

Sable Offshore Energy Project
2018 Canada-Nova Scotia Benefits Report

Submitted to the
Canada-Nova Scotia Offshore Petroleum Board

By
ExxonMobil Canada Properties

May 3, 2019

Table of Contents

Executive Summary.....	3
1.0 Introduction.....	4
2.0 Project Update.....	5
3.0 Economic Impact	6
5.0 Capacity Development.....	9
6.0 Research and Development (R&D) Initiatives	11
APPENDICES.....	15

List of Tables

Table 1 – Supply Community Services	4
Table 2 – SOEP Expenditures (2018 and Cumulative)	7
Table 3 - Person Hours of Employment (2018 and Cumulative)	7
Table 4 - Year End Headcount.....	7
Table 5 - Residency of New Hires.....	8
Table 6 - Traditionally Under-represented Groups	8
Table 7 - Co-op Work Placements.....	10
Table 8 - Training and Education Expenditures	10
Table 9 - Research and Development Expenditures (2018 and Cumulative).....	11

Appendices

- Appendix 1 - 2018 Sable Project Person Hours
- Appendix 2 - 2018 Research and Development Summary

Executive Summary

The 2018 Sable Offshore Energy Project (SOEP) Canada - Nova Scotia Benefits Report is submitted to the Canada Nova Scotia Offshore Petroleum Board (CNSOPB) by ExxonMobil Canada Properties (EMCP) as Operator. It is submitted in satisfaction of the requirements of the CNSOPB Benefits Plan Decision Report for the SOEP and includes information on the SOEP offshore and onshore activities for the reporting period of January 1, 2018 to December 31, 2018.

The 2018 SOEP related expenditures in Nova Scotia were \$159.8 million which represents 49.5% of the overall SOEP expenditures for the year. The cumulative SOEP expenditures in Nova Scotia since project sanction in 1998 is \$3,135.1 million or 40.9% of the overall project expenditures.

Expenditures during the year supported on-going operations and maintenance, decommissioning activities as well as initiatives in areas of community support, education and training, research and development, technology transfer and support for diversity and inclusion programs.

1.0 Introduction

The 2018 Canada-Nova Scotia Benefits Report for the SOEP is submitted to the CNSOPB by ExxonMobil Canada Properties (EMCP), the SOEP Operator. The report includes economic impact data arising from producing operations conducted in 2018 and cumulative data compiled since project sanction in 1998.

The following SOEP facilities are included in the scope of this report:

Offshore	Onshore
<ul style="list-style-type: none"> - Thebaud Central Processing Platform - Venture Platform - North Triumph Platform - Alma Platform - South Venture Platform - Export and Inter-field Pipelines 	<ul style="list-style-type: none"> - Goldboro Gas Plant - Point Tupper Fractionation Plant - Interconnecting NGL Pipeline

EMCP remains committed to procuring on a competitive basis, the goods and services needed to support the SOEP facilities from the local supply community. Examples of the support services provided by the local supply community to the SOEP during 2018 are listed in the table below.

Table 1 – Supply Community Services

Support Services Provided by the Supply Community	
<u>Operations</u>	<u>Business Services</u>
<ul style="list-style-type: none"> - Aviation services - Supply vessels and Marine crews - Catering personnel - Logistics and stevedoring - Staffing services - Laboratory testing and analysis 	<ul style="list-style-type: none"> - Customs clearance and brokerage - Courier services - Staffing services - On-land transportation services - Warehousing - Office materials and support - Communications services

Support Services Provided by the Supply Community	
<p><u>Maintenance</u></p> <ul style="list-style-type: none"> - Skilled Trades and services such as welding, mechanical fabrication, electrical, instrumentation, insulation and general labour - Painting and Fabric maintenance - Fabrication services - Maintenance materials and consumables - Valve and equipment services - Equipment and tool rentals - Scaffolding services 	<p><u>Engineering and Technical</u></p> <ul style="list-style-type: none"> - Technical support staff and engineering design services - Equipment inspection services - Data analysis - ROV inspection services and personnel - Survey services - Certification of facility design, maintenance and integrity
<p><u>Safety, Health and Environment</u></p> <ul style="list-style-type: none"> - Safety advisory services - Safety equipment - Safety training services - Environmental monitoring and testing services - Medical personnel and associated services - Weather monitoring and forecasting - Sea state monitoring – waves and currents 	<p><u>Well Services</u></p> <ul style="list-style-type: none"> - Equipment rentals and consumables - Staffing services - Logistics

2.0 Project Update

Producing operations at the Sable Project offshore and onshore facilities were conducted up to and including December 31, 2018 when production from all Sable Project facilities ceased.

