Seizing the Opportunity

Volume 1

Nova Scotia's Energy Strategy

TABLE OF CONTENTS

ISBN: 0-88871-710-5

Cover:
Nova Scotia is in the early stages of building a world-class energy industry. The energy strategy outlines a plan for achieving this objective by striking the right balance between developing our renewable and non-renewable resources.
Cover Photo: *Wind energy courtesy of Vision Quest Windelectric Inc.*
Cover Photo: *Coal in Cape Breton courtesy of the Nova Scotia Petroleum Directorate*

Cover Photo: *Bluenose II and the Eirik Raude rig courtesy of Communications Nova Scotia*
A symbolic image of our past, present and future. The Bluenose II—a tribute to the shipbuilding industry in Nova Scotia—sails in Halifax Harbour past the Eirik Raude—a deepwater drilling rig undergoing completion work by Nova Scotia tradesman. The emergence of our offshore oil and gas industry marks a new era in the history of our province.

The Bluenose II Preservation Trust is a volunteer-led, not-for-profit organization and a registered charity with a mandate to maintain and operate the heritage schooner, Bluenose II, on behalf of her owner, the Province of Nova Scotia.

Published in conventional and electronic form by Communications Nova Scotia.

This publication is available on the Internet at **www.gov.ns.ca/energystrategy**

PREFACE

Gordon Balser - Minister Responsible for the Petroleum Directorate

Ernest Fage - Minister of Natural Resources

We are pleased to submit to the Government of Nova Scotia *Seizing the Opportunity: Nova Scotia's Energy Strategy.*

The Department of Natural Resources and the Nova Scotia Petroleum Directorate were given responsibility to prepare a comprehensive energy strategy for Nova Scotians. Our report covers all forms of energy—from the rapidly growing offshore oil and natural gas sector to electricity and coal. It also commits the government to act upon a number of environmental considerations and energy impacts on our economy and our society.

The report is the result of a team effort. Our two organizations have worked closely together on this task. We have also consulted regularly with senior managers from 12 provincial departments and agencies and enjoyed co-operation from a number of federal government departments, including Natural Resources Canada, Fisheries and Oceans Canada, Environment Canada, and the Atlantic Canada Opportunities Agency (ACOA). Federal and provincial agencies and regulators have also had an opportunity to comment on our task and its direction.

This report is the tangible result of our work. However, its value goes far beyond the written pages. Nova Scotia's energy strategy is the result of an extensive and successful public consultation process. From the hundreds of Nova Scotians who attended the public workshops across the province to the more than 100 organizations and individuals that took time to meet and make written submissions, it has been a very positive experience.

We also were able to draw on the wide range of experience and expertise of close to 200 local and national industry leaders and interested Nova Scotians who took part in the Energy Forum. The forum was co-chaired by former Alberta premier Peter Lougheed and Nova Scotia's Sir Graham Day. We also ensured that this advice was widely shared by posting submissions on our energy strategy website www.gov.ns.ca/energystrategy. This site is and will continue to be an informative and valuable resource for anybody who wishes to learn more about energy in Nova Scotia.

We would like to thank all those who participated in the energy strategy process; without their thoughtful and constructive input, this strategy would not have been possible. We would also like to thank all the members of the energy strategy team who are responsible for the preparation of this report.

Respectfully submitted:

Gordon Balser

Gordon Balser
Minister Responsible for the
Nova Scotia Petroleum Directorate

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Minister of Natural Resources

STRATEGY OVERVIEW

Nova Scotia Premier John Hamm

Nova Scotia's past and future are deeply linked to the sea. For centuries our prosperity has largely depended upon how well we managed the ocean's bounty, built ships, and conducted trading around the world. This rich maritime history can be seen today in the historic buildings and streetscapes in communities throughout the province. It helped establish Nova Scotia as an equal founding partner of the Canadian nation.

Today, we stand at a crossroads with another form of wealth from our ocean. Canadian and global energy companies are spending billions of dollars searching for and developing the oil and gas under the seabeds off our coast. These activities should help us build a strong, diversified economy.

We have a clear plan to achieve this. First, we must encourage exploration. We need to find more oil and gas reserves if we are to create a world-class oil and gas industry and secure additional jobs and business growth in Nova Scotia. This will require government and industry to provide training and apprenticeship programs so that Nova Scotians gain the skills they need to participate in this growing industry.

Our government will take action to improve the working relationships and trust among the fishing industry, coastal communities, and the offshore petroleum industry. These measures will also help protect our marine environment.

The benefits from our expanding energy sector must be long term. We will secure the province's future by increasing renewable energy sources, expanding research and development, and using growth in the energy sector to expand our economy. We will vigorously pursue the maximum economic value of our offshore resources by fully participating in the regulatory approval processes.

Our government's new energy strategy balances our social obligations with a firm commitment to improve the environment, while fostering economic growth. We will use our competitive advantages and strengths to gain a bigger share of the national and international market for oil and gas and electricity, as well as for local industrial and commercial goods and services.

Some of the other actions our energy strategy covers include the following:

- *Coal is the primary fuel that generates Nova Scotia's electricity, and will be for many years to come. Government will continue to encourage the use of local coal in an environmentally responsible manner.*

- *Our government will take firm actions to improve the quality of the province's environment by reducing air emissions and working closely with the federal government on climate change issues.*

- *Together with Nova Scotia Power Inc., we will take action to encourage the growth of Nova Scotia's renewable energy resources, especially wind power. In addition, we will carefully introduce competition to the electricity industry through policies that permit municipal utilities and new generators to access the transmission system.*

- *Conserving fuel used for electricity and transportation is a wise and important utilization of energy. We will introduce programs to encourage the conservation and more efficient use of energy in Nova Scotia.*

To ensure that Nova Scotians get the most from these energy resources and to provide the greatest employment and business benefits possible, government must be clearly focused and have sufficient and capable human resources. Therefore, government will create a new Department of Energy to implement the energy strategy and to provide leadership and management for its responsibilities in a growing energy industry.

Governments all around the world are being challenged to manage rapid and complex changes. The terrorist attacks of September have driven home the importance of reliable, secure supplies of all forms of energy. As a result, Nova Scotia's political stability and proximity to the large northeastern US markets are taking on more importance. We are also very fortunate as Canadians to be energy self-sufficient and, in fact, one of the few nations in the world to be net energy exporters.

Our energy strategy will help Nova Scotia generate more electricity from cleaner-burning energy sources such as natural gas and from renewable resources such as wind power. We will take actions to increase energy research and development, maintain a competitive business climate, and ensure that future generations of Nova Scotians benefit from our non-renewable oil and gas resources. Once revenues become significant we will create the Nova Scotia Offshore Heritage Trust and invest a share of energy revenues in the trust for future generations. To make this possible, we must receive a higher share of our offshore revenues. Therefore, we will continue to pursue with passion and conviction our belief that Nova Scotians should be the principal beneficiaries of our offshore resources. Our Offshore Accord agreement with the Government of Canada must fulfill its original intent.

To gain the benefits from our energy resources, Nova Scotians will need to embrace change that results from a growing energy sector and create new relationships with individuals, companies, and countries all around the world. We must seize the opportunity to build a better Nova Scotia and secure our future. Our voyage will respect the environment and leave our province a better place for our children. That is the legacy we want from our new energy strategy.

John F. Hamm
Premier of Nova Scotia

INTRODUCTION

The energy strategy for Nova Scotia is like a roadmap of major highways. It gives the directions to the most significant places. It shows a clear, broad picture of the landscape. With this map, the government has the means to make sure we reach our destination.

Nova Scotia's new energy strategy is about finding new energy resources and managing those we already have. It shows how we can use our energy resources to achieve economic and social benefits in an environmentally responsible manner.

Volume 1 of the strategy is developed around three major themes:

- *Powering the Economy*
- *Improving the Environment*
- *Securing our Future*

Volume 2 is a series of background papers on 17 different topics. It contains more detailed objectives and actions on a wide range of energy-related issues, as well as the background analysis that has been done in support of the directions chosen.

The province's new energy strategy is a living strategy, designed to be realistic and flexible with respect to future events and time frames. The strategy's short-term focus looks ahead to 2005. Its longer-term goals and actions address a vision extending well beyond.

The strategy has been developed at a time when Nova Scotia is facing new energy opportunities and challenges. The development of a large natural gas project offshore, and the belief there is more to come, gives us a growing presence on the world energy map. In 2001, the province became a net exporter of energy, moving our overall trade balance into surplus for the first time in several generations.

Taking full advantage of our energy opportunities requires significant change. Energy will become a larger part of Nova Scotia's economy, culture, and way of life. The people of Norway and the United Kingdom have already adapted and prospered from immense petroleum discoveries and developments off their coastlines over the past 30 years. We will learn from their experiences.

Nova Scotia's energy industry has undergone profound change over the past decade. The 1990s opened with Nova Scotia Power changing from a Crown corporation to a shareholder-owned private corporation. The utility now operates with the responsibilities, accountabilities, and disciplines that the marketplace imposes on a publicly traded company. Changes in other parts of North America's electricity system mean that more challenges and opportunities lie ahead.

Photo courtesy of the Nova Scotia Petroleum Directorate

M&NP Metering Station *Sable natural gas is transported through the Maritimes & NorthEast pipeline and the Point Tupper lateral to StoraEnso and other industrial users in Cape Breton.*

On December 31, 1999, as the decade closed, the Sable Offshore Energy Project (SOEP) began production. It proved our ability to deliver large amounts of energy to markets in the Maritimes and the United States and led to new jobs and new business growth. It attracted the attention of many companies, large and small, that are now spending more than $1.5 billion to find new oil and gas resources off Nova Scotia's coast.

