

**Nova Scotia Department of Energy (DOE)**  
**Annual Accountability Report for the Fiscal Year 2009-2010**

**June 2010**

**Department of Energy**  
**Annual Accountability Report for the Fiscal Year 2009-2010**

**Table of Contents**

1. Accountability Statement
2. Message from the Minister
3. Message from the Deputy Minister
4. Introduction
5. DOE Progress and Accomplishments by Division
  - 5.1. Business and Technology
  - 5.2. Communications
  - 5.3. Energy Fiscal Affairs
  - 5.4. Energy Markets
  - 5.5. Strategic, Policy Planning and Services
  - 5.6. Petroleum Resources
  - 5.7. Energy Research
6. Financial Results
7. Measuring Our Performance
  - 7.1. Priority: Sustainability from Energy Resource Revenue
  - 7.2. Priority: New Economic Opportunities
  - 7.3. Priority: Secure, Competitive and Sustainable Energy Supplies
  - 7.4. Priority: Reducing Air Emissions and Saving Energy through Energy Efficiency and Conservation
  - 7.5. Priority: Achieving Social Responsibilities

## 1 Accountability Statement

The accountability report of the Nova Scotia Department of Energy (DOE) for the year ended March 31, 2010 is prepared pursuant to the *Finance Act* and government policies and guidelines. These authorities require the reporting of outcomes against the DOE's business plan information for the fiscal year 2009-2010. The reporting of the DOE's outcomes necessarily includes estimates, judgments and opinions by DOE management.

We acknowledge that this accountability report is the responsibility of the DOE management. The report is, to the extent possible, a complete and accurate representation of outcomes relative to the goals and priorities set out in the DOE business plan for the year.

Nova Scotia Department of Energy

---

Hon. Bill Estabrooks  
Minister

---

Murray Coolican  
Deputy Minister

## 2 Message from the Minister

The energy sector is a balancing act. We must balance the economy with the environment, new ideas with proven experience, and a need for reliable sources of supply in an increasing volatile world market. We need to generate more power from greener local sources to create new jobs, grow the economy, and stabilize long term electricity prices; at the same time, we need to remain mindful of short term prices to keep bills affordable for Nova Scotians along the way. We need to keep our companies working at home, and also ensure they can work anywhere in the world.

How are we doing so far? To partially answer that question, I am pleased to submit the 2009/10 accountability report for the Nova Scotia Department of Energy, outlining our contributions to helping build Nova Scotia's energy sector over the last year.

In the petroleum sector, this included:

- work on the largest public geoscience research project ever conducted in offshore Nova Scotia – the play fairway analysis – to attract new exploration/investment interest
- celebrating the 5<sup>th</sup> year of the Pengrowth-NS Energy Scholarship Program, totaling \$1.4 million in scholarships and grants
- conducting geological, environmental and socio-economic research on Georges Bank
- creating new offshore *Drilling and Production Regulations*
- releasing the *12-year Retrospective on Natural Gas Production in Nova Scotia*
- creating a new offshore promotional video for international business audiences

On the renewable front, this included:

- expanding the renewable industry by requiring utilities to reach 25 per cent renewable electricity supply by 2015, with a goal of 40 per cent by 2020
- launching North America's first commercial-scale in-stream tidal turbine in the Bay of Fundy, and funding eight groundbreaking research projects on tidal energy
- beginning construction work on the FORCE (*Fundy Ocean Research Centre for Energy*) infrastructure and observation facility
- partnering with DSME (*Daewoo Shipbuilding and Marine Engineering*) to build wind turbine towers at the old Trenton Works facility
- completing both a transmission grid study and stakeholder consultation process to encourage a stronger, greener grid
- creating educational videos on both the tidal energy project and the Pubnico wind farm

It is our job to see this list continue to grow. And it must grow, if we are to deliver on our commitment to create new jobs and grow the economy in the ever-changing world of energy. I am pleased to report last year's achievements in the pages before you, and look forward to more progress in the year ahead.

Honourable Bill Estabrooks,  
Minister of Energy

### **3 Message from the Deputy Minister**

The Department remains proudly committed to serving Nova Scotia and Nova Scotians; we are also grateful to our many local, national and international partners for their help in our collective efforts to strengthen the province's position in the global energy market.

In our offshore, we remain focused on attracting new and existing explorers and investors to our resource. Work is well underway on a large geoscience research project that will shed more light on our not well-explored geology; that work is combining some of the best geoscience minds from around the world – including our significant talent pool right here at home – to give us a better understanding of what is out there.

Here's what we do know: with an estimated 40 trillion cubic feet of potential in Nova Scotia's offshore, natural gas will continue to play a critical role in the province's economy. Each year, our Sable Offshore Energy Project has contributed roughly \$1 billion to the province's economy, and provided nearly 2000 direct and spin-off jobs. It has also contributed over \$1.5 billion in royalty related revenue to the province, which help pay for education, healthcare, and debt reduction. Work on Nova Scotia's next offshore gas project at Deep Panuke is underway, with first gas targeted for 2011.

Less obvious is the role of natural gas in protecting our environment: natural gas burns more cleanly than oil or coal, produces fewer emissions and can back up intermittent electricity sources like wind and tidal.

These renewable sources are beginning to play a larger role in both our environmental and economic future. Renewable energy growth in our province over the next five years is expected to generate up to \$1.5 billion in investment, creating between 5,000 and 7,500 person years of employment. And our resources in this area are second to none: we have some of the fastest average wind speeds in Canada, and one of the greatest tidal resources in the world.

We made significant progress in the renewable sector last year, and the following report outlines that progress in detail. Our mission and desire remains, as always, to secure an energy future for Nova Scotians that is diverse, affordable, and sustainable. So while we look back briefly at the past year in this report, our focus must remain on the road ahead.

Murray Coolican  
Deputy Minister of Energy

## **4 Introduction**

In the 2009-2010 fiscal year, the Nova Scotia Department of Energy (DOE) was guided by two documents: the 2009-2010 Business Plan and Toward a Greener Future: Nova Scotia's 2009 Energy Strategy. These documents were designed to be flexible, allowing DOE to meet the needs and opportunities of Nova Scotia's constantly changing energy sector. The sector's continued success will depend on the province's ability to respond to changing global and regional circumstances.

The 2009-2010 Business Plan outlines how priorities are linked to the themes in the 2009 Energy Strategy. The Accountability Report reflects not only progress made on our Business Plan, but also on the 2009 Energy Strategy, thereby integrating strategy and action.

## **5 DOE Progress and Accomplishments by Division**

### **5.1 Business and Technology**

Working with energy sector stakeholders, the Business and Technology division promotes investment in the energy-related capabilities of Nova Scotia. The division provides opportunities for local companies to meet potential joint venture partners and participate in investment missions abroad. Business and Technology maximizes business opportunities for local suppliers of goods and services and identifies areas of labour demand and possible skill shortages. Additionally, the division works to develop strategic approaches to ensuring maximum participation of Nova Scotians in major energy projects and undertake partnerships in training projects and initiatives.

Business and Technology identifies and supports opportunities for Nova Scotian firms competing within the energy sector to benefit from the transfer of technology critical for expanding business opportunities within the sector. This division leverages federal and private sector investment in state-of-the-art energy-related educational and training infrastructure in Nova Scotia's post-secondary educational institutions. It also works to ensure that employer needs are being met by Nova Scotia's energy-related educational training modules and standards. The division works to ensure that research priorities are identified, supported, and enhanced through partnerships and leveraged opportunities that ensure best value.

