

Natural Resources

Annual Report

2016-17





MESSAGE FROM THE MINISTER

The Government of Newfoundland and Labrador is committed to being open, transparent and accountable to the people of the province. As Minister of Natural Resources, I am pleased to present my department's 2016-17 Annual Report outlining achievements toward objectives and indicators established for the 2016-17 fiscal year, as well as multi-year goals set out in the department's 2014-17 Strategic Plan.

I look forward to working with the department to build on the successes of 2016-17 and embrace the opportunities and challenges that 2017-18 has to offer. In 2017-18 the department will be embarking on a new set of commitments as outlined in the 2017-20 Strategic Plan and I am confident that we will continue to make great strides.

As Minister of Natural Resources, I am accountable for the results reported in this document. This annual report has been prepared in accordance with the requirements of the Transparency and Accountability Act, under which the Department of Natural Resources is classified as a Category 1 entity.

A handwritten signature in black ink, appearing to read 'Siobhan Coady'. The signature is fluid and cursive.

Honourable Siobhan Coady
Minister of Natural Resources

Departmental Overview

The Department of Natural Resources (the department) is responsible for the supervision, control and direction of all matters relating to the promotion, exploration and development of mineral and energy resources and related industry developments in Newfoundland and Labrador. These responsibilities extend to the following natural resource areas/considerations:

- Mines, minerals, quarries, and quarry materials;
- Onshore and offshore petroleum resources, with offshore resources managed jointly with the federal government;
- Electrical generation and transmission;
- Overall responsibility for provincial energy supply and demand;
- Development, monitoring, supervision, assistance or other government intervention into any of the industries as described above;
- Petroleum royalties and associated matters;
- Identifying, assessing and monitoring industrial benefits commitments from major resource development projects.

The department's programs and services are delivered through two main branches, supported by shared executive and support services. The Mines Branch is divided into three main divisions:

The **Mineral Development Division** is responsible for the approval and permitting of mining operations through the Mining Act; the administration of the Mineral Incentive Program; the collection, analysis and publication of mineral production data; and the assessment and rehabilitation of abandoned mine sites across the province.

The **Mineral Lands Division** is responsible for the administration of mineral land tenure through the Mineral Act, the Mineral Holdings Impost Act and related legislation, including the issuance of exploration licenses and mining leases; the administration of quarry material rights and developments, including on-going field investigations, through the Quarry Materials Act; issuing exploration approvals and the performance of follow-up inspections; the maintenance of the core library system and the provincial mineral rights registry.

The **Geological Survey Division** is responsible for mapping and interpreting the province's geology; conducting geochemical and geophysical surveys; conducting mineral deposit studies; maintaining and publishing maps, reports and databases concerning the province's geological and mineral endowment, including geographic information system databases and web-delivery; and promoting the province's mineral potential.

The Energy Branch is divided into three main sections, each made up of several divisions:

The **Petroleum Development Section** is responsible for fostering the exploration, development and production of the province's hydrocarbon resources. Responsibilities include: the provision of technical services in the areas of petroleum geoscience, petroleum engineering and petroleum operations to facilitate sustainable development and management for both onshore and offshore deposits; and, the provision of marketing and promotional services, both nationally and internationally, to help ensure continued interest and investment by industry.

The **Royalties and Benefits Section** is responsible for maximizing the benefits to the local economy from the development of major resource projects. Responsibilities include: the negotiation, development and administration of energy and mines project agreements and royalty legislation/regulations; the negotiation and monitoring of industrial benefits commitments related to energy and mines resource developments;

the auditing of petroleum project costs and revenues to verify the accuracy of royalties paid to the province; the provision of energy-related economic/financial and supply/demand information, analysis and advice to inform resource management decisions; and the promotion of the province's industrial capacity and capabilities.

The **Energy Policy Section** is responsible for developing, planning and coordinating legislative, regulatory and policy matters relating to the province's energy sector. Responsibilities include: the management/co-management of onshore/offshore petroleum exploration and development, including regulatory development and compliance; electricity industry governance and structure, electricity industry markets, alternative energy, and responsibility for the Electrical Power Control Act; and general policy, planning and coordination related to the energy sector.

Staff and Budget

As of March 31, 2017, the Department of Natural Resources had 174 positions. At the time of reporting there were 159 active staff members.

Branch / Functional Area	Female	Male	Total
Mines Branch	33	48	81
Energy	24	25	49
Financial Operations ¹	4	6	10
Information Management	3	0	3
Executive/Executive Support ²	11	5	16
Total³	75	84	159

¹ Financial Operations staff are shared with the Department of Fisheries and Land Resources.

² Total includes the Administrative Assistant to the Minister.

³ Totals exclude the Minister, Executive Assistant and Constituency Assistant.

The expenditures for the divisions and sections of the department for fiscal year 2016-17 were \$20.93 million.

Division/Section	Total
Mineral Development	\$ 3,164,370
Mineral Lands	\$ 1,577,356
Geological Survey	\$ 4,684,029
Petroleum Development	\$ 1,518,696
Royalties and Benefits	\$ 6,388,995
Energy Policy	\$ 3,598,042
Total	\$20,931,488

The department's expenditures for the year also included \$2.85 million for Executive and Support Services, a portion of which was shared with the Department of Fisheries and Land Resources. During the year, the department also expended \$90,237 as the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) transitioned to a full cost recovery model. The department allocated \$1.061 billion to Nalcor Energy (Nalcor) and its subsidiaries for the Lower Churchill Project and oil and gas activities.

Refer to Appendix B for more information on 2016-17 expenditures.

Highlights and Partnerships

Partnerships

The department works closely with a number of other public sector entities in the progression of its strategic goals and objectives. The department's collaboration with Nalcor Energy and its subsidiaries has been of particular relevance in recent years with 2016-17 being no exception. Throughout the year department officials worked closely with counterparts at Nalcor on numerous issues and topics including matters related to the Muskrat Falls Project, opportunities for future hydro development at Gull Island, and oil and gas exploration and development.