The jack-up drilling rig Noble Regina Allen (NRA), which was mobilized to the Thebaud field in November 2017 to commence well plug and abandonment activities, continued this work in 2018. The wells at the Thebaud and North Triumph fields were successfully plugged during the year. The NRA was positioned at the Venture field during the third quarter of 2018 for well plugging and abandonment at this location. The NRA remained on location at Venture through year-end.

EMCP is committed to providing timely communications with all stakeholders and Indigenous communities and to providing full and fair opportunity for the local supply community to participate in decommissioning work activities.

Safety performance at all SOEP facilities remained strong in 2018. There were no lost time incidents for employees or contractors during the year and the positive safety culture and monitoring implemented by EMCP and our contractors continued to provide positive results.

The Operations Integrity Management System has been implemented by EMCP at all Sable Project facilities. This system sets expectations and processes aimed at effectively managing safety, environment and overall facility integrity. This system, which has the active support and participation of the EMCP employees and contractors, has been instrumental in building and sustaining a safety culture.

3.0 Economic Impact

Economic impact data for the Sable Project for 2018 and historical is provided in this section for the following metrics:

- **Project Expenditures**
 - Table 2

- **Project Employment**
 - Person hours of employment - Table 3
 - Year-end headcount - Table 4
 - Residency of new hires - Table 5

Project expenditures have been classified in one of three categories (Nova Scotia, Other Canadian or Foreign) based on the *Canadian General Standards Board (CGSB) Method*, which has been adopted by the CNSOPB for local benefits reporting purposes.

Person hours of work are categorized as 'Nova Scotia', 'Other Canadian' or 'Foreign' based on the residency of the person performing the work. The year-end head count is a measure the number of people on shift and scheduled to work on the Sable Project at a fixed point each year (December 31). It differs from the full-time equivalent data reported under the person hours measure because it represents a point in time as opposed to all employment activity over the full year.

In compiling the economic impact data EMCP reviewed information provided by SOEP vendors, the scope of work for the vendor and the guidance available from the CGSB reporting guidelines. Data quality assurance methods used in the preparation of previous Benefits Reports were applied in the preparation this report.

Table 2 – SOEP Expenditures (2018 and Cumulative)

	2018 Expenditures		Cumulative (1998-2018)	
	(\$million)	% of Total	(\$million)	% of Total
Nova Scotia	159.8	49.5%	3,135.1	40.9%
Other Canadian	73.3	22.7%	1,398.0	18.3%
Foreign	89.7	27.8%	3,121.5	40.8%
Total	322.8	100%	7,654.6	100%

Table 3 – Person Hours of Employment (2018 and Cumulative)

	2018 Person Hours		Cumulative (1998-2018)	
	Thousands	% of Total	Millions	% of Total
Nova Scotia	1,016.1	73.9%	26.22	65.8%
Other Canadian	256.2	18.7%	4.12	10.3%
Foreign	102.5	7.4%	9.54	23.9%
Total	1,374.7	100%	39.88	100%

The Nova Scotia person hours of work conducted for SOEP activities during 2018 was 1,016,068 which represents 508 full-time equivalent positions.

Table 4 – Year End Headcount

Year End	Activity in Nova Scotia	Activity in the Rest of Canada	Total Project Activity
2014	406	25	432
2015	444	23	467
2016	354	7	361
2017	564	51	682
2018	461	82	611

Table 5 – Residency of New Hires

Year	Nova Scotia	Other Canadian	Foreign	Total
2014	46	14	2	62
2015	70	17	0	87
2016	58	13	2	73
2017	208	69	24	301
2018	103	56	5	164

Additional information on the following topics are provided in subsequent sections of this report:

- **Diversity and Inclusion (Section 4)**
 - Traditionally Under-represented Groups - Table 6
- **Capacity Development (Sections 5 and 6)**
 - Cooperative Student Work Placements - Table 7
 - Training and Education Expenditures - Table 8
 - Research and Development – Table 9

4.0 Diversity and Inclusion

ExxonMobil Canada, the Sable Project owners and the project’s major contractors support the development of a diverse and inclusive workplace. Table 6 below provides the 2018 and historical data collected periodically by EMCP and the SOEP contractors for individuals who self-identify as members of one or more of the four designated groups identified in employment equity legislation (Aboriginal Peoples, Visible minorities, Women and Persons with disabilities).

