



**RESEARCH & DEVELOPMENT CORPORATION**  
**2014-15 ANNUAL REPORT**



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At the Research & Development Corporation (RDC), we are igniting growth in Newfoundland and Labrador. Through our R&D Programs and R&D Solutions lines of business, we are fulfilling our mandate to enhance the focus, quantity, quality and relevance of R&D for the economic benefit of the province.

This year, we committed \$22 million to 108 new R&D projects. This leadership has leveraged investments from other partners, totaling \$139 million, with \$102 million coming from businesses. We continued to make progress growing business-led R&D in the province, committing over half of our investments to businesses.

RDC also established its R&D Solutions line of business with the launch in June, 2014, of the Coastal Exposure Materials Test Site

in Argentina. At this site, RDC will deliver applied R&D services needed by clients to solve their technical challenges. We are collaborating with NASA on harsh-environment site classification, and the first R&D projects are already underway.

RDC's strategic focus and targeted investments are laying the foundation for long-term growth and prosperity. Working with Arctic R&D experts such as Dr. Rocky Taylor of C-CORE, innovative businesses such as Seamatica and Falck, and collaborative researchers at Memorial and the College of the North Atlantic, RDC is igniting R&D and innovation across the economy. I encourage you to read the profiles of our clients' R&D projects in this report.

This Annual Report covers the 2014-15 reporting period, during which we achieved our goals. We have made an important contribution

towards the Provincial Government's strategic directions of enhancing R&D activity to support an innovative and knowledge-based economy in Newfoundland and Labrador.

As Chair of RDC, and on behalf of the Board of Directors, I am pleased to present RDC's Annual Report. This report has been developed in accordance with the legislative requirements of the Transparency and Accountability Act. My signature indicates the Board's full accountability for the results of the organization.

A handwritten signature in black ink, appearing to read 'Fraser H. Edison'.

Fraser H. Edison  
Chair  
Research & Development Corporation

RDC's Board of Directors includes experts from the province of Newfoundland and Labrador and around the world. Directors are experienced in a wide range of R&D activities and represent private-sector business, post-secondary educational institutions and the Provincial Government.



**FRASER H. EDISON,**  
CHAIR

Fraser H. Edison, President and CEO of Rutter Inc., has extensive management experience in the finance, construction, oil and gas, and transportation industries. He previously led ConPro Group Limited in a joint venture to build the Gravity Based Structure for the Hibernia Oil and Gas Projects and subsequently the Terra Nova Floating Production and Offloading System. Mr. Edison has served as President of the St. John's Board of Trade and as the Chair of the Board for the St. John's International Airport Authority.

**FRED CAHILL,**  
VICE CHAIR, P. ENG.

Fred Cahill is President of The Cahill Group of Companies. The group is involved in multi-disciplinary construction and module fabrication in Atlantic Canada and has participated in projects in the oil and gas, mining, power generation, water treatment and institutional sectors. Mr. Cahill is an active member of the community and has held such positions as Chairperson of the Newfoundland and Labrador Construction Association, Chairperson of the Construction Labour Relations Association, Chairperson of MUN's Genesis Centre, and Member of the Atlantic Canada Energy Round Table.

**BRIAN VEITCH,**  
DR. TECH., P. ENG.

Dr. Brian Veitch is an internationally-recognized expert on marine transport, offshore safety, and testing and evaluation of advanced ocean technologies. He is currently a professor with the Faculty of Engineering and Applied Science at Memorial University. Dr. Veitch is a member of the Society of Naval Architects and Marine Engineers as well as the Royal Institution of Naval Architects.

**LAURIER L. SCHRAMM,**  
PH.D., B.SC. (HON.), P.CHEM.,  
C. DIR., FCIC

Dr. Laurier L. Schramm is an award winning proponent for best practices in university-industry R&D collaborations. Dr. Schramm has over 30 years of experience in R&D management, having worked in industry, university, government and the non-profit sector. He is currently the President and CEO of the Saskatchewan Research Council.

**BERNARD COLLINS,**  
B.BA.

Bernard Collins is the chairman of PF Collins International Trade Solutions, an internationally-recognized expert in trade and logistics solutions for East Coast oil and gas operations. He possesses extensive knowledge of the petroleum industry, ranging from freight to offshore drilling. Mr. Collins is also an award-winning entrepreneur, having been named Entrepreneur of the Year by Memorial University's Gardiner Centre in 2012; twice named as one of the top 50 Atlantic CEOs by Atlantic Business Magazine; and named the 2005 recipient of NOIA's Outstanding Contribution Award.

**KAREN MUGGERIDGE,**  
P.ENG., M.ENG.

Karen Muggeridge, Facilities Technology Manager, Oil Sands, ConocoPhillips, Alberta, has over 25 years of experience in the oil and gas sector, mainly in offshore engineering. Her positions at ConocoPhillips included Arctic Engineering Specialist and Regional Design Parameters Manager, Amauligak project, Beaufort Sea. She completed her engineering degrees at Memorial University and started her career at C-CORE and Suncor (Terra Nova project). Ms. Muggeridge is the Convenor of ISO Arctic Offshore Structures standard and has served on numerous government and industry boards, including Program of Energy Research and Development; Women in Science and Engineering; and SNAME, Arctic Section.

**BOB COOPER**

Bob Cooper has 35 years of experience in the mining sector. He served as President of Vale INCO Newfoundland and Labrador between 2007 and 2009 and, before that, was General Manager of Operations. He has also served in executive roles with the Cape Breton Development Corporation and Hudson Bay Mining and Smelting. Mr. Cooper graduated from Memorial University with a Diploma in Engineering and from the Technical University of Nova Scotia with a Bachelor of Engineering (Mining).



**MURIEL ATTANÉ**

**GLENN JANES,**  
M.SC., MBA, B.SC., C.DIR.  
(NON-VOTING DIRECTOR)

**MARK PLOUGHMAN,**  
B.ENG, MBA  
(NON-VOTING DIRECTOR)

Ms. Attané is Secretary General of the European Association of Research and Technology Organisations (EARTO) based in Brussels. EARTO represents the interests of 350 research and technology organizations (RTOs) across the European Union. Ms. Attané has developed extensive hands-on experience in R&D through this role and her previous position as Secretary General of the European Association of Automotive Research Partners Association, and her role as EU affairs manager at the Netherlands Organization for Applied Scientific Research, the largest Dutch RTO.

Glenn Janes is a Rhodes Scholar and the CEO of the Research & Development Corporation. He has held a range of progressively senior positions with companies involved in research, development and technology commercialization processes, including most recently, Imperial Innovations Group plc in London, England.

Mark Ploughman has spent over 25 years in the manufacturing sector. He has extensive experience in quality assurance, operations management, human resource management and new product development. Mr. Ploughman completed both his bachelor's degree in engineering and graduate degree in business administration at Memorial University. Mr. Ploughman is currently the Assistant Deputy Minister with the Department of Business, Tourism, Culture and Rural Development.

In 2009, the Government of Newfoundland and Labrador created RDC as "a groundbreaking initiative to develop and lead a provincial R&D strategy to build a stronger knowledge-based economy and plot a course toward sustained prosperity" (Speech from the Throne 2008).

The mandate of RDC is to "strengthen the focus, quantity, quality and relevance of research and development undertaken in the province and elsewhere for the long-term economic benefit of the province" (*Research and Development Council Act*).

**MANDATE**

**VISION**

R&D fuels innovation and creates economic growth and prosperity in Newfoundland and Labrador.

By March 31st, 2017, RDC will have increased the capacity of business, academic, and government clients to perform and utilize research and development in priority areas towards the creation of long-term economic benefits for the province.

**MISSION**

**BUDGET**

RDC currently employs 36 staff (22 female, 14 male). The RDC head office is located on 68 Portugal Cove Rd., St. John's, NL. In 2014-15, RDC received a budgetary allocation of \$22 million and had expenditures of \$21.0 million. Audited financial statements are available in Appendix B.

**PRIORITY SECTORS**

RDC focuses on promoting increased R&D activity in its priority sectors of energy, mining and minerals, and ocean technology.

