

South Boulder Mines

Shallow, port-accessible Eritrean potash

South Boulder's 50%-owned Colluli potash project in Eritrea is at a key juncture. The project has been redefined by new management to present a premium value product, optimising kainite, sylvinite and carnallite resources. The nature of the resource and method of production points to favourable cost economics. The project is logistically well placed for its target export markets. A PFS in February and a DFS during 2015 will flesh out the technical, cost and operational aspects, following which we will be able to make a valuation assessment of the asset. Financing requirements for the project, as yet undefined, will be via a mix of debt and equity. In this note, we review the resource base and market for potash as they relate to the Colluli project.

Eritrea: Proven development ability

Eritrea is a developing country that has a strong understanding of the importance of its natural resources in improving its economic prosperity. The best known company that successfully, on time and on budget, developed a project from a resource into a producing mine in Eritrea is Nevsun with its Bisha polymetallic project. In our view, this demonstrates the willingness of Eritrea's government to have effective JV agreements with mining companies, helping the country to attract significant direct foreign investment.

A favourable location for future export markets

South Boulder's 50%-owned Colluli potash project is favourably located in Eritrea, allowing access to important growth markets for potash such as India, China, Indonesia and Thailand. Panamax-size deep-water at Anfile Bay only 75km away is South Boulder's designated location for a future port, and an existing ship loading facility is 180km away at Massawa.

Geology reduces capex and possibly operating costs

The unique nature of the Colluli resource supports a reduction in development capex through the omission of primary crushing and evaporation stages used to liberate key salts for processing feed stocks. The method South Boulder will use to produce potassium sulphate from its resource should place Colluli at the lower end of the cost curve. This is due in large part to the rare kainite potassium sulphate. Also, a study demonstrating surface mining equipment as appropriate hardware to open-pit mine Colluli omits the need for primary crushing equipment. The shallow depth of the resource also vastly reduces waste extraction. This should benefit South Boulder's efforts to secure market share for its product by passing on potential cost savings to customers and competitively price its products. We await the release of South Boulder's providing a detailed valuation of the company.

Mining prospects, initiation of coverage

Metals & mining

3 February 2015

Price	22c
Market cap	A\$33m
Net cash (A\$m) at 20 January 2015	11
Shares in issue	149m
Free float	59%
Code	STB

Primary exchange	ASX
Secondary exchange	N/A

Share price performance



Business description

South Boulder Mines is a development stage company focused on developing its Colluli potash project in Eritrea. Colluli is held equally between South Boulder and the Eritrean government.

Next event

Pre-feasibility study February 2015

Analysts

Edison profile page



Investment summary

Company description: A multi-nutrient potash resource

South Boulder Mines and Eritrean National Mining Company (ENAMCO) are 50% partners in the Colluli Mining Share Company's (CMSC) world class potash project in Eritrea, for which feasibility and pilot test work is nearing completion. Colluli is a unique resource in that a large portion of it is kainite, a very rare potassium salt that can produce sulphate of potash (SOP) and sulphate of potash magnesia (SOPM) at ambient temperatures. The Colluli resource is also very near surface and all salts are in solid form. This latter point provides for a much smaller and cost-effective (both in terms of opex and capex) mine design.

PFS due in February 2015, then a DFS later in 2015

Following a technical review by South Boulder's new management in 2013, a revised development strategy for Colluli was agreed. This subsequently triggered wide-ranging work programmes, which will be published in an upcoming pre-feasibility study. Concurrently with the release of this study, work will continue, refining the mine design and the type of fertilisers due to be produced from Colluli. Work includes completing a pilot-scale test programme on Colluli ore samples. These continuing work programmes will then form the core of a definitive feasibility study, which Edison believes will be due for release during Q315.

Sensitivities and risks

At this stage, Eritrean country risk is not critical to understanding the technical viability of the Colluli deposit. Higher risk factors are linked to a better understanding of the kinetics behind SOP and SOPM production from a resource type slightly different to potassium salt deposits located elsewhere. This is not to suggest the resource is difficult to develop, rather to point out the considerable capex and operating cost savings that are likely to arise from the production of SOP/SOPM from solid form salts rather than the more typical liquid brine forms (eg in Utah, US). No evaporation of brines is needed to provide the feedstock to the processing plant, potentially limiting permitting issues. Also, the lack of appreciable thicknesses of competent overburden and the free-digging form of the potassium salts eliminate the need for costly explosives.

Financials

South Boulder has no debt and A\$11m in cash, as of 20 January 2015. With a PFS due shortly (February 2015), its cash balance should be enough to complete this, the pilot test programme and a substantial portion of the DFS. The latter will be critical to South Boulder's plans to market its SOP/SOPM fertilisers and secure mine finance.