Table 6 – Traditionally Under-represented Groups

Year	Aboriginal Peoples	Visible Minorities	Women	Persons with Disabilities
2014	17	6	46	*
2015	16	9	39	*
2016	12	6	33	*
2017	24	10	73	*
2018	24	17	45	*

Note: Those categories in which the representation is five individuals or less are marked by an asterisk (*) to protect the privacy of individual respondents.

The data presented is based on voluntary self-identification data gathered through a confidential survey employee. The information is collected and recorded on employee files in the company's human resources database, accessible only by select designated HR staff.

EMCP and the Sable Owners continued to support sustainable initiatives related to training, capacity building, contracting and employment of disadvantaged individuals and groups. This approach provides support for opportunities and the removal of barriers beyond the scope of the SOEP and oil and gas industry. Some recent examples include:

- Techsploration, a program aimed at school aged girls and young women that inspires and mentors them to pursue careers in science, trades and technology. The program extends into Mi'kmaq communities including We'koqma'q M'kmaw School, Eskasoni Elementary and Middle School, Indian Brook School and Wagmatcook First Nation School.
- EMCP supported the Mi'kmaq Regional Science Fair. This annual science fair provides an opportunity for Indigenous students learn about and present their research on a variety of scientific topics. The fair is divided into four categories for the students in Grades 3-4, 5-6, 7-9 and 10-12.
- EMCP contributed to the design and implementation of the Mi'kmaq Safety Culture Seminar Series. The seminar series was designed to generate safety culture awareness, initiate discussion on safety topics in Mi'kmaq communities and workplaces, explore pathways for Mi'kmaq businesses and members to better access industry sectors requiring safety training and initiate discussions on the establishment of a provincial Mi'kmaq safety association. The seminars were held in the Acadia, Millbrook and Membertou First Nations during May 2018.
- Imperial is providing ongoing support for the Indigenous Women in Community Leadership program at the Coady Institute at Saint Francis Xavier University. The program, which has been offered at the Coady Institute since 2011, is for First Nations, Métis and Inuit women who are committed to supporting development and social change in their organizations, communities and Nations.

5.0 Capacity Development

Capacity development includes oil and gas related training and education activities, supplier development and technology transfer. Information on initiatives carried out in these areas is provided below.

EMCP and the major Sable contractors continued to support cooperative education and work placement for university students studying in various engineering disciplines and

commerce programs throughout 2018. There were 28 four-month work terms completed during the year which placed students placed at the EMCP Halifax office or with our major contractors in Nova Scotia or at other locations. The total expenditures on these programs in 2018 was \$275,500. The 2018 and historical co-op program data is provided in Table 7 below.

In addition, the SOEP supply / standby vessel contractor, Secunda, continued to support cooperative cadet training programs offered through marine training institutions with seven cadets participating at various times during the year.

Information on the cooperative training initiatives for 2018 and historical is provided in the Table 7.

Table 7 – Co-Op Work Placements

Year	Number of Placements	Cumulative Placements	Investment	Cumulative Investment
2014	14	610	\$152,400	\$5,903,491
2015	12	622	\$184,854	\$6,088,345
2016	13	635	\$157,828	\$6,246,173
2017	16	651	\$191,495	\$6,437,668
2018	35	686	\$333,350	\$6,771,018

Training programs were provided for EMCP and contractor employees throughout the year. The 2018 training related expenditures are provided in Table 8 below. The cumulative training and education expenditures since project sanction in 1998 exceeds \$55 million.