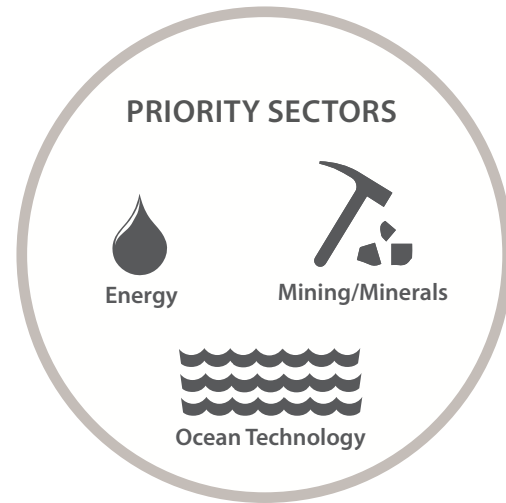
**LINES OF BUSINESS**

**RDC PROGRAMS**

RDC invests in highly-qualified people, cutting-edge R&D, and world-class infrastructure through its suite of commercial and non-commercial programs. These programs are regularly evaluated to ensure they are achieving objectives. Detailed program information is available on the following page.

**R&D SOLUTIONS**

RDC delivers applied R&D services needed by business, academia, and government. RDC's Coastal Exposure Materials Test Site, which delivers materials testing services, was launched in June, 2014. Check out our feature on this site later in this report.



PROGRAM	DESCRIPTION	MAXIMUM RDC CONTRIBUTION
R&D Vouchers	Helps businesses gain access to scientific and technical equipment, expertise, and research facilities	\$15,000
R&D Proof of Concept	Increases the technical capacity of businesses to perform R&D	\$250,000
EmployR&D	Enables businesses to hire recent PhD graduates to support R&D activities	\$75,000 / year (Maximum 2 years)
SensorTECH	Supports sensor-related technologies including radar, acoustics, optics, sonar, and signal technologies	Academia: \$500,000 Industry: \$750,000
CollaborativeR&D	Supports academic-led collaborative R&D projects with industry and government partners	\$800,000
IgniteR&D	Provides funding for new academic researchers	\$100,000
LeverageR&D	Strengthens academic R&D capacity through leveraging private and non-provincial public funding sources	\$500,000
Research Inspired Student Enrichment Awards (RISE)	Exposes high school students to research activities at an early stage in their education	\$100,000 Annually (Maximum of 15 Awards)
ArcticTECH	Advances R&D in support of the development of Arctic technologies	Academia: \$250,000 Industry: \$750,000
GeoEXPLORE	Enhances geoscience R&D capacity in support of mineral and petroleum exploration and development	Academia: \$250,000 Industry: \$750,000
PetroleumR&D Accelerator	Strengthens R&D in support of petroleum exploration, development and operations	\$5,000,000
Ocean Industries Student Research Awards (OISRA)	Attracts and develops world-class research talent in ocean industries	Undergraduate: \$7,500 Graduate: \$40,000 (Masters) \$90,000 (PhD)

\* Complete program information available online at [RDC.org/funding](http://RDC.org/funding)

# FOSTERING COLLABORATION

*In 2014-15, RDC supported 108 R&D projects involving a total of 189 collaborators across academia, government and business.*

RDC is committed to strengthening R&D collaboration among businesses, academia and government. These collaborations provide RDC with a greater understanding of the R&D activities occurring in the province and enable us to leverage our efforts to attract leading researchers, undertake new research, and build world class infrastructure. These relationships are essential for generating long-term economic prosperity in the province.

## **BUSINESS**

RDC works with business partners to increase their R&D capacity and ability to deliver innovative projects. To achieve this, RDC offers a full suite of commercial funding programs, delivers applied R&D services, and engages in targeted initiatives aimed at enhancing the quality and quantity of business and collaborative R&D.

## **ACADEMIA**

RDC works with academia to identify R&D projects, strengthen R&D equipment and infrastructure, and develop highly-qualified researchers and students. RDC also works to facilitate local, national, and international collaborative R&D projects.

## **GOVERNMENT**

RDC works with government partners to develop R&D policy and advance strategic initiatives that maximize potential long-term economic benefits. With the federal government, collaboration often includes making co-investments in R&D projects.

Our focus on collaboration is helping to create the connections required to achieve sustainable economic growth in the province. This collaborative approach to increasing R&D aligns with the Provincial Government's broader strategic direction to enhance R&D activity to support an innovative and knowledge-based economy in Newfoundland and Labrador.

# GROWING APPLIED R&D SOLUTIONS

PROTECTING ASSETS BY EXPOSING THEM TO THE ELEMENTS

RDC has launched its first commercial research and development facility, the Coastal Exposure Materials Testing Site (Coastal Exposure), located in Argentina. The facility offers year-round exposure field testing to assist customers who are developing solutions and technologies that help protect vital industry assets.

The new service fills a gap in the North American asset integrity market, providing harsh, real world conditions in a controlled, accessible environment. Coastal Exposure is managed by RDC's new R&D Solutions division, offering clients collaborative R&D project development services and a range of materials testing options, including full

service corrosion expertise. RDC will support a broad range of projects in the marine, construction, utilities, automotive, energy, aerospace and manufacturing industries.

This exposed coastal facility is located in one of the most corrosive natural environments in the world on the southern coast of the Avalon Peninsula.

## SITE QUALIFICATION

RDC has made significant progress toward qualifying the facility against ISO standards. The first series of tests, assessing the corrosion rate of aluminum under specific

conditions, demonstrated that the site fits in the highest category for corrosion rates on the standard scale. Testing is underway to generate additional information for corrosion test site classification purposes.

## COLLABORATING WITH NASA'S CORROSION LAB

RDC is partnering with NASA's Corrosion Technology Laboratory in a collaborative test program to compare the Argentina site to NASA's Beach Corrosion Test Site at Kennedy Space Center in Cape Canaveral, Florida. NASA's site has been documented as having higher atmospheric corrosion

rates than any other field test site in North America, and while the mechanism of corrosion may be different in northern and southern climates, an understanding of how corrosion progresses in a cold water climate versus a warm water climate will help RDC to explain the need for coatings manufacturers and others with corrosion protection technology to use more than one field site when evaluating their products' performance.

## BUSINESS ACTIVITIES

RDC has developed a marketing strategy for the site and has attracted interest from

major oil and gas companies, established coatings companies, and start-up coating and materials companies interested in demonstrating their technologies.

RDC has established an international advisory committee of industry experts in corrosion and materials science to provide market intelligence and guidance on R&D service opportunities for Coastal Exposure. The committee will provide advice and guidance to RDC on an ongoing basis.



# IGNITING R&D

*Last year RDC committed more than \$21.8 million to 108 R&D projects. These investments are concentrated in priority sectors and will leverage \$139.3 million from other partners, including \$101.6 million from industry.*

RDC worked to increase R&D in the province last year by focusing on the strategic issues established in our Strategic Plan 2014-2017. Key strategic issues include:

SERVING AS A CATALYST TO SUPPORT INCREASED R&D

FOCUSING R&D IN PRIORITY AREAS

SUPPORTING INCREASED BUSINESS R&D INVESTMENT

In 2014-15, RDC worked to make a measureable impact in each of these three key areas. The level of industry investment in R&D last year was particularly strong and represents a clear indication that RDC's efforts to increase R&D in the province are gaining momentum. Further, by making these strategic investments, RDC is supporting Government's strategic direction to enhance R&D activity to support an innovative and knowledge-based economy in Newfoundland and Labrador.

# SERVING AS A CATALYST TO SUPPORT INCREASED R&D

RDC served as a catalyst to increase R&D in 2014-15 through strategic investments in highly-qualified people, world-class infrastructure and leading-edge research. These investments support the creation of a dynamic R&D environment that can drive long-term economic growth. To achieve this goal, RDC successfully delivered its suite of R&D funding programs and established its first applied R&D test site.

## BUILDING R&D INFRASTRUCTURE

SUNCOR ENERGY

### SUNCOR ENERGY OFFSHORE R&D CENTRE BRINGS BUSINESS AND ACADEMIA TOGETHER

Over the past decade, Memorial University's Faculty of Engineering and Applied Science has been home to some of the top researchers in the world for offshore engineering. They have been addressing some of the most complex engineering challenges in the ocean technology sector – and some more down-to-earth problems, such as a shortage of research space.

With enrolment and external research funding growing rapidly, research teams were either over-crowded or scattered – sometimes off campus – preventing the synergy and collaboration that comes with working effectively as a team.

The solution was to expand the S.J. Carew engineering building. The Faculty of Engineering and Applied Science was a successful applicant to RDC's R&D Infrastructure Call for Proposals, thanks in part to a collaborative \$2 million investment from Suncor Energy. One of the goals of RDC's call for proposals was to generate significant private-sector investment in R&D infrastructure in the province.

RDC contributed \$4.8 million to the centre, which officially opened in 2014. The Suncor Energy Offshore R&D Centre is a dedicated R&D space allowing Memorial University's research teams to collaborate closely with local technology and offshore companies with greater effectiveness.

