy efficiency and conservation

Cutting energy use has a double benefit: it cuts greenhouse gas and saves money. Reducing energy demand is the single most effective way we can lower our GHG footprint while also addressing higher energy prices and energy security. A significant part of our *Climate Change Action Plan* must involve measures to encourage Nova Scotians to use less energy. These issues include fuel efficiency for vehicles; energy conservation in our homes and buildings; and energy efficiency in our electrical generation and industrial processes.

Nova Scotia Power is working with electricity stakeholders to reduce energy demand as a critical part of its plan to meet future electricity needs and GHG reduction targets. How this program is to be managed and funded will be an important driver for the renewed *Energy Strategy* and the *Climate Change Action Plan*.

Planning for energy efficiency and conservation

- Objective: investments that save [making investment in upgrades and technologies that will save in operating costs and GHGs].
- Critical challenge: provide practical, meaningful, and cost-effective solutions that help Nova Scotians.
- Factors to consider:
  - making better energy choices
  - increasing energy efficiency
  - reducing total energy consumption
  - increasing awareness of the negative environmental effects of our collective energy use
  - the return on investment expected by the improvements and new technologies

    - the high capital cost vs. low operating costs associated with most energy efficiency and conservation investments
    - favourable government policies and leadership with respect to such investments
- The renewed *Energy Strategy* needs to
    - follow and enhance the direction established by the *Energy Strategy (2001)*
    - be consistent with the objectives of the 2007 Environmental Goals and Sustainable Prosperity Act, including "programs and measures related to energy conservation and energy efficiency"
    - be harmonious as far as practical with both the Council of Energy Ministers plan *Moving Forward on Energy Efficiency in Canada: A Foundation for Action*, and the energy efficiency recommendations arising from Nova Scotia's participation in the New England Governors/Eastern Canadian Premiers coalition

Options for energy efficiency and conservation

- Encourage consumers, businesses, and industries to invest in energy saving measures through public education, development of codes and standards and industry certification of suppliers, and the provision of incentives for individuals, governments, institutions, businesses, and industries.
- Create a guaranteed source of funding for energy conservation, efficiency, and demand reduction measures similar to that enjoyed by the Resource Recovery Board or continue with annual government grants.
- Establish government action through an organizational structure with close government relationships as is the case today or a more independent status.

Question: *Are these the proper objectives and viable options? What others may be added? What actions would enhance the success in achieving our objectives?*

ELECTRICITY

Energy security through diversity

Market opening:

The *Energy Strategy (2001)* set the course for a gradual and careful opening of electricity markets. Stakeholders submitted technical advice through a lengthy Electricity Marketplace Governance Committee process. Key recommendations were implemented through both the Nova Scotia Utility and Review Board (UARB) and government legislation.

Key milestone in electricity marketplace

In the spring of 2005, the UARB approved Nova Scotia Power's (NSPI) Open Access Transmission Tariff (OATT). This tariff ensures there is open and non-discriminatory access to Nova Scotia's transmission grid for those suppliers who are eligible.

On February 1, 2007, the government brought into force Nova Scotia's *Electricity Act* (including the *Renewable Energy Standard*); approved an initial set of *Wholesale Market Rules*; and adopted the *Wholesale Market Regulations*. Although only six small municipal owned utilities are currently eligible to participate in these markets, the foundation for further market-openings and competition has been set.

A key issue in moving forward on further market openings is the state of the electrical transmission system in Nova Scotia. Electricity cannot be efficiently stored and must be ready when a switch is thrown, ensuring the electrons can flow from the generator to our homes and places of work without interruption. This is a complex challenge. With limited ability to import quick backup power, intermittent sources of energy such as tidal and wind make a difficult challenge even more so.

A study is now underway to help guide energy policy on how to integrate wind into this system. It will help determine what the current practical limits may be to the growth of wind in Nova Scotia and how they may be overcome. Key issues include market size, being on a hub, or being at the end of the line for electricity flows.

Building new transmission facilities is costly. For example, strengthening our transmission ties to New Brunswick could cost hundreds of millions of dollars, a cost which must be shared by all users. But such an investment is essential for many solutions, and could also open the possibility of energy sources that emit fewer GHGs, such as hydro power from Labrador's Lower Churchill project or nuclear power expansion in New Brunswick.

Electricity prices: the cost of coal and other options

Nova Scotia's electricity prices are determined by numerous factors, local and international. Many have already been discussed in this paper. Diversity of energy sources, reliability, and sustainability must all be carefully balanced to achieve the lowest cost for the lowest emissions and greatest reliability of service.

While we pursue greater diversity in our electricity generation (and with it a reduction in coal emissions), we must acknowledge that in the short term, coal and petroleum coke remain the lowest-cost options to generate electricity in Nova Scotia. Given the current low cost of coal relative to renewables, coal may remain near its current use in Nova Scotia even over the medium term. With abundant supplies of coal at Donkin mine, there may be an opportunity to replace some portion of the imported coal with domestic supplies.

Nova Scotia's prospects for onshore and offshore natural gas remain positive, and this cleaner-burning fuel presents opportunities for diversification as well.

However, as industry-specific restrictions on greenhouse gases and air quality come into effect, the price advantages of fossil fuels will likely diminish.

In the longer term (10 years and beyond), experimental technologies for carbon sequestration (clean coal) may prove cost effective, but they remain unproven at this date[3] and thus it is difficult to predict their role.

We can also potentially accelerate clean energy use by collaborating with our neighbors. Projects such as Newfoundland and Labrador's Lower Churchill Project or other regional clean energy sources may provide electricity for us, though only at prices that competing markets would offer. As noted above, buying power from regional sources would require expensive upgrades to our transmission system to reliably handle imported supply.

The scope and scale of the cost of making a transition to lower emissions and greater sustainability are difficult to estimate due to many unknowns, such as

- the future cost of each energy source
- technological breakthroughs
- the level of efficiency and conservation we embrace
- future caps on emissions

To examine the relative merits of each option and their ranking, Nova Scotia Power Inc., in collaboration with the Nova Scotia Utility and Review Board (UARB), developed a set of long-term options called the *Integrated Resource Plan (IRP) Report*, presented in July 2007. The analysis was intended to suggest a plan that "integrates supply and demand side options to provide a strategic framework for meeting environmental legislation and regulations, cost effectively and reliably."[4]

NSPI and UARB Integrated Resource Plan

The IRP analyzed only the options available and investment conditions understood in Nova Scotia at the time it was undertaken (July 2006). For example, it does not estimate the cost of importing cleaner power, or the specific added costs of federal and provincial requirements on GHG emissions that have been put in place since that date. It did assume some impending regulation of GHGs and thus the direction of the study remains valid. The study carefully assessed the comparative cost of combinations of just the following:

- greater investment to promote conservation or "demand side management" (DSM) for more efficiency and conservation
- greater use of proven renewable energy sources
- greater use of natural gas in combination with more efficient technologies—that is, combined-cycle gas plant for co-generation

Among these options, the IRP report recommends the one that it believes will be most cost-effective for users "while accomplishing significant near and longer term reductions in emissions of key air pollutants." The recommended plan includes

[3] A recent plan to build a carbon sequestering power plant in Saskatchewan was cancelled in September 2007, due to estimated high costs of operation.
[4] Integrated Resource Plan (IRP) report, Vol. I, July 2007, Nova Scotia Power, Inc.