With the substantial schedule delays and cost overruns on the Muskrat Falls Project, one of the most significant accomplishments during the year was the successful negotiation of an enhanced federal loan guarantee. The federal-provincial agreement enhanced the previous federal loan guarantee by providing up to an additional \$2.9 billion for the Lower Churchill projects. On this file, the department and Nalcor collaborated with the Premier's Office, the Department of Finance, Finance Canada, Natural Resources Canada as well as other provincial and federal public bodies.

Also noteworthy was the department's ongoing cooperation with the Federal Government and the C-NLOPB in the joint management of offshore petroleum resources. It is through this co-management system that significant offshore exploration and development activities are approved and regulated. Additionally, the department collaborated with these public bodies along with the Government of Nova Scotia on regulatory development and modernization initiatives for the offshore.

The department continued to work closely with: the Department of Municipal Affairs and Environment, the Department of Fisheries and Land Resources and the Office of

Climate Change on issues related to responsible resource development and issues related to land use; the Intergovernmental and Indigenous Affairs Secretariat on inter-jurisdictional and indigenous matters; the Labrador Affairs Secretariat pertaining to natural resource matters relevant to Labrador; the Department of Finance on matters related to the forecasting and monitoring of royalties and taxation from oil and mining developments; the Department of Justice and Public Safety on legislative and legal matters; and other departments on numerous other issues and opportunities.

The department also collaborated with private sector entities on various files, one of the most notable being Newfoundland Power as the distributor of electricity to the majority of provincial residents. In recent years, including 2016-17, the department has been working with Newfoundland Power and Newfoundland and Labrador Hydro (Hydro) towards the implementation of a provincial net metering program.

Other Highlights

While not directly related to the goals or objectives found in the department's 2014-17 Strategic Plan, the following 2016-17 accomplishments were significant to the department's overall mandate, areas of responsibility and/or advancing Provincial Government commitments found in The Way Forward.

In May 2016, the department received the final report from the independent Newfoundland and Labrador Hydraulic Fracturing Review Panel and assembled a team to review the information and recommendations put forward. The panel was appointed in November 2014 to review the implications of hydraulic fracturing operations in Western Newfoundland and was comprised of five academic experts from the fields of resource development, environmental science, geological engineering, international development, and economics. The panel's work, along with the ongoing review of report findings, will help inform future decisions on the practice of hydraulic fracturing, an issue of intense importance to residents of the province as well as industry stakeholders. In the meantime, the existing policy to not accept applications for hydraulic fracturing

remains in place. Additionally, government re-affirmed its commitment that any future decisions regarding hydraulic fracturing will be based on scientific evidence and, more importantly, on a social license from the Newfoundlanders and Labradorians who may be affected. The panel's report is available on the Newfoundland and Labrador Hydraulic Fracturing Review Panel website (<http://nlhfrp.ca/>).

In December 2016, the department announced appointments to the new Oil and Gas Industry Development Council, as promised in The Way Forward with membership being determined using a merit-based appointments process. The mandate of the Oil and Gas Industry Development Council is to determine a long-term vision for the province's oil and gas industry with the ultimate purpose being to stimulate innovation and growth.

Also in the interest of supporting industry growth and development, the department established Industry Facilitators for early stage proponents within the mining, oil and gas, and renewable energy sectors. As identified in The Way Forward, these staff members will provide support to companies in early stages of exploration and development and help guide them through provincial policy and regulatory frameworks. They will also liaise with other government departments to help ensure streamlined responses. The intention is to reduce potential barriers to accessing government services and/or entering the natural resource industries in the province. Information on Industry Facilitators can be found on the Department of Natural Resources web site at: http://www.nr.gov.nl.ca/nr/industry_facilitators.html.

In February 2017 the department launched a service enabling clients to pay online for quarry-related land uses including quarry permits, quarry leases, quarry materials exploration licenses and miscellaneous quarry activities. This move is in line with the theme of several commitments in The Way Forward geared toward improving service delivery to businesses in the province and increasing the number of digital services available (Digital-by-Design). The provincial quarry industry provides many jobs to Newfoundlanders and Labradorians and supports the development of infrastructure, as

well as energy and mining projects. From 2011 to 2015, an average of eight million tonnes of quarry material was produced and used in the province annually. Approximately 2,000 quarry permits are issued each year to more than 600 applicants in Newfoundland and Labrador.

Report on Performance

The following sections of the report detail the department's achievements toward its objectives for 2016-17, as well as its overall goals for the 2014-17 planning period. For each of the three issue areas identified in the 2014-17 strategic plan, results will be presented first for the relevant objective and associated indicators, followed directly by the results for the corresponding three-year goal and goal indicators.

Issue One – Sustained Industry Growth

The mineral and petroleum sectors are significant contributors to Newfoundland and Labrador's economy. Continued progress in these industries is key to ongoing social and economic development in the province. To keep resource revenues flowing, new resource developments will be needed, particularly as existing projects reach maturity and, eventually, decline. New developments are dependent on the discovery of new, economically viable resource deposits.

Mining and petroleum companies often operate global exploration programs and choose the specific areas where they will explore based on a number of factors. One of the most important factors is the resource potential, based on existing scientific evidence, of each region under consideration. Over the planning period, the department continued to focus efforts on increasing the amount of geoscience data collected in the province and made available to industry. Scientists in the Geological Survey Division executed geoscience field projects and analytical studies that enhanced the province's knowledgebase related to mineral potential. Additionally, the department continued to cooperate with Nalcor Energy – Oil and Gas on its geoscience data acquisition efforts in the province's offshore. The department also took steps to evaluate the Core Storage Program (CSP) in the interest of ensuring that the program remains viable and continues to provide valuable scientific evidence to the exploration community over the long-term.

In addition to technical supports for resource exploration, the department placed emphasis on raising industry awareness of Newfoundland and Labrador as an attractive region for exploration. The department participated in promotional events on a local, national and international scale to ensure that companies looking to explore know about this province's resource potential, industrial supply and service capabilities and stable economic and political environment. At the same time, the department continued to provide supports here at home for smaller participants engaging in exploration activity. Some of the province's most successful mineral developments are the result of

discoveries made by prospectors and the department continued to deliver programs geared specifically toward this group.