Progress and accomplishments for key areas of focus in 2009-2010

#### **Deep Panuke Project**

- Major contracts have been awarded
- Deep Panuke person hours are expected to meet or exceed Offshore Strategic Energy Agreement commitments
- A visit to Gulf Piping Company LLC, Abu Dhabi in January 2010 allowed Provincial delegates to tour the Deep Panuke platform. During this trip government officials also discussed potential joint ventures for Nova Scotia fabrication industries. They met with Gasgo to discuss opportunities for subcontracting and training initiatives. Meetings were also held with the organizations responsible for training programs and the government's certification standards.
- A follow-up visit to the United Arab Emirates allowed further business development discussions to be held

#### **Sable Offshore Energy Project (SOEP)**

- Major contracts continue to be awarded to local companies in support of steady state operations
- Engineering conceptual and CAPEX costing model for marginal Sable fields was completed
- The economic and technical feasibility of satellite tie-backs (marginal fields) are addressed through technical collaboration between Business and Technology, Petroleum Resources, and the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB)

### **New Initiatives**

- Daewoo Shipbuilding and Marine Engineering signs \$60 Million deal with Province to build wind turbine towers at old Trenton Works facility
- Meetings with EcoPetrol, ANH (Colombian Oil and Gas Regulator) and Colombian business community build linkages to Colombia's offshore supply and services market
- Nova Scotia companies are matched with potential opportunities in Brazil's massive offshore industry during a mission from PetroBras (Brazil) to Nova Scotia

### **Marketing**

- Nova Scotia offshore services promotional video "Shaped by the Sea" was updated and launched to business audiences in Abu Dhabi
- Nova Scotia's interactive multi-media re-design of the trade show presence was used at Offshore Europe in Aberdeen (September 2009)
- Increased networking with Nova Scotia client companies to ensure best representation of their interests and needs in local, national, and international markets

### **Market Development**

- Markets in the Middle East, Korea, Spain, Brazil, Colombia, Mexico, Newfoundland and Labrador, Alberta, and others were targeted in major incoming or outgoing trade missions, resulting in the identification of potential opportunities for Nova Scotia companies
- Increased collaboration with other Maritime provincial government representatives and federal government counterparts to cover market development in conventional energy and renewable energy technology and services more efficiently
- Introductory meetings held with senior representatives of major energy companies and supply firms in multiple target markets. Established first contact as a basis for future business discussions (e.g., Abu Dhabi Gas Industries Ltd., Zakum Development Company, and Mubadala in United Arab Emirates; EcoPetrol, the industry association Camara Petrolera and the national regulator ANH in Colombia)
- Trade Commissioners at various Canadian Embassies in markets of interest (e.g. Latin America, Middle East, Europe) are increasingly engaged as partners in developing markets
- Business networking internationally is increasingly building inroads into key markets through establishing key relationships critical for success

### **Elmworth Benefits Plan**

- Elmworth's shale gas project has been given lower priority status as a result of a re-positioning of the company's strategic mission, coupled with financing issues arising from the financial crisis. As such, the benefits plan has been largely dormant.

### **Programs**

- Celebrating its fifth year of operation, the Pengrowth – Nova Scotia Energy Scholarship Program has to date delivered approximately \$1.4 million in scholarships and grants, and supported a professorship in petroleum financial management. The

- scholarship disburses the interest from trusts established through a partnership between Pengrowth Corporation and the Province of Nova Scotia.
- The Energy Training Program for Students continues to support local summer and co-op student placements with local private sector employers. These placements help students find local employment opportunities in their fields of study upon graduation.

## **5.2 Communications**

The communications division is responsible for the coordination and release of internal and external information produced by DOE. The division helps to inform Nova Scotians about DOE activities and increase Nova Scotians' understanding about energy use and development, particularly around issues such as the exploration and development of oil and natural gas, electricity, and renewable energy.

The division provides public education initiatives; an extensive website offering a library of publications and other energy-related information; and develops innovative communication approaches to educate Nova Scotians on energy issues.

The communications division is also responsible for helping to meet the priorities in the business plan. It is involved in all major aspects of DOE's business, including public education programs, conferences, major initiatives, trade missions, scholarship programs, stakeholder consultation sessions, and building new economic opportunities.

Progress and accomplishments for key areas of focus in 2009-2010

- Fundy Ocean Research Centre for Energy (FORCE) (tidal) video production
- Wind energy (the Pubnico experience) video production
- Development (support), production and announcement of Renewable Electricity Plan.
- Supported implementation of 2009 Energy Strategy.
- Development of Wind Education Initiative

## **5.3 Energy Fiscal Affairs**

The primary responsibility of the Energy Fiscal Affairs division is ensuring accurate and timely forecasts and monitoring of the financial results and fiscal implications of petroleum exploration and development. The largest project to date is the SOEP.

There are several other areas that require the division's monitoring including but not limited to the Crown Share Payments from Ottawa, offshore forfeitures, and rental payments.

Energy Fiscal Affairs has the responsibility to ensure that all petroleum projects are in compliance with the Offshore Petroleum Royalty Regulations, *Petroleum Resources Act*, or any other relevant agreements. This requires the division to administer audits, monitor payments, and assess royalties from petroleum projects. In order to perform the required audits the division works closely with various interest holders to obtain appropriate audit evidence and fulfill the regulations mandate.

The division undertakes fiscal policy research and analysis and provides related recommendations. When required, it also performs a central role in fiscal negotiations.

Progress and accomplishments for key areas of focus in 2009-2010

### **Onshore Petroleum Royalty Regulations**

- The division drafted regulations principles and distributed them to various stakeholders
- The draft principles are currently being reviewed based on the feedback received from stakeholders
- There are plans to reconvene with the regulatory committee shortly.

### **Onshore Competitiveness Analysis**

The second phase of the onshore Petroleum Royalty Regulations is a study that will analyze Nova Scotia's onshore industry from a royalty competitiveness perspective. It will involve a comprehensive analysis of our onshore regulations in comparison to other jurisdictions. It will take into consideration the uniqueness of Nova Scotia's onshore industry. This study was not addressed in 2009-2010. However, it will be addressed in the next fiscal year.

### **Research and Development**

- In 2009-2010 fiscal research and development focused on Frontier Oil and Gas Geoscience Fiscal Incentive Initiative.
- As part of the Pengrowth Trust agreement research on this initiative was conducted by DOE with the assistance of the Department of Finance and Saint Mary's University.
- A paper completed by Saint Mary's University was received. This paper outlined a number of fiscal options. These options have been discussed with industry. All options are currently being assessed.

### **Crown Share Adjustment Payments (CSAP)**

- During 2009-2010 Fiscal Affairs worked with the federal government to develop a royalty return model and finalized working regulations to administer the process.

### **Deep Panuke**

- Fiscal Affairs continued to perform the royalty administration of the Offshore Strategic Energy Agreement (OSEA).

### **Monitoring Revenue Streams**

- The division continues to track all energy related payments, including onshore and offshore royalties, CSAP from Ottawa, offshore forfeitures, and rentals on Exploration Licences.

## **5.4 Energy Markets**

Energy Markets works closely with Conserve Nova Scotia and the Climate Change division at Nova Scotia Department of Environment. The division partners with Conserve Nova Scotia on energy management issues including electricity policy development issues regarding the establishment of a new independent administrator for the electricity demand side management programs and initiatives related to support for enhanced renewable energy uptake.

The Energy Markets Division provides advice regarding the development of and implementation of policies, programs, legislation, and regulations dealing with:

- Natural gas transmission, distribution, underground storage, and end use
- Nova Scotia's electricity market, including generation, transmission, distribution, and end use
- Refined petroleum products
- Renewable energy resource development, including small scale community developments

The 2009 Energy Strategy provides an important roadmap for a more diverse, secure, and longer term low cost energy future. Expert advice on matters relating to this transformation come from external advisors contracted by this division or from the expertise of the division staff. In the coming months and years the division will focus on renewable energy and the expansion and enhancement of the transmission system.

Progress and accomplishments for key areas of focus in 2009-2010

#### **Transmission Grid Study**

- SNC Lavalin completed a study focusing on enhanced transmission and system operator options for Nova Scotia. Conclusions and recommendations from this study will help develop a strategy for Nova Scotia electricity sector to become cleaner and more sustainable through the use of renewable energy suppliers domestically and regionally.
- The final report was publically released and posted on DOE's website at the end of 2009.

#### **Wheeler Process**

- In the fall of 2009 DOE contracted Dr. Wheeler (Former Dean - Dalhousie Faculty Business Management) to conduct several rounds of stakeholder consultation for the development of a renewable electricity plan to meet Nova Scotia's commitment to have 25 percent of its electricity supply coming from renewable energy sources by 2015. Part of the focus related to biomass, biofuels, and feed-in tariff development for business and community renewable opportunities. The process cumulated with the Wheeler report in December 2009 that made recommendations and identified options which fed into the development of the Renewable Electricity Plan.
- The final report was publically released and posted on DOE's website.