The new R&D space provides a place where researchers come together to enhance R&D capability in Newfoundland and Labrador. The 1,320-square-metre expansion is forecast to help grow Memorial's Faculty of Engineering and Applied Science R&D by \$6 to 8 million per year over the next five years.

It also provides a modern, dedicated research environment for approximately 100 full-time equivalent researchers, including 12 R&D projects currently supported by RDC. Current projects at the centre include an offshore drilling simulator for deep water environments, multiphase flow assurance for offshore oil and gas applications, and a practical ice operations design and assessment tool, among many others.



# R&D PROGRAM UPDATE

## PROGRAMS THAT PLAY TO OUR STRENGTHS

RDC believes in focus. We see the greatest opportunities in areas where we are strong, experienced and proven to be successful. We believe in leveraging core strengths of the Newfoundland and Labrador economy, including ocean technology, energy development, and mining and minerals.

To help drive our focused approach, RDC developed and renewed three directed research programs in 2014-15, and launched a fourth program to support the development of highly qualified, post-doctoral level researchers in the province.

RDC's research programs support business- and academic-led R&D by providing funding to R&D projects that benefit the Newfoundland and Labrador economy, leverage funding from private and other sources, and develop highly qualified people. Through this approach we are building R&D capacity, increasing our capabilities, and developing a stronger knowledge-based economy.

### GEOEXPLORE (2014-16)

Newfoundland and Labrador is a mineral- and petroleum-rich province whose resources are developed into commodities for the global market. Our mineral sector is currently worth approximately nine per cent of the province's GDP.

On April 1, 2014, RDC launched a renewed GeoEXPLORE program, with \$3 million available for investment in mineral and petroleum-related research and development (R&D) projects over three years. Through our GeoEXPLORE program, we are laying the foundation for continued growth and improved technology in the mineral and petroleum sector.

GeoEXPLORE will accelerate R&D in geoscience specific to mineral and petroleum exploration and development. Directed research in this sector involves a multi-year commitment to problem solving, capacity building and collaborative R&D.

### ARCTICTECH (2015-2019)

The global market for Arctic technologies is growing rapidly. Newfoundland and Labrador is recognized as a globally competitive cold ocean research laboratory. Building on this global opportunity and our province's strengths, RDC developed a renewed ArcticTECH directed research program to support Arctic, cold ocean and harsh environment R&D.

The ArcticTECH program focuses on technologies that support resource development, operations, enhanced safety, and environmental protection in the Arctic and other harsh environments. The new program also builds entrepreneurial capacity in the province, supporting R&D projects initiated by students or recent graduates with the potential for a new business start-up.

RDC has made a long-term investment in this strategic initiative, committing up to \$10 million in funding for eligible R&D projects over the next five years.

### SENSORTECH (2015-17)

Newfoundlanders and Labradorians work in isolated locations, and across vast areas of ocean. Our work requires us to monitor the sea bed, offshore waves, ice floes, and remote corners of our province. We have found ways to operate in these environments and monitor change, without always physically being there.

To support and further enhance our expertise in these areas, RDC has developed SensorTECH, a new directed research program in support of sensor-related research, development and demonstration in Newfoundland and Labrador.

SensorTECH focuses on supporting our R&D capabilities in an area of critical importance to our offshore, mining, ocean industries and environment sectors. It supports R&D related to radar, acoustics, optics, sonar, and signal processing technologies.

Our goal is to enable technology commercialization and resource development, and to leverage local, national and international collaboration that drives research, development and deployment. RDC will invest up to \$5 million in eligible R&D projects over three years.

### EMPLOYR&D

Having employees with R&D skills is critical to business success and growth. RDC recognized the need to increase R&D capacity in the private sector while at the same time helping Ph.D. researchers gain experience in a industry setting.

On November 12, 2015, RDC launched a new funding program, EmployR&D, to help businesses hire recent Ph.D. graduates to support their R&D activities. This new funding program provides up to 75% of the salary for a Ph.D. graduate in science or engineering and is available to Newfoundland and Labrador businesses with R&D projects requiring technical expertise at the Ph.D. level.

RDC is providing opportunities to encourage innovation, creativity and positive commercial outcomes. EmployR&D will enhance private sector R&D capabilities, attract high calibre technical resources, and encourage recent Ph.D. graduates to pursue careers in Newfoundland and Labrador.



# RESEARCH EXPEDITION TO UNIS

DR. ROCKY TAYLOR

## A CATALYST FOR INTERNATIONAL COLLABORATION

### EXPLORING ICE ENVIRONMENTS WITH THE UNIVERSITY CENTRE OF SVALBARD ARCTIC EXPEDITION

With an investment from RDC's ArcticTECH directed research funding program, Dr. Rocky Taylor is enhancing the province's knowledge and understanding of ice conditions and how we monitor ice environments. Dr. Taylor is C-CORE's Centre for Arctic Resource Development's (CARD) Chair in Ice Mechanics from Memorial University's Faculty of Engineering and Applied Science.

As part of an eight-day field expedition offered by the University Centre of Svalbard (UNIS), Dr. Taylor and his expedition team set sail on the Lance Research Vessel on April 22, 2014, to explore the Barents Sea. Aboard the vessel, Dr. Taylor and his team were joined by an international group of researchers and students from Norway, Russia, the United Kingdom and Canada.

The expedition team consisted of CARD researchers Drs. Eleanor Bailey and Ian Turnbull along with two Memorial University graduate students, Doug Smith and Regina Sopper. Participating in this expedition provided Dr. Taylor with the opportunity to gather data to support current and future research projects relating to identifying and documenting Arctic ice features, interpreting satellite imagery for ice environment characterization, and assessing the mechanical properties of sea ice and ice ridges.

"It was a great learning experience for students and researchers alike," said Dr. Rocky Taylor. "We performed on-ice field tests and completed an intensive data collection campaign in an environment that is rarely visited by researchers."

The expedition was made possible through an investment by RDC. With RDC's investment in the expedition, Dr. Taylor and his team have collected data that can enhance Arctic technology research in the province's oil and gas industry.

Additionally, this project is opening doors for Dr. Taylor and his team to work with international institutions and Arctic researchers, providing increased research capabilities with C-CORE as well as other ongoing Arctic related projects funded by RDC.

# FOCUSING R&D IN PRIORITY AREAS

RDC recognizes that focusing R&D is the key to delivering a strong economic impact. To maximize returns on R&D investments and support growth in areas of Provincial competitive advantage, RDC has defined its priority sectors as energy, mining and minerals, and ocean technology. By targeting two-thirds of our R&D investments in these priority sectors, while supporting R&D in other sectors that can deliver an economic impact, RDC strives to maximize the return on its investments.

## MINING AND MINERALS

SEARCH MINERALS

### NEW TECHNOLOGY FOR LABRADOR'S RARE EARTH ELEMENTS

The greatest challenge in mining and minerals is not necessarily finding deposits, it is finding the right technology to extract, refine and deliver the resources to market in an economically and environmentally feasible manner.

This is the challenge that Search Minerals Inc. faces in Southeast Labrador, where it is pursuing a project to separate and refine rare earth elements from its Foxtrot Project in the Port Hope Simpson Rare Earth Element District.

"We have the resource, we have the Foxtrot deposit, which is a volcanic belt that could host up to 20 prospects," said Dr. David Dreisinger, Search Minerals' Vice President, Metallurgy.

Mining and minerals is one of the most important sectors in the Newfoundland and Labrador economy, representing approximately nine percent of total GDP. RDC recognizes the importance of this priority sector and the tremendous potential of technological solutions to increase the economic benefits we derive from our natural resources.

In the case of Search Minerals, that potential may be an opportunity to create a new mine and processing facility in Labrador.

Standard metallurgy processes include crushing, grinding, flotation and separation to produce a concentrate that can be shipped to a refinery. In this case, however, the capital and operating costs of standard metallurgy proved too costly.

A technological solution was required.

In 2014 RDC invested \$112,500 to assist Search Minerals in its development of innovative technology for the recovery and refining of rare earth elements in Labrador. RDC's investment was matched by the Atlantic Canada Opportunities Agency (ACOA), and an additional \$75,000 in working capital was provided by Search Minerals.