The environmental landscape is also in transition. In 1997 more than 160 countries signed the Kyoto Protocol to deal with the issue of global climate change. Continuing concern over issues such as acid rain has focused greater attention on environmental issues related to energy.

Nova Scotia's coal industry, a mainstay of Nova Scotia energy for more than 300 years, is also undergoing change. The province's last underground coal mine has closed. As imports of low sulphur coal shipments rise, domestic coal plays a smaller role in the generation of our electricity.

Nova Scotia's prosperity, our standard of living, and our quality of life will be greatly influenced by how we discover, produce, consume, and distribute our energy resources. We need to use energy more wisely, expand energy technologies through research and development, and ensure that we have the infrastructure required for a growing energy sector and economy. The energy strategy provides a window of opportunity for Nova Scotia to address a wide range of economic and social goals. The energy strategy provides the framework by which we can seize this opportunity for the benefit of all Nova Scotians.

VISION

An energy industry balancing economic growth, social goals, and respect for the environment for generations of today and tomorrow is essential for Nova Scotia to achieve its vision of becoming one of the best places in the world to live and to work.

A successful energy industry will lead the transition and diversification of the province's economy. It will provide people with enduring social and economic benefits. Over the longer term, a dynamic and vibrant energy industry will:

- *enhance our standard of living by contributing to economic growth and enable us to pay for our education, health, and other public services while reducing tax and debt burdens*
- *improve our environment*
- *become an important and positive part of our economy*

GOALS

The energy strategy has three main goals, which were discussed, debated, and confirmed during the public consultation process. They are:

- *to create a world-class energy sector that achieves sustainable economic development in balance with high social and environmental standards*
- *to optimize financial, economic, and social benefits in the province's rapidly expanding offshore energy sector*
- *to improve the province's environment and enhance the quality of life of Nova Scotians*

VALUES AND PRINCIPLES

Before beginning the consultation process, the government identified and approved a set of values and principles as the foundation of the energy strategy. These values and principles helped focus many of our discussions and provided signposts against which options could be weighed.

1. *Public consultation, fairness, transparency, accountability, and responsible regulatory practices will guide public sector energy policy making.*
2. *To the extent possible, the supply, demand, and price of energy products and services in Nova Scotia will be guided by policies that encourage consumer choice and competition.*
3. *The private sector is an essential partner in the management and growth of Nova Scotia's energy industry. It will be the source of most of the innovation and capital investment required to develop and expand this globally competitive sector.*

4. *Nova Scotians should be the primary beneficiaries of the industrial benefits and revenues generated by the province's energy resources. These benefits will be distributed as widely as possible throughout the province.*
5. *Improving the environment will be an objective in energy policy-making decisions.*
6. *The energy needs of the Nova Scotia marketplace are best served by having a diversity of reliable energy sources and pursuing efficiency and conservation initiatives.*

Federal Energy Goal

"...to help Canada become the world's smartest steward, developer, user and exporter of our energy resources."

— Ralph Goodale, Minister of Natural Resources Canada

HIGHLIGHTS OF THE PUBLIC CONSULTATION

The advice received from the public during workshops, consultations, and submissions and the recommendations from industry participants and experts in stakeholder meetings and forums were characterized by a number of consistent themes:

- *think long term*
- *learn from lessons elsewhere*
- *maximize economic benefits to Nova Scotia*
- *improve the environment*
- *increase renewable energy production*
- *take a cautious approach to competition in the electricity sector*

The Premier's June 2001 Energy Forum, Open to the World, discussed and debated a wide agenda of energy, environmental and economic issues. Local, national, and international energy executives, academics, and organizational leaders and the general public dealt with such questions as What can Nova Scotia's energy industry deliver for its citizens? What are realistic expectations for Nova Scotia's energy sector? What are the most important elements for creating a competitive business climate? How can we ensure that the environment is protected while cross-industry alliances and partnerships are encouraged?

The Energy Forum heard useful advice on leveraging Nova Scotia's energy advantages.

- *Promote our political stability, proximity to markets, and high resource prospectivity to significantly increase offshore exploration.*
- *Expand gas use in Nova Scotia for commercial, industrial, and residential purposes.*
- *Achieve environmental gains through new energy technologies and the protection of sensitive areas.*
- *Promote wise energy use and end-use efficiency.*
- *Encourage renewable energy sources such as wind power for generating electricity.*
- *Increase competition in the electricity marketplace.*
- *Support opportunities for the province's indigenous coal industry.*

Here are some of the conclusions arrived at during the Energy Forum.

- *Nova Scotia's energy sector has tremendous potential.*
- *Nova Scotia does not have a monopoly on opportunity, as this is a worldwide industry.*
- *Economic gains can be created only if exploration results confirm that sufficient reserves are available for development.*
- *Growth of the various segments of Nova Scotia's energy industry must be achieved in coordination with sound environmental principles, including sustainable development.*

"The province should start with a clear understanding that it does not have a monopoly on opportunity, and that the development of this type of resource should begin with a co-operative approach among government, labour and industry."

— John Reed – Executive Director, Navigant Consulting, Inc., Energy Forum

NOVA SCOTIA'S COMPETITIVE ADVANTAGES

Nova Scotia's energy sector is a complex mixture of energy producers, distributors, and consumers. Energy consumers depend largely upon refined products from imported crude oil and electricity from an industry that primarily uses coal for generation. The balance comes from hydro-generated power, oil, biomass, and recently, natural gas.

Nova Scotia Primary Energy Supply *(1999)*

Fuel	Terajoules	%
Oil	177,129	62%
Coal	88,391	31%
Biomass*	17,733	6%
Hydro	3,842	1%
Total	287,095	100%

**excludes spent pulping liquor*

Source: Statistics Canada, *Quarterly Report on Energy Supply-Demand in Canada*
Biomass use was estimated by the Nova Scotia Department of Natural Resources

Our energy export market has shifted dramatically since the beginning of offshore natural gas production. Nova Scotia has gone from being a minor exporter of electricity to supplying the equivalent of 20 per cent of the natural gas consumed in New England.

These changes have focused government and the energy industry on Nova Scotia's competitive advantages and challenges.

- *Nova Scotia's geographic position puts us close to key markets, and its political stability offers security of supply for our natural gas customers and potentially for future electricity exports.*
- *Offshore Nova Scotia is considered to have the potential for significant new discoveries of oil and gas—a view that is strengthened by the recent rounds of exploration commitments.*
- *The province has one of North America's highest per capita concentrations of higher-education institutions, a strong research culture, a desirable quality of life, and a flexible and upwardly mobile workforce.*
- *Beginning in 2001, Nova Scotia became a net exporter of energy.*
- *The province has some of the lowest electricity rates on the eastern seaboard.*
- *Energy companies are building a petroleum industry infrastructure in Nova Scotia at a time when the northeastern United States is in need of additional energy supply.*

Electricity Price Comparison: Northeastern Region *(cents/kWh)**

Sector	New England	PEI	NB	NS
Industrial	11.94	6.49	5.51	5.57
Commercial	14.15	12.54	11.39	10.40
Residential	16.89	11.10	10.09	10.08

**Average price in cents per kWh (excluding taxes), October 2001*

Source: Emera Inc. Submission to Nova Scotia Energy Strategy Task Force

POWERING THE ECONOMY

The production, consumption, and export of energy contribute to a prosperous, growing, and competitive economy. Energy products are essential to the quality of life and the living standards of Nova Scotians.

Nova Scotia has access to a diverse supply of reasonably priced and accessible energy sources: primarily coal, oil, hydro, natural gas, and wood biomass. It has the potential for additional renewable sources such as wind and solar and for larger supplies of natural gas and oil.

It is a priority to create and sustain an environment in which energy resources can be economically developed in a manner that benefits all Nova Scotians.

OIL AND GAS

Nova Scotia's petroleum sector has existed for a century. Over that period it has grown into a significant oil refining and product distribution system, which fuels our furnaces, runs our cars and powers our industries. The sector is dominated by products derived from imported crude oil.

The addition of a growing offshore oil and gas industry has changed this sector significantly. The offshore industry began with the Cohasset-Panuke project in 1992. It grew rapidly when Sable natural gas started flowing in December 1999. In the first year of production, the Sable project exported almost $920 million of products. Natural gas is likely to be our largest export in 2001.

The North Sea provides a good example of the value that can be obtained from a well-established offshore oil and gas industry. Both the United Kingdom and Norway, with more than 30 years of experience, offer important lessons for Nova Scotia.

The first and most important lesson is that the size of the resource is central to the industry's success. Throughout its history, the North Sea has been marked by consistently large discoveries. While Nova Scotia was struggling to find enough natural gas to make one project economically viable, the United Kingdom and Norway were bringing on stream project after project. Many of them were larger than anything yet seen off the coasts of Nova Scotia or Newfoundland and Labrador.

Comparable Offshore Oil and Gas Production and Reserves, 2000

	Norway	United Kingdom	Nova Scotia
Oil production	3.1 million bbl/d	2.6 million bbl/d	–
Oil reserves – proven	27 billion bbl	5 billion bbl	–
Natural gas production	3.8 bcf/d	9.1 bcf/d	0.5 bcf/d
Natural gas reserves	123 tcf	27 tcf	6 tcf

Today, new technology and better-quality seismic data are setting the stage for a major increase in offshore exploration. There is now a strong degree of industry optimism about our prospects.

The province is also seeing increased industry interest in our onshore potential. Exploration is rising and pipeline infrastructure makes potential developments more economic. This enthusiasm is based upon assumptions about our resource potential and ready access to markets in eastern North America that need more energy.