#### **Renewable Electricity Plan**

- In December 2009 DOE began the development of the Nova Scotia Renewable Energy Strategy with a focus on electricity, natural resources (biomass), and transportation. The DOE focused on the Renewable Electricity Plan while Department of Natural Resources and Department of Transportation Infrastructure and Renewal continued policy and regulation development on biomass and transportation issues.

#### **Atlantic Bioenergy Task Force**

- DOE established the biomass working group in collaboration with Nova Scotia Department of Natural Resources, Nova Scotia Department of Economic and Rural Development, and stakeholders (Forest Industry, Nova Scotia Power Inc.(NSPI), Independent Power Producers, Environment, Agriculture and Fisheries, Agricultural College) to promote the development of biomass renewable resources in Nova Scotia.

### **Wind Siting Concerns**

Wind siting concerns have been addressed by DOE in the following ways:

- DOE with the help of the Nova Scotia Department of Environment planned and held a Nova Scotia Wind Energy Workshop in Halifax. Its purpose was to educate and inform environmental consultants and independent power producers about best practices, policy, and regulations around siting of wind farms, Environmental Assessment process, and community engagement. This was also an opportunity to hold two-way dialogue between industry and government. The workshop was a success, with approximately 100 participants.
- Wind Energy Development Plan: with Union of Nova Scotia Municipalities (UNSM) and Ecology Action Centre, prepared an Expression of Interest for a wind plan. Five municipalities responded. Two municipalities – District of Shelburne and County of Cumberland – were given funding to proceed.
- Fact Sheets: Worked with Pembina Institute to customize a pre-existing fact sheet created by the non-government organizations (NGO) for a Nova Scotia audience. Fact sheet is titled: Wind Power Realities for Nova Scotia. It will be distributed to Nova Scotians in fiscal 2010-2011.
- Created Nova Scotia Energy awards for Nova Scotia Youth Experiences Science (YES), the science fair competition. The award focused on renewable energy.
- Promoted landowner understanding of wind energy opportunities through funding of a seminar, titled Harvest the Wind. Seminar to be organized by Nova Scotia Agricultural College and Ecology Action Centre and held early in fiscal 2010-2011.
- Held Focus Groups in Pubnico to better understand experiences of residents who live near a wind farm.
- Created a video about the experiences of people who live in Pubnico.
- The Energy Around Us: A pilot program aimed at increasing the critical literacy of Grade 9 students related to renewable energy. About 15 teachers participated in a day-long workshop on renewable energy, with a commitment to work with students and create class projects for showcasing in June.

### **Gas Market Development Fund (GMDF)**

- The division oversees the grants for the GMDF. Funds continue to be available to Heritage Gas for residential conversions as well as commercial projects.
- The GMDF continues to support the natural gas equipment rebate for residential and commercial conversions. In addition, the GMDF contributed towards the conversion of facilities at Saint Mary's University, Queen Elizabeth II, and Victoria General Hospitals.

### **Natural Gas and Underground Storage**

- The DOE has issued Alton Gas Natural Gas Storage a natural gas storage lease. They have received an environmental approval with some conditions from Nova Scotia Environment.

### **Integrated Community Energy Solutions**

- Under the lead of DOE, Nova Scotia has become a supporter of the QUEST (Quality Urban Energy Systems for Tomorrow) initiative. The QUEST Nova Scotia caucus is currently under development and aims to support development of integrated community

energy solutions in Nova Scotia.

### **Feed-in Tariff Rate Impact Analysis**

- DOE commissioned an external study on the potential rate impacts of a feed-in tariff program in Nova Scotia. The information from this study was used in the development of the new Renewable Electricity Plan.

### **Regulatory and Stakeholder Process**

- During 2009-2010 the DOE intervened and participated in a number of (Utility and Review Board) UARB and stakeholder processes. These include:
  - Intervener in the NewPage Nova Scotia Power Inc. (NSPI) biomass hearing
  - Continued participation in the Fuel Adjustment Mechanism including development of a Plan of Administration for 2010 and the setting of the Fuel Adjustment Mechanism adjustment in January 2010
  - Amendments to the Renewable Energy Standard (RES) regulations for 2010 to reset compliance from 2010-2011
  - Revisions to NSPI's Generation Interconnection Procedures to enable renewable energy projects to move forward in a timely manner
  - Engagement in the Wheeler process for stakeholder consultation for renewable development in Nova Scotia
  - Intervener in NSPI's Return on Equity Board process relative to increasing NSPI's equity share beyond 37.5%
  - Intervener in Conserve Nova Scotia Demand Side Management hearing process for the approval of \$22 million in Demand Side Management programs and the recovery of costs through a Demand Side Management rider on electricity rates
  - Participation in government's clean energy advantage process
  - Engagement in the development of the province's renewable electricity plan, including feed-in-tariff analysis and enhanced net metering
  - Engagement with Environment and stakeholders in NSPI's mercury abatement process
  - Participation in the Maritimes & Northeast Tolls and Tariffs Working Group for the negotiation of natural gas pipeline tolls and the resolution of tariff issues

## **5.5 Strategic Policy, Planning and Services**

Strategic Policy, Planning and Services (SPPS) division is responsible for the coordination of corporate energy policies, strategies, plans, and services. SPPS supports the plans of all divisions but it does have specific responsibilities and expertise. The division gathers information on Nova Scotia and other jurisdictions' experiences, policies, and activities. It also gathers information on the general business climate for energy investments and analyzes it for effectiveness and implications for meeting public policy objectives and relevance to Nova Scotia's energy sector. It leads in the responsibility for consultation with First Nations on energy matters. In carrying out all of its responsibilities, the division works closely with other divisions in DOE.

The division works with all divisions to coordinate general regulatory development and corporate initiatives such as Better Regulation. This commitment includes the goal of reducing administrative paper burdens through electronic registries and service delivery. The division also

works closely with the federal government and other jurisdictions, industry, and key stakeholders to develop an efficient and effective regulatory regime for offshore and onshore petroleum resources.

SPPS has primary responsibility for inter-governmental affairs in collaboration with the divisions which have energy sector specific relationships and responsibilities. SPPS works with the province's Intergovernmental Affairs Department to ensure the government's intergovernmental agenda is well coordinated. For example SPPS has specific responsibility to coordinate the Partnership Agreement on Regulation and the Economy with relation to energy matters.

The coordination of corporate activities related to business planning, budgeting, financial management and control, human resources, procurement, records management, information management, submissions to Executive Council, and reporting are all the responsibility of SPPS.

Progress and accomplishments for key areas of focus in 2009-2010

### **Policy Support**

DOE completed:

- The 2010 Renewable Electricity Plan which was released in April 2010

### **12-Year Retrospective**

- Socio-economic analysis of the offshore petroleum industry over the last 12 years utilizing the policy support and expertise of staff. The policy division provided key analysis on energy supply, demand, and pricing as well as economic impacts and implications of energy development policies and strategies
- The 12-Year Retrospective has been finalized and was released to the public in May, 2010
- Electronic copies of the full report and a summary brochure are available on DOE's website
- This report highlights the impact that the offshore energy industry had on the Nova Scotia economy from 1996-2007
- This study found that from 1996-2007 the offshore natural gas industry employed (direct and spinoff) approximately 38,500 person-years, or an average employment of about 3,200 per year. Total household income was about \$1.406 billion. This income produced government tax revenue of \$158 million (not including corporate income taxes from project developers or contractors, and direct revenue, such as royalties). During this time period the provincial government received over \$1.5 billion in royalty-related revenues in fiscal year 1996-1997 to 2007-2008

### **Onshore Petroleum Economic Impact**

- The focus of this study has shifted from estimating the future economic impact of Nova Scotia's onshore petroleum industry to estimating the economic impact that this industry had on Nova Scotia from 2004-2008
- DOE has commenced work on estimating the economic impact of this industry on the Nova Scotia economy and will identify areas where Nova Scotia could improve its capabilities or take advantage of perceived opportunities

### **Aboriginal Consultation**

In fiscal 2009-2010, DOE continued to work with the Mi'kmaq of Nova Scotia to foster a mutually beneficial relationship based upon working collaboratively and positively on the development of the province's energy sector.