- upgrades for better efficiency of existing generation plants
- large and ongoing investment to promote DSM (investing 5 per cent of annual electricity revenues)
- renewable generation beyond the current requirements

This recommendation is based on prudent assumptions about future conditions, including fuel prices, technologies, carbon caps, and the effectiveness of DSM.

Based on assumptions for the period until year 2030, each of the options IRP studied would raise our power rates, but have divergent effects on our actual power bills. According to this report to the UARB, power rates (per kilowatt) would annually rise 1.5 per cent to 2 per cent greater than typical price inflation. However, during the same time frame, using the same assumptions, the IRP recommended option could result in lower power bills than the other options assessed. The expectation of lower bills from this option compared to the others, even though the base rate may be higher, is a result of an expected reduction in user's demand via greater conservation and efficiencies of DSM. Actual power bills would depend on the unknowns cited above, plus each user's adoption of efficiency and conservation.

The IRP report has not yet been approved by the UARB, so the validity of the assumptions and forecast impacts remain open to discussion. In addition, the full impact of new federal GHG intensity goals and clean air requirements, and the policy decisions to be taken for the Nova Scotia Climate Change Action Plan and the renewal of the Energy Strategy, will need to be taken into account.

Nevertheless, it is clear that electricity costs in Nova Scotia are expected to rise faster than normal inflation over the next 20 years as we diversify our supplies and reduce our reliance on coal and petroleum fuels, reduce GHG emissions, and strongly adapt our household and industrial use for greater efficiency and conservation.

Climate change and electricity

Without a large source of renewable hydro energy close at hand, Nova Scotia has more difficult policy options than some provinces when it comes to meeting GHG reductions. For example, Manitoba gets 99 per cent of its electricity from hydro power, while Quebec and British Columbia generates 97 per cent from hydro. Nova Scotia (like Alberta, New Brunswick, PEI, and Saskatchewan) is not so fortunate. Without large-scale local clean energy sources, Nova Scotia will likely require a mix of energy options, including some imports of stable predictable clean-energy sources to sustain our energy future. Creating a diversity of energy sources rather than a dependence upon any particular one was a key principle of the 2001 Strategy and will play a key part in the renewed approach to energy.

Planning for electricity

- Objective: energy security through diversity [addressing technology and fuel-supply risks through a diversified portfolio of electricity supplies]
- Critical challenge: setting long-term objectives; understanding the implications of those goals; and then laying out a plan to achieve them
- Factors to consider:
  - the majority of Nova Scotia's GHG emissions comes from electricity generation
  - the long-life cycle of existing generation facilities and the need to avoid costly premature closures
  - the availability of stable reliable clean energy sources from neighbouring provinces
  - the economic and strategic advantages from renewable energy sources and clean coal technologies to use local supplies
- The renewed *Energy Strategy* needs to be consistent with the objectives of reducing GHG emissions from fossil fuels; reducing demand through conservation and efficiency; and enhancing energy security through diversity.

Options for electricity

- Diversify geographic source of supplies by strengthening transmission interconnects to allow potential of imports and exports or even set a requirement for a portion of clean energy imports.
- Diversify generation source of supplies by providing policy and increasing wind, tidal, and biomass production through the options discussed under "Renewable energy."
- Increase competition by opening markets to renewable producers within the technical limits.
- Increase energy efficiency and conservation through the options discussed under "Energy conservation and efficency."
- Reduce air emissions and GHG's by using cleaner fossil fuels such as natural gas.
- Invest in research and development associated with assessing the geological suitability of sites in Nova Scotia for carbon capture and storage and other clean coal technologies.

Question: *Are these the proper objectives and viable options? What others may be added? What actions would enhance the success in achieving our objectives?*

NATURAL GAS

Major benefits for Nova Scotia

Opportunities and challenges

Nova Scotia's offshore oil and gas sector was seen as a key incremental driver of the Nova Scotia economy in 2001. At that time exploration interest was on the rise with more than $1.5 billion in exploration commitments. However, of about two dozen exploration wells drilled over the past six to seven years, only those associated with the Deep Panuke Project haven proven to be commercially viable.

This lack of exploration success has forced geoscientists to go back and rethink their assumptions as to where the hydrocarbons may be in our offshore. Industry geologists have been reassigned as prospects for global players appear more attractive elsewhere. Academic and government geoscientists are now stepping into the gap with work underway on several fronts to develop the facts and theories that would ignite another round of interest.

The *Energy Strategy (2001)* stressed the role of the offshore as a bridge to the future. Revenues and economic benefits would allow us to make permanent positive change in our fiscal situation and our economy. Properly focused and responsibly developed, offshore exploration, development, and production can help build new industries that branch into new areas on a global basis. From this perspective, although inherently not sustainable, the potential benefits from natural gas are considerable, and if operations are conducted in an environmentally responsible fashion, the offshore can play a key role in sustainable prosperity for Nova Scotia.

Fiscal and economic benefits of offshore energy

The province receives significant fiscal benefits from the offshore. From 1999–2000 to 2006–07 royalties received amounted to $496 million. In 2007–08 alone, royalties are expected to be an additional $410 million, but will soon taper off as production begins to decline. Total project-life royalty revenues continue to be forecast in the range of $1.6 to $2.4 billion. Under the 2005 Accord Agreement on offshore revenues with Ottawa, all of these revenues are to the benefit of Nova Scotians. It means that they can help reduce our debt without diminishing established federal transfers for essential services.

Summary: Cumulative benefits to Nova Scotia: Offshore Energy Development

Activity:	Exploration	Development	Employment	Royalties
	Goods/services Contracts 1996–2006	Sable project Expenditures 1998–2006	Sable project Person/years 1998–2006	Paid to NS Treasury 1999–2008*
Nova Scotia Benefits:	$403 million	$1,889 million	8,350 person/years	$906 million

*This royalty amount includes the current year (FY2007–08) which is expected to bring $410 million royalties, as noted above.

