

encana™



CANADA-NOVA SCOTIA BENEFITS

2012 SEMI-ANNUAL REPORT

Encana Corporation
Halifax, Nova Scotia

July 31, 2012

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I. Executive Summary

In the first six months of 2012, progress continued in preparation for first gas from Deep Panuke including:

- Project transition from construction to operations phases.
- With Single Buoy Moorings (SBM), the ongoing hook-up and commissioning activities on the Deep Panuke production field centre (PFC) offshore.
- Successful start to the 2012 subsea asset integrity survey.

The following report provides an overview of Encana's activities in Nova Scotia from January 1, 2012 until June 30, 2012.

Highlights of the report include:

- Total spending by Encana on Deep Panuke was \$26.4 million Canadian dollars.
- 338,699 person hours of work by Nova Scotians.
- 53,997 person hours of work by Canadians from other provinces.
- 431,675 person hours of work carried out within Nova Scotia.

Person Hours (January-June 2012) & Cumulative Hours

	2012	CUMULATIVE
CATEGORY BY RESIDENCE	PERSON HOURS	PERSON HOURS
Nova Scotia Residents	338,699	3,189,357
Canadian Residents from other provinces	53,997	488,221

Note: Table above includes all Nova Scotian and all Canadian Person Hours for all elements of the project.

II. Introduction

The following report is filed in compliance with Condition 10 (Monitoring, Reporting and Auditing) of the Canada-Nova Scotia Benefits Plan Decision Report ("the Decision Report") for the Deep Panuke Offshore Gas Development as issued by the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB).

This report covers the period from January 1, 2012 to June 30, 2012.

Encana's Deep Panuke contracting opportunities are comprised of six key elements:

- Element 0 - project management
- Element 1 - drilling and completions
- Element 2 - subsea

- Element 3 - export pipeline
- Element 4 - production field centre and
- Element 5 - ready for operations and operations.

Reference is made in this report to the various project elements.

II.I Local Office

Encana's local office for the Deep Panuke project is located in Founders Square at 1701 Hollis Street in Halifax. Resident in the office is the project general manager and an interdisciplinary project management team, supported by teams of staff and contractors.

Appropriate levels of decision-making are directed from or take place in the office including project management, engineering, procurement, commercial arrangements, accounting, human resources, legal, regulatory, communications and community relations, drilling and completions and environment, health, safety and quality.

Through the first six months of 2012, Encana PFC contractor SBM maintained its office in Dartmouth, NS near the offshore supply base.

At June 30, 2012, the total complement of Encana employees and contract staff supporting the Deep Panuke project was 59. During the year, Encana personnel worked at the Encana office, at Deep Panuke pipeline landfall in Goldboro, the offshore supply base in Dartmouth or offshore at the PFC in the Deep Panuke field.

III. Business Opportunities & Supplier Development

III.I Communication of Business Opportunities

In the first six months of 2012, Encana and SBM shared business opportunities for Deep Panuke activities with the local supply community utilizing recognized channels of distribution. Information regarding Expressions of Interest (EOI), Bidders' Lists and Contract Awards were included in postings to the Business Opportunities section of the Deep Panuke pages on the Encana website, postings to the electronic bulletin board BIDS Nova Scotia, an email distribution list comprised of disadvantaged group representatives and newsletter distribution.

The link to the Encana website for Deep Panuke business opportunities is <http://www.encana.com/communities/canada/atlantic/business-opportunities/>

To augment the ongoing channels of distribution, in 2012 Encana has used Twitter to notify followers of business opportunities released by Encana for Deep Panuke.

Deep Panuke business opportunities are also reported through third party organizations. For example, information on EOIs, Requests for Proposal (Bidders' Lists) and Contract Awards typically are posted the day of issue in The Maritimes Energy

Association daily Bulletin to members. Media in Nova Scotia have reported on Deep Panuke business opportunities as well.

III.II Stakeholder Communications

One of the key Project Management Principles contained in The Benefits Plan (Volume 3, Deep Panuke Development Plan Application) described Encana's commitment to developing relationships with stakeholders to inform and involve them in the Deep Panuke project.

In the first six months of 2012, Encana continued to liaise with stakeholders to share information on Deep Panuke. Methods of liaison included face to face meetings, presentations and/or participation at conferences and workshops, phone calls, email notices, social media (Twitter and Facebook), information mailings, print material distribution, media relations, advertising, participation and/or support of community events and website updates to www.encana.com/deeppanuke (Deep Panuke pages).

During the first six months of 2012, two project newsletters (March and June) were distributed to provide stakeholders with updated information on Deep Panuke.

Each edition of the newsletter is:

- posted to the Deep Panuke pages on the Encana website at www.encana.com/deeppanuke;
- inserted in the weekly Guysborough Journal to help ensure circulation in Guysborough County;
- dropped by Canada Post to mailboxes in Guysborough County;
- distributed to representatives of local, provincial and federal government, fisheries organizations, environmental groups, suppliers and other diverse stakeholders on a large mailing list; and,
- distributed to participants at meetings, conferences and other business and/or community events attended by representatives of Encana or supported by Encana.