DOE worked to meet the Province's objectives outlined in the Consultation Terms of Reference as signed by Canada, Nova Scotia, and the Mi'kmaq in July 2007. The Terms of Reference lays out a process to be followed when departments make a decision to consult with the Mi'kmaq.

In 2009-2010 DOE met several times with the Energy Consultation Table which is made up of the Province of Nova Scotia, Government of Canada, and the Mi'kmaq to table and discuss concerns and recommendations on energy projects that may impact on claimed Mi'kmaq rights or title. DOE also continued to work with the Mi'kmaq to facilitate early input into the scoping of environmental assessments of energy projects; provided the *Proponents' Guide: Engagement with the Mi'kmaq of Nova Scotia* to companies proposing energy projects in the province; and encouraged meetings between energy companies and the Mi'kmaq Benefits Committee to discuss potential business and economic opportunities.

Through DOE and Office of Aboriginal Affairs, the Province provided grant funding in the amount of \$230,700.00 to the Kwi'lmu'kw Maw-klusuaqn Negotiation Office for the development of a Mi'kmaq Renewable Energy Strategy. DOE will continue to work with the Mi'kmaq on this project and act as a valuable resource for technical and policy advice as the strategy is developed. Also on the renewable energy front, as part of the tidal energy demonstration project in the Bay of Fundy, DOE supported a Mi'kmaq Ecological Knowledge Study in the Minas Channel that was completed in September, 2009 to document valuable information on Mi'kmaq use and ecological knowledge of the area.

### **Electronic Records**

The following activities contributed to the foundation of an Electronic Records Management System for DOE in the fiscal year 2009-2010:

- Joint Program Assessment of Energy Records Program (Completed)
- Electronic Readiness Assessment (Completed)
- STOR Development Progress (Retention Schedule / File Plans)
  - Deputy and Minister (Default from STOR) – Draft 1 Complete
  - Strategic Policy Planning and Services – Draft 1 Complete
  - Business and Technology – Draft 1 Complete
  - Petroleum Resources – Draft 1 Complete
  - Communications (Embedded in STAR 6.0) - Complete
  - Energy Markets – Meeting May 20, 2010
  - Fiscal Affairs - Meeting TBD
- Records Metadata Databases
  - Conserve Nova Scotia – Heat Smart Program
  - Conserve Nova Scotia - Records Inventory (winding down agency)
    - Interviews for Alienation of Records
  - Energy Markets Semi-Active Database
  - Legal Files Database

- Electronic Charge in / Charge Outs
- Data Clean up
  - Central Registry Consolidation Project
  - Legal Files
  - Climate Change
  - Conserve Nova Scotia
  - Offshore Energy Environment Research(OEER) and Offshore Energy Technical Research (OETR) (2010-2011)
- File Net Risk Management and Administrator Training Complete
- Risk Management Council Standard Workflow Committee Participation (Chair)

### **Business Continuity Plan**

- DOE completed a Business Continuity Plan that is used at the time of a business continuity emergency, event, incident and or crisis. It covers all key personnel, resources, services, and actions to maintain business continuity within DOE and maintains an effective response that safeguards the interests of its key stakeholders, reputation, brand, and value creating activities.

### **Regulatory Innovation**

- New offshore *Drilling and Production Regulations* were completed under the Frontier and Offshore Regulatory Renewal Initiative and came into effect on December 31, 2009
- Frontier and Offshore Regulatory Renewal Initiative began work on the four-year Framework Regulations Project to consolidate and modernize the regulations in place governing frontier and offshore petroleum operations in Canada.
- Policy work was completed to enable stakeholder consultation on the policy intent of proposed amendments to the *Accord Act* regarding offshore occupational health and safety. (Consultation period is from April 14 to June 18, 2010). This work was conducted within a joint federal / provincial working group and included the CNSOPB and our provincial counterparts at Labour and Workforce Development and Intergovernmental Affairs.
- Amendments to the *Pipeline Act* were passed in the fall sitting of the Legislature. These changes provided the UARB with additional options and flexibility in enforcing the Act and regulations and also changed certain definitions to conform to CSA (Canadian Standard Association) pipeline standards.
- Stakeholder consultation took place through the Energy Markets division on proposed changes to the *Gas Distribution Regulations (Nova Scotia)*.

### **Better Regulations Initiative**

- The Petroleum Resources division created new on-line forms and updated old forms for onshore petroleum applications using the existing government template. These have been well received by industry and should both limit common mistakes and minimize the amount of industry time required to fill out the forms. They also will reduce processing time by government.

## **Marine Renewable Energy**

- The DOE signed Construction and Berth Holder Agreements with FORCE (Fundy Ocean Research Centre for Energy) and participates on the Board of FORCE overseeing the progress of the demonstration project. Other members of the Board include the three developers (Alstom, NSPI and Minas Basin Pulp and Power) and one public member (Acadia University).
- The FORCE project received environmental approval and installed its first device (Open Hydro) in Fall 2010.
- Construction is underway on the land-based visitor centre.
- FORCE was successful in negotiating a \$20 million agreement with the federal government for funding under the Clean Energy Fund for development of tidal energy.
- An environmental monitoring program is in place and studying:
  - Lobster Catch
  - Acoustics
  - Currents/ Wave/ Hydrophone
  - Seabird/ Marine Mammal
  - Seabed Scour/erosion
- DOE issued an Expression of Interest in spring 2010 to assess the potential interest from the industry for demonstrating a device at FORCE.
- The Province further encouraged tidal development with the release of the 2010 Renewable Electricity Plan, which establishes a community-based feed-in tariff for distribution connected tidal projects, as well as a special feed-in tariff for developmental tidal arrays connected to the grid at the transmission level.
- DOE hosted a workshop on Marine Renewable Energy Economic Opportunities in Fall 2010 and produced a public document of the results of that event. DOE is leading a national working committee of federal/provincial governments and key stakeholders to further investigate the economics of marine renewable energy.
- The work to develop legislation has progressed through consultation with federal and provincial regulators to develop policies and strategies aimed at creating efficient and effective regulatory processes for the new industry. That governmental consultation will continue and it is expected that public consultation will take place in Fall 2010.

## **Georges Bank**

Georges Bank represents an important ocean area to Canada from a broad social, economic and environmental perspective. The area is under exploration moratorium until 2012 and as part of that moratorium the provincial ministers were required to initiate a review by January, 2010 and determine by June 1<sup>st</sup>, 2010 whether there will be a full public review.

Since the Panel decision in 1999 and the Government's acceptance of the recommendation to extend the existing moratorium, there have been changes in petroleum exploration including: new seismic methods and technologies; risk and mitigation strategies including the potential for re-injection of produced water; and enhanced disposal of muds and cuttings.

An evidence-based decision making process has required collection of extensive information on the state of eco-system science knowledge applied to environmental screens of potential petroleum activities and potential mitigation methodologies. DOE provided funding to Offshore

Energy Environment Research (OEER) who commissioned three studies: a preliminary review of potential environmental and socio-economic impacts of offshore petroleum activities in the area - if they were permitted; an assessment of technologies and practices in offshore exploration, drilling and production that have developed since the 1999 Georges Bank review; and reprocessing and analysis of old geoscience data to update the potential petroleum resource of Georges Bank. Much of the state of knowledge of Georges Bank is dependent on work by the federal Department of Fisheries and Oceans Canada which is currently underway.

An initial review of draft documents indicated more information would be needed for Government to make an informed decision on a public review. It will take a few years to allow for completion of additional science work. Currently, significant gaps in the data make it difficult to move forward and further work is required

As a result, a 3-year extension of the moratorium until December 31, 2015 with a decision on whether there should be a Public Review of the Moratorium by January 1, 2014 will be the policy direction for Georges Bank. This will allow for the gaps in understanding and the scientific data to be fully assessed, analyzed and additional scientific data to be collected if necessary.