The economic benefits of local employment and provision of goods and services are substantial. Exploration and development activity together have contributed more than $2.29 billion to the Nova Scotia economy, measured by contracts awarded for goods and services supplied by Nova Scotia–based firms. Economic spinoffs in local communities and sectors significantly increase the overall impact on the provincial economy.

As well, the work experience gained by Nova Scotian firms and employees on these projects has allowed them to win major contracts around the world (although it is not captured by these indicators).

Onshore development

The onshore, while in its infancy, has great potential. The Cumberland Basin Coal Bed Methane (CBM) Program has spent more than $10 million to date on the exploration phase and may drill as many as 1,200 wells with a cost of approximately $1 million per well over the course of the project life.

Current offshore production

The Sable Offshore Energy Project began production at the end of 1999. The project delivered over 500 million cubic feet (mcf) of natural gas per day in the early years, decreasing to 375 mcf daily in 2006, then compression was added to return production to 400–500 mcf per day range in 2007. Production is expected to continue at this level into 2008 and then begin to decline.

Future gas supplies

New gas production will begin with EnCana's Deep Panuke project if commercial approvals are received in 2007. However, the long-term continuance of the offshore energy sector requires new discoveries. Recent exploration drilling has yet to yield new commercial finds. This is leading to a re-thinking of geological assumptions.

Pending the results of new geological studies, the Nova Scotia Department of Energy estimates that there is over 40 trillion cubic feet of natural gas potential in the offshore and the potential for more than 1 trillion cubic feet of gas in the onshore area, particularly in the coalbed methane resources of Cumberland, Pictou, and Cape Breton counties.

Nova Scotia's onshore natural gas potential has led to a steady increase in activity over the past five to six years. This activity is expected to continue due to the availability of natural gas pipeline infrastructure, strong natural gas price forecasts, and commercial success realized in similar New Brunswick geological formations. Exploration for unconventional gas such as coalbed methane has also experienced significant investment.

Increasing investment in resource development

The Department of Energy has invested in studies comparing Nova Scotia's offshore to that of competing jurisdictions. The recommendations received were focused on reducing barriers to entry: cost, risk, and reward. Incentives that address cost factors are currently under review. Such incentives include duty remission extension, additional fiscal incentives, and licensing changes. New geological information will lower exploration risk and subsequently lower the cost for explorers.

Increasing offshore investment – global competition

Nova Scotia is competing globally with jurisdictions with proven reserves and government incentives in the following areas:

- Drilling incentives – Countries such as Norway return exploration expenditures in the same tax year that the expenses are incurred and guarantee that the full value of losses on the Norwegian Continental shelf are realized. The deepwater areas of the Gulf of Mexico also offered royalty relief over a five-year period, which encouraged exploration.
- Data availability – Geoscience Australia conducted research on its geology and then provided explorers with the data free of charge. This effort markets Australia's resource plays and ensures explorers begin on an even playing field.
- Licensing flexibility – Countries such as the United Kingdom have introduced promote licenses, fallow field initiative, and an infrastructure code of practice. Promote licenses are issued at much lower costs than traditional licenses for the first two years to encourage smaller companies to explore in areas that would not be considered. These initiatives have seen increased exploration activity including activity from new entrants.
- Promotional efforts – Trade shows, fiscal incentives, and regulatory efficiency assist industry-government relations when building an industry.

Increasing offshore investment in Nova Scotia

Nova Scotia has undertaken a number of studies and done extensive analysis to reach a solid understanding of its position in the global marketplace. The province is continuing to examine and implement innovative ways to revitalize the industry.

- Regulatory effectiveness – The Atlantic Energy Roundtable (AER) has achieved gains through its work to improve regulatory efficiency and increase industry investment in the offshore. (See Appendix C, detailing the AER achievements)
- The Offshore Energy Technical Research (OETR) and Offshore Energy Environmental Research(OEER) Associations focus on fostering research and development in our oil and gas industry and renewable energies to address practical and regulatory challenges to exploration and development.
- Licensing options: Consolidation of exploration acreage and, as recently announced by the Canada Nova Scotia Offshore Petroleum Board (CNSOPB), the introduction of new terms and conditions for exploration licenses (ELs). An EL term will be shortened and offered at a lower cost. The cost will not be based on drilling commitments.
- Formal opening of the Data Management Centre in fall 2007. (CNSOPB)
- Commissioning and promotion of studies related to geophysics and geochemistry.

Local gas distribution

The province is converting government facilities to natural gas as supplies become available to support the expansion of the distribution system. Using natural gas as an alternative to fuel oil helps improve air quality and provides fuel-source diversity. To date, natural gas produced from our offshore is distributed by Heritage Gas to Dartmouth and Amherst. Key industries in the Canso Strait area also use natural gas. The local gas distribution system is now being expanded into the commercially and institutionally large Halifax peninsula market.

Expansion of the system into other markets in the province, including Truro and New Glasgow, depends upon the availability of sufficient loads to justify the infrastructure investments. The recent return of natural gas prices to a more traditional relationship with home heating fuel makes natural gas an attractive option.

Climate change and natural gas

Natural gas is a convenient fuel source. It is also a relatively clean fuel with fewer GHG emissions produced by burning this fuel compared to the energy equivalent of coal or oil. This makes natural gas an attractive bridge fuel as we make a transition from fossil fuels. Nevertheless, natural gas brings emissions including GHGs that need to be managed within an overall action plan. Offshore natural gas projects, including the associated onshore processing, hold a relatively low share of the GHG emissions in Nova Scotia. Some of those emissions are due to flaring of gas during times of production or process disruption. Flaring is a necessary safety measure, but undesirable from a resource conservation as well as a pollution perspective. New technologies and practices are emerging that can significantly reduce waste due to flaring.

Planning for natural gas

- Objective: a major fiscal and economic benefit for Nova Scotia [need to attract the investment required for more exploration that leads to new discoveries, project developments and offshore revenues].
- Critical challenge: establishing the geoscience knowledge that can lead to significant discoveries onshore and offshore.
- Factors to consider:
  - the state of geological knowledge about our resource potential and its commercial recoverability
  - international competition
  - the rising cost of supply services including rigs
  - the state of deepwater technologies
  - requirements on reduction of GHGs
  - the availability of technologies and practices to mitigate potential negative environmental impacts
- The renewed *Energy Strategy* needs to be consistent with the objectives of building on business and technology and building a healthy, safe, and clean environment.