Project financing strategy

CMSC will seek to fund the initial project development costs, not yet determined, with a mixture of debt (up to 70%) and equity. Any shortfall in the debt component will be underwritten by South Boulder on market terms with repayment consistent with third-party debt. The 30% equity component is South Boulder's obligation. After CMSC's third-party debt is serviced, 50% of the available funds for distribution will be preferentially repaid to South Boulder to settle the interest free loan (50% of equity contribution – Exhibit 2). The remaining 50% of CMSC available funds will be distributed evenly across the JV ownership. This preferential payment to South Boulder occurs until the interest free loan is repaid. After this, available CMSC funds are distributed as per the JV. Once production commences at Colluli both CMSC JV partners will contribute equally to ongoing project



costs through the JV company CMSC. The ownership and JV structure concerning the Colluli project is given in Exhibit 2.

Company description: Eritrean potash

South Boulder Mines (ASX: STB) was established in 2003 as a gold and nickel exploration company. During 2007 it decided to enter the potash sector via the acquisition of tenements in the Lake Disappointment area of central-north Western Australia. The following year, South Boulder acquired further tenements in north-west Australia. It was in 2009 that the company acquired exploration tenements containing its flagship Colluli project in Eritrea. During the following years, drilling was undertaken and drill results identified Colluli as the company's most promising asset. Management restructuring occurred in 2013, and at the same time non-core assets and lower value tenements were spun-out and a technical review of Colluli completed. It was this review that identified that the whole of the Colluli resource should be considered for development rather than just the sylvinite portion, therefore allowing for production of higher-value fertilisers. This approach provides for a more competitive project in a fertiliser market that is seeing oversupply of the more common muriate form of potash, which is commonly produced using sylvinite.

Company ownership: Investing in Eritrea

South Boulder holds an equal interest with the Eritrean government in a JV company called the Colluli Mining Share Company (CMSC). The CMSC holds the Colluli project and is an incorporated and established entity. This is a similar structure to the first mining venture the government entered into with Nevsun Resources for development of the Bisha polymetallic mine in 2011. It is worthwhile noting another successful mining agreement between ENAMCO and the Chinese government for development of the Zara gold project. Also Sunridge Resources is finalising JV terms with ENAMCO for development of its Asmara gold-copper project.



Exhibit 1: Colluli location and shipping routes to future markets

Source: South Boulder corporate presentation

It is interesting to compare the above with development of mining projects in Saudi Arabia, or the lack thereof. In particular, the arrested development of Barrick's Jabal Sayid copper-gold project and the recent announcement that, as of 3 December 2014, an agreement had been reached for the state-run mining company Ma'aden to a 50% interest in the project, that is, after a significant amount of capital had already been sunk into the project. This follows a suspension by the Saudi



government of Barrick's mining licence due to concerns over its health and safety policies. Jabal Sayid is to start shipping copper in concentrate during 2016.

Colluli ownership and funding structure

CMSC will seek to fund the initial project development costs, as yet undetermined, with a mixture of debt (up to 70%) and equity. Any shortfall in the debt component will be underwritten by South Boulder on market terms with repayment and security consistent with third-party debt. The 30% equity component is South Boulder's obligation. After CMSC's third-party debt is serviced, 50% of the available funds for distribution will be preferentially repaid to South Boulder to settle the interest free loan (50% of equity contribution – Exhibit 2). The remaining 50% of CMSC's available funds will be distributed evenly across the JV ownership. This preferential payment to South Boulder occurs until such time as the interest free loan is repaid. After this, available CMSC funds are distributed as per the JV. Once production commences at Colluli, both JV partners will contribute equally to ongoing project costs through the JV company CMSC. The ownership and JV structure concerning the Colluli project is given in the following exhibits.



Geology: Solid form salts aid cheaper development

The Colluli project is situated on the eastern margin of the Danakil depression. This regional geological feature has supported large-scale artisanal mining of surface salt deposits for centuries in Ethiopia. Exploration has also occurred in the region for over 100 years, with potassium mineralisation first discovered in the early 20th century. The salts contained within the Danakil depression were deposited in association with the formation of the East African Rift system. The Danakil depression is a relatively minor structure compared to this rift system, and is also associated with the divergent African-Arabian tectonic plate margins. The depression forms a natural land barrier between Ethiopia to the south-west and Eritrea to the north-east.





Exhibit 4: Location of Colluli (STB licence area in red) relative to proposed and existing port infrastructure.

Source: South Boulder 2013 AGM presentation NB Massawa further up the coast form Anfile has an existing port and is undergoing expansion.

As the two plates moved apart over millions of years, periodic ingress of Red Sea water into the Danakil depression occurred. The following periods of evaporation deposited salt and potash horizons, of which the Colluli resource is one part. Salt horizons occur at a minimum depth of 16m, and average 30m to 50m across the proposed mining area. The maximum depth reported at the Colluli resource is 140m below surface.