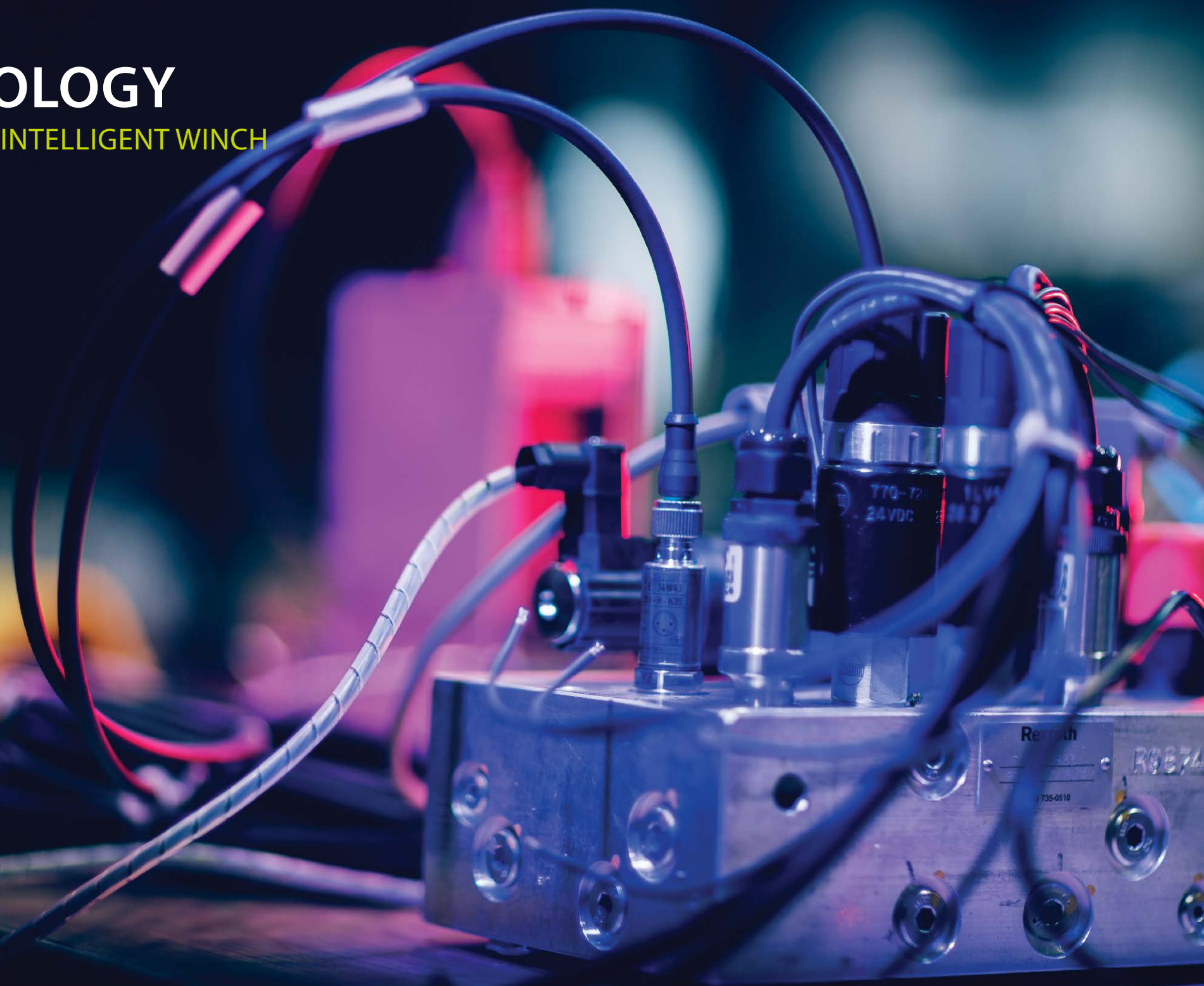
With the \$300,000 total investment, Search Minerals was able to pursue an alternative to standard metallurgy processes. Search Minerals' R&D project involved crushing only, and eliminated grinding, flotation, magnetic and gravity separation from the flow sheet. It also treats a larger volume of rock in solution.

The R&D project proved successful, allowing Search Minerals to demonstrate that mineral separation can be achieved for this deposit with lower energy requirements, making the project much more economically feasible. "We've got proof of principle, we have a process that gives us high value, high concentrate," said Dr. Dreisinger, "Next we want to run a miniature pilot plant. Our goal would be to show a potential refiner that we can have a consistent product with consistent grade."

The potential economic benefit is significant: rare earth elements and associated metals are important to the petroleum industry and are vital in the high-tech manufacturing sector, where they are used in high-strength magnets, flat-screen TVs, lasers, miniature batteries, superconductors, energy-efficient lighting, and nanotechnology applications.

# OCEAN TECHNOLOGY

## ROLLS-ROYCE INTELLIGENT WINCH



### ROLLS-ROYCE CANADA AIMS TO IMPROVE OFFSHORE SUPPLY OPERATIONS THROUGH R&D

One of the greatest hazards in transporting vital equipment to offshore facilities occurs in the final stages, when the equipment is hoisted from a supply vessel to an offshore drilling or production platform.

The supply vessel pitches and sways at a different rate than the platform, making it particularly challenging to attach the heavy crane hook to equipment on the supply vessel. It also increases costs when operators have to wait hours or days for favourable sea conditions to make a transfer.

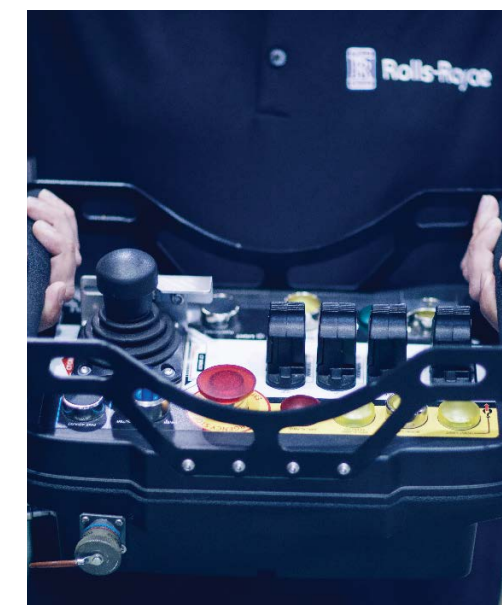
Rolls-Royce Canada is seeking to increase the availability of cargo transfer opportunities, and at the same time reduce the risk of injury to offshore oil and gas workers in the process. To achieve this, Rolls-Royce is developing a new intelligent winch system that will address the challenges of loading and unloading supplies in Arctic and harsh offshore operating environments.

RDC recognizes the potential benefit this new technology offers the offshore industry and the provincial economy and is investing \$300,000 in the intelligent winch R&D project through its ArcticTECH program. Rolls-Royce Canada and its industry partners are investing \$651,950 in the project.

This project is helping Newfoundland and Labrador enhance its reputation as a leader in R&D and in the advancement of the innovative technologies required for harsh operating environments. The province's R&D capacity and skilled labour force are recognized globally and have elevated our position as a world leader in offshore operations.

Rolls-Royce has been operating in Canada since 1947 and currently has over 1,200 employees working in eight offices and facilities throughout Canada. The company opened an office and warehouse facility in Mount Pearl in September 2009.

Investing in R&D projects in priority sectors, such as oil and gas and ocean technology, is imperative to achieving long-term economic growth in this province. An intelligent winch system could have a significant impact on increasing the number of operational days that cargo can be transferred to and from the supply vessels and the platform, while increasing safety of personnel working on those vessels.



# ENERGY

## STATOIL'S ARCTIC R&D STEP-UP



### STEPPING UP TO SUPPORT OFFSHORE R&D

Research and development is critical to the oil and gas sector, the largest contributor to the province's GDP. At RDC we are focused on the sector's potential to drive technology development, and to increase business expenditures in R&D.

On June 10th, 2014, RDC and Statoil Canada Ltd. jointly announced the awarding of three R&D contracts under the Statoil R&D Step-Up Initiative, a collaboration with RDC to bring private and public sector investments together to further technological developments in our offshore energy industry. The announcement marked a major milestone in RDC's work with Statoil Canada to ignite the province's R&D potential in subsea production systems and remote sensing technology.

The initiative was launched as an invitation for proposals in 2013 with RDC as a collaborative partner. Three R&D projects were funded through the initiative and RDC's ArcticTECH program. The total value of the projects is \$3.9 million, including

a \$2.4 million investment from Statoil Canada and a \$1.5 million investment from RDC. This initiative aligns with RDC's efforts to enhance the province's reputation as a globally competitive cold ocean research laboratory and proving ground for harsh environment R&D. Newfoundland and Labrador's deeply rooted culture in ocean innovation has turned harsh environment challenges into opportunities and competitive advantages.