Options for natural gas

Offshore

- Enhance investment attraction by:
  - building geological and environmental knowledge to reduce uncertainty, protect the public interest, and encourage investment
  - modernizing licensing and regulatory systems for all aspects of resource development and use
- In times of fiscal surplus from offshore revenues beyond commitments on debt reduction, invest a portion of those surpluses in measures to continue the offshore economic and fiscal benefits or similar enduring purposes
- Monitor new technologies and practices to ensure a minimum amount of waste

Onshore

- Modernize licensing and regulatory systems
- Increase geological understanding and regulatory capacity

Question: *Are these the proper objectives and viable options? What others may be added? What actions would enhance the success in achieving our objectives?*

ENERGY OPPORTUNITIES

Building on business and technology

Companies need to be globally competitive

Oil and gas exploration is a global business. It is a high-risk financial endeavour with potentially high rewards. The challenge for local companies bidding for contracts in the offshore or onshore industry is to meet high quality standards at a competitive price in a reliable manner. Local companies often need to demonstrate expertise to obtain contracts in the global oil and gas industry, which is typically gained through participation in local offshore projects.

Business opportunities for local companies are more abundant during the development and production stages of a gas and oil project. To maintain capabilities, companies must export their products and services during industry cycle downturns.

Employment opportunities in oil and gas

The oil and gas exploration workforce is an international one. Professions range from geologists, engineers, and accountants, to the skilled trades. The Department of Energy, in conjunction with universities, the Nova Scotia Community College, and private sector identifies training needs to support the employability of Nova Scotians. Labour force age demographics and opportunities in other jurisdictions are projected to create pressures on maintaining and obtaining appropriately trained employees locally.

Offshore agreements

Nova Scotia's *Offshore Strategic Energy Agreement* (OSEA) is a process where the province and a petroleum company negotiate research and development, training and procurement benefits that will accrue to Nova Scotians prior to the commencement of a project's development stage. This agreement is negotiated within the context of the industry's development at the time of the project as well as the strategic needs of the province at that time. The OSEA also takes into account the scope and scale of the expected production. This concept was introduced in the *Energy Strategy (2001)* and implemented for the first time with EnCana and their Deep Panuke Project.

Opportunities from renewables and energy conservation

Large wind turbine technology is mature, thus limiting opportunities for Nova Scotian companies to design and manufacture competitive products. Current opportunities for local companies are related to the assembly, erection, and operation of these units.

Ocean energy technologies (e.g., tidal, wave) are, for the most part, in their infancy. Even so, countries such as the UK are leading in the development of these technologies. Without Canadians investing in the development of ocean energy technologies, opportunities will be minimal.

The province and the federal government have increased incentives for homeowners to make their houses more energy efficient. This is an opportunity for both homeowners and renovators, as homeowners take advantage of incentives and become more aware of the inherent savings that result from using less energy for heating. The Atlantic Canada Opportunities Agency (ACOA) has conducted studies on energy business opportunities, but more research is needed around resource potential, emerging technologies, market possibilities, and local business interest.

Research and development

Significant funds are provided by offshore project operators for research approved under negotiated benefits plans and OSEAs. The province has worked with local universities to establish two not-for-profit corporations, the Offshore Energy Technical Research (OETR) Association and the Offshore Energy Environmental Research (OEER) Association in 2006. These associations have recently awarded contracts and grants for studies related to geological interpretation and environmental issues related to offshore exploration and tidal electricity energy generation.

EnCana's Deep Panuke project could provide another major boost to research and development activities in Nova Scotia. The agreement between the province and EnCana provides for .5 per cent of project revenues to be reinvested in Accord Act Benefit obligations. The majority of these commitments fall under research and development.

Climate change and energy opportunities

Electricity costs are a major factor for energy-intensive industries in Nova Scotia. In addition, some industries emit significant amounts of GHGs on their own. To meet national and global requirements for GHG reductions, a number of ideas are being discussed, including

Technology fund paid into by emitters. From a regulatory perspective, these payments could be considered as meeting the requirements for reduction of GHGs. The idea is that these payments will provide funding for investments in new technologies that result in real reductions. These technologies could be developed in Nova Scotia and become a significant driver of economic development opportunities.

Financial penalty to those unable to meet regulatory requirements. This approach would also result in funding that the government could use for investments in energy conservation and efficiency as well as new technologies.

Carbon credits in a "cap and trade" regime. This approach is based on the success of similar models in reducing other kinds of environmental pollutants. The basic concept of cap and trade has three steps: 1) governments set an overall cap on a particular emission; 2) companies make investments to reduce their emissions; 3) companies that have a low cost of compliance can trade their surplus to those companies that have a high cost of compliance.

Each of these ideas help industries make transitions to new regulatory requirements. They can also assist in making room for new entrants.

Planning for energy opportunities

- Objective: building on business and technology [using Nova Scotia's existing supplier and research community base to tackle new energy opportunities in the non-renewable and renewable sector].
- Critical challenge: building globally competitive capabilities at home, securing niche markets abroad.
- Factors to consider:
  - potential for market niches
  - nature of technology and ability of competing jurisdictions to produce at a significantly lower cost
  - opportunities to address competitive barriers
  - ability and interest of local firms and institutions to foster commercialization of technological innovation
  - government policies and strategies to support commercially viable local initiatives
- The renewed *Energy Strategy* on energy opportunities needs to be consistent with the government's Opportunities for Sustainable Prosperity.

Options for energy opportunities

- Encourage renewable technologies and community development by funding studies to understand opportunities and then develop strategies to take full advantage of the opportunities.
- Support OSEA approach to continue to take advantage of NS business capabilities and capacity.
- Support export growth by increasing efforts to export NS technologies and skills.
- Build on ocean technologies research expertise by working with the federal government, universities, and the private sector to establish center/expertise in Nova Scotia.
- Develop mechanisms that allow for the development of new technologies that address GHG reduction needs.

Question: *Are these the proper objectives and viable options? What others may be added? What actions would enhance the success in achieving our objectives?*

GOVERNMENT ACTION

Meeting its own obligations

Governments may require others to act, but they are also judged on how they manage their own affairs. This includes their management, spending, integrity, and transparency.

The Government of Nova Scotia has internal responsibilities for its own buildings, employees, vehicles, highways and other infrastructure, land, and other resources. It also has responsibilities for other entities such as Crown corporations and other parts of the public sector that depend upon provincial funding, such as schools and hospitals.

