

## **Borealis Exploration Limited Management Report**

These consolidated financial statements for the six months ended 30 September 2014 have been prepared in accordance with International Financial Reporting Standards, International Accounting Standards and Interpretations (collectively IFRSs) issued by the International Accounting Standards Board (IASB) as adopted by the European Union ("adopted IFRS"), the Gibraltar Companies Act, the Gibraltar (Companies Accounts) Act 1999 and the Gibraltar (Consolidated Accounts) Act 1999. For the avoidance of doubt, the Management of Borealis Exploration Limited hereby declares that the same accounting policies and methods of computation have been followed in these six-month interim financial statements as compared with the company's annual financial statements for the fiscal year ended 31 March 2014 (i.e., the most recent annual financial statements of Borealis Exploration Limited).

### ***Business Development and Economic Results for the Six Months Ended 30 September 2014***

As at the six months ended 30 September 2014, Borealis Exploration Limited ("Borealis") and its subsidiary companies had not earned any revenues from operations. Borealis continued to fund and/or conduct its operations primarily through the sale of shares in its subsidiaries and contributions of services and information from third-parties. Through the six months ended 30 September 2014, the management of Borealis continued to spend 80% of its management time and 90% of its financial resources on commercializing the Chorus Motors and WheelTug technologies. Borealis management spent the balance of its time and financial resources primarily on its other technology companies, including Avto Metals plc, Power Chips plc, Cool Chips plc, and, to a lesser extent, on certain of its other companies.

### ***Chorus Motors and WheelTug***

As at the date of these consolidated financial statements, Borealis's subsidiary, WheelTug plc, had sold a total of 985 delivery slots consisting of 517 Boeing 737NG slots, 74 Boeing 737Max delivery slots, and 394 Airbus A320 to Alitalia, Air Berlin, Corendon Airlines, EL AL, Iceland Air, Israir, Jet Airways, KLM Royal Dutch Airlines, Livingstone Compagnia Aerea, Malaysia Airlines, Onur Air, Volaris and one undisclosed airline. A total of 200 of the 911 Boeing 737NG and Airbus A320 slots are convertible between types

The terms of such sales provide that WheelTug plc will lease the units to the airlines after FAA certification is granted, which is expected to result in the first revenue in 2015. It is expected that future booking of WheelTug delivery slots will be subject to the receipt of a deposit in respect of each such delivery slot. It is also expected that such deposit will be refundable in the event that WheelTug plc will decide not to pursue FAA certification in respect of the Boeing 737NG and/or the Airbus 320 families of aircraft, but will otherwise be non-refundable.

In November 2013, WheelTug plc successfully conducted retraction tests on a Boeing 737 and an Airbus A320 aircraft. These tests consisted of retracting, extending and locking into place the nose-wheel landing gear on each aircraft with the current version of the WheelTug unit bolted onto the landing gear. The current M1 version of the WheelTug unit weighs more than the production unit is expected to weigh. The completion of these tests is another milestone on the path to certification with the Federal Aviation Authority (“FAA”) insofar as WheelTug plc now has more data critical to and a clear roadmap for next steps toward the certification process.

Production and delivery of WheelTug units is expected to commence in 2016 after FAA certification is granted. Borealis management believes that the sale of WheelTug units will be the first product in the Borealis family of companies that will result in operating revenue.

On December 18, 2013, Commercial aircraft builder Airbus S.A.S. announced that it will work with WheelTug’s main E-Taxi competitor, aviation suppliers Safran SA of France and Honeywell Inc. of the U.S., to help it develop a system that will allow airlines to push back from an airport ramp and taxi to and from runways using electric motors in their wheels, without using their jet engines. Borealis management views this as a positive development, as airlines see Airbus’s involvement as proof that E-Taxi is coming. To-date, no airline has reserved any Safran/Honeywell delivery slots. Indeed, as communicated in the announcement, Airbus has only committed to evaluation - not formally offering the product to airlines.

### **Avto Metals, Cool Chips and Power Chips**

On 18 November 2013, Cool Chips plc and Power Chips plc announced that their licensed Avto Metals technology to enhance the emission of electrons from surfaces has now been successfully replicated in a series of independent tests. When commercialized for Power Chips, this technology should make possible an array of new products over many industries and applications, including a more efficient way to generate electrical power directly from heat with no moving parts.

When commercialized for Cool Chips, the technology will offer greatly enhanced thermal management capabilities for many consumer and industrial applications, enabling more efficient, smaller, cleaner, lower-cost and non-polluting products. Power Chips plc and Cool Chips plc plan to both license and directly develop these applications.

The patented proprietary technology, called Avto Metals, reduces the work function of materials including metals and semiconductors. Work function is a measure of the energy required to remove an electron from a material. By reducing the work function barrier, electrons can escape more readily. This technology allows, for example, the design and building of more efficient thermionic/thermoelectric converters and better thermal management devices and possibly has use in many other industrial processes.

The new technology results from the discovery that quantum interference, which reduces

quantum state density at a material's surface, can be achieved on a macroscopic scale. Simply by modifying the surface texture of a material in precise ways, using methods commonly applied in the manufacture of semiconductor devices, engineers should be able to exploit this Avto Effect and transform existing materials into materials with precisely-engineered properties for many new applications. When the Avto Effect is fully understood, Cool Chips plc and Power Chips plc could possibly be able to custom design work functions for multiple different applications.

Tests completed in November 2013, conducted on silicon wafers with a nanoscale line pattern, covering millimeter-scale test pads and forming a surface texture to demonstrate the Avto Effect, showed significant and consistent reductions in work function. Results were in line with prior tests using surfaces of several metals. This work on the science and the technology has been ongoing for more than 15 years. More than 40 issued patents cover both the basic technology and many applications.