The DOE will support and encourage the various projects underway that will assist the Governments of Canada and Nova Scotia in making a decision on whether to proceed to a Public Review of the Moratorium in 2014. DOE will also continue to work closely and collaboratively with U.S. agencies to share findings and information.

## **5.6 Petroleum Resources**

The Petroleum Resources Division is responsible for the development of programs and initiatives to ensure Nova Scotia's non-renewable petroleum resource potential onshore and offshore is identified and marketed to private sector investors. The resulting activities are monitored and where appropriate, regulated in the public interest. This division works collaboratively with other government departments to develop the policy, legislation, and regulations for the exploration and development of the Province's petroleum resources.

Onshore, the division administers the granting of petroleum rights and co-ordinates the regulation of exploration, development, and operational activity. The onshore activities focus on processing activity applications for conventional petroleum as well as coal gas (coalbed methane) and shale gas operations.

While the CNSOPB regulates day-to-day offshore petroleum activity; the Petroleum Resources Division actively promotes and markets Nova Scotia's onshore and offshore petroleum potential to global oil and gas companies.

Progress and accomplishments for key areas of focus

### **Onshore Regulatory Initiatives**

- New Unique Well Identifies Guideline
- New Land Tenure Regulatory roadmap completed
- Draft Geophysical Regulatory roadmap underway

- Drilling Regulatory Roadmap expected in 2010
- Examining regulatory policy around the regulating of Underground Coal Gassification. Working with Department of Natural Resources on this initiative

### **Onshore Operations/Activity**

- Reviewing options for registry versus petroleum resource management system. Background research is being completed to ensure that the most cost effective system is selected. The Resource Management System is expected to be developed in 2010-2011.
- Ongoing operations (Land tenure, wells, drilling)
- Prepared onshore coal gas call for bids (NS10-1)

### **Onshore Geoscience**

- Continuing to work on the petroleum atlas
- Identified gaps in our onshore geoscience knowledge. These gaps will be addressed in 2010-2011.
- Upgraded in-house computer capabilities to ensure the division is able to do required work (computers, geoscience specialty programs, publishing software, etc.)
- Reviewing options for core storage facility and working with Department of Natural Resources to find a solution that will address future needs.

### **Onshore Education**

- Attended open houses around Nova Scotia
- Updated onshore/offshore profiles

### **Offshore Geoscience**

- Worked with Offshore Energy Technical Research Association (OETR) on Offshore Regional Geoscience Project (Play Fairway Analysis)
- Completed Petroleum Potential Study on Georges Bank
- Penobscot area seismic review completed. Research from the review was presented at the American Association of Petroleum Geologists Conference

### **Offshore Policy Initiatives**

- Continuing to move forward with the Nova Scotia Offshore Renewal Plan
- Request for proposals for the development of the Infrastructure Code of Practice was issued. The successful proponent will complete their work in 2010.

### **Investment Attraction Initiatives**

- A marketing strategy is being prepared
- An interim Investment Strategy is ongoing. For this initiative the division is collaborating with Natural Resource Canada, Atlantic Canada Opportunities Agency, Atlantic Canada Energy, and CNSOPB
- Regional Petroleum Opportunities Initiative underway. The goal of this initiative is to identify areas where DOE can work collaboratively to promote the region in the international market place.
- Prepared for and attended numerous local, national, and international events

- Data package is being developed. Discussions are currently being held with data owners. This new data package will enhance DOE geoscience information

### **5.7 Research Associations**

DOE works with partners in the Province's energy research community to help build the knowledge required to resolve energy challenges and close the knowledge gaps that are barriers to success. These partners include federal research organizations such as the Geological Survey of Canada (GSC), the Centre for Offshore Oil and Gas Environmental Research (COOGER), and general energy research groups such as Petroleum Research Atlantic Canada (PRAC), OEER, and OETR. The Strategic Policy, Planning and Services division is responsible for supporting and providing Board-level liaison between the two research associations which are helping to remove some of the barriers to sustaining prosperity for our offshore energy resources.

During the fiscal year 2009-2010 DOE worked with OEER on a number of projects including:

- Mi'kmaq Ecological Knowledge Study
- Georges Bank Environmental and Socio-economic Research
- Hydrodynamic Modeling of the Bay of Fundy – Call for Proposals Process
- Physics of the Interaction Between a Crab and a Seismic Test Pulse – Stage 2: Continued Development of a Mathematical Model and Testing of Model via Simulation - Dr. Geoffrey Lee-Dadswell, Cape Breton University.
- Assessing the Impacts of Seismic Impacts on Marine Invertebrates – Call for Proposals Process

DOE also worked with OETR on numerous projects including:

- Development of Marginal Fields for Offshore Nova Scotia
- Hydrodynamic Modeling of the Bay of Fundy – Call for Proposals Process
- Georges Bank Resource Assessment – Data Reprocessing

## 6 Financial Results

Table 1: DOE Budget Context

	2008-2009 Estimate	2008-2009 Actual	2009-2010 Estimate	2009-2010 Actual
Program & Service Area	(\$ thousands)	(\$ thousands)	(\$ thousands)	(\$ thousands)
<b>Gross DOE Expenses:</b>				
Senior Management	501	514	517	456
Communications	479	445	457	407
Business and Technology	1,834	1,929	1,902	1,980
Strategic Policy, Planning and Services	1,098	6,271*	1,260	1,454
Energy Markets	1,154	886	1,568	1,257
Petroleum Resources	2,145	1,733	1,993	1,568
Fiscal Affairs	0	0	510	509
Human Resource and Administration	847	937	812	854
Legal Services	230	47	20	12
Conserve Nova Scotia	10,269	19,859	27,701	15,201
Canada-Nova Scotia Offshore Petroleum Board	3,260	3,260	3,350	3,350
<b>Total Gross DOE Expenses</b>	<b>21,817</b>	<b>35,881</b>	<b>40,090</b>	<b>27,048</b>
<b>Additional Information</b>				
<b>Fees and Other Charges</b>	0	0	0	0
<b>Ordinary Recoveries</b>	1,677	1,940	1,677	2,196
<b>TCA Purchase Requirements</b>	0	0	0	0
<b>Provincial Funded Staff (FTEs)</b>	49	42	55	46

*Conserve Nova Scotia's actual spending was approximately \$12.5 thousand less than originally estimated. For additional information concerning this change see the Accountability Report for Conserve Nova Scotia.*

*\*SPPS: The increase in actual spending for SPPS in 2008-2009 was due to:*

- \$5 million to the Carbon Capture Storage Consortium*
- Budget increases at Conserve Nova Scotia for existing programs as well as additional budget pressures relating to Government commitments for new programs*

## 7 Measuring Our Performance

### 7.1 Priority: Sustainability from Energy Resource Revenue

#### Outcome #1

- **Enhance Sustainability of Nova Scotia Economy and Government Programs**
- **Increase in Provincial and Municipal Tax Bases**

#### *Outcome Description:*

This outcome reviews Nova Scotia's current royalty revenues and it provides some insight into the impact that this income has on the province.

#### *What does this measure tell us?*

Between 1996 and 2008, Nova Scotia received over \$1.5 billion in offshore royalty-related revenue. These payments represent an important revenue stream, contributing to core public program areas such as education, health care, infrastructure and debt reduction. With production at the SOEP declining it is important to note that royalty payments are a function of both prices and production volumes. So new projects are needed to maintain or increase the provinces royalty-related revenues.

#### *Where are we now?*

The province is currently experiencing a decline in offshore royalty revenue due to a decline in natural gas production at the SOEP. This decline in revenues will be slightly offset by the Deep Panuke project and Crown Share Adjustment Payments CSAP.

#### *Where do we want to be?*

DOE continues to promote Nova Scotia offshore potential in the global marketplace. Through a number of DOE led initiatives, work is being done to improve our understanding of Nova Scotia's offshore petroleum potential. This information will assist DOE in attracting the attention of potential investors.