2016-17 Objective:

By March 31, 2017 the Department of Natural Resources will have improved overall its technical knowledge base and promotional/investment attraction programs in support of mineral and petroleum exploration activity in the province.

Indicators:

Completed 2016 Geological Survey field projects

The Geological Survey had an active field season, mounting 10 field programs (three in Labrador, and seven on the island). New initiatives included, bedrock geological mapping in the Bay d'Espoir area, mineral deposits research on carbonate-hosted zinc deposits in western Newfoundland, surficial and till geochemistry in western Labrador, and a marine research survey along the south coast of the island to examine submarine moraine systems. Projects continued on mapping the Archean Ashuanipi Complex of western Labrador, volcanogenic massive sulphide research in central Newfoundland, iron-ore in western Labrador, gold metallogeny in central Newfoundland and bedrock mapping on the Bonavista Peninsula and in western Newfoundland. Partnerships with the Geological Survey of Canada also continued to improve our geoscience knowledge in the province. Findings from field programs, as well as from a number of office-based projects, were published in March 2017 as part of the department's 2017 Current Research volume which included thirteen new research articles. In addition, data from these projects was released via open file reports, and is included on the Geological Survey's online Geoscience Atlas.

Completed planned efforts with respect to mineral and petroleum resource promotion and investment attraction

During 2016-17 the department continued its promotion and investment attraction efforts through annual participation in a number of key petroleum, mining and mineral exploration conferences around the world, as well as through the development of promotional materials.

The department organized and delivered promotional initiatives at China Mining (Tianjin), Canada-China Minerals Forums (Beijing and Shanghai), as well as local venues in St. John's, Baie Verte and Happy Valley-Goose Bay. The department was also represented at Mineral Exploration Roundup in Vancouver and the Prospectors and Developers Association of Canada (PDAC) convention in Toronto. Additionally, the department helped organize Mineral Resources Review, held as part of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) annual meeting in St. John's, and attended to promote provincial resource potential.

From a petroleum perspective the department continued promotional initiatives to attract investment. Material on new data acquisition and resource opportunities, including current and upcoming offshore licensing rounds, were distributed nationally and internationally and staff participated at major industry conferences and exhibitions in locations that included St. John's, Calgary, Houston, London, Dublin and Stavanger.

Collaborated with Nalcor on the implementation of its exploration strategy including early stage geoscience data acquisition and provision of independent resource assessments

The province, through Nalcor, collected 41,800 km of modern broadband 2-D seismic data in support of the Scheduled Land Tenure System. In addition, an independent resource assessment was completed and published in support of Call for Bids NL-CFB01-Eastern Newfoundland in the West Orphan Basin. The results indicated that the in-place oil and gas resource potential is 25.5 billion barrels of oil and 20.6 trillion cubic feet of gas in the West Orphan Basin, located within the area of the Call for Bids.

Goal:

By March 31, 2017 the Department of Natural Resources will have advanced initiatives to attract investment and encourage exploration in the province's mineral and petroleum sectors.

Indicators:

Advanced the amount/availability of geoscience data and other information used in exploration:

- **Developed a new five-year plan (2015-20) for the department's Geological Survey Division to guide the division's research and analysis projects**
- **Increased the department's inventory of mineral and petroleum geoscience data and related information, including information related to underexplored/greenfield areas**
- **Advanced evaluation efforts pertaining to the long-term maintenance/enhancement of the Core Storage Program, including potential synergies with onshore petroleum requirements**

- **Continued cooperation with Nalcor - Oil and Gas on geoscience data compilation and, in particular, seismic data acquisition efforts in offshore Newfoundland and Labrador**

Development of the Geological Survey Division's new five-year plan was undertaken in 2015-16 and implementation has been ongoing with the advancement of field projects, data analysis and documentation. Many of the division's research projects are multi-year, requiring up to four years of field work and up to two years of data analysis and documentation. The five-year plan provides division geoscientists with a context for their work, provides client groups with information about ongoing and upcoming research and, in general, provides overall guidance for the division's work over the medium term.

The department's inventory of geoscience data and related information has been increased through several mechanisms:

- Completion of annual field projects by geoscientists in the Geological Survey Division which covered a variety of topics and techniques including bedrock and surficial geological mapping; till geochemistry; and studies focused on specific mineral types in specific regions such as gold in central Newfoundland; uranium studies in central Labrador; and iron ore studies in western Labrador, etc.
- Completion of office-based research/analysis projects by the Geological Survey Division resulting in new technical publications for use by the mineral exploration and general geoscience communities.
- Acquisition of geoscientific data collected during exploration programs partially funded through the Mineral Incentive Program.
- Acquisition of data from rock samples submitted to the Matty Mitchell Prospector's Resource Room for geochemical analyses.
- Completion of eight research projects funded by the Petroleum Exploration Enhancement Program (PEEP) with 32 projects approved under the program to date. Studies have included petroleum systems analysis, regional geochemical soil analyses and a deformation history of the Bay St George sub-basin, among many others. Overall, the studies have increased the department's inventory of

geoscience information on Western Newfoundland and add valuable knowledge that will aid future exploration efforts. Study results are available free of charge to the exploration community and the public at large via the Department of Natural Resources website at www.nr.gov.nl.ca/nr/energy/petroleum/onshore/peep.html.

- Completion of technical studies conducted in coordination with Nalcor Energy including: two petroleum resource assessments in the Flemish Pass and West Orphan Basin Call for Bids areas as well as fluid inclusion, metocean, drilling performance metrics, and regional rock physics studies. Abbreviated reports are available directly from Nalcor's website.
- Creation of the Petroleum Geoscience Searchable Publications Database to help make the department's inventory of petroleum geoscience information more accessible. The database compiles over 3,300 publications on Western Newfoundland.

An evaluation of the Core Storage Program was initiated and advanced during the planning period. Through the CSP the department maintains a library of drill core samples that are available for inspection by the exploration community. There are six core storage facilities across the province which house over one million metres of core originating from mineral and onshore petroleum exploration activities. The department receives new core samples each year and, with the collection continually growing, is facing a challenge in terms of adequate space. A plan is needed for how best to maintain the program and its facilities over the long-term, creating the impetus for this evaluation exercise.