Government actions must also allow for consultation with others. The government is obligated to listen to and, when possible, address concerns of stakeholders and municipal governments. This inclusive approach was a hallmark of the *Energy Strategy (2001)* and provided significant direction for the Department of Energy. Other departmental examples include

- working with key marine stakeholders through the Eastern Scotian Shelf Integrated Management (ESSIM) planning process
- assessing tidal energy in the Bay of Fundy using the Strategic Environmental Assessment
- conducting multiple projects on climate change and energy use
- working with fishing interests through the annual provincial Fisheries Ministers' forum, and on individual projects such as the delegation to the North Sea in 2003
- consulting with aboriginal leaders beginning in 2005 under a "Made in Nova Scotia" process beginning in 2005

Municipal governments also have a significant stake in energy developments and have shown leadership in energy conservation. Initiatives in areas related to transportation, municipal planning, and provincial funding for municipal projects must continue.

Publicly-directed research and development

Government can also take direct action by allocating public funds for research and development. Governments across the globe provide public investment in research and development to address areas of public interest, such as resource assessment, sustainable energy development and energy conservation. The province has made significant investments in research and development to assist in geological and environmental knowledge, and these actions will continue.

Climate change and government action

The Government of Nova Scotia is a significant energy consumer (and producer of GHG emissions). Its procurement policies and funding strategies can have a very significant impact on energy use in the province. This purchasing and funding power has already been used to enable government buildings and the Capital Health District to make the move from high sulphur petroleum fuels to cleaner burning natural gas. The province has also committed to a new vehicle policy: all new vehicle purchases, leases, and rentals will be evaluated on size, purpose, fuel consumption, and life-cycle costs. The province will only consider vehicles in each class that score in the top 20 per cent for fuel efficiency.

Planning for government action

- Objective: meeting the government's own obligations [acting in areas where it has direct control and responsibility].
- Critical challenge: financial and human resource limitations.
- Factors to consider:
  - jurisdictional relationships with other governments and aboriginal peoples
  - the province's limited financial resources and other priorities

Options for government action

- Provide direct funding and action in areas such as energy conservation and efficiency for public and publicly funded infrastructure
- Set government green procurement standards to meet its own targets for GHG reductions.
- Continue funding for research and development in areas that will reduce barriers to investment;

Question: *Are these the proper objectives and viable options? What others may be added? What actions would enhance the success in achieving our objectives?*

GOVERNMENT INTERVENTION

Influencing, enabling, and requiring action by others

Many of the energy sector goals and objectives require some form of government support, incentives, legislation, or regulation. Governments must carefully examine which options are most likely to be effective, in terms of both the result and cost to the taxpayer.

When people, businesses, organizations, and institutions are motivated to take action on their own, governments may be able to influence those actions in a positive way by providing help such as information, incentives, and tax credits. This is especially true for those in our province who may not have the financial resources to make the investments in their homes and appliances to secure the savings from energy conservation.

But there are times when voluntary action is not enough, or when the burden of complying is too high, such as when competitors do not comply. Under these circumstances, the government may move towards a higher level of intervention. This may include legislation or regulations backed by penalties for non-compliance. Health, safety, and environmental protection issues usually fall under legislation, as does the regulation of economic monopolies.

In the context of the renewed *Energy Strategy* and *Climate Change Action Plan*, there are numerous examples where the government has set a standard and may chose to raise the bar. The targets for renewable energy, air pollutants, and greenhouse gas reduction are all areas where the government has moved from a voluntary agenda to legal requirements.

Examples: Policy that influences or enables

- Nova Scotia EnerGuide for Houses
- Student Training Program
- Better Regulation Initiative

Examples: Policy that directs or requires

- Renewable Energy Standard
- Electricity Price Regulation
- Oil and Gas Drilling and Production Regulation
- Regulation of Efficiency Standards for Appliances

Energy regulation in Nova Scotia

The Department of Energy is responsible for 11 acts and associated regulations. In addition, future energy conservation, efficiency and climate change regulations will be developed under the Environmental Goals and Sustainable Prosperity Act passed in 2007.

The government has developed the Better Regulation Initiative to enhance regulatory practice in Nova Scotia. This process includes a commitment to lasting improvements to the entire regulatory cycle, which begins by asking whether a regulation is the right tool to change public or business behaviour. The initiative commits government to making improvements to how the regulatory process is done and creating new regulatory tools. It commits government to considering the cost of administration and compliance, including the economic impact on those most vulnerable. These changes will help ensure that regulations are

- carefully considered in consultation with business and the public
- well-designed and effective
- equitable; similar sectors and risks treated equally
- cost-effective and affordable
- clearly communicated and managed
- consistently enforced

Government intervention and climate change

Climate change can be met effectively, at least in part, by a variety of government interventions. Although individuals play a significant role in reducing GHGs—and this role is being reinforced by social awareness and high energy prices—our response to climate change demands an urgency that cannot wait for individual, voluntary action alone.

Most of the government's climate change intervention options relate to energy use; these have already been discussed in earlier sections. Some are repeated here to examine the subject from a regulatory and fiscal perspective. But the following issues related to the cause and response to climate change have no direct link to energy:

- **Biological sources of GHGs:** The amount of GHG production in the decomposition of biological matter in the food chain varies widely. What food we choose to consume and thus produce can have an impact on GHG. For example, protein from beef, pork, and poultry has more GHGs associated with it than vegetable proteins.

- **Industrial sources of GHGs:** Coal mining releases methane. If the quantities are significant enough, there may be commercial opportunities to capture the methane and combine it with natural gas production or burn it on site. In this case it would be an energy impact. However, if the emissions simply escape during mining, they are a non-energy related source. Other industrial sources include refining and industrial production processes including ones that result in non-hydrocarbon sources of GHGs such as nitrous oxide or ozone.

- **Carbon sinks, capture and sequestration:** Carbon can be captured from industrial and energy production and injected into depleted gas reservoirs or deep saline structures or even used to help enhance the recovery of natural gas through injection techniques that help cause more gas to flow. Forest and agricultural processes can also be improved to have a positive impact on GHG reductions as can an actual increase in vegetation.

Planning for government intervention

- Objective: influencing, enabling and requiring action by others [using a wide range of tools including providing the information and incentives for voluntary action as well as laws and regulations when required]
- Critical challenge: knowing what kind of action is needed to achieve an effective outcome by others (i.e., when to encourage versus when to require)
- Factors to consider:
  - available fiscal and human resources to effect programs, education, and enforcement
  - understanding public views, consumer preferences, and sources of market failure in order to understand what forms of intervention will be most effective
  - continued stakeholder engagement, collaboration, and cooperation
  - jurisdictional relationships with other governments and aboriginal peoples

The renewed *Energy Strategy* needs to be consistent with the objectives of open and transparent governance, the province's limited financial resources, and other priorities.