The West Navion Drill Ship

One of the world's most modern and powerful deepwater drill ships will begin drilling Nova Scotia's first modern deepwater well for Marathon Canada Limited in late 2001 or early 2002.

Photo courtesy of Smedvig asa, Norway

ACTIONS – OIL AND GAS

The government will maximize the value of Nova Scotia's non-renewable oil and gas resources through a number of actions.

- *Work with the federal government and industry to update the estimate of Nova Scotia's resource potential.*
- *Maintain a stable regulatory and fiscal regime to encourage more exploration.*
- *Maximize the economic value of the province's offshore resources by fully participating in the regulatory approval process.*
- *Negotiate Nova Scotia offshore strategic energy agreements (OSEA) to ensure that projects meet provincial objectives for increasing employment, expand local business opportunities, increase training, research, and development, and set the stage for value-added industrial development, including petrochemicals.*
- *Streamline provincial regulations and work with the federal government to remove inefficiencies and overlap in the regulatory environment.*
- *Help develop training and human resources plans by bringing labour, management, and government together and encouraging them to continue to work as partners.*
- *Work with Mi'kmaq organizations and the private sector to identify opportunities for greater Mi'kmaq participation in the energy sector.*

con't ➜

The recently developed United States National Energy Policy (May 2001) predicts that over the next 20 years the United States will need to increase oil and oil product imports by 33 per cent. Natural gas consumption is forecast to grow by 50 per cent during the same period. This means the annual American demand for gas will increase by 8.5 trillion cubic feet, the equivalent of more than 40 SOEP projects.

The source of American imports is shifting. Saudi Arabia remains the world's leading producer of oil, and OPEC still has the largest impact on global prices. However, in the first half of 2001 the United States imported 9.2 per cent of its petroleum from Canada. That makes our country the largest single supplier to the American market. The east coast of Canada could become a significant new source of energy for North America.

Government Responsibility

The responsibility of the government is twofold. First, as resource owner it acts on behalf of the people. In this role it promotes responsible exploration and development and works to optimize economic value and benefits to Nova Scotians. Second, as steward for the public good, it must ensure that developments are consistent with social objectives such as environmental quality, health, and safety.

Objectives

The strategy sets four primary objectives for oil and gas development:

- *to determine the scope of the resource*
- *to develop the capability to maximize Nova Scotia employment, training, R&D, and optimize opportunities for existing and new Nova Scotia–based companies*
- *to set the stage for expanded industrial, commercial, and residential use of gas and gas liquids in Nova Scotia*
- *to ensure that developers have access to export markets for production that is surplus to Nova Scotia's needs*

Photo courtesy of the Nova Scotia Petroleum Directorate

Statia Terminal
A ship unloads petroleum at the Statia Terminal in Cape Breton.

Strategic Actions

Defining the Resource Scope

Nova Scotia now has more than $1.5 billion in exploration commitments on active onshore and offshore licence blocks. Industry clearly believes there is more oil and gas to be found; their estimates suggest a potential in the range of 40 trillion cubic feet. However, the amount of proven reserves is still relatively low. Most of the six trillion cubic feet of discovered gas is already in production or planned for production.

Nova Scotia is under-explored. Compared to the North Sea and other well-established offshore areas, development of Nova Scotia's offshore is in its infancy. Finding oil and gas requires the drilling of very expensive wells. The cost runs between $25 and $60 million or more per well. Therefore, promoting exploration is an important priority for the government and industry.

ACTIONS – OIL AND GAS *con't*

- *Limit utility corridors for landfall of oil and gas and require all offshore pipelines to land in Nova Scotia.*
- *Rely on market forces to establish the supply, demand, and pricing of gas and liquids in Nova Scotia.*
- *Revise local gas distribution policies to create the conditions for expansion of natural gas into businesses and homes.*
- *Support the most efficient means of transporting surplus oil and gas to export markets.*

Longer Term

- *Review licencing and bidding processes once broad exploration effort is complete.*

Numbers of Exploration Wells

Year	Nova Scotia	U.K.North Sea
1964–1974	46	336
1975–1984	38	606
1985–1994	20	874
1995	0	60
1996	0	72
1997	0	61
1998	1	47
1999	3	16
2000	3	26
Total	111	2098

Sources: Department of Trade and Industry United Kingdom, historical records and Appendix 4 of the *Development of the Oil and Gas Resources of the United Kingdom 2001;* Canada-Nova Scotia Offshore Petroleum Board, *Directory of Wells;* Nova Scotia Petroleum Directorate.

Uncertainty over the size of the resource in offshore Nova Scotia means that policy making must be flexible. Once the size of the resource is more certain, new options will emerge that affect the pace of exploration, the size and timing of developments, and opportunities for industrial development.

The Nova Scotia government will help reduce uncertainty by working with the Canada–Nova Scotia Offshore Petroleum Board (CNSOPB), industry, and the federal government to update the estimate of Nova Scotia's resource potential. This will help governments, businesses, and individuals better understand the potential impact, its expected life cycle, and the means by which advantages for Nova Scotians can be maximized.

Encouraging Exploration

Financing for this expensive offshore exploration effort is the responsibility of the private sector. Oil and gas companies operate worldwide, establishing their exploration budgets in a way that maximizes returns and minimizes risks. Nova Scotia must be able to compete with other parts of the world that offer similarly attractive prospects.

"We talk as if we've made it in the oil and gas business, but the reality is that companies have choices of where to invest and we're just one of the choices. I hope the strategy is a living document and the government process will be a continuum for input."

— Sir Graham Day, Roundtable Co-Chair, Energy Forum

Being competitive means going beyond the resource size and market factors. It also takes into account the cost of complying with government rules and regulations. In the case of the offshore oil and gas industry, the requirements are significant. In 1969 the rulebook ran to 24 pages, while in 2001, the Canadian Association of Petroleum Producers (CAPP) created a regulatory roadmap that takes more than 200 pages just to describe the processes. Keeping these processes as efficient as possible is crucial.

The provincial government, in partnership with the federal government, will work to create and maintain regulatory, fiscal, and taxation regimes that are efficient, effective, and competitive with those in other regions.

Developing Offshore Resources to Benefit Nova Scotians

The development of Nova Scotia's first major offshore project, the Sable Offshore Energy Project (SOEP), began in 1997. The two partners—the province and the developers—signed a number of agreements that clearly set out their expectations and commitments. Topics of agreement included training, research and development, production plans, and access to natural gas and natural gas liquids. The agreements helped reduce uncertainty and were beneficial for both parties.

SOEP spent approximately $2 billion up to the end of 1999. The province's review of local industry during this period indicates our actual and potential capacity to participate directly in that expenditure was in the range of $900 million to $1 billion. For example, while the province was capable of supplying services such as offshore supply boats and welders, it was not capable of manufacturing the steel pipe that was used in the project development.

Approximately $620 million (62–69 per cent) of this longer-term potential was spent on Nova Scotian goods and services, an impressive performance given that

Sable Offshore Energy Inc. Memorandum of Understanding

A memorandum of understanding and seven follow-up agreements were signed between the province and the Sable Offshore Energy Incorporated (SOEI) partners. These agreements cover a number of important issues:

- *Funds are provided by SOEP producers to be used by the province to reduce the delivered cost of natural gas to consumers in Nova Scotia.*
- *Gas volumes are set aside by the producers to ensure that natural gas is available for Nova Scotians.*
- *The SOEP producers are committed to supplying ethane and natural gas liquids to future petrochemical projects in Nova Scotia.*
- *Initiatives support training programs and research and development related to the offshore.*
- *Measures ensure that production plans filed are carried out in a way that protects the royalty interests of the province.*
- *Potential legal action against the province regarding the sale of Nova Scotia Resources Limited was settled through two agreements.*

it was the first major offshore project and that our companies competed through worldwide tenders. Another $153 million was provided by companies elsewhere in Canada. As the industry changes through time, particularly as developments move to deep water, its needs will change. Nova Scotia's capabilities to supply these projects will also evolve over time. As the provincial industry's capacity expands, the economic value of future projects (direct spending on goods and services, supply agreements, training, research and development, etc.) should reach a higher share of our potential.

What is the province's ultimate goal? It is to achieve 100 per cent of Nova Scotia's potential. Government will take firm actions in pursuit of this goal.

A number of components constitute the economic value and benefits a project should deliver to Nova Scotians. Some of these include the right of pipeline ownership or compensating offset, the supply of feedstock for a petrochemical industry, the supply of natural gas for distribution to business and homes, contributions to the advancement of energy research and development, support and contribution for training and apprenticeship of Nova Scotians, and domestic and export opportunities for the use of local supplies in each project. It is recognized that the economic value of each of these components will vary by project, depending on the increasing capabilities of Nova Scotians and the structure, characteristics, and market conditions of each project.

Government will vigorously pursue opportunities to maximize the economic value of its offshore resources by full participation in the regulatory approval process. Government's position on the project will depend upon the degree to which a project meets the province's objectives.

Currently, each project must have an approved development plan, including a benefits plan. The province will have three primary roles in the approval process:

1. It will be an active intervenor, presenting the province's position through evidence.
2. With respect to certain elements of the project, the province is the regulator (for example, through the UARB and as an equal partner in the CNSOPB).
3. The provincial minister has the final authority to accept or reject the development plan.

Offshore Strategic Energy Agreement

The government believes it is in the best interests of both parties to clearly understand each other's expectations and obligations regarding the project, prior to the full regulatory process. It would prefer to enter into an offshore strategic energy agreement (OSEA) for each project.

These voluntary agreements would be reached with a clear understanding of the market conditions facing the proposed development, the capabilities of Nova Scotians to provide goods and services, and the expectations of the province.