As well, by June 30, 2012, there were 539 individuals registered to receive an e-copy of the newsletter.

The Deep Panuke web pages include information on project procurement activities, community information and links to relevant web sites. For Deep Panuke, in the first six months of 2012, updates were posted to the profile of a Developing Skills Initiative participant, the Business Opportunities page and the Major Contractor page. As well, offshore video from Deep Panuke and new photographs of the project were posted to the Encana Multimedia Gallery at <http://www.encana.com/news-stories/multimedia-gallery/>

Through the first six months of 2012, there were 5,006 unique visitors and 5,472 visits (includes repeat visitors) to Deep Panuke web pages on the Encana website. The web pages recording frequent visits during the period were those for project contact information, project newsletters, filings and applications and community information pages.

The general project information email box (dpinfo@encana.com) is monitored on a daily basis. In the first six months of 2012, queries were received in the mailbox from:

- the general public;
- contractors seeking business opportunities;
- individuals seeking employment opportunities;
- representatives of business organizations seeking updates on the status of Deep Panuke;
- individuals or organizations requesting community sponsorships; and,
- media.

In addition, members of the Deep Panuke team respond to unsolicited inquiries about employment and business opportunities with the project.

III.III Contracts Awarded

In the first six months of 2012, Encana awarded a contract for Marine Consultant Services at Deep Panuke to London Offshore Consultants (Canada) Ltd.

III.IV Business Expenditures

The total expenditure for Deep Panuke during the period of January 1- June 30, 2012 was \$26.4 million Canadian.

IV. Project Employment

IV.I 2012 Person Hours

Total Nova Scotia Person Hours from January 1 to June 30, 2012 for Deep Panuke were 338,699 and Other Canadian hours were 53,997 with 431,675 hours of work performed within the Province of Nova Scotia during the period.

In the first six months of 2012, Nova Scotia person hours focused on support for the hook-up and commissioning of the Deep Panuke production field centre and for ongoing project management.

The cumulative Nova Scotia Person Hours to date are recorded as 3,189,357. Total cumulative hours of work performed within the Province of Nova Scotia was 4,229,983.

IV.II Update on Activities

Encana is fully committed to employing a competitive, open and fair recruitment process for Deep Panuke, with full and fair opportunity for Nova Scotians and all Canadians, and with first consideration to qualified Nova Scotians. Foreign workers will be hired when specialized knowledge or experience is required and when qualified Canadian workers are not available.

The Encana Project Management Team supporting Deep Panuke was comprised of 59 individuals at June 30, 2012.

In the first six months of 2012, Encana advertised for three additional contract positions to support offshore hook-up and commissioning and offshore production operations. In Nova Scotia, the positions were advertised at www.careerbeacon.com, a well recognized website for local opportunities in the offshore oil and gas industry and in the Chronicle Herald. As well, notices for the positions appeared in the Work for Us section on the Encana website at www.encana.com.

Throughout the first half of 2012, SBM advertised for ten positions in various disciplines. Student positions were posted at several Maritime universities and colleges, while all other positions were posted on Canadian internet recruiting websites. These recruitment efforts were in support of ongoing operations and to support the hook-up and commissioning of the Deep Panuke platform.

In January 2012, Encana advertised at Dalhousie University for a co-op engineering student position for the May-August 2012 work term. In May 2012, Encana posted an opportunity for a business/commerce student co-op position for the September-December 2012 work term. Since May 2007, 36 students have joined the Deep Panuke team, generally on a four-month basis, with two of the 36 students participating in 2012. To date, students in the program have been enrolled at Acadia, Dalhousie and Mount Saint Vincent universities, as well as the Nova Scotia Community College, in engineering, commerce and public relations fields of study.

V. Disadvantaged Groups

V.I Sharing Business and Employment Opportunities

As directed by the CNSOPB in the Decision Report, the four disadvantaged groups engaged for the Deep Panuke project are:

- Aboriginal people
- Members of visible minorities
- Persons with disabilities
- Women

In the first six months of 2012, regular contact has been maintained with groups and organizations representing the business, employment and educational/training interests of these groups including the Black Business Initiative, the Encana Native Council Opportunities Fund, Entrepreneurs with Disabilities Network, Nova Scotia Advisory Council on the Status of Women, the Mi'kmaq Rights Initiative and Immigrant Settlement and Integration Services or ISIS.

During the first six months of 2012, to directly share information on Deep Panuke contracting opportunities with disadvantaged groups, five opportunities were emailed by Encana via a distribution list to immediately alert key representatives of these groups to the issuing of an opportunity by Encana or SBM.

The established process continued in 2012 to share employment opportunities at Deep Panuke with representatives of disadvantaged groups via fax and email distribution lists. During the first six months of 2012, Encana shared information on three Encana employment opportunities.