The department identified early on that input from industry would be essential to determine aspects of the program that may or may not be meeting industry needs and/or where changes, if any, might be most appropriate. Staff identified the information that should be gathered as well as industry participants who should be consulted. A questionnaire for industry stakeholders was drafted and, at year end, was under review by department officials. Concurrent with this activity, the department has been working with the College of the North Atlantic to design and implement a process to

systematically photograph and analyze drill core samples using advanced hyper-spectral imaging techniques. No high-resolution, digital photograph database had previously been generated for any of the department's archived core samples and this was identified as a possible mechanism for reducing the physical inventory of drill core. Unfortunately, the evaluation project has experienced delays due to occupational health and safety (OHS) issues identified at some of the core storage facilities. The evaluation has been expanded to include a review of OHS policies and procedures and, to date, third parties have conducted ergonomic, radiation and air quality assessments at one of the core storage facilities. As the evaluation proceeds, and as the program is modernized, the department will review the potential of developing synergies with onshore petroleum requirements.

The department collaborated with Nalcor Energy on an independent resource assessment of the 11 parcels of land on offer in the Flemish Pass Basin in the 2015 offshore Call for Bids (NL15-01EN). The resource assessment was completed under the Offshore Geoscience Data Program an initiative, funded by the department and jointly administered with Nalcor, dedicated to the execution of offshore petroleum geoscience studies. Results of the resource assessment showed in-place oil and gas resource potential of 12 billion barrels of oil and 113 trillion cubic feet of gas for the area covering the 11 parcels on offer. Subsequently, Statoil drilled a well on a license (EL-1143) awarded from this Call for Bids and announced a discovery at the Baccalieu prospect.

In August 2016, an independent resource assessment was completed and published in support of Call for Bids NL-CFB01-Eastern Newfoundland in the West Orphan Basin. The results indicated that the in-place oil and gas resource potential is 25.5 billion barrels of oil and 20.6 trillion cubic feet of gas in the West Orphan Basin located within the area of the Call For Bids. Total multi-client seismic data acquired over the reporting period and available for licensing is over 106,000 km of 2-D and 4,500 square kilometers of 3-D.

Advanced promotion, investment attraction and engagement activities:

- **Continued promotion and investment attraction efforts related to the province's mineral resource potential**
- **Continued promotion and investment attraction efforts related to the province's petroleum resource potential including the promotion of:**
 - **Geoscience research and reports conducted under the Petroleum Exploration Enhancement Program**
 - **Geoscience data sets obtained through Nalcor's seismic data acquisition program;**
 - **The province's new offshore land tenure system, administered by the C-NLOPB**
 - **The province's supply and service capability with respect to major resource development projects**
- **Continued dialogue with the petroleum industry through established working groups to promote exploration and address other industry needs**
- **Provided information and support for the International Symposium on Oil and Gas Resources in Western Newfoundland**

Over the planning period the department continued its promotion and investment attraction efforts through annual participation in a number of key mining and mineral exploration conferences around the world, as well as through the development of promotional materials. The department organized and delivered promotional initiatives at China Mining (Tianjin), Canada-China Minerals Forums (Beijing and Shanghai), and Quebec Exploration (Montreal), as well as local venues in St. John's, Baie Verte and Happy Valley-Goose Bay. The department was also represented at Mineral Exploration Roundup in Vancouver and the PDAC convention in Toronto. Additionally, the department helped organize Mineral Resources Review, held as part of the CIM annual meeting in St. John's, and attended to promote provincial resource potential.

The Petroleum Development team continued to encourage exploration investment through promotion of opportunities both onshore and offshore. An online, searchable

database was developed containing over 3,300 onshore geoscience/research publications related to Western Newfoundland, including studies funded under PEEP. PEEP was designed to boost new petroleum exploration in Western Newfoundland through acquisition and assessment of geoscience data.

In collaboration with Nalcor promotional material was developed in relation to the ongoing multi-client seismic data acquisition project being conducted by Nalcor in partnership with international seismic companies PGS and TGS. The resulting seismic datasets represent one of the largest and most modern regional collections in the world and have drawn strong interest from major exploration and production companies.

Scheduled offshore licensing rounds continued to be promoted at targeted national and international events as outlined above. Over the planning period record new work commitment bids have been recorded totaling \$2.5 billion on land parcels in the Carson, Jeanne d'Arc, Flemish Pass and Orphan basins and seven new entrants have participated either alone or through co-venture arrangements. Future licensing rounds are scheduled out to 2020 providing significant opportunity for new and existing exploration participants.

The province's supply and service community continued to be supported through the department's organization of industry delegations at international conferences including the Offshore Technology Conference (Houston, Texas) and Offshore Northern Seas (Stavanger, Norway). The Newfoundland and Labrador Oil and Gas Industries Association (NOIA) continues to be the department's partner for these events which are well attended by industry representatives.

Throughout the period, the department maintained an ongoing dialogue with the petroleum industry on numerous issues and opportunities. One of the highlights was the establishment of the Oil and Gas Industry Development Council in 2016-17 through appointments by the Independent Appointments Commission. The mandate of the

council is to assist government in developing a long-term vision and implementation framework for the future development of the provincial oil and gas industry.

As intended, the department sponsored and provided technical support (field trips and conference committee) for the Western Newfoundland Oil and Gas Symposium in 2014-15. The department also sponsored the reconfigured Energy West Symposium held the following year which took on a broader energy focus, including renewables.

Continued supports for prospectors:

- **Provided information and support to prospectors through training, mentoring, promotional supports and financial assistance**

Contribution agreements for 180 prospector assistant grants totaling \$954,800 were put in place between April 1, 2014 and March 31, 2017.

A two-week prospector training course was delivered each year with course curriculum updated annually in-house and instruction provided by department geoscientists. Additionally, department geoscientists gave presentations, on request, for prospector professional development at meetings of the Newfoundland and Labrador Prospector Association meetings.