The steps forward to commercialization are not trivial and obviously high value products will be the first developed. Commercialization is now possible because of the tremendous advances in semiconductor technology in the last decade, which made possible the building of the required Avto Metal structures in a major university laboratory. When the Avto Metals work began over 15 years ago, the world simply did not have the required nanoscale technology to either build or confirm the underlying Avto Metals science.

After scaling to larger dimensions, the technology should enable large cost and efficiency improvements in electrical power generation and refrigeration. The power generation technology, called Power Chips, should revolutionize electrical power generation across virtually all applications. For example, adding Power Chips to extract heat that is now wasted in conventional power plants should be able to increase power generation by up to 20% with no change in fuel consumption or emissions. Power Chips should make possible safe, efficient distributed power, enabling buildings or factories to cogenerate their own electricity from waste heat or geothermal sources. In automobiles and other vehicles, for example, Power Chips may replace the alternator, reducing the mechanical load on the engine and thereby increasing the efficiency of internal combustion engines and hybrids.

The cooling technology derived from the Avto Effect, called Cool Chips, should similarly reduce the cost and increase the efficiency of most cooling or refrigeration systems. It requires no moving parts or motors, produces no chemical emissions, and can be miniaturized for use in micro-electronic applications.

Borealis is in discussions at present to obtain the necessary funding to bring at least one Power Chip and one Cool Chip product to market. There can be no assurance that these discussions will be successful or that the ongoing work will produce any marketable products.

## **Significant changes to key financial information**

The significant changes to the Group's consolidated financial data and operating results during or subsequent to the period covered by the audited Consolidated Financial Statements are:

### ***For the six months ended 30 September 2014***

Borealis spent US\$977,005 on its operations for the six months ended 30 September 2014 and US\$1,468,089 for the same period in 2013. This amounts approximately to a US\$492,000 decrease in operating expenditure in the six months ended 30 September 2014 versus the same period in 2013.

For the six months ended 30 September 2014, Borealis incurred administrative expenses of US\$589,051, US\$42,312 in corporate fees, US\$48,511 in legal fees, US\$147,368 in rent and US\$117,898 in travel compared to administrative expenses of US\$948,917, US\$29,880 in corporate fees, US\$34,961 in legal fees, US\$151,248 in rent and US\$108,819 in travel in the same period in 2013. The changes in the foregoing expenses in the six months ended 30 September 2014 over the same period in 2013 are attributable to a different focus in the various activities in the business of the Borealis family of companies.. The decrease in administrative expenses and increase in corporate and legal fees is primarily attributable to billing cycle differences and the previously mentioned focus in activities. Travel expenses increased in the six months ended on 30 September 2014, as Borealis in line with higher travel costs.

In the six months ended 30 September 2014, Borealis spent US\$902,550 on compensation to directors and officers versus US\$909,150 in the same period in 2013.

In the six months ended 30 September 2014, Borealis incurred and capitalised development expenses amounting to US\$582,148 relating to the Chorus Motors/WheelTug technology compared to US\$573,015 in the same period in 2013.

For the six months ended 30 September 2014, the accumulated loss carried forward for Borealis was US\$27,436,998 compared to US\$30,505,092 for the same period in 2013. The decrease in accumulated loss carried forward in the six months ended 30 September 2014 versus the same period in 2013 is attributable to profits on sale of shares of the subsidiaries exceeding the operating costs of the family of companies.

In the six months ended 30 September 2014, the Borealis family of companies sold US\$122,458 in marketable securities of the Borealis family of companys to third-parties versus US\$70,541 in the same period in 2013. The six-months on six-months increase in 2014 versus 2013 in the amount realized from the disposal of marketable securities is attributable to better market conditions in the six months ended 30 September 2014 versus the same period in 2013.

For the six months ended on 30 September 2014, intangible assets increased to US\$11,901,903 from US\$10,538,299 for the same period in 2013. Intangible assets consist of (i) patents and (ii) the capitalization of Chorus Motors and WheelTug research and development expenses. The increase in the six months ended 30 September 2014 was attributable to more development work on the Chorus/Wheeltug project, and the registration of additional patents..

### **Expected Future Development of Borealis's Business and Economic Results**

Borealis intends to continue an 80% focus of its management time and 90% focus of its financial resources on commercializing the Chorus Motors and WheelTug technologies with the balance of its time and financial resources focused primarily on its other technology companies, including Avto Metals plc, Power Chips plc, Cool Chips plc, and, to a lesser extent, on certain of its other companies. Each of these technologies has successfully undergone tests in the six months ended 30 September 2014 and, subject to receipt of additional funds, will undergo further testing and development the last quarter of fiscal 2015 with a view toward commercialization in fiscal 2016.

### **Segment Reporting**

The projects of the Borealis family of companies are all in development stage and, as such, no segment, division, subsidiary or other component has earned any revenue whatsoever.

### **Related Party Transactions**

For the period ended 30 September 2014, there were no related party transactions that substantially influenced the economic results of Borealis or the Borealis family of companies. Nor were there any changes in related party transactions, which were mentioned in the consolidated annual report of Borealis for the year ended 31 March 2014 that could significantly affect the economic results of Borealis and its consolidated group in the six months ended 30 September 2014.

### **Borealis Statement**

According to my best knowledge, the consolidated financial statements for the six months ended 30 September 2014 provides a true and fair view of the financial situation, business activities and the economic results of Borealis and of its consolidated group for the past six months and about the prospects of the future development of the financial situation, business activities and the economic results of Borealis and of its consolidated group.

### **Borealis Exploration Limited**

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By: Dr. Rodney T. Cox

Title: Chief Executive Officer and Chairman of the Board