To supplement direct notifications of business and employment opportunities, in 2012, Encana placed advertising in local publications focusing on disadvantaged groups: the Black to Business magazine, Entrepreneurs with Disabilities newsletter, Mi'kmaq Maliseet Nations News and Taliaq, the newsletter of the Native Council of Nova Scotia. The advertising directed readers to where the Deep Panuke business and employment opportunities are posted on the Encana website.

In 2012 Encana continued to support the four designated disadvantaged groups and their delivery of core programs and services to members by purchasing tickets for or donating items to be auctioned at fundraising events and activities. Among the groups receiving support in 2012 were:

- Easter Seals
- Atlantic Provinces Special Education Authority
- Canadian Paraplegic Association (Nova Scotia)
- The Marguerite Centre
- Encana Native Council Opportunities Fund
- AIDS Coalition of Nova Scotia
- L'Arche Halifax
- Bridgeway Academy
- Sunnyville Multicultural Festival
- Canadian Cancer Society
- Learning Disabilities Association of Nova Scotia
- Strive Learning Centre for Children
- Special Olympics

As well, to support organizations representing members of disadvantaged groups, a representative of Encana attended the event held March 29 in Halifax on the United Nations Convention on the Rights of Persons with Disabilities held in commemoration of the International Day for the Elimination of Racial Discrimination. The event was organized by the Nova Scotia Human Rights Commission.

V.II Aboriginal Liaison

Encana liaises with representatives of the Mi'kmaq Rights Initiative, the Encana Native Council Opportunities Fund and the Nova Scotia Department of Energy (Aboriginal Business Development Officer) to facilitate the communication of business and employment opportunities at Deep Panuke.

Encana continued to monitor the progress with the Encana Native Council Opportunities Fund (ENCOF), a fund established to help off-reserve Aboriginal people in Nova Scotia engage in employment and business opportunities related to the offshore oil and gas

industry. Under the ENCOF in the first six months of 2012, there were 10 individuals undertaking post-secondary training (including University, Nova Scotia Community College, Atlantic Petroleum Training College, Commercial Safety College and the Operating Engineers Training School) in fields related to the offshore oil and gas industry such as Bachelor of Arts – Aquatic Resources, Natural Resources Environmental Technology, Entry Level Floorhand and electrician apprenticeship. ENCOF representatives continued to support careers fairs, and made presentations at Native Council zone meetings and other community gatherings to explain ENCOF and the educational opportunities that could be supported by it. ENCOF representatives continued to meet with potential employers and labour organizations of relevance to the offshore oil and gas industry to share employment information on students who have completed training and to discuss possible partnerships and employment requirements. ENCOF representatives also continued to meet with representatives of training organizations such as Survival Systems Training and the Atlantic Petroleum Training College to discuss entrance requirements. Encana participated in an ENCOF-organized career fair held in Dartmouth, NS in March 2012. Other career fairs and careers exploratory gatherings took place in Sydney and Truro in April 2012.

Encana maintains contact with the Kwilmu'kw Maw-klusaqn Negotiation Office (KMKNO) Mi'kmaq Benefits Officer on behalf of the Assembly of Nova Scotia Mi'kmaq Chiefs (the Assembly). In the first six months of 2012, the officer helped to advance the five-year agreement between Encana and the Assembly of Mi'kmaq Chiefs regarding education and training and related opportunities from the Deep Panuke project. On May 1 and 2, a conference for front-line workers (Native Employment Officers, Economic Development Officers, Social Development Administrators and Education Directors) was held where draft application guidelines were reviewed for requests made under the agreement. Comments from the group were incorporated into the final version. Subsequently the guidelines were presented to the Assembly's Benefits Committee for review and comment and then to the Assembly for final approval, with the guidelines and application process approved by the Assembly on June 22. Notice was then sent to all communities and organizations. Requests for application packages are being received, with one application received and approved by the Assembly to date. KMKNO and the Mi'kmaq Employment Training Secretariat were the applicants, with the Chiefs approving a proposal for the creation of a skills database of Mi'kmaq individuals and businesses. This database will assist with knowing what capacity exists and what training is needed, and will allow for response to the needs of the offshore oil and gas industry by readily knowing what and who is available for contracting and/or employment opportunities. Further funding is being sought from the federal and provincial governments to supplement this project before it begins. As well, a meeting was held with SBM to discuss future contracting and employment needs related to Deep Panuke, and what requirements would be for Mi'kmaq businesses and individuals to bid on work or to attain employment.

Encana also provided information on Deep Panuke and the offshore oil and gas industry, including key industry partners, to the Aboriginal Business Development Officer at the Nova Scotia Department of Energy.

V.III Persons with Disabilities

In the first six months of 2012, Encana continued to work with the Entrepreneurs with Disabilities Network (EDN). EDN promotes and facilitates entrepreneurship among persons with disabilities and has approximately 500 members across Nova Scotia. Encana's support in 2012 to date has been directed to EDN's emerging entrepreneur award.

Encana also liaised with representatives of Easter Seals and the Canadian Paraplegic Association (Nova Scotia) to provide support for annual fundraising activities for these organizations and to share information on the development of the Deep Panuke project.