### 7.2 Priority: New Economic Opportunities

#### Outcome #2

- **Increase in Community Opportunities or Offsetting Benefits**

#### *Outcome Description:*

This outcome has given DOE an opportunity to work with a broad network of organizations, industries, NGOs, elected leaders, and government departments to provide information on the wind energy sector to the public, municipalities, and industries.

#### *What does this measure tell us?*

Working through the Wind Education Advisory Committee, DOE has been able to introduce a number of programs and initiatives that have enhanced the capacity of organizations and individuals to understand wind energy and handle opportunities related to wind and renewable energy.

*Where are we now?*

DOE is currently developing the Nova Scotia QUEST caucus with the support of municipalities, business leaders, and other provincial government departments. The goal of QUEST is to develop community based approaches to energy end-use, greenhouse gases reduction, and air pollution reduction.

In mid-2009, DOE created the Wind Education Advisory Committee, a capacity building and information sharing initiative. This committee now has broad and active representation from a strong cross-section of Nova Scotian interests – environmental (Ecology Action Centre and Clean Nova Scotia), forestry (Forest Products Association of Nova Scotia), agriculture (Nova Scotia Federation of Agricultural), industry (Scotian Windfields and Atlantic Wind Energy), utilities (NSPI and Municipal Electric Utility Co-op), First Nations (Kwilmu'kw Maw-klusuaqn), municipal (UNSM) and government (Office of Aboriginal Affairs, Environment, DOE, Education). NGOs and other organizations such as UNSM have taken leading roles in this initiative, and they are working on projects related to this initiative.

*Where do we want to be?*

Strive to increase the number of integrated community energy solutions throughout Nova Scotia. DOE will continue to educate the public about renewable energy and review new and innovative ways to share information with the public. DOE will continue to seek opportunities for the private sector to fund or cost-share initiatives. It will also continue to encourage NGO's, private sector, and UNSM to take on leadership roles.

- **Increase in Exploration Bids, Drilling Activity, and Discoveries**

*Outcome Description:*

Increasing exploration bids, drilling activities and discoveries is a difficult task for DOE. This industry competes on a global scale. This means that Nova Scotia competes against all other natural gas producing regions for exploration and drilling activity. To improve Nova Scotia competitiveness DOE is implementing the Nova Scotia Offshore Renewal Plan. This plan comprises four areas, each of which contains specific project work:

- Geoscience
  - Resource Analysis Project
  - Data Package Project
- New Policy
  - Access to Infrastructure Project
  - Data Release Project
  - Research and Development (R&D) Incentives Project
  - Global Competitiveness Project
- Regulation
  - *Coasting Trade Act* Project
  - Frontier and Offshore Regulatory Renewable Initiative project
  - Drilling Rig Pool Project
  - Extended Rig Duty Relief Project
- Investment Attraction
  - Interim Investment Attraction Project

*What does this measure tell us?*

The Offshore Renewal Plan is a DOE initiative. The goal of this plan is to renew exploration and development interest in offshore Nova Scotia through a series of concurrent initiatives. A detailed description of this plan can be found on the DOE website.

*Where are we now?*

DOE has begun to implement the tasks outlined in this plan. However, it will take a number of years to complete.

*Where do we want to be?*

Continue to implement the Offshore Renewal Plan.

### **Outcome #3**

- **Support for the Supply Community in Pursuing Opportunities Locally and Abroad**

*Outcome Description:*

During the 2009-2010 fiscal year a number of projects were completed to support the supply community in pursuing opportunities locally and abroad:

- Contracts awarded to local firms from Sable and Deep Panuke projects (commercially confidential)
- Release of 12-Year retrospective socio-economic study of Sable project benefits (outlines past opportunities and provides a general benchmark of local supplier strengths)
- Daiwoo Shipbuilding and Marine Engineering signs \$60 Million deal with Province to build wind turbine towers at old Trenton Works facility (project developed from meetings in Korea for offshore)
- Multiple meetings establishing contact between Nova Scotian officials and executives representing business interests in target markets

*What does this measure tell us?*

The measure indicates that local companies continue to reap the benefits of Nova Scotia offshore projects by building long term competencies that can be leveraged into export markets.

The 12-year study demonstrated that the socio-economic impact of the offshore natural gas industry was very significant to the long-term economic and fiscal health of Nova Scotia. This development agreement demonstrates the value of building international market presence, engaging in dialog with senior executives, and investigating potential commercial opportunities.

The number of markets visited and meetings held is important, especially since the number and level of interactions is critical for building relationships that lead to business transactions in the energy sector. There is also an additional cultural importance to interaction frequency in markets in the Middle East and Latin America.

*Where are we now?*

A domestic offshore industry is helpful in building a viable service and supply community because local companies must compete at an international level for “best value” and must

provide a track record of supplying goods and services to major energy projects in order to qualify for vendor's lists in energy markets abroad. Nova Scotia companies have built a strong reputation from their involvement in local projects and many have competed successfully in major international projects as a result.

*Where do we want to be?*

In time it is possible for there to be little or no provincial offshore activity as offshore petroleum is a finite, extracted resource. However, the demand for experienced, competitive suppliers of goods and services abroad will continue to expand over the medium to long-run and Nova Scotia companies are increasingly better positioned for success in export markets.

#### **Outcome #4**

- **A Clear, More Complete Picture of Nova Scotia Offshore Oil and Gas Prospectively, Petroleum Systems and Environmental Sensitivities for Prospective Investors**

*Outcome Description:*

DOE is working to provide a clear, more complete picture of Nova Scotia offshore oil and gas potential, with a particular focus on petroleum systems and environmental sensitivities. This information is essential for attracting prospective investors to Nova Scotia's offshore.

*What does this measure tell us?*

Identifying the scope and scale of Nova Scotia's offshore potential is vital in attracting new investors. It removes some of the uncertainty associated with Nova Scotia's offshore potential which reduces investor risk. This knowledge will also improve Nova Scotia's competitiveness in an extremely competitive global marketplace.

*Where are we now?*

Staff at DOE is currently working closely with OETR on the Play Fairway Analysis and Geoscience Data Package. These projects will provide explorers with critical information about prospectively and resource potential to aid in decision making. Key issues that will be addressed through the research program include:

- Showing that there is a route to reducing risk to acceptable levels;
- Developing a model that can be used to predict reservoir presence on the slope; and
- Understanding the source rock story.

*Where do we want to be?*

DOE will continue to work with OETR until this project is complete in 2011.

- **A Clear Picture on the Potential for Carbon Capture and Storage in Nova Scotia**

*Outcome Description:*

Creating a clearer picture of the potential for carbon capture and storage in Nova Scotia is essentially for determining if this practice can be used to reduce the quantity of carbon dioxide emitted by large final emitters in Nova Scotia.

*What does this measure tell us?*

The effectiveness of using carbon capture and storage in Nova Scotia to reduce greenhouse gases being emitted by large final emitters.

*Where are we now?*

Carbon Capture and Storage Research Consortium of Nova Scotia was established as a not-for-profit company with joint government (DOE) – industry (NSPI) – academic (Dalhousie) governance, staff, project work scope and timeline, research contracting strategy, standard operating procedures and various committees to determine if carbon dioxide can be sequestered in the geology of Nova Scotia, whether onshore or offshore.

*Where do we want to be?*

The applied research work coordinated by Carbon Capture and Storage Research Consortium of Nova Scotia over the next 2-3 years will provide a clear picture as to whether geological storage of carbon dioxide is technically and commercially viable.

## **Outcome #5**

- **Increased Renewable Electrical Energy from Nova Scotia Sources**

*Outcome Description:*

Increasing the use of renewable energy for electricity has the potential to provide Nova Scotians with many benefits including economic opportunities, reductions in greenhouse gases, improved air quality, and greater energy diversity and security. Nova Scotia has substantial domestic renewable energy resources. Sustainable development of these resources will protect Nova Scotians from the volatility of world energy prices and fossil fuel costs.

The province has recognized the importance of renewable energy development and has made a commitment to increase the use of renewable energy for meeting the electricity needs of Nova Scotians. This commitment is demonstrated in the 2009 Climate Change Action Plan, the Environmental Goals and Sustainable Prosperity Act (EGSPA), the 2009 Energy Strategy, the Electricity Act's RES Regulations (2007), and most recently through the 2010 Renewable Electricity Plan and subsequent legislation.