RDC recognizes Statoil Canada as an ideal partner in this initiative, bringing private-sector investment and globally recognized technological expertise to the initiative. Like RDC, Statoil seeks strategic, innovative solutions to build expertise and to solve key harsh environment challenges.

These three projects are all aimed at developing new technologies and enhancing business R&D capacity, while also supporting harsh environment development opportunities and technology needs. RDC is confident this collaborative initiative will provide significant long-term benefits to the province.

# SUPPORTING INCREASED BUSINESS R&D INVESTMENT

Business R&D is critical to igniting economic growth, as businesses rapidly realize the value of new discoveries to enhance their competitive position. Newfoundland and Labrador has historically had low levels of business R&D, but RDC is successfully working to reverse this trend. In the past two years, more than 50% of RDC's investments have been in business-led R&D projects. RDC has made this a key strategic priority to maximize the economic impact of our activities.

## R&D IN UNEXPECTED AREAS

NEWFOUNDLAND ENERGY SERVICES

### TURNING WASTE OIL INTO FUEL

When Hubert Alacoque sees used oil flowing from an engine oil change, he doesn't see sludge or waste. He sees fuel. As an entrepreneur and professional mechanical engineer who owns two Pit Crew oil change service centres in the St. John's area, Hubert Alacoque saw this as an R&D opportunity, not a business liability.

The trouble is, used motor oil is still a waste product controlled by safety and environmental regulations, and as such must be transported under strict regulatory conditions that require large capital investments in equipment and logistics. As a result, service stations must pay to properly dispose their waste oil. Used engine oil can be burned directly in a waste-oil fuel furnace, providing a good heat source with typically no more emissions than diesel or home heating fuel.

While technology exists to re-refine waste oil, it is available only at a very large scale – at a few mainland refineries – or at a small, non-commercial scale. What Alacoque needed was a portable, commercial oil treatment unit that could turn used engine oil into fuel.

The equipment would have to be extremely precise, creating a cleaner fluid that could be analyzed and formally classified as having the same chemical composition as fuel oil.

Enter Daniel Alacoque, Hubert's son and business partner who is a chemical engineer, currently completing a Master of Engineering program at Memorial University. Daniel is designing and building the small-scale treatment unit for the family business, Newfoundland Energy Services Ltd. (NESL), and is conducting complementary research at Memorial as part of his master's project.

RDC seeks out Newfoundland and Labrador companies such as NESL, providing guidance and financial support to help them achieve their research and development goals, and ultimately generate economic activity that benefits the province. RDC has supported NESL through its R&D Proof of Concept program, providing investment to help offset the cost of developing a pre-commercial prototype oil treatment unit.

To date Daniel has designed and developed the prototype unit and is currently defining the chemical composition of the refined product and adjusting flow-through to improve the process.

If successful, the project will create a cleaning, recycling and reprocessing technology that will add value to used motor oils and reduce the environmental risk and financial burden of transporting used oil over our roads and waterways.



# SUPPORTING SAFETY

FALCK SAFETY SERVICES



## FALCK SAFETY SERVICES IS ANSWERING QUESTIONS THAT COULD SAVE LIVES

Falck Safety Services' Director of R&D, Dr. Mike Taber, looked at offshore helicopter transportation in Newfoundland and Labrador and asked an important question: exactly how much force is required to push out the emergency escape window on a modern helicopter if it ditches at sea? It was a question that had not been answered.

With funding support from RDC, Dr. Taber set out to find out, and potentially save lives.

Falck's first R&D project in the province is to identify the specific human factor requirements to open a Sikorsky S-92 push-out emergency escape exit. It is one of two RDC-supported R&D projects they are conducting in a brand new state-of-the-art Helicopter Underwater Egress Training (HUET) facility in Mount Pearl. RDC's R&D funding and offshore market interest in Newfoundland and Labrador helped Falck in its decision to open a new facility in this province.

Falck and RDC announced the two R&D projects this year. The second project will investigate the effect of wave patterns on the performance and retention of sea survival skills in offshore workers. This project will provide information on optimal training conditions, and how escape and survival skills are acquired.

Both projects have the potential to improve safety and open new markets for training expertise developed in the province. For Dr. Taber, the real benefit is improved safety.

"Ultimately, we want to ensure that workers return home safely to their family and friends," he said. "Thanks to the funding provided by RDC, these projects will provide a superior understanding of the complex issues that could be faced while traveling to and from, or working, offshore. This new knowledge will then be used to develop advanced training solutions that are better suited to preparing individuals for situations that we hope they will never face."

"Falck intends to conduct additional R&D at the new training facility on an ongoing basis. It's all about training offshore workers so that they can be as safe as possible in our offshore work environment," Dr. Taber said.

Falck's multi-million dollar HUET facility includes a 60-metre-long pool to simulate and train individuals for helicopter ditching and ocean survival. The R&D conducted at the centre will provide valuable, incremental information to trainers, safety and survival manufacturers and regulatory bodies. The information will help to better prepare workers for survival in our North Atlantic environment and be applicable globally in terms of future underwater escape training and exit design.

# SUPPORTING GROWTH IN HIGH POTENTIAL AREAS

SEAMATICA AEROSPACE



## SEAMATICA AEROSPACE'S FLYING ZEUS PROJECT IS CREATING SAFER SEA, LAND AND SKIES

One of the greatest challenges facing the unmanned aircraft industry is collision avoidance. How can we expand the commercial use of unmanned aircraft, while reducing or eliminating the risk that they will crash into other aircraft, or each other? Over the past year, Seamatica Aerospace Limited has been expanding work with their ground-based sense-and-avoid radar solution (known as "Zeus") to better protect Unmanned Aircraft Vehicles (UAVs) and test sites.

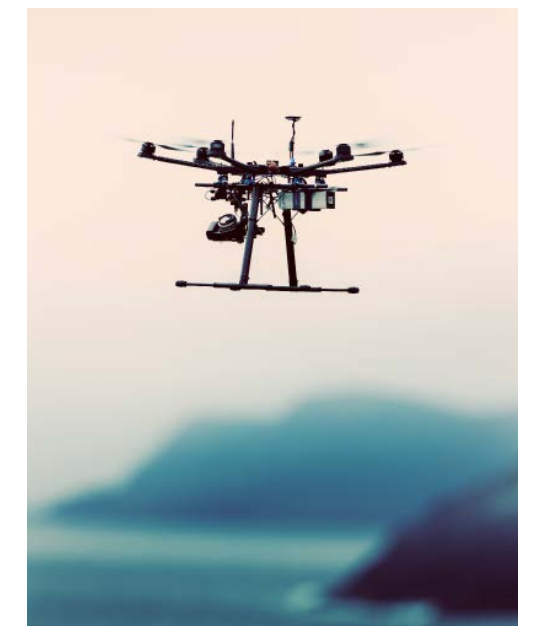
Seamatica is a St. John's based company focused on commercializing collision avoidance systems for Unmanned Aircraft Systems (UAS). Recognizing the importance of this work and potential economic benefit to the province, RDC is supporting Seamatica's Flying Zeus project through its R&D Proof of Concept program.

UAVs are not permitted to operate beyond visual line-of-sight because automatic collision-avoidance systems are currently unavailable. A collision avoidance system would allow an unmanned aircraft to sense and avoid other aircraft in the same airspace.

Seamatica provides automatic collision avoidance system solutions through its ground-based sense-and-avoid radar solution technology, which uses the Zeus radar to track aircraft not equipped with Automatic Dependent Surveillance-Broadcast transceivers. Seamatica is making it possible for UAVs to be equipped with real-time detection and tracking capabilities.

Seamatica's flagship product, GuardianEye, provides ground-based solutions for UAV operators to undertake missions that are beyond the visual line-of-sight. The Zeus radar within GuardianEye protects UAS test sites and field operation areas from unannounced incursion by manned aircraft. By taking the Zeus radar solution and attaching it directly to UAVs, the unmanned aircraft will not harm other manned aircraft or ground assets wherever it flies, without human intervention.

With the successful completion of this project, Seamatica will be filling a technology gap for UAV operation safety in the aerospace industry. No longer will UAV operators be limited to the visual line of sight that confines the vehicle from going greater distances and doing more. This will result in cost savings for unmanned aerial surveillance and close-field asset inspection for the onshore and offshore oil & gas, utility, mining, forestry and pulp and paper sectors, while reducing risks to the traditional human operators.