The Matty Mitchell Prospectors Resource Room continued to provide information services, mainly through on-site visits but also through responses to email or telephone requests. Basic rock and mineral identification was one of the primary services offered. In addition, the Matty Mitchell page on the department's web site was re-organized with the introduction of a new section called Educational Tools for Prospectors. This section contains many informative articles and presentations on topics such as prospecting methods, mineral deposits, field trip guides, maintaining mineral licenses and accessing government programs and services for prospectors. Added to the section were some new features including digital versions of Prospector Short Courses from recent Mineral

Resources Review conferences, and presentations prepared by department staff. Other new features are planned and will be added over time.

Issue Two - Effective Management of Resource Development

It is the department's responsibility to provide management and oversight of mineral and energy resource development in the province to ensure that development is conducted in a responsible, sustainable manner and to maximize the resulting benefits to the people of the province. The department achieves effective management through a number of means, including the creation and maintenance of adequate legislative/regulatory frameworks and the ongoing oversight of all mineral and energy developments in the province. In some situations, the department can have a more direct impact on resource development, as in the case of mineral deposits for which the Provincial Government holds exclusive mining rights. Additionally, through its work in the natural resource sectors, the department is able to build synergies with other departments and agencies to contribute to better management of lands, better planning for communities and the advancement of beneficial, resource-based developments that are non-industrial in nature.

Among other achievements during the planning period, the department advanced legislative/regulatory improvement initiatives, and implemented measures to enable improved oversight of mineral and energy developments in the province.

2016-17 Objective:

By March 31, 2017 the Department of Natural Resources will have improved overall the department's management mechanisms, capacities and initiatives related to resource development.

Indicators:

In cooperation with the federal government and other stakeholders, advanced the province's regulatory framework for offshore petroleum operations, including:

- **Continued development work on new OHS regulations**
- **Continued regulatory development including stakeholder consultations by participating in the Frontier and Offshore Regulatory Renewal Initiative to advance efforts toward amalgamating these regulations into a single, modernized Framework Regulation**

OHS Regulations

On December 31, 2014, amendments to the Accord Acts came into force providing the Acts with the addition of Part III.1, a comprehensive occupational health and safety regime. The Act and supporting transitional occupational health and safety (TOSH) regulations created a new statutory occupational health and safety (OHS) regime in the Canada-Newfoundland and Labrador offshore area.

The department is a partner in the Atlantic Occupational Health and Safety Initiative embarking on efforts to develop permanent regulations to support the OHS regime. During the reporting period, the working groups developed policy intent for Phase 1 and conducted stakeholder consultations in July 2016 which resulted in 12 submissions being received and published to the website dedicated to this initiative. In addition, work continued on developing Phase 2 policy intent. The working groups also worked on amendments to the TOSH regulations to reduce regulatory burden as there have been a high number of applications for regulatory substitution from the transitional regulations

made by proponents of offshore exploration and development activities. During the reporting period, amendments to the TOSH regulations were completed and announced through the Canada Gazette process providing the opportunity for public comment.

Frontier and Offshore Regulatory Renewal Initiative (FORRI)

The Canada-Newfoundland and Labrador Offshore Petroleum Cost Recovery Regulations came into force on April 1, 2016, and allow the government to recover costs associated with regulating offshore oil and gas activity from industry. As a result, governments recovered 100 percent of the C-NLOPB's costs from industry.

The development of the policy intent for the Framework Regulations continued. The development of the policy intent and the subsequent consultation periods will occur in three phases. Phase 1 consultations occurred in March 2016 followed by Phase 2 in June 2016. Work continued on the development of policy intent for Phase 3 scheduled for consultations during the summer of 2017.

Continued participation including stakeholder consultations in the Federal-Provincial Offshore Land Tenure Policy Working Group to review and provide recommendations for improvement of the existing Land Tenure framework

The working group continued its deliberations on new initiatives to modernize the land tenure regime and conducted consultations with a number of stakeholders. The working group concentrated its efforts in the latter part of the period on the development of a Land Tenure Policy paper.

Completed measures toward the modernization of Quarry Materials Program administration

A number of modernization initiatives were introduced to reduce the amount of administrative work associated with the Quarry Materials Program, particularly regarding the production and storage of paper files. Specific initiatives included:

- Introduction of an online payment option via the Provincial Government pay-online website;
- Development of a form (consistent with the online payment process) to support cheque processing by Central Cash for quarry transactions;
- Development of a generic email address for the quarry program to assist in the administration of information related to applications and referrals for quarry-related matters;
- Increasing the volume of data stored electronically;
- Modification of job duties among staff to ease seasonal workload peaks;
- Elimination of annual “re-application” mail-outs to previous year permittees; and,
- Modification of the quarry database to reduce the volume of paper being printed.

Finalized and implemented the Mineral and Quarry Materials Exploration Guidelines

Revised guidelines were circulated for comment to industry groups, Indigenous organizations, and Provincial Government departments and the majority of feedback incorporated, as appropriate. Some feedback, however, required further consideration, requiring more time than anticipated. As a result, the guidelines have not yet been finalized or implemented.

Goal:

By March 31, 2017 the Department of Natural Resources will have advanced management mechanisms, capacities and initiatives to help ensure resource developments are conducted responsibly and provide maximum benefit to the people of the province.

Indicators:

Participated in the Muskrat Falls Project oversight committee

The Oversight Committee, which monitors project progress with focus on costs, scheduling, and overall performance, released its first report on the Muskrat Falls Project on July 31, 2014. The department provided support to the committee as required, including review of reports/data and interacting with Nalcor Energy on relevant issues.

Enhanced departmental capacity in the areas of:

- **Benefits monitoring**
- **Royalties administration and management**

Development of a Benefits Monitoring Database was completed and staff began populating the system with data related to benefits commitments and performance statistics. The database will assist the department in tracking the performance of major resource projects in terms of economic, employment and other benefits.