In 2011, Encana continued to utilize the services of New Leaf Enterprises, a division of Easter Seals in Nova Scotia, to coordinate the mail-out of the quarterly Deep Panuke project newsletters distributed in March and June 2012.

V.IV Members of Visible Minorities

In 2012, Encana engaged with representatives of the Black Business Initiative (BBI), Immigrant Settlement and Integration Services (ISIS) and Imhotep Legacy Academy to support their programming and to share information on Deep Panuke.

A representative of Encana attended the BBI's Business Summit in June 2012 and supported the participation by representatives of ISIS at an entrepreneurship expo in Halifax in April 2012.

Encana's work with ISIS in 2012 also included support for a team of students to participate in Junior Achievement's company program, thus helping to foster entrepreneurial and business skills among immigrant youth. The participating students attended Ridgecliff Middle School, Citadel High School and Halifax West High School in Halifax, NS.

In May 2012, a representative of Encana attended the school year closing event for the Imhotep program. Encana's support in 2011-2012 for Imhotep saw the program delivered at Saint Andrew Junior School in Antigonish, NS with seven students in Grades 6 to 8 participating. The Imhotep program encourages youth of African Nova Scotian heritage to pursue careers in sciences, technology, engineering and mathematics, fields that are key to careers in the offshore petroleum industry in Nova Scotia and areas of study in which African Nova Scotian youth are under represented.

As well, Encana's support for the SuperNOVA program at Dalhousie University in 2012 supports the delivery of summer science camps for students of African Nova Scotian heritage in four Nova Scotian communities. SuperNOVA worked closely with existing community programs like Imhotep to recruit participants for the camps.

V.V Women

Recognizing that attracting more women to careers in sciences, trades and technology and engineering will help to increase their participation in the offshore oil and gas industry, Encana engaged in several initiatives in the first six months of 2012 that were aimed at achieving this goal.

Encana continued to fund in 2012 the Bread and Roses Bursary at the Nova Scotia Community College (NSCC) aimed at supporting female students interested in science, trades and technology careers. Students receiving the bursary have pursued studies in fields such as welding, metal fabrication and occupational health and safety. The fund supports students at College campuses across the province.

As well, new funding from Encana for Techsploration's Women in Action web video series will see three new videos added to the series in 2012. Filming for the videos was underway in June 2012. Techsploration encourages girls in Nova Scotia to consider educational paths in sciences, trades and technology that could lead to a career in the offshore oil and gas industry. The videos profile women in sciences, trades and technology careers, utilizing a medium preferred by youth to convey career and educational information. Encana profiled the Techsploration program, and the activities of the volunteer mentor based in the Deep Panuke office on the Encana website at <http://www.encana.com/news-stories/our-stories/community-techsploration.html>

In the first six months of 2012, Encana also contacted the Centre for Women in Business at Mount Saint Vincent University to provide an update on Deep Panuke and a representative of Encana attended the 14th National Conference of the Canadian Coalition of Women in Engineering, Science, Trades and Technology in May 2012 in Halifax.

V.VI Diversity Training and Reporting

In 2012, new hires to Deep Panuke were required to participate in on-line Aboriginal Awareness Training offered by Encana.

VI. OSEA

VI.I Update on Activities

From January 1 to June 30, 2012, 60,027 hours of work were conducted in Nova Scotia with 54,941 of these hours being Nova Scotia Person Hours. From the commencement of the OSEA, 1,936,006 hours of work have been conducted in Nova Scotia with 1,744,634 of these hours being Nova Scotia Person Hours.

In addition to the OSEA hours, additional Nova Scotia hours were recorded in 2012 for work activities such as helicopter and supply boat support for offshore hook-up and commissioning. During this period, 371,648 hours of work were conducted in Nova Scotia with 283,758 of these hours being Nova Scotia Person Hours.

Activities on the following OSEA commitments have been completed, thus updates on these activities are not provided: offshore supply vessel, onshore drilling rig program, subsea protection structures, export pipeline coating and the flare tower.

- Engineering, Procurement and Management Activities

Encana's office in Halifax continues to be the centre of project management activity for Deep Panuke, as well as engineering and procurement management.

- Developing Skills Initiative

The Initiative proved to be a successful mechanism to provide Nova Scotians early in their careers with relevant and marketable experience in the offshore oil and gas industry. Of the 11 individuals who participated in the Developing Skills Initiative, by June 30, 2012, 10 had assumed new roles in the oil and gas industry, building on the skills and expertise from their work on the Deep Panuke project. In the first six months of 2012, two of the 10 accepted engineering positions with Encana at Deep Panuke. These developments in 2012 close out Encana's support for the Initiative.

VII. Education & Training/ Research & Development

In the first six months of 2012, Encana continued to invest in research and development, education and training initiatives in Nova Scotia with a focus on advancing the development of the offshore oil and gas industry.