In reaching an OSEA, the government will obtain energy industry expertise as part of the province's negotiating team. The objective will be to complete such agreements within specified time frames. An OSEA will have a clear dispute resolution mechanism. The government and the developer will come to an understanding of Nova Scotia's capabilities. Success will be measured by the extent to which Nova Scotia achieves its potential.

Photo courtesy of PanCanadian Energy Corporation, Halifax, Nova Scotia

PanCanadian Engineering Team

PanCanadian's engineering team reviews plans for its Deep Panuke Project.

Continual long-term growth in the offshore will allow Nova Scotia to strengthen and diversify its economy. Therefore, an OSEA will place particular emphasis on proposals that create opportunities for Nova Scotian firms to export or expand into other sectors. The agreement will also give consideration to how the design of the project (e.g., offshore vs. onshore gas processing) contributes to achieving the province's oil and gas objectives.

The major elements of the economic value of a project to Nova Scotia are to provide for pipeline ownership or compensating offset, to supply petrochemical feedstocks, to provide access to natural gas, to support and contribute to training and apprenticeship, to support and contribute to research and development, and to support the use of local suppliers in the project and worldwide supply chain.

Creating an Efficient and Effective Regulatory Environment

The government recognizes that the regulatory system employed in the Nova Scotia offshore area is in its infancy. Government is trying to adapt to an industry that is just beginning to develop and grow. The joint management regime in the offshore area has added substantial complexity to an already complex system. It is not surprising that inefficiencies and overlap have crept into the regulatory processes used by a large number of federal, provincial, and joint regulators.

The Nova Scotia government recognizes that, in partnership with the federal government, it has the responsibility to remove these inefficiencies and overlaps. In doing so, the governments will contribute substantially to improving the competitive position of offshore Nova Scotia.

The province will take a number of specific steps to achieve this end. The Canada–Nova Scotia Offshore Petroleum Resources Accord Implementation Act, for example, should be reviewed and updated where appropriate. The first priority is to implement changes necessary to properly protect the health and safety of offshore workers. Other priority areas are being identified in partnership with industry and the federal government.

The government will help lead discussions with the regulators, the federal government, and the Canadian Association of Petroleum Producers (CAPP) on the issues raised in CAPP's assessment of regulatory issues. An assessment of the benefits-related information submitted to all levels of government should lead to streamlining of these reporting requirements and more effective use of this information. Government will minimize provincial regulation of offshore projects that are adequately covered by other regulatory agencies.

The government will streamline its provincial regulations. The preparation of a new Energy Act is one such step. It will ensure that the Nova Scotia Utility and Review Board (UARB) and the CNSOPB have sufficient resources to undertake their regulatory activities.

"It is incumbent on us as a service company to train our own employees, not always to look to government. We have 600 people working for us—300 of which are elsewhere in the world. These are high paying jobs that bring new money to Nova Scotia from around the world."

— Fred Smithers – President & CEO, Secunda Marine, Energy Forum

Developing the Workforce

Photo courtesy of the Nova Scotia Community College, Cape Breton, Nova Scotia

Marconi Campus Instrumentation Lab Students train for offshore jobs in the Instrumentation Lab at the Nova Scotia Community College - Marconi Campus.

The government wants to use the growth of the energy sector as an opportunity for Nova Scotians to gain new skills and well-paying jobs. Government will help develop training and human resources plans by bringing labour, management, and government together and encouraging them to continue to work as partners.

"Investment in human capital, intellectual capital, is important."

— Anne Fawcett – Managing Director, Caldwell Partners, Energy Forum

Government's prime role in developing the workforce is public education and general training. The private sector will have prime responsibility for identifying training needs and contributing capital for such training. The government will advise on programs that can be created. It will also negotiate opportunities for Nova Scotians to upgrade their job skills and gain experience. Nova Scotians will come first. However, Nova Scotia's approach will be outward looking. It is recognized that under certain circumstances some skills and professions may not be available in Nova Scotia, and individuals who bring these skills and professions from other regions are welcome.

Aboriginal Opportunities

The energy strategy recognizes the importance of increasing economic opportunities in the energy sector, including employment and joint venture opportunities, for Nova Scotia Mi'kmaq. To date, Sable Offshore Energy Inc. and Maritimes & Northeast Pipeline Limited have entered into working relationships with various Mi'kmaq bands. In addition, discussions are under way with other energy companies.

Government will work with Mi'kmaq organizations and the private sector to identify opportunities for greater Mi'kmaq participation in the energy sector. It will also work with the Government of Canada to ensure that appropriate training and education opportunities are available to enable Mi'kmaq to take advantage of employment and business opportunities.

Using Our Oil and Natural Gas Resources

Using our energy resources in Nova Scotia is a priority for the government. Natural gas and natural gas liquids open up the possibility of a petrochemical industry. Gaining access to the ethane in the natural gas and the natural gas liquids is an important starting point for an industry that normally takes 5 to 10 years to develop. The provincial policy is that each project that can make a meaningful contribution to the growth of a petrochemical industry will deliver the products to a suitable location on commercial terms. Implementation of a policy of "offshore utility corridors" and the requirement that offshore pipelines land in Nova Scotia will also help concentrate raw material supplies.

Photo courtesy of the Nova Scotia Petroleum Directorate

StoraEnso

The StoraEnso facilities at the Strait of Canso are one of the first industrial users of Nova Scotia natural gas.

The government will work to attract a broad mix of value-added industrial and commercial businesses that use natural gas or oil. The success of SOEI and increased exploration have already initiated interest from potential smelters, petrochemical companies, and electricity generators.

The government believes that the method most likely to establish a true value for provincial resources is one that is based on what the open market is prepared to pay. While artificially low prices would produce some short-term gains for those able to use the commodity in significant volumes, such low prices transfer the benefit of Nova Scotia's resources to the owners and customers of such companies. Artificially low prices may also dampen interest in discovering new sources, and thus put the province at a disadvantage over the long term. Government will support new economic growth, but not by creating artificially lower prices for our natural resources.

The government plans to enhance the development of local gas distribution on a commercial basis. It will act to put into effect a number of policies (see the background paper in Volume II, 'Using Nova Scotia Resources') that include:

- *eliminating natural gas distribution targets*
- *developing standard municipal operating and tax agreements*
- *using natural gas in government buildings*
- *delivering natural gas information programs*
- *permitting distributors to sell gas*

The government recognizes that setting up a totally new energy system is a challenge for regulators. It will continue work to reduce regulatory costs associated with developing a natural gas distribution system. The system will be streamlined by eliminating overlap and duplication and by providing efficient regulatory processes. In light of potential new responsibilities, the resources of the UARB will be reviewed.

The province has clarified provincial gas storage responsibilities. Legislation was passed in November 2001 that will be put into effect in the spring of 2002. Underground gas storage allows the owner of natural gas to store gas when it is priced relatively low or in weak demand and to withdraw gas from storage when it is expensive or in strong demand.

Expanding Markets through Exports

The private sector is anticipating major new discoveries in the Nova Scotia offshore. The pipeline sector is planning infrastructure that would support production of up to two billion cubic feet of natural gas per day. If the assumptions about our offshore potential are correct, production at that level would far exceed our own requirements. Because development of a resource base of this magnitude requires substantial markets, exports to areas of high demand such as the northeastern United States will be required.

Nova Scotia will ensure that we export only those resources surplus to our needs. These policies will include requirements for commercial access in Nova Scotia through either the normal regulatory process or OSEA negotiations and the stipulation that all offshore pipelines 'land' in Nova Scotia before going to market.

Whereas North American energy consumers will continue to be affected by fluctuating supply and volatile prices, there will be opportunities for future growth in the Canadian oil and gas industry. Nova Scotia has an exciting opportunity to play a major role in this growing industry.

"As Emera diversifies into the larger energy scene, there is a real excitement in getting into new opportunities in the U.S. and at home."

— David Mann – President & CEO, Emera Inc., Energy Forum

ELECTRICITY

NSPI Energy Source for Electricity, 2000 *(%)*

	%
Coal	77.5
Oil	11.8
Hydro	7.7
Purchased Power	2.6
Natural Gas	0.4

Source: Emera Inc. 2000 Annual Report

A priority for people and businesses in Nova Scotia is an electrical energy supply that is secure, reliable, affordable, and produced in an environmentally responsible manner.

Nova Scotia's electrical industry is dominated by Nova Scotia Power Inc. (NSPI). Through its parent company, Emera Inc., NSPI is one of Nova Scotia's largest publicly traded corporations. It is a vertically integrated monopoly, which is to say it owns and operates most of the electrical generation capacity (97 per cent), transmission (99 per cent), and distribution system (95 per cent) in the province. The remaining share of the system is owned and operated by six municipal utilities: Canso, Antigonish, Berwick, Riverport, Mahone Bay, and Lunenburg.

Since NSPI was privatized in 1992, electricity rates have been stable, as cost increases over this period have been offset either by operating efficiency or by additional profits such as those gained through the recent export sales of natural gas. This period of stability may be changing. NSPI is currently under pressure from higher fuel costs, particularly world coal prices, and the declining Canadian dollar, which further increases the costs of imported products such as coal. NSPI's expected increases in corporate income tax, both federal and provincial, provide additional pressures in the near to medium term. The current low tax position of the company will end when it has used up most of its tax deferral allowances on its fixed assets. By 2003–04, NSPI expects to be fully taxable. NSPI also has an outstanding tax dispute with the Canada Customs and Revenue Agency that could significantly affect electricity rates if it is not settled in the utility's favour.