During the planning period, the multi-year project for the development of the Royalties Monitoring System (RMS) was completed in partnership with the Office of the Chief Information Officer. The RMS is a web-based application designed to streamline the royalty reporting/monitoring process, from initial reporting by an Interest Holder through

to a completed audit reassessment by the department. RMS offers Interest Holders a separate, secure portal for calculating and filing royalty returns electronically. The system also automates many complex royalty calculations previously performed manually and provides staff with a reporting suite for use in auditing and analyzing royalty returns. RMS will be able to perform these functions on demand within seconds, allowing the department to carry out auditing and project monitoring functions more efficiently and effectively.

Advanced efforts toward the development of a new, generic offshore oil royalty regime for the province

The department released a new, generic offshore oil royalty regime in November 2015. Efforts continue in reviewing the regime and drafting regulations to support adoption.

Awarded Julienne Lake exempt mineral land to successful proponent

The department, on behalf of government, began exclusive negotiations with Altius Minerals and its Chinese partners (the Julienne Lake Alliance) for development of the Julienne Lake iron ore deposit in Labrador West. These negotiations, however, were put on hold in 2015-16 due to the decline in the world iron ore market.

Advanced the development/revision of legislation, regulations and other instruments that support effective, responsible resource development including:

- **Development of revised Mineral and Quarry Materials Exploration Guidelines**
- **Development of new Quarry Materials Regulations**
- **Development of a Roadmap for Onshore Petroleum Permitting and Approvals**
- **Working with the federal government and other stakeholders toward the development of occupational health and safety legislation for the offshore**

- **Ongoing development and consultations with stakeholders regarding FORRI Framework Regulations and Liability Regulations for the offshore**
- **Working with various governments toward the development of agreements respecting domestic and international boundary and/or border issues including UNCLOS (Article 82)**

Revised Mineral and Quarry Materials Exploration Guidelines were circulated for comment to industry groups, Indigenous organizations, and Provincial Government departments and the majority of feedback has been incorporated, as appropriate. Some feedback remains under consideration.

New Quarry Materials regulations were drafted, as planned, and efforts began on proposed revisions to the Quarry Materials Act. Given that any changes made to the Act will likely involve other changes to the regulations, the intention is to carry out the remainder of the change processes for each in concert, including any consultation processes that are required. This work will continue in 2017-18.

Development of a roadmap for onshore petroleum permitting and approvals was not completed as planned. A strategic review identified critical enablers were required, including legislative and regulatory modernization, prior to developing the roadmap. Work on these enablers has commenced.

The department worked with counterparts in the Government of Canada and the Government of Nova Scotia, as well as other officials within the Government of Newfoundland and Labrador, towards the completion of amendments to OHS legislation for the offshore. As a result of these joint efforts, the OHS legislation was proclaimed on December 31, 2014 in all three jurisdictions. Under the new legislation, provincial and federal ministers are responsible for the designation of operational safety and conservation officers and occupational and health and safety officers. To accompany the new designation responsibilities of ministers, the department and its various partners also finalized memorandums of understanding (MOUs) to provide guidance to

the C-NLOPB and all parties on the new designation process and establish minimum qualifications required for officer designation. The MOUs were fully executed and all officers designated on December 31, 2014.

Building on amendments to the Canada-Newfoundland and Labrador Atlantic Accord Newfoundland and Labrador Act, the department, jointly with Natural Resources Canada, developed Financial Requirement and Administrative Monetary Penalty Regulations that came into force in February 2016. The department is continuing work on modernizing the operational regulations through the Framework Regulations. The development of the policy intent and the subsequent consultation periods will occur in three phases. Phase 1 consultations occurred in March 2016 followed by Phase 2 in June 2016. Work continued on the development of policy intent for Phase 3 scheduled for consultations during the summer of 2017.

With respect to agreements on boundary/border issues, dialogue continued with the Federal Government on international application of key Article 82 terminology. The department also conducted its own internal modelling to help inform ongoing discussions.

Provided unique departmental knowledge and data to inform and support other types of development and/or resource management in areas such as coastal erosion, geohazards, geotourism, etc.

Information from the department's coastal monitoring program continued to be released through the Geoscience Atlas, and directly to municipalities upon request. Rates of erosion will continually be refined as the period of data collection increases. The results of hazard mapping have shown their utility by being incorporated into municipal development regulations, as in the case of the town of Conception Bay South. The Geological Survey Division continued to respond to requests for advice on land-use planning decisions from the Department of Municipal Affairs and Environment, as well through written submissions to municipal plan review requests. The Geological Survey

continues to collaborate with the Water Resources Division, Department of Municipal Affairs and Environment on issues related to the chemistry of groundwater and potential impacts to human health.

In addition, the department provided information and expertise for a number of geotourism initiatives:

- Acted in an advisory capacity to the aspiring Bonavista Peninsula Geopark, the aspiring Cabox Geopark on the west coast of the island, and the Fortune Head interpretation centre;
- Developed a mobile device app for geotourism on the Bonavista Peninsula, as well as similar app - Building Stones of Newfoundland - that takes users on a walking tour of downtown St. John's;
- Provided support for the successful nomination of Mistaken Point as a UNESCO World Heritage Site.

Issue Three - Electricity Sector Advancement

The province's Interconnected Labrador, Interconnected Island, and remote diesel systems have always operated in isolation from each other. With increasing demand, aging infrastructure, and the province's commitment to renewable and sustainable energy development, significant changes and improvements are necessary to these systems. To facilitate these changes, the Provincial Government has placed considerable emphasis in recent years on advancing the Lower Churchill hydro resource and developing and implementing related policies and industry structures.

With the completion of the Muskrat Falls phase of the Lower Churchill Project, the isolated Island grid will be interconnected for the first time with Labrador and the rest of North America via the Labrador-Island Link transmission line and with Nova Scotia via Maritime Link transmission line. These interconnections will provide a path to sell excess power, as well as a means of importing power if needed for reliability purposes or advantageous for commercial purposes. This change in the electricity system will require a broader regulatory framework which considers this interconnection to North America.