VII.I Deep Panuke Education & Training and Research & Development Fund (the Fund)

To June 30, 2012, Encana confirms spending of approximately \$5.7 million to date on education & training and research & development projects under the Fund.

VII.II Call for Proposals

The third Call for Proposals under the Fund was launched in November 2011 on the theme of geosciences for Nova Scotia's offshore. A total of eight Letters of Intent (LOIs) were received from university and private sector researchers in Nova Scotia. A review committee was struck to review the LOIs. In early 2012 the committee recommended that four of the proposals advance to full submissions. Subsequently, three of the proposals advanced to the award stage. Encana is currently establishing agreements with the successful researchers.

Information on the geosciences Call for Proposals is posted on the Encana website at: <http://www.encana.com/communities/canada/atlantic/training-research-fund.html>

VII.III Education & Training Funded Projects

The following updates are provided for selected education & training initiatives approved by the CNSOPB under the Fund:

- Graduate Offshore Surveyor Training

An initiative to provide funding for new graduates from the Centre of Geographic Sciences (NSCC) in Lawrencetown, NS to participate in work terms during Encana's 2012 subsea asset survey. One of the graduates, employed by DOF Subsea, was posted to the Atlantic Condor offshore supply vessel for six weeks during the survey

conducted in June and July 2012 over the Deep Panuke natural gas export pipeline and other subsea assets. The work on board the Condor provides graduates with relevant, hands on experience conducting offshore surveys, an important monitoring activity for an offshore oil and gas project like Deep Panuke.

- Techsploration

Encana is supporting a three-year extension to the Women in Action web video series featuring women in non-traditional careers, in particular careers related to the offshore oil and gas industry. In the first six months of 2012, video preparations and shooting commenced for two of the nine new videos being produced over three years. When completed, the videos will be added to the readily accessible online library of interviews with women who are working in science, trade or technology fields – fields of relevance to offshore oil and gas development in Nova Scotia. To date, the videos have received more than 32,000 hits. It is anticipated that the number of hits will increase going forward as the video series is now housed on the Nova Scotia Department of Education's website, allowing for viewing in schools. As well, through the first six months of 2012, a female Encana loss control engineer mentored students from Prince Arthur Junior High School in Dartmouth, NS, escorting them during a tour of the offshore supply base in Dartmouth, NS and the Atlantic Condor supply vessel. To view the videos, please visit the website at www.techsploration.ca and click on the link for the Women in Action Web Video series.

- Imhotep Legacy Academy

With support from Encana, this science and mathematics enrichment program for students of African Nova Scotian heritage expanded to Saint Andrew Junior School in Antigonish, NS. Imhotep encourages participants to consider careers in science, technology, engineering and mathematics fields (STEM), core fields for a career in the offshore oil and gas industry in Nova Scotia. During the 2011-12 school year, seven students in Grades 6 to 8 participated at Saint Andrew. As well, 11 students participated in a virtual tutoring program offered daily to students attending Dr. John Hugh Gillis Regional High School in Antigonish. Some of the participants in this program are graduates of the Imhotep after school program from Saint Andrew. Building on the success of the program in Antigonish, one student participating in Imhotep at Saint Andrew has been selected for a post-secondary scholarship to pursue a STEM-related program at Dalhousie University.

- Regional Science Fairs

In the first six months of 2012, Encana provided support to the provincial gathering of regional science fair winners and to regional fairs in Halifax and the Strait area. The provincial gathering, called the Nova Scotia Science Fair Showcase, took place in May 2012 at Saint Mary's University. The showcase displays winning science fair projects from across Nova Scotia prior to the students competing at the Canada-Wide Science Fair. Encana awarded two Youth Science Awards at the showcase, an annual award to student(s) selected by his or her peers at the showcase. As well, an Encana loss control engineer at Deep Panuke provided a keynote address to students on engineering careers in the offshore oil and gas industry. Encana supports science fairs as a means

to encourage science, technology and engineering-minded students in Nova Scotia to continue their studies at the post-secondary level. Studies in these areas are among those that are key to career opportunities in the offshore oil and gas industry.

- Youth Projects – Skills Canada-Nova Scotia

Encana supported Skills Youth Projects offered by Skills Canada-Nova Scotia at the Nova Scotia Community College (NSCC) to encourage high school students from across the province to consider a skilled trade or technology career – a key educational path for work in the offshore oil and gas industry. Participating students have the opportunity to work with a college instructor and a student mentor who is currently enrolled in a skilled trade or technology program at the college. From January 1, 2012 to June 30, 2012, Encana supported four TechShops, one Young Women’s Conference and one African Nova Scotia Youth Conference. A total of 339 students from grades 10 to 12 participated. The Young Women’s Conference was held in March 2012 at the NSCC Burrige campus in Yarmouth, NS and was attended by 52 grade 9 girls from the Tri-County Regional School Board. The African Nova Scotia Youth Conference was held in February 2012 at the NSCC Kingstec campus and was attended by 40 students in grades 9 through 12. During both events, students were introduced to skilled trade and technology careers and participated in a range of interactive and hands-on workshops.