# LOOKING FORWARD

Next year, RDC's major priority will be continued growth in business R&D to further build on our economic impact to date. RDC is strengthening its suite of programs with the launch of SensorTECH, a new program to support sensor-related research, development and demonstration in Newfoundland and Labrador. RDC will also seek continued growth in the development of applied R&D services, in particular at its Coastal Exposure Materials Test Site in Argentina. RDC realizes that these opportunities will have challenges, however, as Newfoundland and Labrador faces uncertain economic conditions. The price of oil is forecast to remain low in 2015-16. The offshore oil industry has been a catalyst for growth and R&D activity, and a slowdown in the sector may have some impact on overall R&D spending. RDC will closely monitor economic conditions to ensure its activities are well-aligned to the needs of businesses, academia, and government stakeholders.



# APPENDIX A – REPORT ON PERFORMANCE

## STRATEGIC ISSUE 1: SERVING AS A CATALYST TO SUPPORT INCREASED R&D

- Goal:** By March 31, 2017, RDC will have served as a catalyst to support increased R&D investment in Newfoundland and Labrador
- Measure:** Served as a catalyst to support increased R&D investment
- 2014-15 Objective:** By March 31, 2015, RDC will have supported R&D activities and promoted collaboration among R&D stakeholders
- Indicators:**
- Number of, and RDC funding for, R&D projects
  - Amount of R&D investment leveraged
  - Number of, and RDC funding for, R&D infrastructure and equipment
  - Number of R&D collaborations supported
  - Number of outreach and promotional activities in support of R&D
  - Number of highly qualified people supported

### RESULTS

#### (1.1) Number of, and RDC Funding for, R&D Projects

# of Projects	Value of RDC Investment
108	\$21,895,944

#### (1.2) Amount of R&D Investment Leveraged

Value of RDC Investment	Total Value of Leverage
\$21,895,944	\$139,398,914

#### (1.3) Number of, and RDC funding for, R&D Infrastructure and Equipment

Number	RDC Investment
142	\$7,367,447

#### (1.4) Number of R&D Collaborations Supported

Total Collaborations
189

#### (1.5) Number of Outreach and Promotional Activities in Support of R&D

# of External Presentations	# of Conferences / Trade Shows Attended	# of RDC Sponsored Events	# of News Articles Highlighting RDC
45	55	13	54

#### (1.6) Number of Highly Qualified People (HQP) Supported

HQP Supported	Students Supported
352	200

### DISCUSSION OF RESULTS – BUILDING A FOUNDATION FOR R&D

In 2014-15, RDC achieved its objective and made significant progress towards its three-year goal of serving as a catalyst to support increased R&D. RDC committed \$21.9 million to 108 projects, leveraging \$139 million from other partners. RDC's investments supported increased capacity in the province, with growth among R&D collaborators (189), new research and infrastructure (142) and increased numbers of highly-qualified people (352) and students (200). RDC also helped grow an active and dynamic R&D environment with sustained outreach and promotional activities.

## STRATEGIC ISSUE 2: FOCUSING R&D IN PRIORITY AREAS

**Goal:** By March 31, 2017, RDC will have provided support to increase R&D investment in the priority sectors of energy, mining and minerals, and ocean technology

**Measure:** Supported increased R&D investment in priority sectors

**Annual Objective:** By March 31, 2015, RDC will have delivered programs that focus R&D investment into priority sectors

- Indicators:**
- Number of, and RDC funding for, projects in priority sectors
  - Amount of R&D investment leveraged in priority sectors
  - Ratio of projects funded in priority sectors versus all other sectors
  - Number of highly qualified people supported in priority sector R&D projects
  - Opportunities advanced to support new R&D facilities that increase R&D investment in priority sectors

### RESULTS

#### (2.1) Number of, and RDC Funding for, Projects in Priority Sectors

# of Priority Sector Projects	\$ Value of RDC Investment
58	\$17,023,581

#### (2.2) Amount of R&D Investment Leveraged in Priority Sectors

Total Leverage in Priority Sectors
\$80,931,693

#### (2.3) Ratio of Projects Funded in Priority Sectors Versus All Other Sectors

Percentage of Projects in Priority Sector	Percentage of Total Funding in Priority Sector Projects
54%	78%

#### (2.4) Number of Highly Qualified People Supported in Priority Sector R&D Projects

HQP Supported	Students Supported
188	102

#### (2.5) Opportunities Advanced to Support New R&D Facilities that Increase R&D Investment in Priority Sectors

Throughout 2014-15, RDC continued to pursue new opportunities for its R&D Solutions line of business, building on the launch of the Coastal Exposure Materials Test Site in Argentia. RDC examined potential opportunities relating to ice management, environmental monitoring and deepwater R&D for the offshore oil and gas industry. The current set of prospects is concentrated in RDC's priority sectors. The analytical work to examine the potential of these opportunities is ongoing.

### DISCUSSION OF RESULTS

In 2014-15, RDC was successful in achieving its strategic objective of increasing R&D conducted in the priority sectors of energy, mining and minerals, and ocean technology. RDC invested \$17 million in 58 projects in priority sectors, leveraging \$80.9 million from other partners. These investments represent 54% of all RDC supported R&D projects last year, but account for more than 78% of RDC's total R&D investment value. These investments supported 188 HQPs. In 2014-15, RDC also established itself as an R&D performer with the launch of Coastal Exposure Materials Testing Services, further supporting R&D growth in priority sectors.

## STRATEGIC ISSUE 3: SUPPORTING INCREASED BUSINESS R&D INVESTMENT

**Goal:** By March 31, 2017, RDC will have provided support to increase business investment in R&D in Newfoundland and Labrador

**Measure:** Supported increased business investment in R&D

**Annual Objective:** By March 31, 2015, RDC will have delivered programs that support an increase in business investment in R&D

- Indicators:**
- Number of, and RDC funding for, business R&D projects
  - Amount of R&D investment leveraged from businesses
  - Number of highly qualified people supported in business R&D projects
  - Opportunities advanced to support new R&D facilities that increase business R&D investment

### RESULTS

#### (3.1) Number of, and RDC Funding for, Business R&D Projects

# of Business R&D Projects Funded	\$ Value of RDC Investment
33	\$13,480,072

#### (3.2) Amount of R&D Investment Leveraged from Businesses

Total Leverage from Business
\$101,625,801

#### (3.3) Number of Highly Qualified People Supported in Business R&D Projects

HQP Supported
144

#### (3.4) Opportunities Advanced to Support New R&D Facilities that Increase Business R&D Investment

As outlined in the performance statement against indicator 2.5, RDC has examined the potential of a number of R&D Solutions opportunities. In each case, the primary client group would be businesses. By delivering applied R&D services, RDC will help business solve their technical challenges while ensuring that R&D investments made by businesses stay in the province. If RDC establishes any of the opportunities in the future, this will directly support increased business R&D in the province.

### DISCUSSION OF RESULTS

In 2014-15, RDC successfully encouraged businesses to increase their R&D investments by delivering commercial programs and establishing new applied R&D services. Last year RDC invested \$13.5 million in 33 business-led R&D projects. RDC also leveraged over \$101.6 million from business partners. This significant leverage indicates a growing commitment by businesses to invest in the R&D they require for continuous innovation. Over 144 HQP were also supported in the process. As an R&D performer, RDC is helping business by providing applied R&D services. By offering clients both the funding and services they need to innovate, RDC is igniting innovation and economic growth in the province.

## Management Certification



**AUDITOR  
GENERAL**  
of Newfoundland and Labrador

The accompanying financial statements of the Research & Development Corporation of Newfoundland and Labrador have been prepared by the Corporation's management in accordance with Canadian Public Sector Accounting Standards.

Management is responsible for the integrity and objectivity of the information contained in these financial statements, including the note disclosures. Some of the information in the financial statements is based on management's best estimate and judgment, and gives due consideration to materiality.

Management has developed and maintains a financial and management control system and practices designed to provide reasonable assurance that transactions are properly authorized, assets are safeguarded and liabilities are recognized.

Management is also responsible for ensuring that transactions comply with relevant policies and authorities and are properly recorded to produce timely and reliable financial information to maintain accountability of Research & Development Corporation of Newfoundland and Labrador funds.

The Board of Directors is responsible for ensuring that management fulfills its responsibilities for financial reporting and internal control and meets periodically with management to review and discuss the financial information. The Auditor General of Newfoundland and Labrador conducts an independent audit of the annual financial statements of the Research & Development Corporation of Newfoundland and Labrador in accordance with Canadian auditing standards in order to express an opinion thereon. The Auditor General has full and free access to the financial management of the Research & Development Corporation of Newfoundland and Labrador and meet when required.