Table 8 – Training and Education Expenditures

Description of Training	Expenditures
Internal Training	\$114,780
Major Contractor Training	\$1,794,700
Co-op Programs	\$333,350
2018 Total	\$2,242,830

In addition to direct training and education activities undertaken by EMCP and our major contractors, EMCP and the Sable owners supported a number of other initiatives that assist and/or recognize the existing education and training infrastructure in Nova Scotia.

Information regarding the decommissioning of the Sable Project and contracting opportunities was made available through the Sable Project website (www.soep.com). Representatives of EMCP and the major contractors attended the 2018 Superport Days in July to provide an update on the pending decommissioning activities and potential contracting opportunities.

The behavioural based safety training program that introduced personal decision making styles and human performance concepts, first introduced in 2017, continued to be offered to employees and contractors during 2018. Also during the year engineers, operators and technical staff continued to access the computer based technology that utilizes digital imagery and video footage in order to review facility design and improve efficiency in facility maintenance and modifications. The software has provided a viable substitute to travelling to the offshore facilities to gather data and resolve issues. The continued use of the system is an example of both hands-on training and technology transfer. The various forms of technology transfer associated with the Sable Project since sanction in 1998 exceeds \$32 million in value.

6.0 Research and Development (R&D) Initiatives

The CNSOPB has approved the SOEP R&D Plan submitted by EMCP as required by Condition 4 of the SOEP Benefits Plan Decision Report. Under this approved plan EMCP and the Sable owners have committed to R&D expenditures in Nova Scotia that support business and commercial development related to the oil and gas industry. In addition to the R&D initiatives under the terms of this plan, the Sable owners and the contracting community supported broader R&D activities in Nova Scotia during 2018.

R&D related expenditures during 2018 were \$1.6 million. The cumulative R&D expenditures since project sanction in 1998 is more than \$33 million. Please refer to Table 9 below.

Table 9 – 2018 R&D Expenditures and Cumulative

Year	Expenditure	Cumulative (since Project sanction)
2018	\$1,636,500	\$33,170,307

Examples of Supported R&D Initiatives

Solar Powered Navigation Aids for Offshore Platforms

EMCP and the Sable owners in conjunction with the engineering services contractor ABM developed five permanent solar powered navigation aid systems to advise marine

traffic of the presence of a platform in the vicinity and assist navigators in staying clear. The systems will replace the navigation aids previously installed on the platform.

Each one consists of fully redundant solar panels and battery storage systems that operate navigation lights, a fog horn, sensors for both fog and low light, beacons, and a satellite transceiver to allow for remote monitoring of the system.

A helicopter deployable back-up system that could be mobilized to the platform as a replacement for the permanent system, if needed, was also designed, constructed and tested. The back-up system contains the same components as the permanent system, but had the added complexity of needing to be mounted on a singular skid and remain light enough for the helicopter to lift and transport to the platform.

Geoscience Research at Nova Scotia Universities

EMCP and the Sable owners have supported geological and geoscience research at Dalhousie University since 2012 with financial support, guest seminar instructors and access to a comprehensive set of seismic data that was collected in the offshore Nova Scotia Sable sub-basin.

Some examples of research projects conducted as a result of this support include:

- Carbonate margin to delta transitions: Stratigraphy of the Jurassic carbonate platform and Sable delta
- Reservoir Quality and Architectural Elements of Mesozoic Rift Basin Sediments, Scotian Margin
- Reservoir Connectivity and Overpressure in the Sable Sub-basin
- Development of an Integrated GIS Database
- Characterization of source rock geochemistry and potential
- Sequence Stratigraphy of the Banquereau Formation
- Multi-Scale Permeability Modeling of the Cretaceous Mississauga Formation
- Overpressure Conditions in the Scotian Basin
- Hydrocarbon Potential of the Sable Delta Producing Reservoirs
- Production of a Source Rock Atlas and Geochemistry of the Scotian Margin
- Reservoir Architecture of Meanderbelt Systems and Vegetation Density in the Carboniferous using Lidar Imagery and Ground Penetrating Radar
- Penobscot Seismic Attribute Study

Pengrowth Nova Scotia Energy Scholarship Programs

The Energy Scholarships and the Innovation Grants are the two components of the Pengrowth Nova Scotia Energy Scholarship Program. These components provide financial support to high school and master's level university students in pursuing energy related studies at post-secondary institutions.