Resource: Provides for a flexible, cheaper mine plan

All three salts contained within the Colluli resource are in solid form. This compares to numerous potash projects elsewhere where SOP and SOPM are produced from brines. This has implications for permitting where large evaporation ponds are required and also increases production risk through being reliant on ambient temperature conditions.

The Colluli resource is unique due to all three salts occurring in separate horizons (a stratified orebody), separated from surface by layers of clay, sand and rock salt (halite). The revised approach taken by South Boulder following its technical review in 2013 sought to address the economic benefit of mining and processing all of the salt horizons simultaneously. This reduces the amount of waste handled, reduces mining costs, potentially extends the mine life and increases the scale of the project, therefore improving the project's economics. Previous management concentrated on only the sylvinite and carnallitite resource sections, allowing for the production of only the common MOP type of fertiliser.

Kainite

Kainite makes up over 60% of the Colluli resource and is seen as the key differentiating mineral species. Kainitie is the combination of kainite and halite. Kainite consists of potassium chloride and magnesium sulphate. Kainite exists in salt form in appreciable amounts in four regions of the world: the Dallol Basin (in Ethiopia/Eritrea), Ukraine, Italy and Germany. Kainite has been all but depleted from the German Stassfurt mines due to the salt being used as a direct application fertiliser. With cessation of kainite mining in both the Ukraine and Italy, the Dallol Basin remains the last



unexploited (that is by modern mining techniques; artisanal working of the deposit has taken place for hundreds of years) major deposit with kainite in solid form.

Kainite is the key salt used for low-temperature, high potassium yield production of potassium sulphate. It decomposes to an intermediate salt known as schoenite, and then reacts with potassium chloride under ambient conditions to produce potassium sulphate. In key potassium sulphate producing operations, kainite is formed by evaporation of kainite rich brines. This increases footprint size and renders production rates subject to ambient conditions. Kainite can produce potassium sulphate or potassium chloride depending on the production process chosen. Kainite is difficult to solution mine due to its solubility and so its situation close to surface makes it easily mineable.

Sylvinite

Sylvinite is the most commonly used mineral for the production of potassium chloride. Potassium chloride, also known as muriate of potash or MOP, is primarily produced from evaporite deposits in Canada, Russia and Belarus. Such deposits are deep, with depths of over 1,000m in Canada where the economic 'floor' to mining is said to be 1,200m to 1,500m below ground, beyond which the in-situ leaching method of mining is preferred. This is undertaken by pumping hot solutions into the ground to dissolve and allow transport of brine solutions to surface for further processing. Eastern European deposit depths range from 300m to 500m. Sylvinite is a combination of two salts, sylvite (KCI) and halite (NaCI). Processing sylvinite is relatively simple. The mined material is crushed to a size where sufficient liberation of potassium chloride and halite particles occur. The liberated materials are then selectively separated in flotation units. Halite is typically transported to a tailings storage facility and sylvite is dried and sold as potassium chloride (muriate of potash) fertiliser.

Carnallitite

Carnallitie is the combination of carnallite and halite. Carnallite rich brines are currently recovered from the Dead Sea to produce potassium chloride (MOP). Carnallite occurs with a sequence of potassium and magnesium evaporite minerals: sylvite, kainite, polyhalite and kieserite. Carnallite is an uncommon double chloride mineral that only forms under specific environmental conditions in an evaporating sea or sedimentary basin. It is mined for both potassium and magnesium and occurs in the evaporite deposits of Carlsbad, New Mexico, Utah, US, and the Williston Basin in Saskatchewan, Canada. Israel and Jordan produce potash from the Dead Sea by using evaporation pans to concentrate the brine until carnallite precipitates. The carnallite is dredged from the pans and processed to remove the magnesium chloride from the potassium chloride.

JORC/NI 43-101 resource estimate - 1Bt total

The Colluli mineral resource is unique in that it contains numerous potassium bearing salts, including the rarest, kainite. The following exhibit provides the current JORC-compliant Colluli resource estimate. At 1Bt it ranks as one of the largest and shallowest potash resources globally.

Occurrence	Tonnes (Mt)	Equivalent KCI	Contained KCI (Mt)	% of total resource			
Sylvinite	110	28.4%	31	16%			
Polysulphate	65	10.8%	7	4%			
Carnallite	309	12.3%	38	20%			
Kainite	596	19.8%	118	61%			
Total	1,080	18.0%	194	100%			

Exhibit 5: Colluli resource

Source: South Boulder Mines



Metallurgy and mining: Ambient production of SOP proved in lab, scalable approach to infrastructure

As announced by South Boulder on 9 December 2014, pilot-scale testing of the Colluli process design (Exhibit 6) is currently being undertaken at the Saskatchewan Research Council in Saskatoon, Canada. This test work indicated potassium yields of over 80% commercial grade SOP via combining decomposed kainite and sylvite under ambient conditions. South Boulder expects final overall recoveries to be greater than 85%. This supports the view that Colluli could produce cheap low-energy SOP. South Boulder also considers, due to the mineralogical makeup of the Colluli resource, that SOPM could also be produced. Work to understand the kinetics and cost of SOPM production is underway and is to be included in the DFS study.