ACTIONS – ELECTRICITY

The strategy for the electricity industry is to carefully increase competition and encourage the growth of renewable energy sources in Nova Scotia. This will be accomplished through a number of actions:

- *Establish an electricity marketplace governance committee (EMGC) to recommend to the Minister of Energy the implementation, development, structure, and rules for the future electricity sector.*
- *Give policy direction for the UARB to authorize open access transmission on NSPI facilities for all generators selling to wholesale customers or export markets.*
- *Introduce competition within the electricity sector in a staged and measured process beginning with supply to wholesale customers (currently six municipal utilities).*
- *Introduce competition for future electricity generation.*
- *Assist the development of an independent power producers' (IPP) renewable sector by permitting access to the NSPI transmission system for green-power customers and setting with NSPI a voluntary target of 2.5 per cent (50MW) for new renewable generation by IPPs.*
- *Develop information programs to promote the use of renewable energy technologies.*

con't →

Electricity production and transmission are increasingly subject to competition from within the region and elsewhere in North America. The experience of increased competition in electricity markets has been mixed. The benefits of increased competition would include greater market efficiency, leading to better cost efficiency over the long term and consistency with other jurisdictions that are our trading partners. Although it is not necessary for Nova Scotia to develop a fully competitive market in the near future, some steps are being taken in anticipation of industry changes.

Nova Scotia's electricity market is relatively small, and our access to new competitive sources is limited. However, electricity is sufficiently important to individuals and business that any increase in competition should be introduced carefully over a prudent time frame. Over the longer term, the introduction of increased competition will encourage new businesses to build new generating capacity for electricity in Nova Scotia and for export. This will result in a market-driven industry and improved efficiencies for all customers.

Historically, when NSPI has asked the UARB for approval to build new generation facilities, it has also asked for permission to build any related transmission facilities. In many jurisdictions, electricity restructuring has uncoupled these responsibilities. In these restructured electricity markets, only investments in transmission infrastructure must be approved.

The lessons learned from elsewhere show that maintaining an adequate transmission infrastructure is vital to a growing generation system. It is an essential pre-condition for developing a robust, competitive market-based system. When the regulator assesses competing bids for new generation facilities in Nova Scotia, it will have to take into account the implications for the transmission system.

Government Responsibility

The provincial government through the UARB is the prime regulator of the Nova Scotia electricity sector. The National Energy Board is responsible for the administration of interprovincial and transborder transmission.

On a broader scale, the provincial government's responsibilities include ensuring that electricity is available and competitively priced. Ensuring a diversity of fuel sources and security of supply are also important public responsibilities, as is monitoring the introduction of technology, environmental improvements, and new electricity sources such as wind.

Objectives

The major objectives of the electricity sector are:

- *to maintain access to secure, reliable, and affordable electricity generated in an environmentally responsible manner*
- *to encourage long-term competition*
- *to promote the growth of renewable energy sources in Nova Scotia*

Photo courtesy of Communications Nova Scotia

Electrical Transmission
NSPI high voltage towers at the Strait of Canso.

ACTIONS – ELECTRICITY *con't*

- *Take steps to meet US reciprocity requirements to export electricity.*
- *Encourage the use of indigenous coal resources and work to support an appropriate role for coal.*

Longer Term

- *Work with NSPI for the long-term retrofit or replacement of generating systems.*
- *Expand green energy programs.*

Strategic Actions

Opening up the Electricity Marketplace

Government will work with NSPI and other industry stakeholders to carefully and gradually open up the electricity marketplace in Nova Scotia. A number of public submissions, including that of NSPI, made this recommendation. This action is also in keeping with the strategy principle of encouraging competition for energy to the extent possible.

As a first step toward opening markets, the government will create an electricity marketplace governance committee (EMGC). The committee will report to the Minister of Energy and recommend the implementation, development, structure, economic considerations, and rules to introduce electricity competition. The EMGC will represent a wide range of stakeholder groups.

The government will provide policy direction to the UARB to authorize open access transmission on NSPI's facilities to implement market access for wholesale customers, retail customers of renewable generators, and export markets.

"We need a champion in government to nurture renewable energy as well as access to market."

— Bridgewater Public Meeting

The first group in Nova Scotia that will be able to purchase electricity competitively will be wholesale customers. The only wholesale customers currently in Nova Scotia are six municipal utilities.

The government will also allow competition for the construction of any future electrical generation. The UARB will determine when new capacity is required and call for bids from NSPI and any other producers. NSPI will continue to have an obligation to serve Nova Scotians.

Access to NSPI's transmission system and to wholesale and export markets will particularly benefit co-generators because of their potential to generate cost-efficient electricity from their existing operations.

The proposed phased restructuring maintains most features of the present system. NSPI remains a utility that is regulated, based on its cost of service. It retains its obligation to serve Nova Scotian customers, while the market is gradually opened up to increased competition. The EMGC will recommend the long-term structure and timing of any future changes in Nova Scotia's electricity market.

Electricity Restructuring

Entity	**Activity**				
	Open Access transmission	Sells to NSPI	Sells to end use Customers	Sells to Wholesale *(6 municipal utilites)*	Sells Export
NSPI	X	X	X	X	X
Renewable Energy IPPs	X	X	X	X	X
Other NS Generators	X	X		X	X
Out of Province Generators	X	X		X	

Wind Farm

Wind farms are already familiar sources of renewable energy in Alberta and Prince Edward Island.

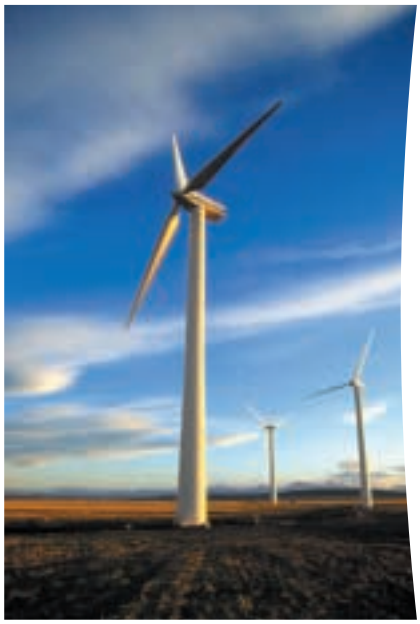

Photo courtesy of Vision Quest Windelectric Inc.

Encouraging Renewable Energy Production

To promote rural electrical generation and greater use of renewable energy sources, the government will encourage renewable electricity production by independent power producers (IPPs). Policies will be created to allow IPPs using renewable energy sources such as wind to market "green power" directly to customers if they choose.

"In a regulated environment, the main electricity carrier has to be obliged to sell at a reasonable price into the grid from green electricity and be mandated to carry a certain amount of green power."

— Stuart Smith – Chair, The National Roundtable on the Environment and the Economy, Energy Forum

The government and NSPI will also create a short-term voluntary renewable energy target for new IPP renewable generation totalling 2.5 per cent of NSPI's current generation capacity, or approximately 50MW. The parties will monitor the voluntary renewable target for three years and then establish a longer-term mandatory renewable energy portfolio standard (RPS).

The government will work with the energy industry to develop information programs to promote the use of renewable energy technologies (such as wind, solar, and biomass-wood).

Preparing to Export Energy

The future direction of electricity markets in the United States is increasingly tied to the Federal Energy Regulatory Commission's (FERC) strategy for fostering competitive markets and securing a reliable, high-quality and environmentally responsible transmission infrastructure. FERC is seeking to achieve a seamless and highly efficient national grid.

To export electricity directly to United States customers, Nova Scotia must meet FERC's reciprocity requirements, including non-discriminatory, open transmission access, and access to wholesale markets. NSPI will also be required to account separately for its generation, transmission, and distribution divisions, including ancillary services. This will enable NSPI to cost its transmission service separately to the customer.

Managing Change Carefully

NSPI is a relatively small utility by North American standards. Retaining its vertically integrated structure and its economy of scale is considered very important for its residential and business customers. In many other restructured jurisdictions, utilities have been forced to sell part or all of their physical assets. At present, this step is not being considered in Nova Scotia.

These carefully measured steps by the province will not affect the present price advantage Nova Scotia has over competitors in the northeastern United States.

Using Coal for Electrical Generation

Total World Electricity Generation *(% by fuel - 1999)*

Coal	38.1%
Gas	17.1%
Oil	8.5%
Nuclear	17.2%
Hydro	17.9%
Other*	1.6%

**Other includes solar, wind combustible renewables, geothermal & waste*

Source: International Energy Agency (IEA), *Key World Energy Statistics* , 2001 Edition

Coal is cost efficient and abundant and will continue to be a primary source for much of the world's electricity generation. Approximately 80 per cent of NSPI's electricity is currently generated by coal-fired plants that have between 5 and 30 years of remaining economic life. Actions by the federal or provincial governments or the industry must take into account the impact that any early retirement of generation units would have on electricity rates.

"Coal is still the cheapest way to generate electricity. It still needs to be part of the provincial energy mix, but the environmental issues associated with burning coal need to be addressed."

— Port Hawkesbury Public Meeting

Unless the price increases dramatically, Nova Scotia will likely continue to use coal for a significant part of its electrical generation. Given that the province still has significant resources of coal in the ground, the government will continue to support the development of indigenous coal resources, where it is economically and environmentally appropriate.

Photo courtesy of the Nova Scotia Petroleum Directorate

Coal Car at Strait *Coal remains the primary fuel source for generating stations in Nova Scotia.*

Government will work with the coal industry, NSPI, and other parties to support an appropriate role for coal in Nova Scotia's energy sector. Strategic actions that will be taken to support development of clean-coal technologies are discussed in the following section.