Glenn Janes  
Chief Executive Officer

Lawrence Blanchard, CPA, CA  
Chief Operating Officer

St. John's, Newfoundland and Labrador  
June 5, 2015

## INDEPENDENT AUDITOR'S REPORT

To the Board of Directors  
Research & Development Corporation  
of Newfoundland and Labrador  
St. John's, Newfoundland and Labrador

### Report on the Financial Statements

I have audited the accompanying financial statements of the Research & Development Corporation of Newfoundland and Labrador which comprise the statement of financial position as at March 31, 2015, the statements of operations, change in net financial assets, and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

#### *Management's Responsibility for the Financial Statements*

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

#### *Auditor's Responsibility*

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

**Independent Auditor's Report (cont.)**

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

*Opinion*

In my opinion, the financial statements present fairly, in all material respects, the financial position of the Research & Development Corporation of Newfoundland and Labrador as at March 31, 2015, and its financial performance and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.



**TERRY PADDON, CPA, CA**  
Auditor General

St. John's, Newfoundland and Labrador  
June 8, 2015

**RESEARCH & DEVELOPMENT CORPORATION OF  
NEWFOUNDLAND AND LABRADOR**

STATEMENT OF FINANCIAL POSITION  
As at

	March 31, 2015 \$	March 31, 2014 \$
<b>FINANCIAL ASSETS</b>		
Cash and cash equivalents (Note 5)	36,561,579	8,022,872
Portfolio investments	-	26,000,000
Receivables	53,788	286,211
	<u>36,615,367</u>	<u>34,309,083</u>
<b>LIABILITIES</b>		
Accounts payable and accrued liabilities (Note 6)	2,317,603	1,694,779
<b>Net Financial Assets</b>	<u>34,297,764</u>	<u>32,614,304</u>
<b>NON-FINANCIAL ASSETS</b>		
Tangible capital assets, net (Note 7)	1,065,627	1,113,636
Prepaid expenses	56,156	50,563
	<u>1,121,783</u>	<u>1,164,199</u>
<b>Accumulated surplus</b>	<u>35,419,547</u>	<u>33,778,503</u>

Contractual obligations (Note 8)

*The accompanying notes are an integral part of these financial statements.*

Signed on behalf of the Board:

  
Director

  
Director

**RESEARCH & DEVELOPMENT CORPORATION OF  
NEWFOUNDLAND AND LABRADOR**

STATEMENT OF OPERATIONS

For the year ended

	March 31, 2015 \$	March 31, 2015 \$	March 31, 2014 \$
	Budget	Actual	Actual
(Note 13)			
<b>REVENUE</b>			
Government grants	22,026,000	22,031,916	22,040,812
Investment income	583,747	623,690	602,585
	<u>22,609,747</u>	<u>22,655,606</u>	<u>22,643,397</u>
<b>EXPENSES (Note 9)</b>			
Program expenses – Academic	13,131,906	11,499,964	8,553,710
Program expenses – Business	4,034,920	5,696,300	4,558,223
R&D Solutions	500,000	533,239	482,267
Operating expenses	4,238,873	3,285,059	3,210,450
	<u>21,905,699</u>	<u>21,014,562</u>	<u>16,804,650</u>
<b>Surplus</b>	704,048	1,641,044	5,838,747
<b>Accumulated surplus, beginning of year</b>	<u>33,778,503</u>	<u>33,778,503</u>	27,939,756
<b>Accumulated surplus, end of year</b>	<u>34,482,551</u>	<u>35,419,547</u>	<u>33,778,503</u>

*The accompanying notes are an integral part of these financial statements.*

**RESEARCH & DEVELOPMENT CORPORATION OF  
NEWFOUNDLAND AND LABRADOR**

STATEMENT OF CHANGE IN NET FINANCIAL ASSETS

For the year ended

	March 31, 2015 \$	March 31, 2015 \$	March 31, 2014 \$
	Budget	Actual	Actual
(Note 13)			
<b>Surplus</b>	<u>704,048</u>	<u>1,641,044</u>	5,838,747
Acquisition of tangible capital assets	(4,110,000)	(257,700)	(243,231)
Amortization of tangible capital assets	324,899	305,709	284,146
	<u>(3,785,101)</u>	<u>48,009</u>	<u>40,915</u>
Acquisition of prepaid expenses	-	(103,753)	(135,182)
Use of prepaid expenses	-	98,160	125,030
	<u>-</u>	<u>(5,593)</u>	<u>(10,152)</u>
<b>(Decrease) increase in net financial assets</b>	<u>(3,081,053)</u>	<u>1,683,460</u>	5,869,510
<b>Net financial assets, beginning of year</b>	<u>32,614,304</u>	<u>32,614,304</u>	26,744,794
<b>Net financial assets, end of year</b>	<u>29,533,251</u>	<u>34,297,764</u>	<u>32,614,304</u>

*The accompanying notes are an integral part of these financial statements.*



**RESEARCH & DEVELOPMENT CORPORATION OF  
NEWFOUNDLAND AND LABRADOR**

STATEMENT OF CASH FLOWS

For the year ended

	March 31, 2015 \$	March 31, 2014 \$
<b>OPERATING TRANSACTIONS</b>		
Surplus	1,641,044	5,838,747
Non-cash item		
Amortization of tangible capital assets	305,709	284,146
Decrease (increase) in receivables	232,423	(76,069)
Increase in prepaid expenses	(5,593)	(10,152)
Increase in accounts payable and accrued liabilities	622,824	279,502
<b>Cash provided by operating transactions</b>	<b>2,796,407</b>	<b>6,316,174</b>
<b>CAPITAL TRANSACTIONS</b>		
Acquisition of tangible capital assets (Note 7)	(257,700)	(243,231)
<b>Cash applied to capital transactions</b>	<b>(257,700)</b>	<b>(243,231)</b>
<b>INVESTING TRANSACTIONS</b>		
Disposal (acquisition) of portfolio investment	26,000,000	(26,000,000)
<b>Cash provided by (applied to) investing transactions</b>	<b>26,000,000</b>	<b>(26,000,000)</b>
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>28,538,707</b>	<b>(19,927,057)</b>
<b>Cash and cash equivalents, beginning of year</b>	<b>8,022,872</b>	<b>27,949,929</b>
<b>Cash and cash equivalents, end of year (Note 5)</b>	<b>36,561,579</b>	<b>8,022,872</b>

*The accompanying notes are an integral part of these financial statements.*

**RESEARCH & DEVELOPMENT CORPORATION OF  
NEWFOUNDLAND AND LABRADOR**

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

**1. Nature of operations**

The Research & Development Corporation of Newfoundland and Labrador (the Corporation) is incorporated under the authority of the *Research and Development Council Act (the Act)* and is funded by the Province of Newfoundland and Labrador (the Province). The *Act* came into effect December 18, 2009. The objective of the Corporation is to strengthen the focus, quantity, quality, and relevance of research and development (R&D) undertaken within the Province and elsewhere for the long-term economic benefit of the Province.

The affairs of the Corporation are managed by a Board of Directors (the Board) appointed by the Lieutenant-Governor in Council. The Corporation is a Crown entity of the Province and as such is not subject to Provincial or Federal income taxes.

**2. Summary of significant accounting policies**

These financial statements have been prepared by management in accordance with Canadian Public Sector Accounting Standards (CPSA Standards) which require management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. By their nature these estimates are subject to measurement uncertainty. The most significant item for which estimates are used is the useful life of tangible capital assets. The effect on the financial statements of a change in this estimate in future periods could be material and would be accounted for in the period the change occurs.

**Basis of presentation**

These financial statements include the accounts relating to the operations carried on under the name of the Corporation, and have been prepared by the Corporation's management in accordance with CPSA Standards.

**Cash and cash equivalents**

Cash and cash equivalents include cash in bank and short-term, highly liquid investments that are readily convertible into known amounts of cash and are subject to an insignificant risk of change in value. These short term investments have maturities of three months or less at acquisition.

**Portfolio investments**

Portfolio investments include highly liquid term deposits and guaranteed investment certificates that have maturities between three and twelve months at acquisition.

## RESEARCH & DEVELOPMENT CORPORATION OF NEWFOUNDLAND AND LABRADOR

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

### 2. Summary of significant accounting policies (cont.)

#### Revenue recognition

The Corporation recognizes the receipt of government transfers as revenue in the period the transfer is authorized and all eligibility criteria have been met, except when and to the extent that the transfer gives rise to an obligation that meets the definition of a liability for the Corporation. Investment income is recognized as earned.

#### Expenses

The Corporation recognizes expenses on an accrual basis. The cost of all goods consumed and services received during the period is expensed. Program grants are accounted for as government transfers and are recorded as expenses when they are authorized, when eligibility criteria have been met by the recipient, and when a reasonable estimate of the amount can be made.