*What does this measure tell us?*

The established baseline will allow the DOE to determine the progress made in increasing the renewable energy mix for electricity. It will also provide for an understanding of what renewable energy resources are growing and what the economic, social, and political factors may be for this advancement. To reach the 2013 renewable energy standard under the RES regulations, the baseline is set at 2001 and all renewable energy used for electricity generation must come from post-2001 supplies.

*Where are we now?*

The Environmental Goals and Sustainable Prosperity Act established a target of 18.5% of the total electricity needs of Nova Scotia to be obtained from renewable energy sources by the year 2013. To meet the 2013 goal, the Province implemented the RES regulations under the

Electricity Act in February 2007. The RES requires NSPI to have 5% of its electricity sales in 2010, 2011 and 2012 come from post-2001 low impact renewable electricity generation facilities built in Nova Scotia by independent power producers.

As of 2009, 11.3% of Nova Scotia’s energy mix was comprised of renewable energy (including wind, hydro, biomass, and tidal). The remainder of the energy mix comes from fossil fuels with 75.3% coming from coal, pet-coke, oil diesel, and non renewable imports and 13.3% from natural gas.

DOE has been working towards increasing the use of local renewable electricity and has commissioned several studies that will aid the renewable energy development including the SNC Lavalin Transmission Study and the stakeholder-inclusive consultation on renewable energy facilitated by Dr. David Wheeler of Dalhousie University in the summer and fall of 2009. The “Wheeler Report” included recommendations for increasing the use of renewable energy in the short, medium, and long-term (beyond 2020) and was a valuable resource for developing subsequent renewable energy policy.

DOE led the process to develop the Renewable Electricity Plan which was recently released by the province. The plan commits the 2015 target of 25% renewable electricity to law and establishes a goal of 40% renewable electricity by 2020.

**Table 2: Nova Scotia Renewable Energy Targets**

<b>Target Year</b>	<b>Percent of Nova Scotia Energy Needs to be Generated by Renewable Energy</b>
2013	18.8%
2015	25%
2020	40%

The Renewable Electricity Plan provides a detailed program for achieving the 2015 target and 2020 goal by moving Nova Scotia away from carbon-based electricity towards greener, more local sources. The plan establishes several different mechanisms to support renewable energy development including:

- A feed-in tariff for community based small-scale renewable energy projects and for developmental (pre-commercial) tidal arrays
- Enhanced net metering to give individuals and small businesses the opportunity to participate in green energy projects.
- A Renewable Energy Administrator for managing the competitive bidding process for medium and large-scale projects
- Provisions for the use of biomass for electricity generation
- Facilitation, regulatory, and financing support
- A Marine Renewable Energy Task Force to develop strategies for commercializing marine renewable energy.

In order to execute new tools and processes under the plan, amendments were made to the *Electricity Act* and the DOE is now working on developing regulations. DOE has also been working towards developing Marine Renewable Energy Legislation to support and regulate the development of renewable energy coming from offshore wind, waves, and tidal currents. DOE has received approval to lead a public consultation process regarding the development of this legislation.

*Where do we want to be?*

Nova Scotians currently consume just over 12,000 gigawatt hours (GWh) of electricity annually. In order to diversify the energy mix and meet the 2015 target of 25% an additional 13% (1,560 GWh) of renewable electricity is required (as of February 2010). By that date, Nova Scotia's total renewable electricity content is slated to have more than doubled 2009 levels. To achieve the 2020 goal of 40% renewable electricity, a further 1,800 GWh per year of renewable electricity will need to be generated.

#### **Outcome #6**

- **Offshore and Onshore Petroleum and Marine Renewable Energy Projects with Community Socio-Economic Impacts**

*Outcome Description:*

This outcome will provide some insight into the economic impact that the offshore and onshore petroleum industry and marine renewable energy projects will have or already had on the Nova Scotia economy.

*What does this measure tell us?*

This measure assists the DOE in estimating the economic impact that energy industries are having or will have on the Nova Scotia economy. These types of studies help to determine which sectors of the economy have been directly affected by the development of a new industry and they also help to determine areas where Nova Scotia could improve its capabilities.

*Where are we now?*

The 12-Year Retrospective has been completed and was released to the public in May 2010. Electronic copies of the full document and the summary brochure are available on the DOE website. This study describes how the Nova Scotia economy was impacted by the offshore energy industry from 1996 to 2007. Some highlights from the report include; average employment of 38,500 person-years (direct and spinoff), total household income of \$1.406 billion, and \$1.5 billion in royalty-related revenue.

DOE is currently working to complete a study focused on the economic impact of Nova Scotia's onshore petroleum industry. This study will highlight the effect that this industry had on Nova Scotia from 2004 to 2008. Additionally, this project will identify areas where Nova Scotia could improve its ability to provide services required by the industry. Information obtained from this study will give insight into the economic importance of the onshore petroleum industry to the Nova Scotia economy.

*Where do we want to be?*

DOE plans to enhance its understanding of how energy industries impact the Nova Scotia economy. This information will improve the Province's understanding of how local businesses are being affected by energy industries and provide insight into how the province could improve its ability to take advantage of additional opportunities. This knowledge will also assist the government in the development of effective policies and increase understanding about the economic importance of offshore and onshore petroleum and renewable energy industries.

### **7.3 Priority: Secure, Competitive and Sustainable Energy Supplies**

#### **Outcome #7**

- **Electricity Rates for Homes that Support Conservation for Nova Scotia (Balanced Portfolio with Multiple Energy Sources)**

*Outcome Description:*

Through the Integrated Resource Planning process NSPI is required to illustrate how it plans to meet future load requirements while complying with Nova Scotia's RES. Under this plan NSPI submits a forecast that illustrates their long-term plan for meeting electricity requirements in Nova Scotia. NSPI's 2009 Integrated Resource Plan update provided a 25-year load forecast that showed electricity demand in the province and their plan for meeting the demand in a cost-effective manner that is compliant with Nova Scotia's RES and emission regulations.

*What does this measure tell us?*

Electricity rates that support conservation are important for encouraging Nova Scotians to become more energy efficient.

*Where are we now?*

In 2009 the Integrated Resource Plan process was completed. During this process recommendations were made to increase the amount being invested into Demand Side Management and renewable energy. In 2010 approximately \$22 million was spent by electricity ratepayers on energy efficiency and conservation programs through a rider on electricity bills. Additionally in 2009 the government committed to increase renewable energy to 25% by 2015.

*Where do we want to be?*

It has been proposed that in 2011 the amount spent by electricity rate payers on energy efficiency programs and conservation programs will increase to approximately \$40 million. Additionally, the government has set a target for 40% renewable electricity by 2020.

#### **Outcome #8**

- **Clearer Understanding of Where Smart Technology for New Buildings Can be Used to the Greatest Benefit to Nova Scotia Electricity Transmission System**

*Outcome Description:*

The outcome is primarily the responsibility of Conserve Nova Scotia soon to be Efficiency Nova Scotia.

*What does this measure tell us?*

Improving the governments understanding of where smart technologies for building can be used to the greatest benefit in Nova Scotia's electricity transmission system is important for improving energy efficiency. This will provide information that could improve building efficiency and perhaps determine if smart technology should be incorporated into building codes.

*Where are we now?*

Conserve Nova Scotia is currently responsible for a number of energy efficiency and conservation programs, they include but are not limited to; EnerGuide programs, Solar Air Heating Rebate and Residential Energy Affordability program. Responsibility for these programs is currently being transferred to Efficiency Nova Scotia.

*Where do we want to be?*

Efficiency Nova Scotia should be completely operational by the end of 2010. Full responsibility for electricity Demand Side Management programs should be with this new organization by the end of the year.

#### **Outcome #9**

- **Energy Prices Comparable or Lower on a Before Tax Basis with Neighbouring Jurisdictions**

*Outcome Description:*

This outcome provides a baseline to compare Nova Scotia's energy prices before tax. However, it is important to note that when comparing the price of energy in Nova Scotia to the price of energy in other regions one must understand all the factors involved in setting the prices in other regions in order to make a fair comparison. Additionally, Nova Scotia does not have any influence on energy prices in other regions.