IMPROVING THE ENVIRONMENT

ACTIONS – ENVIRONMENT

Reducing the negative impacts of the energy sector on our air and oceans will improve our environment. The government will take the following actions:

- *Work with NSPI to reduce emissions of air pollutants, particularly SO_2, NO_x, mercury, and fine particulate matter.*
- *Continue to work in partnership with federal, provincial, and territorial governments in a national process to address the issue of global climate change and reduce emissions of greenhouse gases.*
- *Support the research and mapping efforts of federal agencies to provide better knowledge of marine environments and habitats.*
- *Help to address concerns of fishing and coastal communities about the environmental impacts of oil and gas projects by consulting before issuing exploration rights in areas within sight of land (18km) and requiring all ocean utilities to use offshore utility corridors.*
- *Show leadership in energy management and the use of cleaner energy sources.*
- *Support public information and education programs on energy management and the use of renewable energy sources.*
- *Support development of clean-coal technologies.*

Longer Term

- *Work to meet longer-term objectives for a reduction in air pollutants.*

Photo courtesy of Tourism Nova Scotia

Nova Scotia Shoreline *The improvement of our environment is a priority for Nova Scotia.*

Canadians consistently rank environmental issues as a priority. During the energy strategy consultation process, Nova Scotians voiced their concern for the environment, noting that energy production and consumption have environmental impacts on the land, air, and oceans, as well as on human health.

Activities that have a negative impact on the environment are not sustainable. The cumulative effects of decades of industrial growth driven by fossil-fuel energy sources require increased remedial action by governments, businesses, and the general public. Therefore, government has adopted the principle that the focus is not just on protecting, but on improving the environment. Key areas of attention are air emissions resulting from energy production and consumption and the environmental impacts on our oceans from the emerging offshore hydrocarbon sector.

Government Responsibility

While the environment is the responsibility of every individual, policy and regulatory responsibilities rest with the various levels of government and their agencies. The main environmental regulators for Nova Scotia's energy sector are the provincial Department of Environment and Labour and a number of federal government agencies, including Environment Canada, the Fisheries and Oceans Canada, and the Canadian Environmental Assessment Agency. As well, many offshore responsibilities are jointly administered by the Canada–Nova Scotia Offshore Petroleum Board. A high degree of co-operation and coordination is needed among these agencies.

Objectives

The objectives of the energy strategy with respect to the environment are:

- *to reduce harmful air emissions*
- *to contribute to long-range planning for ocean management*
- *to improve the level of trust, information sharing, and fair issue resolution*

Strategic Actions

Air Pollutants

Government will reduce the emissions of air pollutants in the province by incorporating national standards for air emissions along with timelines for implementing these reductions. This will be done in a manner that is consistent with national and international commitments and the principles of this strategy. Emission reductions will result in improvements to the air quality and to ecosystems in the province.

The environmental plan targets four specific air pollutants: sulphur dioxide (SO_2), nitrogen oxides (NO_x), mercury, and particulate matter. They collectively contribute to acid rain, ground-level ozone, smog, and toxins in ecosystems. Measures taken to reduce these emissions will also result in related reductions of emissions from other harmful substances.

Air Pollutant Reductions

- *Reduce SO_2 emissions by 25 per cent from current levels by 2005. This will be done primarily through fuel-switching by NSPI. The government will work with NSPI and other industry participants to further reduce SO_2 in the longer term to achieve a cumulative reduction goal of 50 per cent by 2010.*
- *Reduce NO_x emissions by 20 per cent below 2000 levels by 2009.*
- *Reduce mercury emissions by 30 per cent below 1995 levels by 2005. This goal will be increased as technologies are introduced and proven capable of further reductions.*
- *Implement national standards for particulates when they have been developed.*

Photo courtesy of the Nova Scotia Petroleum Directorate

NSPI Plant at Strait

Coal-fired electrical generation is one of the principal sources of harmful air emissions in the province.

Nova Scotia generates a high percentage of its electricity from coal-fired thermal generators. These plants constitute one of the principal sources of air pollutants. Opportunities exist to reduce these emissions through various combinations of fuel substitution and the application of technology. Government, NSPI, and other industry participants will work together over the next 10 years on a broad-based plan to significantly reduce the emission of air pollutants. The plan will take into account the need to maintain Nova Scotia's competitive economic position.

Nova Scotia does not have sole responsibility, nor can it act alone, in many areas of environmental management. The federal government has an extensive mandate in this area and a responsibility to develop and enforce national standards. Nova Scotia's environmental performance must be in line with national standards. The province will demonstrate leadership by setting its own standards within the bounds of what might reasonably be anticipated.

Climate Change

Greenhouse gas (GHG) emissions, primarily CO_2 and methane, are now widely accepted as a cause of global climate change. Unless preventive action is taken, the increasing concentration of these gases in the atmosphere is expected to produce a continued warming of the Earth's atmosphere to dangerous levels. More than 92 per cent of Nova Scotia's GHG emissions are created by fossil fuel production, distribution, and consumption. The three largest contributors are electricity generation (38 per cent), transportation (27 per cent), and industrial activity (10 per cent).

Climate change is a global issue, and the federal government, in partnership with the provinces and territories, is leading Canada's response. To date, the key action is the 1997 Kyoto Protocol on climate change. If it is ratified by the federal government, Canada will be required to make reductions in GHG emissions during the period 2008—12 to 6 per cent below 1990 levels. A national process to assess the opportunities and costs associated with such action has been under way since 1998 and is well advanced. The federal government and all provinces and territories have agreed to a National Implementation Strategy (NIS) for greenhouse gas reductions.

Most provinces, as well as the federal government, have produced action plans to begin GHG reductions. In 1999, the Nova Scotia government consulted widely on the issue with the objective of producing a strategic plan for climate change. This process is incorporated within the energy strategy.

The document that resulted from the climate change consultations, *Creating a Nova Scotia Climate Change Strategy Framework,* forms part of the Energy Strategy (see the background papers in Volume II). It includes a series of low-cost first steps to reduce GHG emissions that focus on public awareness and education; government's leading by example through reducing emissions from government-owned buildings and vehicles; transportation and land-use planning; the promotion and sponsorship of research and development on new technologies; and practices to increase energy efficiency and to generate clean energy.

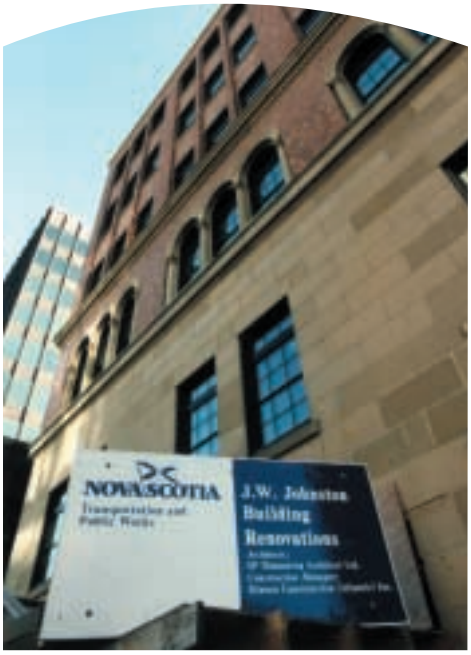

Photo courtesy of the Government of Nova Scotia

Renovation of Johnson Building
Increasing energy efficiency through building renovations is one way the government is helping to improve the environment.

It is recognized that national mandates to reduce GHG emissions will have a greater impact on some jurisdictions than others. Because we depend on coal-fired electrical generation, the negative impacts on Nova Scotia's economy could exceed those of some other provinces. Therefore, it is important that Nova Scotia continue to negotiate an equitable sharing of the costs to meet any new national standards.

Ocean and Habitat Environmental Risks

If not properly managed, energy sector activities can have a negative impact on the marine ecosystem. It is important that a partnership approach be taken by the fishing industry, coastal communities, the petroleum industry, and provincial and federal governments to properly manage our oceans and marine habitat.

Nova Scotia adopts the principle that oil and gas and fisheries activities will be carried out in a manner that allows each industry to prosper and positively contribute to the social and economic well-being of the province and its coastal communities. Meeting this goal requires actions that more effectively manage and protect the ocean environment.

A key step in avoiding conflict among those who depend on the ocean's resources is achieving a clear mutual understanding of where overlaps in interest may occur. The province will support an accelerated plan to identify and map areas of commercial importance and sensitivity. This action, with input from Fisheries and Oceans Canada and other relevant federal departments and agencies, will help create long-term certainty and appropriate environmental standards for Nova Scotia's offshore.

"The fisheries should have an opportunity to identify the sensitive areas and have them listed as last resorts for oil and gas development."

—— *Yarmouth Public Meeting*

The government also plans to enhance consultation efforts with the fishing industry and coastal communities. As a first step, it is the government's policy that the CNSOPB will undertake public consultation before exploration rights are issued in areas within sight of Cape Breton Island and mainland Nova Scotia (18km).

To achieve effective ocean and environmental goals, the province will support the development of a limited number of offshore utility corridors in areas where petroleum is developed, produced, or brought ashore. Government's position to the energy industry is that all ocean utilities, including pipelines and cables, will be required to use these corridors.

The government also plans to consult annually with fishery groups to discuss issues of oil and gas policy. These meetings will allow the government to discuss expected oil and gas activity for the year, including general areas for future exploration bids. The government supports efforts by the regulator and the industry to share information, build trust, and solve issues.

Efficiency, Conservation and Renewable Energy Sources

Nova Scotia can reduce the environmental impact of energy use by conserving energy, using resources more efficiently and wisely, and moving toward increased use of renewable energy sources.