#### Tangible capital assets

Tangible capital assets are recorded at cost and amortized on a straight-line basis over their estimated useful lives using the following terms:

	Term
Furniture and equipment	5 years
Computer hardware and software	2 years
Network infrastructure	4 years
Enterprise resource package software	3 years
Leasehold improvements	Lease term
Atmospheric corrosion test site	5 years

Tangible capital assets are written down when conditions indicate that they no longer contribute to the Corporation's ability to provide services or when the value of future economic benefits associated with the tangible capital assets is less than their net book value. The net write downs are accounted for as expenses in the statement of operations.

#### Pension costs

Employees of the Corporation are covered by the Public Service Pension Plan (the Plan) or the Government Money Purchase Plan administered by the Province or a self-directed RRSP. Contributions to each plan are required from the employees and are matched by the Corporation. The contributions for pensions are recognized during the period in which the services are rendered and represent the Corporation's total pension benefit obligation. The Plan provides defined pension benefits to employees based on their length of service and rates of pay. The maximum contribution rate for eligible employees is 11.85% (2014 – 8.6%). The Corporation is not required to make contributions in respect of any

## RESEARCH & DEVELOPMENT CORPORATION OF NEWFOUNDLAND AND LABRADOR

NOTES TO FINANCIAL STATEMENTS

March 31, 2015

### 2. Summary of significant accounting policies (cont.)

actuarial deficiencies of the Plan. Total pension expense for the Corporation at March 31, 2015 was \$218,452 (year ended March 31, 2014 - \$210,658).

### 3. Risk management

The Corporation's management recognizes the importance of managing significant risks and this includes policies, procedures and oversight designed to reduce the risks identified to an appropriate threshold. The Board is provided with timely and relevant reports on the management of significant risks. The risks that the Corporation is exposed to through its financial instruments are credit risk, liquidity risk and market risk. There was no significant change to the Corporation's exposure to these risks or its processes for managing these risks from the prior year.

#### Credit risk

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The Corporation's main credit risk relates to cash and cash equivalents, portfolio investments and receivables. The Corporation's maximum exposure to credit risk is the carrying amount of these financial instruments. The Corporation is not exposed to significant credit risk with its cash and cash equivalents or portfolio investments because these financial instruments are held with a Chartered Bank. The Corporation is not exposed to significant credit risk with its receivables as these amounts are due from a Chartered Bank or the Government of Canada. Accordingly there is no allowance for doubtful accounts as all amounts are considered collectible.

#### Liquidity risk

Liquidity risk is the risk that the Corporation will be unable to meet its contractual obligations and financial liabilities as they come due. The Corporation's exposure to liquidity risk relates mainly to its accounts payable and accrued liabilities and its contractual obligations as disclosed in Note 8. The Corporation manages liquidity risk by monitoring its cash flows and ensuring that it has sufficient resources available to meet its obligations and liabilities. The Corporation also has access to a credit facility as outlined in Note 12.

#### Market risk

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: currency (foreign exchange) risk, interest rate risk and other price risk. The Corporation is not exposed to significant foreign exchange or other price risk. The Corporation is not exposed to significant interest rate risk related to its portfolio investments because these investments have fixed interest rates and fixed values at maturity.

**RESEARCH & DEVELOPMENT CORPORATION OF  
NEWFOUNDLAND AND LABRADOR**

NOTES TO FINANCIAL STATEMENTS  
March 31, 2015

**4. Financial instruments**

The Corporation's financial instruments recognized on the statement of financial position consist of cash and cash equivalents, portfolio investments, receivables, and accounts payable and accrued liabilities. The Corporation generally recognizes a financial instrument when it enters into a contract which creates a financial asset or financial liability. Financial assets and financial liabilities are initially measured at cost, which is the fair value at the time of acquisition. The Corporation subsequently measures all of its financial assets and financial liabilities at cost.

The carrying value of cash and cash equivalents, portfolio investments, receivables, and accounts payable and accrued liabilities approximate fair value due to their nature and the short-term maturity associated with these instruments.

Interest attributable to financial instruments is reported on the statement of operations.

**5. Cash and cash equivalents**

	March 31, 2015	March 31, 2014
	\$	\$
Cash in bank	36,561,579	3,022,872
Cash equivalent investments	-	5,000,000
	<b>36,561,579</b>	<b>8,022,872</b>

**6. Accounts payable and accrued liabilities**

	March 31, 2015	March 31, 2014
	\$	\$
Programs grants payable	1,740,038	1,012,711
Trade accounts payable & accruals	116,603	205,580
Payroll related accruals	460,962	476,488
	<b>2,317,603</b>	<b>1,694,779</b>

**RESEARCH & DEVELOPMENT CORPORATION OF  
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NOTES TO FINANCIAL STATEMENTS  
March 31, 2015

**7. Tangible capital assets**

	Leasehold Improve- ments	Furniture & Equipment	Computer Hardware & Software	Network Infrastructure	Enterprise Resource Package Software	Atmospheric Corrosion Test Site	Total
	\$	\$	\$	\$	\$	\$	\$
<b>COST</b>							
Balance, March 31, 2014	835,413	536,270	339,099	47,077	259,085	24,375	2,041,319
Additions	-	1,074	17,091	-	-	239,535	257,700
Balance, March 31, 2015	835,413	537,344	356,190	47,077	259,085	263,910	2,299,019
<b>ACCUMULATED AMORTIZATION</b>							
Balance, March 31, 2014	146,197	302,518	172,806	47,077	259,085	-	927,683
Amortization expense	83,541	78,890	116,887	-	-	26,391	305,709
Balance, March 31, 2015	229,738	381,408	289,693	47,077	259,085	26,391	1,233,392
<b>Net book value, March 31, 2015</b>	<b>605,675</b>	<b>155,936</b>	<b>66,497</b>	<b>-</b>	<b>-</b>	<b>237,519</b>	<b>1,065,627</b>
Net book value, March 31, 2014	689,216	233,752	166,293	-	-	24,375	1,113,636

**8. Contractual obligations**

The Corporation has outstanding contractual obligations under its various programs in respect of approved but not yet disbursed funds in the amount of \$38,366,372. The Corporation has also entered into a lease agreement for the rental of office space and various operating contracts totaling \$3,464,478. Approximate payment of these obligations in future years is as follows:

	Programs \$	Operating \$
2016	18,375,892	686,688
2017	13,395,568	453,100
2018	4,060,522	443,300
2019	1,757,884	442,680
2020	720,940	442,680
Thereafter	55,566	996,030
	<b>38,366,372</b>	<b>3,464,478</b>

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NOTES TO FINANCIAL STATEMENTS

March 31, 2015

**9. Expenses**

The statement of operations presents the expenses of the Corporation by function, the following table presents them by nature:

	March 31, 2015 \$	March 31, 2015 \$	March 31, 2014 \$
	Budget	Actual	Actual
	(Note 13)		
Program grants	15,092,347	15,557,187	11,258,181
Salaries and benefits	4,386,353	3,437,117	3,371,478
Purchased services	1,359,003	1,045,486	1,090,577
Professional services	743,100	669,063	800,268
Amortization of tangible capital assets	324,896	305,709	284,146
<b>Total expenses</b>	<b>21,905,699</b>	<b>21,014,562</b>	16,804,650

**10. Related party transactions**

These financial statements include transactions with related parties. The Corporation is related, as a result of common ownership, to all Crown corporations and agencies of the Province.

During the period, the Corporation had the following related party transactions:

- Program grants expense to related parties of \$10,843,637 (year ended March 31, 2014 - \$8,286,042).
- Purchased supplies and services from related parties for \$622,237 (year ended March 31, 2014 - \$489,206).

**11. Economic dependence**

As a result of the Corporation's reliance on funding from the Province, the Corporation's ability to continue viable operations is dependent upon the decisions of the Province.

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March 31, 2015

**12. Credit facilities**

Subject to the prior approval of the Lieutenant-Governor in Council and the Board, the Corporation may borrow money for purposes related to the attainment of its objectives as set out in the *Act*. At March 31, 2015, the Corporation had available a revolving credit facility of up to \$1,000,000 bearing interest at prime, a letter of credit of up to \$50,000 bearing interest at 1%, and VISA business card(s) with an aggregate limit of \$50,000. At March 31, 2015, the credit facility, letter of credit, and the VISA business card(s) are inactive.

**13. Budgeted figures**

Budgeted figures have been provided for comparison purposes and have been derived from the original estimates approved by the Board.



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