*What does this measure tell us?*

It provides a baseline to compare Nova Scotia's energy prices before taxes to energy prices in other regions.

*Where are we now?*

**Table 3: Comparison of Electricity Rates in Cents per Kilowatt-Hour**

	2008* (¢/kWh)	2009* (¢/kWh)
Halifax, Nova Scotia	11.75	12.88
Charlottetown, Prince Edward Island	14.81	17.29
Moncton, New Brunswick	11.51	11.66

*Power demand consumption load factor 1,000 kWh*

*Prices are excluding taxes*

*Hydro Quebec, Comparison of Electricity Price in Major North American Cities*

Nova Scotia ratepayers are being supplied with low cost energy options as a direct result of regulatory intervention and competitive supply bidding processes. Nova Scotia has not experienced a net increase in electricity rates since April 2009.

*Where do we want to be?*

Nova Scotia wants to have an energy supply that is low cost, compliant with RES and emission regulations, and competitively prices when compared to other Maritime regions.

#### **Outcome #10**

- **Increase Use of Locally Produced Cleaner Greener Energy**

*Outcome Description:*

Shifting away from coal-fuel generation and increasing the amount of locally produced cleaner greener energy improves Nova Scotia's environment through a reduction in greenhouse gases, while creating a more diverse, and secure energy supply.

*What does this measure tell us?*

Increasing the amount of locally produced cleaner green energy provides a number of benefits to Nova Scotia.

*Where are we now?*

In order to increase the use of locally produced cleaner greener energy in Nova Scotia a number of initiatives have been underway. These initiatives include;

- NSPI has committed to meeting the 2011 RES. At the end of fiscal year 2009-2010 the renewable supply was approximately 120 MW. Additional renewable energy (wind) is expected to come on line in 2011.
- Conserve Nova Scotia continues to manage a number of energy efficiency and conservation programs
- In 2009 the Gas Market Development Fund provided funding for facilities to convert from heavy fuel oil to natural gas. The organizations that received funding were; Saint Mary's University, Queen Elizabeth II, and Victoria General Hospitals.

*Where do we want to be?*

The short term goal is to have a renewable energy supply large enough to meet the 2013 RES target. The longer term goals are for 25% of Nova Scotia electricity to be generated by renewable energy by 2015 and 40% of Nova Scotia electricity to be generated by renewable energy by 2020.

#### **Outcome #11**

- **Enhanced Net Metering Opportunities**, name was change from Increased Contributions of Net Metering change to

*Outcome Description:*

To help make renewable energy more accessible, NSPI has created a program called Net Metering. Through this program residential and commercial customers can connect small renewable energy generating units to the provincial power grid. This gives Nova Scotians an

opportunity to use renewables for their own energy needs while at the same time having the security of being able to draw energy from the grid.

*What does this measure tell us?*

In Nova Scotia's new Renewable Electricity Plan recommendations are made to enhance the existing Net Metering Program. These changes will assist the province in meeting the targets outlined in the RES.

*Where are we now?*

The province's current net metering program allows electricity customers to develop renewable projects up to 100KW to meet their own energy needs. They are not paid for excess energy generation.

*Where do we want to be?*

The enhanced Net Metering program amendments proposed in the 2009 Energy Strategy were not implemented. However, the new Renewable Electricity Plan proposes new amendments that will allow customers to develop renewable energy projects up to 1 MW for their own needs. Projects must be located within the distribution zone. Under the new amendments Nova Scotians could be given an opportunity to receive payment for excess energy. These payments would be based on their retail rate.

## **Outcome #12**

- **Harmonization of Energy Policies/Regulations in the Region**

*Outcome Description:*

Work toward harmonization of energy policies and regulation in the region to enhance competitiveness, improve productivity, contribute to workforce development and availability and positively influence issues of mutual interest

*What does this measure tell us?*

Progress on streamlining practices, removing duplication, and harmonizing regulations and practices will help to reach the desired outcomes.

*Where are we now?*

Under the Partnership Agreement on Regulation and the Economy initiative a workshop was held in February 2010 to discuss opportunities to harmonize onshore petroleum regulation between Nova Scotia and New Brunswick. The workshop involved regulators and representatives from the petroleum industry from both provinces and resulted in the development of work-plans to move forward in a number of areas.

*Where do we want to be?*

We want to reduce the regulatory burden for companies operating in both Nova Scotia and New Brunswick by harmonizing more of the regulatory requirements in the two provinces.

## **7.4 Priority: Reducing Air Emissions and Saving Energy through Energy Efficiency and Conservation**

### **Outcome #13**

- **Expanded, Greener Electricity Transmission Grid**
- **Importing Cleaner Power**

#### *Outcome Description:*

In the 2009-2010 a study focused on Nova Scotia's transmission system was completed. This study identified changes that need to be made to the electricity system so that it can accommodate increases in renewable energy. This study also identified potential options for regional operation of the generation and transmission systems, these options could benefit ratepayers and help Nova Scotia meet its EGSPA and greenhouse gas reduction goals. Additionally, this study identified potential opportunities for green electricity imports.

#### *What does this measure tell us?*

Expanding Nova Scotia's electricity transmission grid will improve the provinces ability to import cleaner electricity from different regions and it is essential for increasing the quantity of renewable energy.

#### *Where are we now?*

DOE has completed the transmission and system operator study. The results from this study concerning transmission infrastructure development have been discussed with NSPI and other stakeholders. Discussion initiated by the Atlantic Energy Gateway Initiative began in the fall of 2009 between the four Atlantic Provinces. These discussions focused on providing opportunities and options for increased renewable development. This included options for developing Lower Churchill and regional transmission and generation operations. Discussions halted with the announcement of the Hydro Quebec/New Brunswick deal. Now that this deal is not moving forward perhaps these discussion will restart.

#### *Where do we want to be?*

DOE would like to see the Atlantic Energy Gateway Initiative process resumed. This process will address renewable energy development and identify the pros and cons of regional corporations in the electricity sector. DOE will also be continuing to examine all of the options and opportunities for importing clean energy into Nova Scotia.

## **7.5 Priority: Achieving Social Responsibilities**

### **Outcome #14**

- **Modernized Energy Legislation**
- **A Track Record of Engagement, Outreach, and Consultation**

#### *Outcome Description:*

Work toward the modernization of energy regulation to encourage development in the province while protecting the public interest in safe operations, protection of the environment and benefit from resource extraction and development.

Engagement and outreach are essential to achievement of a modern regulatory regime.

*What does this measure tell us?*

Greater public participation in development of energy regulation will help to build knowledge and acceptance of change.

*Where are we now?*

- In the past year we have developed amendments to the *Pipeline Act* and have just finalized stakeholder consultation on the regulations required to implement the changes.
- Modernized offshore *Drilling and Production Regulations* came into effect on December 31, 2009. This was the culmination of a four year effort through the Frontier and Offshore Regulatory Renewal Initiative. The regulations went through three rounds of national level consultation.
- Stakeholder consultation is underway on the policy intent of proposed amendments to the *Accord Acts* regarding offshore occupational health and safety. The consultation period will end on June 18, 2010. This work was conducted within a joint federal / provincial working group and included the CNSOPB and our provincial counterparts at Labour and Workforce Development and Intergovernmental Affairs. A working group has been established to begin work on the regulations required to implement the proposed changes to the *Accord Acts*.
- The government introduced the Renewable Electricity Plan in spring 2010 and subsequent amendments to the *Electricity Act* were passed in the spring sitting of the House. The changes will increase the amount of renewable energy in our electricity generation mix. The public and interested stakeholders provided input to the government in developing its plan through a process led by Dr. David Wheeler in the fall of 2009. Work is now underway to create Renewable Electricity Regulations to implement the changes required by the *Electricity Act*. A 60 day public consultation period on the proposed regulations will end on July 27<sup>th</sup> following a number of stakeholder meetings around the province.

*Where do we want to be?*

We want to achieve greater public and stakeholder participation in development of modernized energy policy and regulation in the province.