During the planning period, the department continued to work with Nalcor Energy on the advancement of the Muskrat Falls Project as well as on related preparations for North American electricity market requirements (e.g., market rules, transmission access rules, reliability framework, etc.). Complementing this ongoing work, the department also examined the findings from Power Advisory's review of the province's electricity system and took steps toward the implementation of industry best practices and other findings from the report.

While the Muskrat Falls Project is the main focus among renewable energy initiatives, the department also continues to explore opportunities in other renewable energy areas. The department completed the development of a provincial net metering policy

framework, with input from Hydro and Newfoundland Power, for renewable energy sources such as wind and solar. In addition, the department monitored the Biogas Electricity Generation Pilot Program in collaboration with Newfoundland and Labrador Hydro.

2016-17 Objective:

By March 31, 2017 the Department of Natural Resources will have advanced priorities related to the Lower Churchill project.

Indicators:

Strengthened oversight and governance of the Muskrat Falls Project

The department continued to provide support, as required, to the Muskrat Falls Project Oversight Committee, including review of reports/data and interacting with Nalcor Energy on relevant issues.

The department also continued to support broader Provincial Government actions relevant to the oversight and governance of the Muskrat Falls Project. In April 2016 external consultant EY (formerly Ernst & Young), retained by government, released an interim report on its review of the cost, schedule, and associated risks for the Muskrat Falls Project. Following this release, government accepted all of EY's recommendations to ensure better controls of the project, including strengthening project governance and expanding oversight. Also in April 2016, the Premier along with the Minister of Natural Resources announced that Mr. Stan Marshall would be the new Chief Executive Officer (CEO) of Nalcor. Following this decision, on June 15, 2016, Mr. Marshall announced numerous changes to Nalcor's executive and business structure to strengthen financial oversight of the Muskrat Falls Project and improve corporate governance.

Further, effective December 1, 2016, government appointed highly qualified members to a new, expanded Board of Directors at Nalcor based on recommendations of the Independent Appointments Commission. Collectively, the new board has a wealth of knowledge, experience, and competency in areas such as corporate governance, audit, finance, law, and business management. To add to the board's depth and breadth, government also asked the Independent Appointments Commission to recommend persons for government consideration with intimate knowledge and understanding of Labrador issues and Indigenous people.

Engaged in activities to prepare for the integration of Muskrat Falls into the provincial electricity grid and the North American electricity grid

The department continued to work with Nalcor to assess policy options and identify and implement various actions required to transition to an interconnected electricity system after Muskrat Falls enters service. As part of this work, the department participated in a multi-year, Muskrat Falls Project "Transition to Operations" process. This process is led by a steering committee made up of representatives from both the department and Nalcor, which receives input from four sub-groups:

- Ready for Operations (Muskrat Falls Project execution and design, build and completion of facilities);
- Building the Production Organization (Muskrat Falls operation and maintenance);
- Ready for Integration (technical integration issues); and,
- Ready for Commercial Integration (implementation of commercial, legislative and regulatory requirements).

The department participated in monthly steering committee meetings to identify, analyze and advance regulatory, legislative and/or policy changes required for integration of Muskrat Falls into the provincial and North American electricity grids. The department also worked with Nalcor to investigate the elements required to establish an open access transmission regime in the province, which would facilitate market access upon interconnection.

To support this work, and the department's overall mandate in the electricity sector, relevant staff participated in a two-day workshop on North American Electric Reliability Corporation (NERC) Reliability Standards led by Mr. David Hilt of SOS International. The workshop included an overview of each family of standards, as well as the purpose and requirement of each specific standard. Select staff also completed EUCI's two-day training course titled, Power System Basics for Non-Engineers.

Continued to explore opportunities to maximize exports and develop the Gull Island Project.

The department continued to work with Nalcor Energy toward the identification and advancement of opportunities to develop the 2,250 megawatt hydroelectric Gull Island Project. Multiple market options and market access options for Gull Island are being assessed for potential feasibility, including the Maritimes, Ontario and New England.

Federal Budget 2016 allocated \$2.5 million over two years for the Regional Electricity Cooperation and Strategic Infrastructure (RECSI) to facilitate regional dialogues and studies to identify the most promising electricity infrastructure projects for achieving significant regional greenhouse gas reductions. The department participated in this work, exploring opportunities for how the province's clean, renewable energy resources can assist its neighbors in meeting their renewable energy targets, including development of the Gull Island Project.

Department officials were in regular contact with Nalcor representatives regarding the company's efforts to increase exports. Additionally, the department, in coordination with Nalcor, was engaged in a joint Task Force with the Government of Ontario to determine if and how Newfoundland and Labrador electricity exports, with emphasis on Gull Island, could help meet Ontario's long term needs.

Goal:

By March 31, 2017 the Department of Natural Resources will have implemented measures toward enhanced reliability, sustainability and export readiness of the province's electricity system.

Indicators:

Examined and taken appropriate action on findings of the independent review of the province's electricity system

Power Advisory's October 6, 2015 "Review of the NL Electricity system" included numerous best practices and findings to help ensure that Newfoundland and Labrador is positioned to maximize the value and benefits of its electricity resources as the province prepares to connect with the North American electricity grid. As a result, the department has incorporated best practices and findings into its ongoing work, including its work with Nalcor Energy, in preparation for the Muskrat Falls Project entering service and interconnection with the North American electricity system. As an example, part of the department's focus has been on contemplating ways to ensure the appropriate reliability standards are in place following interconnection. As part of this effort, the department worked to assess the implications of NERC and Northeast Power Coordinating Council (NPCC) membership and standards implementation, as well as any reliability oversight roles that may change following interconnection. Provincial reliability is presently governed by voluntarily-adopted electric reliability practices developed by Hydro and Newfoundland Power based on standard industry practices with review oversight exercised by the Board of Commissioners of Public Utilities (PUB). While the province has not adopted NERC standards in a formal manner to date, current reliability practices and procedures are very similar to many NERC reliability standard requirements.