- Encana High School Scholarship

Funding from Deep Panuke will support students from six public school boards in Nova Scotia to receive the scholarship beginning in the fall of 2012. Each of six public school boards selected one graduating student to receive the \$2,500 annual scholarship renewable for up to four years. All six students are pursuing studies in engineering at Nova Scotia universities.

- SuperNOVA

In the first six months of 2012, SuperNOVA at Dalhousie University moved forward with planning for the second year of four, week-long science day camps and completed two after school clubs directed to African Nova Scotian youth. The camps, slated for July and August 2012, are to take place in Halifax, East Preston, Antigonish and Sydney with anticipated participation of 64 students, 28 of that number participating in the East Preston camp the week of July 2. Students of African heritage are under-represented in STEM (science, technology, engineering and mathematics) fields. The SuperNOVA programming is focused on supporting students with demonstrated interest in STEM. STEM-related studies are typically key for careers in the offshore oil and gas industry.

- Energy for Students (EFS)

Energy for Students is an educational program that shares energy-related information, particularly information about the offshore oil and gas industry, to educators and students in Nova Scotia. Encana’s support for the EFS program in 2012 is focusing on the distribution of a monthly newsletter about energy-related topics, featuring news from the offshore oil and gas industry in Nova Scotia. To date in 2012, six monthly

newsletters were distributed to 908 recipients. In 2012, Encana also assisted EFS with editorial updates to the EFS website, particularly the offshore oil and gas subsection, to be launched at the end of July 2012.

- The Discovery Centre – Science on the Road Program

The Science on the Road (SOTR) program is a science-oriented outreach program aimed at enriching science education for elementary school students across Nova Scotia through in-school demonstrations and hands-on workshops. SOTR is tied to science curriculum for the Province of Nova Scotia, and is offered in both French and English. From January 1 to June 22, 2012, SOTR reached 10,150 educational contacts in Nova Scotia at 68 schools across seven public school boards. With Encana's support in the past three years, SOTR has reached more than 68,300 educational contacts across the province. Because of the support from Encana, Discovery Centre has experienced a significant increase in the number of schools the program has been able to visit by on average 13 additional schools per year.

- Scientists and Innovators in Schools (SITS)

SITS is a science promotion program administered by the Atlantic Science Links Association, a not-for-profit organization dedicated to nurturing relationships between educators and scientists, technology, engineering and mathematics communities in Nova Scotia. SITS seeks to inspire Nova Scotia students when they are developing key attitudes towards science and technology, and are beginning to think about careers in these fields. In the first six months of 2012, with Encana's support, SITS volunteers delivered presentations in classrooms across the province. The majority of requests were received from schools in the Halifax Regional School Board (45 per cent) and the Chignecto Central Regional School Board (24 per cent). By subject, the most frequently requested presentations were in biology, geology, environment, physics and weather. SITS volunteers also judged 12 science fairs (75 judges from SITS judged 800 students) and mentored 170 students. Scientists from SITS shared their knowledge with nearly 200 teachers via presentations and activities through school visits and workshops. In total, approximately 5,100 students were provided with the opportunity to make connections between what they learn in the classroom and the work and research being done by scientists in Nova Scotia. SITS now maintains a database of 325 active (45 recruited this year) science volunteers - among them scientists, engineers, IT specialists, mathematicians and others from the public and private sectors, universities and not-for-profit organizations.

- Ducks Unlimited – Project Webfoot

Project Webfoot is a science educational program, with classroom and field components, that aims to communicate the value of wetlands to elementary school-aged children. For the 2011/2012 school year, Encana's support for Project Webfoot meant 20 classes from 14 schools representing 468 students received the program's classroom resource kit. These classes subsequently participated in a field trip in the spring of 2012 as part of the program, with more than half the students visiting the Dagger Woods site near Antigonish. The Dagger Woods site, also developed with

Encana's support, enables students from Northeastern Nova Scotia to benefit from the field component of the Project Webfoot program.

- Dalhousie Remotely-Operated Vehicle (ROV) Team

Encana's support for the Dalhousie ROV team was directed to assist with the team's participation at the Marine Advanced Technology Education (MATE) International ROV competition in June 2012. At the competition, student teams competed in interactive real-world challenges similar to what industrial ROVs are used for in the offshore oil and gas industry. In the 2012 competition, Dalhousie placed 12th out of 25 teams, with high marks in the report, presentation and poster categories. Prior to participating in the competition, team members visited the Deep Panuke ROV on the Atlantic Condor supply vessel and talked with the representatives of Oceaneering who operate the ROV.

- Bread and Roses Bursary

The bursaries, offered through the Nova Scotia Community College (NSCC) Foundation, are aimed at supporting women pursuing an education in trades, technology or science at NSCC campuses across Nova Scotia. Studies in these areas are relevant to careers in the offshore oil and gas industry. Over three years, with Encana's support for the bursaries, a total of 55 women have benefited (with 20 of that number in 2012), pursuing studies in fields related to the development of the offshore such as welding, metal fabrication and occupational health and safety.