On a per capita basis, Canadians and Nova Scotians are large energy consumers compared to those in other jurisdictions. Conserving energy is a cost-effective alternative to finding new energy sources. Making significant gains in energy efficiency depends to a large extent on consumers making energy-efficient choices. Public education is a key factor in this. The province will support programs to promote improved energy efficiency in residential, commercial, industrial, and transportation sectors.

The government will show leadership in the operation of its buildings and fleets by making energy-efficient choices during purchasing and construction. It will also take steps to maximize the energy efficiency of its existing buildings through retrofits by private-sector energy service companies in keeping with the strategy principles.

Reducing the demand for electrical energy will reduce emissions from electricity generation. Using the UARB regulatory process, government will encourage NSPI to develop programs that focus on reducing peak electricity demands. These programs make energy production more efficient by giving consumers incentives to switch their loads to off-peak times of the day, which serves to smooth out the demand for electricity. Efficiencies can also be gained by making use of heat produced in electrical co-generation facilities.

The increased use of renewable energy sources, including wind and solar, will also improve the environment. Each increase in renewable energy produces a corresponding decrease in the use of fossil fuels. Government will take action to encourage the development and increased use of renewable energy sources.

Coal and its Role in Environmental Performance

Photo courtesy of the Nova Scotia Petroleum Directorate

Coal

The province will aim to reduce the emission of greenhouse gases and air contaminants produced by the burning of coal.

The use of cleaner coal and increased use of clean-coal technology will help the province meet objectives for climate change and reduce emissions of air contaminants.

Technologies that reduce some air emissions from burning coal are currently available, and clean-coal technology is the focus of global research and development efforts. Any future construction of coal generating capacity in the province will depend on the availability of economically feasible clean-coal technology.

The province will encourage and support research and development related to clean-coal technologies focused on both air pollutants and GHG. It will work with NSPI, Nova Scotia universities, the federal government, and other organizations to identify appropriate research and development activities. It will consider the introduction of research and development incentives for clean-coal technologies.

SECURING OUR FUTURE

ACTIONS – ECONOMIC GROWTH

Energy development will lead to broad-based economic growth. The government will take positive action to ensure that a meaningful portion of net revenue royalties are used for the long-term benefit of current and future generations.

- *Ensure that Nova Scotia's geographic and resource advantages are enhanced by a strong business climate, including a competitive tax system.*
- *Use conservative budget principles to minimize dependence on volatile resource revenues.*
- *Identify the expenditure of resource revenues so that Nova Scotians understand the benefits being received.*
- *Support research and development into renewable energy sources to prepare for the time when hydrocarbon resources are no longer economic.*
- *Develop energy-specific promotional tools to attract investment.*
- *Create a new Department of Energy to implement and manage the province's energy policies and programs.*

Longer Term

- *Establish a Nova Scotia Offshore Heritage Trust and allocate to it a meaningful portion of net royalty revenues.*

An important underlying thrust of the energy strategy is that Nova Scotia's energy resources provide a natural economic advantage for developing both domestic and export energy markets. An important challenge is to convert this advantage into economic, social, and environmental benefits that help secure the future for all Nova Scotians.

Most experts agree that at some time in this century, technological advances in energy storage and production will result in renewable energy sources overtaking non-renewable sources as the dominant fuels. Accordingly, the energy strategy recognizes our non-renewable resources as a "bridge to the future," a window of opportunity to make the transition.

Strategic Actions

The major driver of our energy future is the discovery and development of offshore oil and natural gas—and the belief that there are larger discoveries to come. Once additional resources are discovered and development reaches a critical mass, existing and new businesses will grow more rapidly. This has been the experience in North American petroleum centres such as Houston and Calgary. These centres currently provide a number of support services to the east coast offshore industry.

Photo courtesy of Ocean Resources, Halifax, Nova Scotia

As stated during the Premier's Energy Forum, we must have a clear plan for how we wish to develop our energy sector. This plan begins with a co-operative approach between governments and industry. Government's main responsibility is to create

Supply Vessel Construction

The Atlantic Eagle supply vessel in the final stages of construction at the Halifax Shipyard.

and sustain an environment in which its energy resources can be economically developed and used in a socially and environmentally responsible manner.

To secure Nova Scotia's energy future the government will maintain a competitive taxation system, increase research and development, coordinate the energy strategy with the province's recently developed economic growth strategy, and create a new Department of Energy to execute the new Energy Strategy.

Competitive Taxation

A competitive business climate and tax regime is based upon principles of equity, efficiency, and effectiveness. It sets the stage for business enterprises to make the kind of large scale, long-term capital investments required by a growing energy industry. It also sets the stage for widespread economic spin-offs and sustained economic growth for the benefit of all Nova Scotians.

New energy sources and developments present new opportunities and challenges for the province's tax system. The system must be reviewed regularly to ensure it remains competitive. The energy strategy concludes that Nova Scotia is in a strong competitive position, and no broad industry-wide tax changes or incentives are required. It also confirms the present generic royalty regime as an important part of the effort to encourage exploration.

However, the province recognizes that certain energy sectors, such as renewable energy, research and development, efficiency and conservation, and clean-coal technology, may need incentives. Therefore, the province will seek opportunities, using its existing incentive programs, to work with the federal government, universities and industry to support new energy investments.

Municipal assessment and taxation policy is an area of increasing importance for a growing capital-intensive industry such as energy. The existing policy to exempt industrial machinery and equipment will be maintained and interpreted consistently to encourage capital-intensive development. The definition of property for assessment purposes will be consistently and equitably applied, and business occupancy and capital taxes will be applied uniformly within and across industrial sectors and companies.

NSPI, the major electrical utility in Nova Scotia, pays grants in lieu of property taxes based on a formula related to electrical use in the various municipalities. This policy was developed at a time when the utility was a Crown corporation. Governments and their agencies are not usually subject to property taxation in the same way as the private sector. In the future the method of property taxation will be reviewed for all energy utilities. As competition for electrical generation emerges, the current method of utility taxation may no longer be appropriate. The review will take into account that electricity is an essential service and that an increase in taxation of regulated assets is passed on to electrical consumers through higher prices.

Budgeting for the Future

Two important characteristics of offshore revenues are price volatility and limited duration. Historically, oil and gas prices and revenues have varied widely due to the cyclical nature of the industry. A number of countries now face significant challenges as their non-renewable resources are depleted and their large royalty revenues are expected to decline. For these reasons, the province will adopt conservative budgeting policies that reflect the volatile and, ultimately, temporary nature of oil and gas prices and revenues.

Monthly Natural Gas Prices at Goldboro, NS *(US$)*

	Average Spot Price
November 2000	4.42
December 2001	7.97
January 2001	7.52
February 2001	4.74
March 2001	4.34
April 2001	4.31
May 2001	3.17
June 2001	2.65
July 2001	1.92
August 2001	1.90
September 2001	1.12
October 2001	1.38

Source: Daily Oil Bulletin price at Dracut, Massachusetts, less M&NP toll

Alberta Oil and Gas Resource Revenues, 1996–2002 *($ Millions)*

1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
4,151	3,909	2,480	4,784	10,842	6,219

Nova Scotia government policy will be to use revenues from offshore resources in ways that improve the long-term economic and fiscal condition of the province. Government will report annually to Nova Scotians on how it spends its offshore revenues.

"Consider establishing a fund from the royalties, like the Alberta Heritage Fund."

— Middleton Public Meeting

Once offshore royalties become "net" royalty revenues (net royalties based on a percentage of producers cash flow (20–35 per cent) after cash expenditures), the province will establish a Nova Scotia Offshore Heritage Trust for the benefit of future generations. The Heritage Trust will receive and manage a meaningful portion of these revenues so that Nova Scotians, today and in the future, benefit from these non-renewable resources.

Research and Development

Research and development are needed in all phases of the energy industry. Research and development can find ways to add value to the energy resource, enhance production, and conversion technologies, increase production and end-use efficiency, and mitigate environmental impacts. An important goal for the energy strategy is to harness existing research and development capacity in Nova Scotia, such as the new industry-government funded Atlantic Canada Petroleum Institute (ACPI), to support the growing energy sector. ACPI is currently researching topics in areas such as worldwide exploration rights practices and deepwater technologies.

Nova Scotia has a significant research and development community. Federal research funding per capita in Nova Scotia is relatively high, reflecting in part the large number of universities and research laboratories.

A successful R&D strategy requires a vibrant private sector research and development infrastructure. A well-financed private sector can be an active partner in publicly funded efforts, helping the province's researchers gain access to financing from the federal government. Efforts to draw worldwide research money to Nova Scotia will have the benefit of increasing economic activity and improving our capacity for innovation.

The energy strategy supports incentives to increase private sector energy research investment in Nova Scotia. Areas that warrant emphasis include:

- *renewable energy research and development*
- *energy conservation and efficiency technologies*
- *deepwater technologies and operations*
- *east coast offshore petroleum operations*
- *clean-coal technology*

As a follow-up to its successful Energy Forum, Open to the World, in June 2000, the province will host an Energy R&D Forum in 2002 to examine the research community's interests and industry requirements.

Energy and Our Economic Growth Strategy

Oil and Gas Training at the Nova Scotia Community College

Students acquire sophisticated technical skills and training at the Nova Scotia Community College – Marconi Campus.