As referenced, in 2016, government appointed Mr. Stan Marshall, a utility industry leader, as Nalcor's new CEO. Government also appointed a new, expanded Nalcor Energy Board of Directors based on recommendations of the Independent Appointments Commission. This change in leadership created appropriate circumstances for Mr. Marshall, on June 15, 2016, to announce changes to Nalcor's executive structure. These changes include making Newfoundland and Labrador Hydro a separate business unit, dividing the Muskrat Falls Project into two separate components, and restructuring executive positions, with a purpose to strengthen financial oversight of the Muskrat Falls Project.

Advanced the structure of the province's electricity sector in order to meet required standards for participation in the North American electricity grid/market

Throughout the planning period, the department worked with Nalcor to identify and implement various actions required to transition to an interconnected electricity system once Muskrat Falls power comes on-stream. The department reviewed and assessed policy options, which would comply with best practices in the North American market, including the assessment of adopting appropriate NERC reliability standards. Adoption would ensure a consistent set of reliability standards with neighbouring jurisdictions and the reliable transfer of power following interconnection. The department also worked with Nalcor to investigate the elements required to establish an open access transmission regime in the province, which would facilitate market access upon interconnection.

In 2016-17, the department participated with Nalcor in monthly meetings of the Transition to Operations Steering Committee to identify, analyze and advance regulatory, legislative and/or policy changes required for interconnection of the island with the North American electricity grid. The department also continued to participate in the Electricity Working Group with other provinces and the Federal Government focusing on transmission system reliability standards.

Developed policies or programs in support of renewable alternative energy development

During the planning period, the department was successful in developing a net metering policy framework and in launching a Biogas Electricity Generation Pilot Program.

Net metering allows utility customers to use small scale renewable power generation for their own usage and to sell occasional surpluses back to the utility. In July 2015, following the completion of a department-commissioned independent study highlighting net metering implementation issues and industry standards, government announced the net metering policy framework. The framework provided guidance for the electric utilities in their development of applications for net metering programs, subsequently submitted to the PUB for review. On December 2 and 19, 2016, respectively, Hydro and Newfoundland Power submitted their net metering program applications to the PUB. The PUB's regulatory review included an opportunity for the public to provide written submissions regarding the net metering applications. As of March 31, 2017 the PUB's review of the applications was ongoing.

Biogas is a renewable energy source that generates electricity from raw materials such as landfill and agricultural waste. Biogas is rich in methane which is a greenhouse gas. By burning biogas as an electricity fuel source, it reduces its greenhouse gas impact and creates economic value from a waste product. In September, 2014 the department introduced its Biogas Electricity Generation Pilot Program, to be administered by Hydro. The program will allow the proponents to sell biogas created in their operations (i.e., through the anaerobic decomposition of organic material) to Hydro through negotiated power purchase agreements. As such, through the program, the province's renewable biogas resources can be used to generate a consistent supply of electricity for the province.

In 2016-17, the department consulted with potential biogas program participants and held numerous meetings with Hydro and Newfoundland Power to monitor and facilitate

uptake of the program. Through this consultation and departmental analysis, the department also continued to examine the structure of the program to ensure it is the right fit for potential biogas proponents and ratepayers.

Opportunities and Challenges

Opportunity: Resource Potential

Newfoundland and Labrador's rich endowment of mineral and petroleum resources represents some of the province's greatest opportunities. As existing projects progress through their life cycles, new developments will need to come on stream in order to keep resource revenues flowing. For that to happen, new, economically viable resources must be found. Newfoundland and Labrador possesses significant undiscovered and underdeveloped petroleum resources in our offshore area. Similarly, the province's onshore geology is such that the likelihood of discovering new, profitable mineral deposits is high. Continuing with efforts to encourage both existing and new players to explore for new resource deposits remains one of the greatest priorities and focus areas for the department.

Challenge: Cyclic Nature of Global Industries

The natural resource industries are highly dependent on global commodity prices and related patterns of supply and demand. Commodity prices in both the mineral and petroleum sectors remain low, placing negative pressure on the relative profitability of ongoing and proposed developments, as well as on the oil royalties and corporate taxes paid to the Provincial Government. The challenge for the department is to continue to do what it can to support industry during downturns such that activity is maintained in the short term and that conditions are right to encourage new exploration and development when market factors improve.

Financial Statements

Expenditure and revenue figures included in this document are based on public information provided in the Report on the Program Expenditures and Revenues of the Consolidated Revenue Fund for Fiscal Year Ended 31 March 2017.

		Estimates		
		Actual (\$)	Amended (\$)	Original (\$)
Executive and Support Services⁴				
1.1.01	Minister's Office	232,996	266,700	266,700
1.2.01	Executive Support	1,778,537	1,875,600	1,835,600
1.2.02	Administrative Support	838,798	941,100	981,100
	Less: Revenue	(1,200)	(10,000)	(10,000)
1.2.03	Administrative Support (Capital)	0	100	100
Total		2,849,131	3,073,500	3,073,500
Mineral Resource Management				
4.1.01	Geological Survey	4,684,029	5,179,700	5,179,700
4.1.02	Mineral Lands	1,577,356	1,644,600	1,494,600
4.1.03	Mineral Development	3,164,370	3,452,500	3,552,500
Total		9,425,755	10,276,800	10,226,800

⁴ In 2016-17, a portion of Executive and Support Services – specifically the Financial Operations function – was shared with the Department of Fisheries and Land Resources.

		Estimates		
		Actual (\$)	Amended (\$)	Original (\$)
Energy Resources and Industrial Benefits Management				
5.1.01	Energy Policy	3,598,042	4,167,100	4,267,100
5.1.02	Petroleum Development	1,593,817	1,731,400	1,631,400
	Less: Revenue	(75,121)	(81,000)	(81,000)
5.1.03	Canada/NL Offshore Petroleum Board	8,835,000	8,835,000	8,835,000
	Less: Revenue	(8,744,763)	(8,835,000)	(8,835,000)
5.1.04	Royalties and Benefits	6,388,995	7,210,600	3,279,000
5.1.06	Energy Initiatives - Capital	1,061,002,235	1,309,018,400	1,313,000,000
	Less: Revenue	(964,987)	0	0
Total		1,071,630,218	1,322,046,500	1,322,096,500
Total Department		1,083,905,104	1,335,396,800	1,335,396,800