VII.IV Other Education & Training

To support the development of employees at Deep Panuke, Encana funded training totaling \$61,228 from January 1 – June 30, 2012. Cumulative training now totals \$419,499. For the first half of 2012, funded training included:

- MSc Engineering – process safety
- Society of Petroleum Engineers – evaluation of Canadian oil and gas properties
- PetroSkills Canada – gas production engineering
- Petroleum engineering software training
- Schlumberger asset modeling
- ISO 9001: 2008 standards
- Project management essentials
- Petroleum Institute for Continuing Education – oil and gas pipeline systems code

Contractors to Encana's Deep Panuke project are required to submit on a quarterly basis a report summarizing their investments in education & training and research & development.

In the area of education & training, in the first six months of 2012 contractors reported 118 placements for training totaling \$63,571.67. Funded training included:

- Online modules regarding safe food handling and health and safety
- Safe handling of chemicals, sea water tanks and lab instrumentation
- Methanol training
- Wilderness first aid
- MSc in Environmental Science
- Confined space entry and rescue

VII.V Research & Development Funded Projects

The following section provides an update on selected R&D projects approved under the Fund.

- Produced Water – Dalhousie University

Examination by researchers at Dalhousie University of chemical-free electro-coagulation (EC) technology with proven success in treating wastewater discharge, and adapting that EC technology to separate and remove dissolved hydrocarbons from produced water streams. The project is now approximately one year from completion, with several graduate students contributing to the research. A final report on the research is expected in 2013.

- Produced Water – Pro-Oceanus

A three-year research project led by Pro-Oceanus of Bridgewater, NS, including partners at the Centre for Offshore Oil Gas Energy Research (COOGER), to develop a new system to track oil dispersion from spills in the ocean using ultraviolet fluorescence spectroscopy (FIR). Initial experimental results suggest that at low concentrations (less than 300 parts per million), the intensity of emissions from the oil is different than at higher concentrations, making tracking more difficult. Additional laboratory and wave tank experiments are now required to determine at what concentration the FIR concept no longer applies, and how the instrument can be used at lower oil concentrations.

- NSERC/Encana Industrial Research Chair in Salt and Continental Margin Tectonics

At Dalhousie University, the recruitment process to fill the complex salts chair continued in the first six months of 2012. The Natural Sciences and Engineering Research Council of Canada (NSERC) provided pre-approval for the candidate for the chair. Dalhousie is now preparing a full application for NSERC matching funds to support the chair. It is anticipated that the chair will be in place by mid-2013.

- A Functional Test Analysis of Lifeboat/BA (Breathing Apparatus) Integration Skills

Following dissemination of the research findings at conferences and via the Internet, the research was submitted to the journal Occupational Ergonomics and

is to be published with the title: *The impact of personal protective equipment and breathing apparatus on offshore lifeboat evacuation time.*

- Integrated Bird Management at Offshore Installations

From January 1–June 30, 2012, researchers from Acadia University continued to progress the study investigating potential bird-platform interactions at Encana's Deep Panuke PFC. For five weeks in May and June 2012, four researchers based on Sable Island tagged 281 birds from five different species with wing tags, colour leg bands and/or telemetry devices. The tags allow the researchers to track the movements of the birds and potential interaction with the platform. In addition, the researchers submitted an updated proposal to NSERC for a funding extension to support the study through 2013. The request to NSERC would match extended funding from Encana. The researchers share information on the study via a blog, which also assists with receiving reports of sightings of the tagged birds. See <http://sableislandgulls.wordpress.com/> Further tagging and research is scheduled between July and October 2012 on Sable Island (Ipswich sparrows), Country Island (Leach Storm-petrels), Bon Portage Island (Leach Storm-petrels and Blackpoll warblers) and Southern Cape Breton (Blackpoll warblers).

- Beached Bird Survey on Sable Island

This long-term study of seabird oiling rates and generic identification of oil contamination found on bird plumage and/or on the beach at Sable Island provides information on background levels of oiling and possible sources. The research enables the offshore oil and gas industry to assess its potential impact on seabirds in the region, and to investigate any changes in oiling rates or oiling events that may be attributed to oil and gas activities.

- Nova Scotia Energy Research & Development Forum – May 2012

Support from the Fund was directed to an Encana panel that provided a platform for Nova Scotia researchers to explain progress with their projects. Each of the four researchers on the panel received funding under the Fund. Dr. Mark Fleming from Saint Mary's University spoke about his research into safety culture metrics and the development of a managers' guide to promote a positive safety culture on offshore facilities. Dr. Graham Gagnon, Canada Research Chair in Water Quality and Treatment from Dalhousie University, updated delegates on his research to find a chemical-free approach to treating produced water. From St. Francis Xavier University, Dr. Edwin DeMont provided an overview of research into bio-fouling on submerged surfaces and how examining the surfaces of sea creatures such as shellfish may lead to "bio-inspired" solutions. Dr. John Kozey from Dalhousie University described his research into new 3D laser scanning techniques to measure body shapes and sizes, and how more precise measurements can impact the industrial design of equipment and facilities for the offshore oil and gas industry. To view presentations from the researchers under the Fund, see <http://www.offshoreenergyresearch.ca/Events/NSEnergyRDForum2012/tabid/454/Default.aspx>