Options for government intervention

Influencing through information

- Research information gaps by energy users and develop effective information delivery programs to meet the needs of energy consumers including businesses, organizations, and institutions

Fiscal intervention through incentives and tax policies

- Provide clean energy incentives to industries that lower GHGs through new technology.
- Provide incentives through policy or fiscal tools to encourage carbon sinks, capture, and storage.
- Examine programs and options to address energy costs and conservation investments for low-income Nova Scotians as a matter of social responsibility.

Regulatory

- Ensure regulatory interventions are effective. They should be:
  - well thought-out with respect to impacts in other areas;
  - optimal in respect to net benefits;
  - flexible with respect to technology and evolving best practice; and
  - equitable and affordable
- Modernize regulations and legislation for
  - onshore oil and gas exploration, production, transportation and storage, and royalties
  - offshore oil and gas regulations within an overall regulatory framework
  - electricity
  - energy efficiency for appliances, vehicles, and buildings
- Create new regulations for GHG emissions and market incentives (e.g., carbon credits)
- Create regulations that allow for the taxation (carbon tax) of large emitters
- Create regulations that establish rules for emissions cap and trading by limiting the amount of GHGs each large emitter is permitted to release and allow them to either buy "credits" if they can't comply or sell "credits" if they over comply.
- Introduce legislation or regulations allowing companies to offset their emissions by paying into a technology fund. The fund is then used for projects that demonstrate new GHG-lowering technology.

Question: *Are these the proper objectives and viable options? What others may be added? What actions would enhance the success in achieving our objectives?*

A call to participate

Thank you for taking the time to review the many options on the table for both energy policy and greenhouse gas reduction.

At this point, this discussion is a long list of possibilities; with your help, we will trim and translate that list into concrete policies.

We hope to hear from you through the consultation process beginning soon. All feedback will inform the development of both the renewed *Energy Strategy* and the *Climate Change Action Plan*. Consultation on both is scheduled for the fall of 2007, with release dates scheduled for the spring of 2008.

Again, our desire is to start a conversation about the rewards and consequences of how we use energy, and to turn that conversation into action as we go forward.

Thank you for participating.

Submissions can be made electronically by e-mail to either:
energystrategy@gov.ns.ca (for the Energy Strategy), or climatechangeaction@gov.ns.ca (for the Climate Change Action Plan).

All submissions will be considered public documents and may be published on the government website.

The deadline for written submissions is December 12, 2007.

See "Your input here" on page iii above for more information on how to participate.

Aug. 29, 2007

I. Offshore Energy: economic and fiscal impacts
II. Greenhouse Gas (GHG) emissions: forecast - Provinces, Canada, Global
III. Electricity prices compared: North America
IV. Electricity demand forecast: Nova Scotia, Canada, global
V. Electricity: *Integrated Resource Plan* (IRP)

All data from Natural Resources Canada (2006) unless otherwise noted.

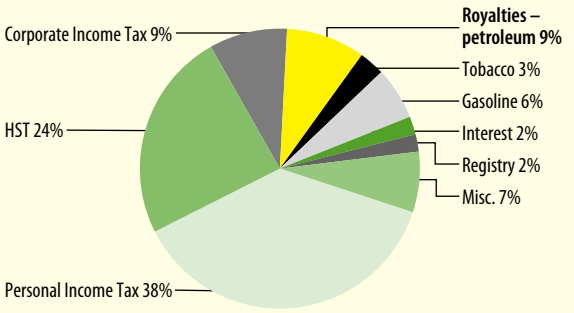
I. OFFSHORE ENERGY: ECONOMIC AND FISCAL IMPACT

Offshore oil and gas development in Nova Scotia has brought significant fiscal and economic benefits to the province, and benefits accrue in several ways including:

- **Royalties** paid to the Nova Scotia treasury
- **Corporate income tax** paid to Nova Scotia by offshore developers
- **Employment** of Nova Scotians by offshore developers
- **Expenditures** for goods and services in Nova Scotia by offshore developers
- **Expenditures** for goods and services by offshore exploration companies.

Nova Scotia Revenue – Provincial Sources

Forecast for 2007-08



a. Fiscal benefits: Royalties

Sable Offshore Energy Project (SOEP), the only Nova Scotia offshore project at present, has paid annual royalties to the province totalling $496 million since production began in 1999. Current year royalties (2007–08) are expected to add an additional $410 million—the largest year to date. Production of the Sable gas resource is at its peak and will begin to decline. Royalties have jumped significantly since startup at Sable because:

- the price of natural gas jumped
- royalty contracts pay more in the later stages after startup costs are covered
- production has increased as expected in the later stages of this project

b. Economic Benefits: Employment and Expenditures on goods and services

In addition to direct fiscal benefits to the province, offshore development provides economic benefits through substantial employment and expenditures made in the province. These are detailed in annual reports to the Canada–Nova Scotia Offshore Petroleum Board. The expenditures on goods and services for the Sable Offshore Energy Project (SOEP) have direct and indirect effect on household incomes and the local economy. These impacts also result in additional income tax to Nova Scotia treasury, helping support healthcare and other public services.

c. Summary of benefits: Offshore Energy Development in Nova Scotia

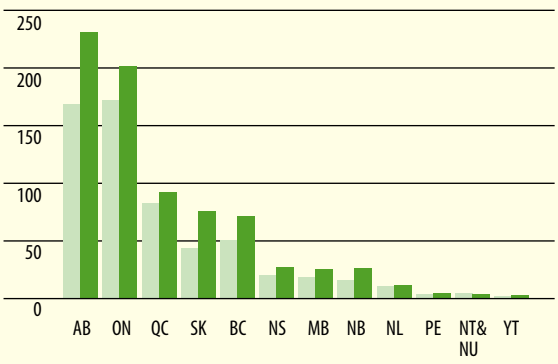
Activity:	Exploration	Development	Employment	Royalties
	Goods/services Contracts 1996–2006	Sable project Expenditures 1998–2006	Sable project Person/years 1998–2006	Paid to NS Treasury 1999–2008*
Nova Scotia Benefits:	$403 million	$1,889 million	8,350 person/years	$906 million

*This royalty amount includes the current year (FY2007–08) which is expected to bring $410 million royalties, as noted above.
Source: NS Department of Energy

II. GREENHOUSE GAS EMISSION: PROVINCES, CANADA, GLOBAL

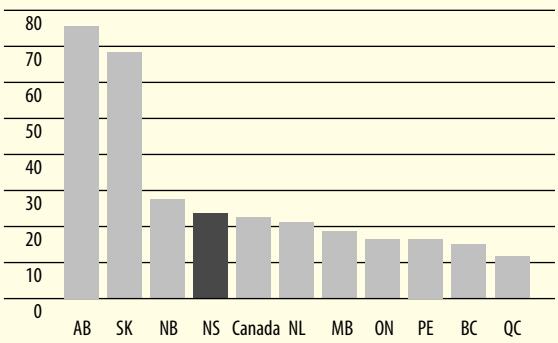
Although Nova Scotia contributes only 3 per cent of total emissions in Canada, our emissions per capita are slightly above national average. It is mainly due to our lack of large hydro resources, and therefore a reliance on fossil fuels as the least cost, most available source for electric power.