In 2018 eight high school graduates received university scholarships valued at as much as \$10,000 each, \$2,500 renewable over four years. Another eight received \$2,500 non-renewable scholarships at the Nova Scotia Community College. The awards were based on a combination of extracurricular activities and academic performance. There was one recipient of the Pengrowth-Nova Scotia Petroleum Innovation Grant which supports graduate level students further their studies at the master’s level.

Since its inception, the program has supported more than 200 students and researchers with more than \$1 million in funding.

Sable Island Research

EMCP and the Sable owners continued to support a research study comprised of regular surveys and analysis to gather data on Sable Island beached birds. The research is aimed at monitoring and assessing trends in the number and rate of oiling observed in beached seabirds and has been conducted over a number of years.

7.0 Community Education and Participation

EMCP, the Sable owners, many of the Sable Project major contractors and their employees support the communities in which we live and work by donating time, talent or money. This helps strengthen the many organizations that provide needed services or enhance the culture of the community. Some of the highlights from 2018 are provided in the table below.

<i>Supporting the Community</i>	
United Way	Metro United Way and the United Way of Pictou County
CIBC Run for the Cure	ExxonMobil Canada staff, their families and friends support the CIBC Run for the Cure in Halifax
Guysborough and Area Communities	<ul style="list-style-type: none"> - Goldboro / Isaac's Harbour Community Development Association - Guysborough Food Bank - Guysborough Come Home Week Society - Harbourview Community Centre - La Societe des Acadiens de la Region de Tor Baie - Canso & Area Minor Hockey Association

<i>Supporting Education</i>	
Bursaries for High School Graduates	Awarded to qualifying students graduating from seven high schools in Guysborough, Inverness, Antigonish and Richmond counties.
Junior Achievement – Nova Scotia	Junior Achievement delivers four programs for students from grades 6 through 12 - Our Business World, Dollars With Sense, Economics for Success, and Company Program.
Techsploration	A not-for-profit organization that provides young women from grades nine through twelve with opportunities to explore science, trades and technology occupations, while creating awareness about the critical role of work in their lives.
<i>Supporting the Arts</i>	
Stan Rogers Folk Festival	A 3-day music festival, held annually in Canso that honours the legacy of Stan Rogers, an artist that managed to influence a whole generation of performers.
Neptune Theatre	Atlantic Canada’s largest professional regional theatre and home to a year-round Theatre School which operates classes, camps and workshops as well as coordinating elite training programs.
Festival Antigonish	A place where Nova Scotia artists can create dynamic new works and gain valuable experience performing in works produced to the highest artistic and technical standards.
Mulgrave Road Theatre	A professional touring theatre that has enabled a wide audience to experience acclaimed works by some of Atlantic Canada’s most respected playwrights.

APPENDICES

Appendix 1 – 2018 Sable Project Person Hours 16

Appendix 2 - 2018 Research and Development Initiatives 17

Appendix 1
Sable Project Person Hours 2018
EMCP and Major Contractors

	NS	OC	FOR	TOTAL
AMEC Black and MacDonald	247,330	696	0	248,026
Canadian Helicopters	48,536	3,064	120	51,720
East Coast Catering	8,000	0	0	8,000
EM&I	50,420	3,137	2,834	56,391
ExxonMobil Canada (Sable Project)	254,000	30,000	6,000	290,000
Halliburton	76,396	92,297	14,240	182,933
Heerema	1,645	0	43,467	45,112
Noble Drilling	166,626	47,171	35,794	249,591
Secunda Marine	147,580	79,757	0	227,337
SGS Canada Inc.	15,535	48	0	15,583
Total	1,016,068	256,170	102,455	1,374,693

Legend:

NS – Nova Scotia

OC – Other Canadian

FOR – Foreign (Non-Canadian)

Appendix 2

2018 Research and Development Initiatives

Recipient	Program Description	Investor
Dalhousie University	Geoscience Research	Sable Owners
Zoe Lucas	Beached Bird Survey	Sable Owners
Nova Scotia Students	The Pengrowth - Nova Scotia Scholarships	Pengrowth
Nova Scotia University Students	The Pengrowth-Nova Scotia Innovation Grant	Pengrowth
ABM / EMCP	Solar Powered Navigation Aids for Offshore Platforms	Sable Owners