VII.VI Other Research & Development

In the first six months of 2012, Encana continued to provide funding and/or participation through a number of task forces and committees on safety and environmental issues linked to the offshore, such as the Eastern Scotian Shelf Integrated Management (ESSIM) Initiative, the Sable Island Stakeholder Committee and the Gully Advisory Committee. The ESSIM initiative has ended with a final evaluation and review session held in May 2012. Encana will await next steps regarding integrated ocean management on the Scotian Shelf.

Encana has continued to participate in several technical advisory groups from the Environmental Studies Research Fund and represents the Canadian Association of Petroleum Producers as part of the CNSOPB's SARA (Species at Risk) Working Group.

In addition, representatives of Encana and SBM attended the 2nd Annual Nova Scotia Oceans Industry Research Connections Session in Halifax in January 2012. Encana also supported the annual meeting of the Fishermen and Scientists Research Society, held in February 2012 in Truro, NS.

VIII. Activity Forecast for July to December 2012

In the first six months of 2012, Encana focused on:

- Project transition from construction to operations.
- With SBM, the ongoing hook-up and commissioning activities on the Deep Panuke PFC.
- Successful start of the 2012 subsea asset integrity survey.

Project activity at Deep Panuke is organized into functional elements. The following section describes activity anticipated from July 1 to December 31, 2012 for each of these elements.

VIII.I Project Management Element

Encana's Deep Panuke project team in Halifax will continue to manage and monitor progress on all project elements. The project team will continue transitioning to the operations phase of the project, working closely with SBM as the operations contractor for the offshore production facility.

VIII.II Element 1 – Drilling and Completions

With the transition from construction to operations at Deep Panuke, any activities under this element are now captured under Element 5, Ready for Operations and Operations.

VIII.III Element 2 – Subsea

Final commissioning activities for the subsea control system and trees are expected to be completed in 2012. All five trees, which are controlled from the PFC and control the flow of fluids from the wells, will be commissioned shortly before first gas. The subsea equipment (i.e. flowlines, umbilicals, trees and wellhead and subsea isolation valve structures) is subject to Encana's ongoing asset integrity management plan for Deep Panuke, thus subsea inspections utilizing tools such as a remotely-operated vehicle will be performed.

VIII.IV Element 3 – Export Pipeline

Construction and pre-commissioning work was completed on the export pipeline in 2011. In 2012, the communications link from the project's onshore facilities at Goldboro to the PFC will be commissioned and function tested from the PFC by SBM which will allow the onshore facilities to be controlled from the PFC. Once completed, gas will be shipped through the pipeline from the Maritimes & Northeast Pipeline located in Goldboro to the PFC which will be utilized for final commissioning activities of the PFC equipment. The subsea section of the export pipeline is subject to Encana's ongoing asset integrity management plan for Deep Panuke, thus subsea inspections utilizing tools such as a remotely-operated vehicle will be performed.

VIII.V Element 4 – Production Field Centre (PFC)

Work continues offshore on the PFC with the focus on readiness activities for the introduction of hydrocarbons later in 2012. The project construction team is continuing on the completion of the offshore hook-up and commissioning work. Work continues on the key remaining activities to ensure that all final offshore piping connection spools are in place, piping systems are clean and tested, and equipment is energized.

The offshore and onshore operations teams are also now in place and are progressively accepting the systems as they are completed in readiness for first gas. Maintenance routines are now being carried out for those systems which have been handed over to ensure that they are ready for the intended service.

The pipeline and all production wells are now hooked up to the platform but remain in a preserved state until the PFC is ready to accept hydrocarbons.

VIII.VI Element 5 – Ready for Operations (RFO) and Operations

The RFO team continues to be involved in monitoring operational readiness activities in preparation for final assessments prior to the start of production operations. The operations team continues to support the hook-up and commissioning (HUC) work program for the PFC. Particular focus is on managing the provision of logistics services including helicopter transport, support vessels, ROV services and supply base.

The SBM Operations team were engaged in the operation and maintenance of the PFC utilities systems in support of the HUC work force. These activities will continue through

to the completion of the commissioning program. In addition to ongoing support to the remaining commissioning activities, the operations team continues with implementation of the facility management system and asset integrity programs.

The Atlantic Condor continues to be the primary supply vessel in support of the hook-up and commissioning program. The vessel's ROV spread has been utilized for subsea asset integrity inspections and post storm surveys. The Ryan Leet continues as the primary stand-by vessel for the field.

Cougar Helicopters continue to provide helicopter transport services to the Deep Panuke field. Cougar averages four to five flights per week in support of the multi-disciplined hook-up and commissioning program at Deep Panuke.