Provincial GHG Emissions



GHG Emissions per Capita, 2005

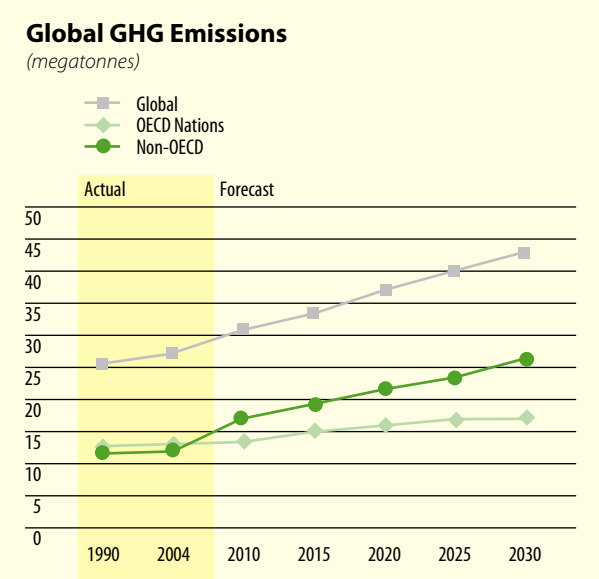
(tonnes per person)

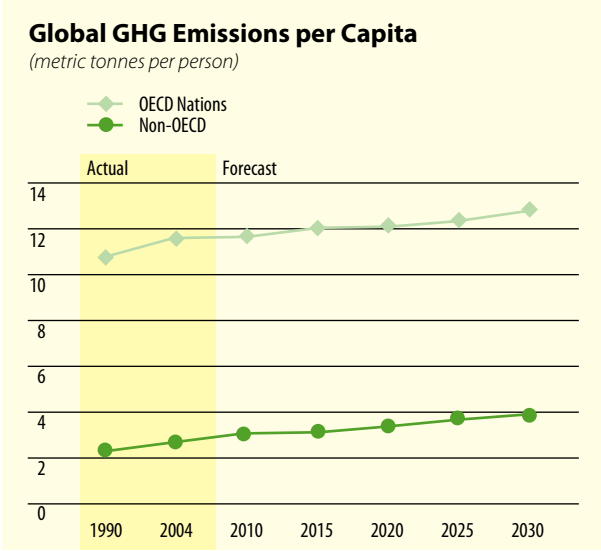


Provinces: The following table compares our total emissions of GHG (6th nationally) and our emissions per capita (4th nationally).

(2005)	Total GHG (Megatonnes)	Rank	Per capita (Tonnes)	Rank
Alberta	238	1	75	1
Ontario	204	2	17	7
Quebec	90	3	11	10
Sask.	69	4	69	2
B.C.	67	5	16	8
Nova Scotia	23	6	24	4
Manitoba	22	7	19	6
N.B.	21	8	28	3
NL & Lab	11	9	21	5
PEI	2	10	17	9

Global GHG Emissions





III. ELECTRICITY PRICES: NORTH AMERICA COMPARED

The two maps below show current prices for residential and large power users. Canadian residential electricity prices can be divided loosely into two groups: 1) provinces dependent on coal (higher prices); 2) provinces with extensive hydro (lower prices). Prices below are in Canadian dollars (2006). Reprinted with permission from Hydro-Québec.

Major North American Cities

Average Prices for Residential Customers[5]
(in ¢/kWh)[6]

[5] For a monthly consumption of 1,000 kWh; rates in effect April 1, 2006.
[6] In Canadian dollars.

Major North American Cities

Average Prices for Large Power Customers[7]
(in ¢/kWh)[8]

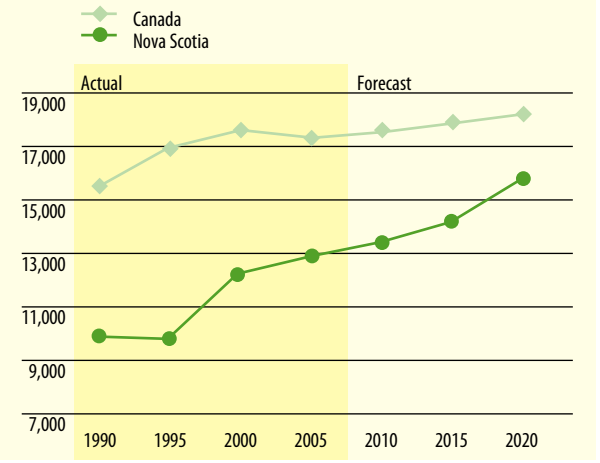
[5] For a monthly consumption of 3,060,000 kWh and a power demand of 5,000 kW; rates in effect April 1, 2006.
[6] In Canadian dollars.

IV. ELECTRICITY DEMAND: NOVA SCOTIA, CANADA, GLOBAL

Conservation and efficiency are crucial to reduce power consumption and therefore greenhouse gas emissions. The following chart shows per capita demand for electricity in Nova Scotia is lower than the national average—but has been growing faster than the national average and projected to continue that trend if we don't improve conservation and efficiency.

Electricity Demand per Capita

(kilowatthours, actual 1990-2005, forecast 2010-2020)

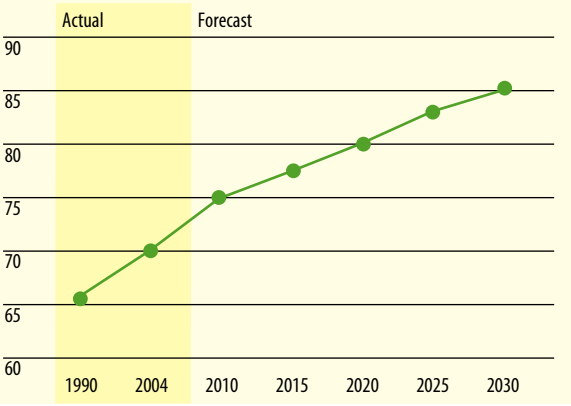


Global energy demand:

Conservation and efficiency is a global issue. From residential appliances to transportation to industrial and power generation, average demand of all forms of energy per person is growing and considered not sustainable. Governments, utilities, and industry are now focusing on how to practice and encourage more efficiency and conserve energy.