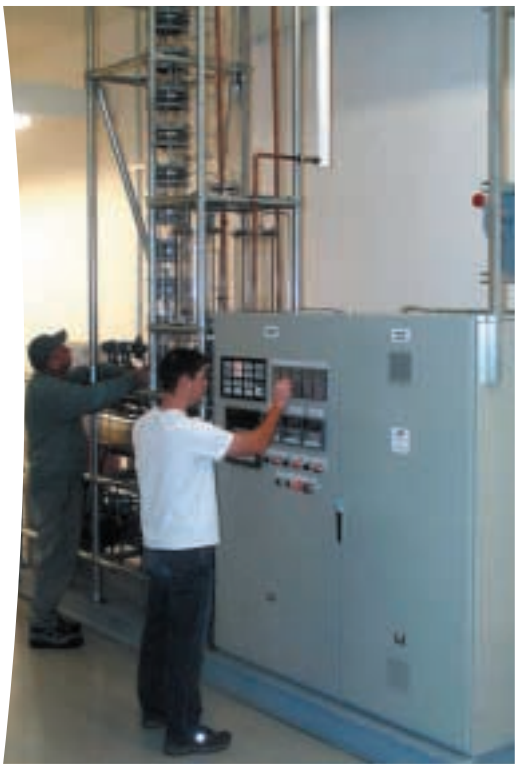

Photo courtesy of the Nova Scotia Community College, Cape Breton, Nova Scotia

In 2000 the government published *Opportunities for Prosperity: A New Growth Strategy for Nova Scotians.* The strategic directions set by the energy strategy are consistent with the economic growth strategy. They are both focused on improving the business climate, promoting innovation, developing labour force skills, attracting new investment, promoting exports, and strengthening regional capacity to advance economic development. The energy strategy achieves one of the economic growth strategy's goals by creating a plan to develop and use Nova Scotia's energy resources.

To help investors understand the Nova Scotia Advantage, government will support marketing efforts to package all provincial tax and support programs that are available in the energy sector. Working with the Departments of Economic Development and Finance, the new Department of Energy will develop energy-specific promotional tools and bundle existing tax programs and incentives into a Nova Scotia Energy Industry Growth Program.

Department of Energy

The consultation process for the energy strategy received frequent and consistent feedback on the need for a well-resourced energy department with access to the best professional advice possible. "It should have clear and focused responsibilities, and a strong Cabinet voice." This advice came from individuals, fishing organizations, and environmental groups, as well as small and large energy companies and organizations.

Government will create a new Department of Energy. The department's major functions will include oil and gas, electricity, energy utilization, energy research and development, energy economics and policy, and related support services.

The new Department of Energy will have prime responsibility for implementing and managing the province's energy policies and for obtaining the best possible mixture of economic, social, and environmental value from the energy sector.

The new department will also provide leadership and be responsible for interdepartmental co-operation and coordination of energy policies and programs. It will have prime responsibility to coordinate provincial and federal governmental energy activities and relationships with government organizations, advisory groups, regulators, and associations.

The Department of Energy will be outward looking and have as one of its priority goals the development of highly trained and professional human resources in oil and gas, electricity, renewable energy, energy research and development, and energy economics. The performance of this department will be measured by how well Nova Scotia delivers on the stewardship of its energy resources and the long-term returns achieved for the economy and society generally.

The detailed operating plans for the new Department of Energy will be completed in concert with the province's 2002–03 budget process. The new department will begin operating at the start of the new fiscal year and will focus on maximizing for Nova Scotians the economic, social, and environmental benefits from our energy sector.

IMPLEMENTING NOVA SCOTIA'S ENERGY STRATEGY

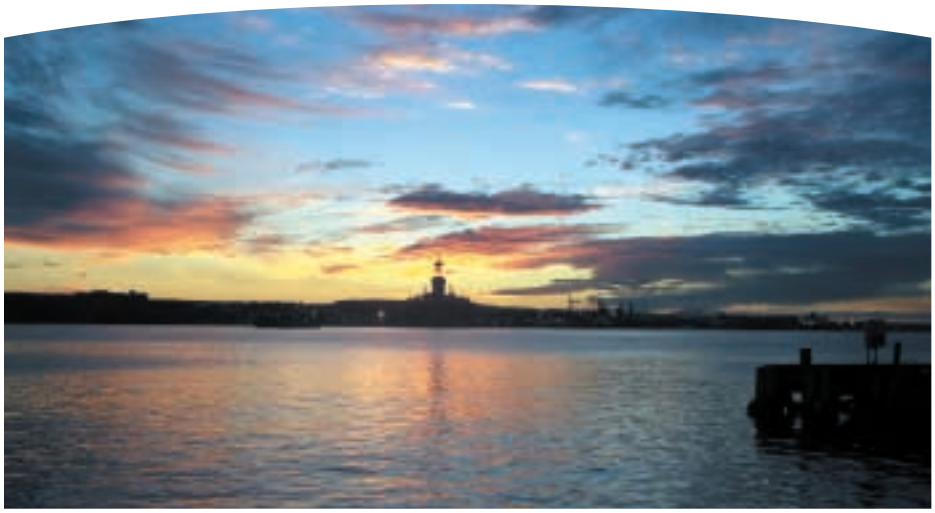

Photo courtesy of the Nova Scotia Petroleum Directorate

Sunrise Erik Raude *A new era in Nova Scotia's industry is on the horizon.*

Nova Scotia's new energy strategy is an important first step on the road to developing the energy industry's potential to benefit the province. It sets realistic expectations for the energy sector.

The strategy identifies important elements of a competitive energy market. It ensures that the environment is improved. It provides guidance on how to encourage cross-industry alliances and partnerships among the fishing industry, energy sector, and other communities. It also describes the importance of equitable and competitive taxation, royalty, and economic incentives.

The energy strategy promotes the wise use of energy and confirms the belief that the private sector is the prime engine for developing the province's natural resources and creating economic benefits and long-term growth.

A strategy is excellent only if it is executed exceptionally well. To execute the objectives and actions outlined in this strategy requires a well-defined organizational structure, sufficient professional resources, an agreed-upon scope of responsibilities, and a realistic implementation plan.

The new Department of Energy will work with other government departments, the industry, and all Nova Scotians to implement the energy strategy and seize the opportunities presented by our growing energy industry.

APPENDIX

ENERGY STRATEGY BACKGROUND PAPERS VOLUME II

PART I	Introduction
PART II	Oil and Gas 1. Offshore Exploration 2. Energy and the Fishery and the Marine Environment 3. Benefits from Offshore Resources 4. Training for the Energy Sector 5. Using Nova Scotia Resources 6. Onshore Exploration 7. Effective and Efficient Regulation
PART III	Electricity
PART IV	Renewable Energy Sources
PART V	Coal
PART VI	Environment 1. Climate Change 2. Air Pollutants
PART VII	Energy Efficiency 1. Conservation and Efficiency 2. Transportation
PART VIII	Aboriginals and the Energy Sector
PART IX	Research and Development
PART X	Energy Fiscal and Taxation Policy
PART XI	Consolidated Strategy Objectives and Actions
PART XII	Glossary of Terms

Volume II is also available on the Internet at **www.gov.ns.ca/energystrategy**

PROVINCE OF NOVA SCOTIA MEMBERS OF EXECUTIVE COUNCIL

As of December 12, 2001

HONOURABLE JOHN F. HAMM

Premier
President of the Executive Council
Minister of Intergovernmental Affairs

HONOURABLE RONALD S. RUSSELL

Minister of Transportation and Public Works
Minister of the Public Service Commission
Chair of Treasury and Policy Board
Minister responsible for Communications Nova Scotia

HONOURABLE NEIL J. LEBLANC

Minister of Finance
Minister responsible for the supervision and management of Part I of the Gaming Control Act
Minister assigned responsibility for reporting on Acadian Affairs
Minister assigned administration of all affairs and matters relating to Nova Scotia Resources Limited

HONOURABLE ERNEST L. FAGE

Minister of Natural Resources
Minister of Agriculture and Fisheries

HONOURABLE GORDON D. BALSER

Minister of Economic Development
Minister responsible for the Petroleum Directorate
Minister responsible for the Business Development Corporation Act
Minister responsible for the Innovation Corporation Act
Minister assigned all affairs and matters relating to the Sydney Steel Corporation Act

HONOURABLE MICHAEL G. BAKER, Q.C.

Attorney General and Minister of Justice
Minister charged with the administration of the Human Rights Act
Minister assigned the administration of the Regulations Act
Minister responsible for the supervision and management of Part II of the Workers' Compensation Act
Minister responsible for Aboriginal Affairs

HONOURABLE JAMIE A. MUIR

Minister of Health
Chair of the Senior Citizens' Secretariat
Minister assigned the administration of the Emergency Measures Act

HONOURABLE PETER G. CHRISTIE

Minister of Community Services
Minister responsible for reporting on the Disabled Persons' Commission Act

HONOURABLE JANE S. PURVES

Minister of Education
Minister assigned responsibility for the Technology and Science Secretariat
Minister charged with the administration of the Advisory Council on the Status of Women Act
Minister charged with the administration of the Youth Secretariat Act

HONOURABLE RODNEY J. MACDONALD

Minister of Tourism and Culture
Minister charged with the administration of the Heritage Property Act
Minister assigned the supervision of the administration of the Nova Scotia Liquor Corporation
Minister assigned the responsibility for the Nova Scotia Sport and Recreation Commission

HONOURABLE ANGUS MACISAAC

Minister of Service Nova Scotia and Municipal Relations
Minister responsible for the Residential Tenancies Act

HONOURABLE DAVID M. MORSE

Minister of Environment and Labour
Minister responsible for the Workers' Compensation Act (except part II)
Minister assigned the administration of Part II of the Gaming Control Act
Minister assigned responsibility for the Utility and Review Board Act

The above does not represent all Ministerial responsibilities.
Some Ministerial responsibilities that are prescribed by Statute are not set out above.


NOVA SCOTIA