Global Energy Demand per Capita

(billion Btu)



V. ELECTRICITY – INTEGRATED RESOURCE PLAN (IRP) OF NSPI

In July 2007 Nova Scotia Power Inc. presented a set of long-term options called the *Integrated Resource Plan* (IRP) to help plan future electricity generation and address concerns about environmental impacts as well as cost and reliability. The IRP process analyzed options currently available in Nova Scotia. The options were combinations of the following: investment in promoting demand side management (DSM) for more efficiency and conservation; greater use of proven renewables; greater use of coal; greater use of natural gas.

The DSM process would use a portion of electricity revenues each year to promote conservation and efficiency across the province. E.g., "2% DSM" means 2 per cent of electricity revenues will be spent promoting DSM. "Renewables" are primarily wind power. Coal is expected to remain the lowest cost source per kilowatt, though climate change concerns may alter that. The five options studied were:

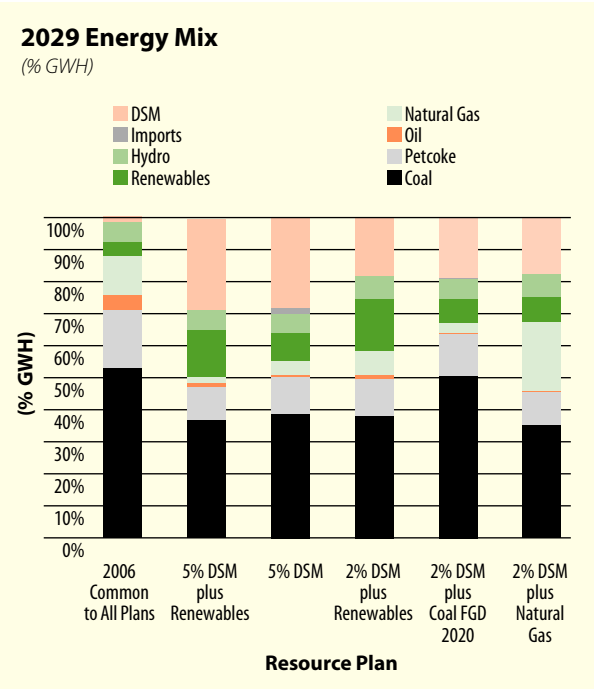
1. 2% DSM plus renewed coal power generation
2. 2% DSM plus increased use of natural gas
3. 2% DSM plus renewable sources beyond current requirements
4. 5% DSM only
5. 5% DSM plus renewable sources beyond current requirements

The IRP analysis suggests the fifth option (*"5% investment in DSM plus renewable sources beyond current requirements"*) will provide the least cost for users over the long term. This conclusion is based on assumptions about key unknowns—future fuel prices, technologies, carbon caps, and the effectiveness of DSM. All of these will impact the validity of the IRP.

The analysis suggests that by 2030 this option will have user rates that are mid-range of the five options, though somewhat higher than options using more coal. But with increased DSM users will require less power on average, and therefore end up with lower bills than other options.

The following chart from the IRP study portrays the expected fuel mix in each of the five options studied. The first column shows the current (2006) fuel mix for comparison.

IRP: Comparison of Options – Energy Mix @ 2029



APPENDIX B: RESOURCES

- National Roundtable on the Environment and the Economy: Advice on a long term Strategy on Energy and Climate Change (June, 2006)
- UK White Paper on Energy (May 2007)
- Map of Prices for Electricity
- List of Acts administered by the Department of Energy
- New Brunswick Energy and Climate Change Plan
- Quebec and Climate Change, (June 2006)
- New Zealand Energy Strategy to 2050 (December 2006)
- Algae and CO_2 Capture-Biofuel
- http://www.worldchanging.com/archives/003999.html
- http://www.cnsopb.ns.ca/whatsnew/pdf/04_19_2007_news_release.pdf
- http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/power-electricite/index-eng.cfm
- New Nova Scotia
- Opportunities for Sustainable Prosperity
- Environmental Goals and Sustainable Prosperity Act

- **Better coordination of regulatory processes and reduced cycle times through Memoranda of Understanding (MOUs) among governments and regulators.** As of February 18, 2005, the principal regulating agencies and departments involved in the offshore have approved a Memorandum of Understanding (MOU) to ensure regulatory approval processes and environmental assessments for future offshore development projects are handled in a coordinated and concurrent manner.

- **Reduced drilling costs through the suspension of the duty on imported mobile offshore drilling units (MODUs).** The Government of Canada announced that the duty was suspended for a five-year period. The estimated impact of this measure is a savings of $1 million per well for the temporary import of a MODU.

- **New approach to local crewing requirements.** Federal and provincial ministers have communicated a consensus recommendation to the Offshore Petroleum Boards that would provide for local employment preferences for vessels operating in jurisdictions of both boards to be met more economically in a less disruptive manner, providing safety advantages and improved career opportunities for Atlantic Canadians.

- **Reduced costs through the use of a shared database of regulatory decisions.** The Canadian Association of Petroleum Producers (CAPP) now operates a database of approved regulatory equivalencies (RQFs), which allows members seeking regulatory approvals to reference the experience of other members and to benefit from their experience. At present, 11 CAPP members are participating in the process, and the database is fully functional with over 250 regulatory equivalencies RQFs currently entered. CAPP is encouraging its other members to participate, and for all RQFs to be placed in the database.

- **Better communication on procurement opportunities for local supply and service communities.** Workshops were led by CAPP to inform the service and supply sectors of upcoming supply opportunities in the offshore, generating improved awareness of contract opportunities in the service and supply sectors. Based on the success of the first briefings in 2004, CAPP held two workshops in 2005 and plans to hold on-going annual events.

- **Completion of a study that concluded that Atlantic Canada's Health Safety and Environmental Requirements for Fabrication do not create a competitive disadvantage for Canadian suppliers.** The AER study concluded that the Canadian requirements were not a significant factor in Canadian companies' competitive position.

- **Standardized approaches to supply chain management through Industry Recommended Practices.** CAPP has published (2004) 'best practice' guidelines for managing supply chain activities, to provide operators with consistent procedures and requirements for bid preparation and other procurement activities, to lead to lower costs. Supplier associations are ensuring their members are aware of the recommended practices.

Source: AER – Report of the Implementation Committee – February 19, 2005

NOVA SCOTIA
Department of Energy

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Energy Strategy/Climate Change Action Plan
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