Source: South Boulder Mines

The test programme will also provide critical information required to complete the definitive feasibility study, to follow the pre-feasibility study due for release February 2015. Pilot testing will be undertaken on Colluli potassium salt samples. The following critical path information will be obtained:

- Confirmation of the potassium sulphate tonnes per sea water tonne.
- Confirmation of decomposition kinetics.
- Confirmation of precipitation kinetics and retention time.
- Enhancement of product particle size.
- Production of samples for marketing.

Surface miners omit need for costly crushing equipment

Mineralisation at Colluli starts at 16m below surface with a maximum depth of 140m, making it the shallowest potash resource globally. This obviously requires no need for costly underground mining or in-situ solution mining. Instead, the far cheaper and safer open-cut mining technique will be used. Open-cut mining also improves resource recovery, albeit by increasing the amount of waste removed.

The Colluli deposit has a shallow dip of approximately 1° with its deepest point at approximately 140m. Although in general the potassium bearing salts within Colluli are stratified, all salts are accessible simultaneously from different parts of the deposit. This is a significant advantage as it allows all salts to be processed together. It is one of the unique strengths of the resource.

We also note the company's intention to pursue a modular approach for its infrastructure requirements. This will provide for a scalable project that can be started with a relatively small



production rate, and allows for increased production capacity as the company's marketing strategy takes hold and greater demand for its products materialises. The capital efficiency of such an approach will be detailed in South Boulder's DFS, which Edison believes will be released during Q315.

Sensitivities

Political background to Eritrea – a young, developing country

Eritrea only achieved independence from neighbouring Ethiopia in 1991 after a 30-year war. Both countries remain (according to the World Bank website) at a heightened state of troop mobilisation along the border. The border between Ethiopia and Eritrea is not mutually agreed, stemming from the fact that an independent Eritrea results in a landlocked Ethiopia.

Since *de jure* independence from Ethiopia was achieved in 1993 further conflicts have occurred between the two countries, with the last major one ending in 2000. Eritrea is reported to be a highly secretive country (ranking the same in terms of media freedom as North Korea); however, this stance seems not to have imposed restrictions on direct foreign investment as demonstrated by the successful development and subsequent expansion of the Bisha mine by Nevsun Resources.

According to the World Bank, the Eritrean authorities have achieved much in terms of improving basic social and economic infrastructure, macroeconomic stability and economic growth.

The markets for SOP and SOPM

The world market for SOP is estimated to be 6.0 short tons (6.6m metric tonnes) per year (IC Potash) and South Boulder expects demand growth of 4% through to 2020. Key consumers are China and Europe, which together account for 73% of world demand (see Exhibit 8). With fertiliser demand intrinsically linked to agricultural commodity prices, the current environment of low prices for soy and wheat, etc, is of concern to existing MOP potash miners. However, application of SOP fertilisers to higher-value crops appears to have insulated this fertiliser type from the same downward price pressure experienced in the MOP sector (Exhibit 9).





MOP versus SOP prices

The key to South Boulder achieving success will be the ability to cheaply produce SOP, and potentially SOPM. The markets for these fertilisers have experienced better growth and more sustained demand, due largely to the value of SOP/SOPM in its ability to reduce chloride levels in soils – important in high-salinity soils. These fertiliser types are usually applied to higher-value crops (eg tobacco, vegetables, fruits, nuts and beans), and China and India constitute the most important growth markets in terms of SOP/SOPM demand.

Due to the specialised nature of SOP, price data for this fertiliser type is not readily available. Taking information provided by South Boulder Mines, Bloomberg and Compass Minerals, we have provided a price graph comparing MOP and SOP fertiliser types. It is evident from Exhibit 9 that the ratio of SOP to MOP prices has been c 2.0x since Q313, a level not seen since H109. This is not just due to the breakup of the BPC oligopoly in 2013 (when Uralkali broke away from its agreements with Belaruskali, leading to both parties trading fertiliser independently), but could also be attributed to an increasing acceptance of premium fertilisers. It also indicates the different crop types being fertilised. MOP fertilisers are used on lower-value crops (such as corn and wheat), whereas SOP is used on higher-value crops, such as vegetables, nuts and tobacco.





Source: South Boulder Mines, Bloomberg, Compass Minerals, Potash Corp

Colluli project attributes compare favourably to peers

The following table provides a selection of project attributes for South Boulder's peers. None of the companies below have yet reached production and the majority are still finalising technical work programmes. However, the comparison identifies Colluli as a favourable asset to develop on a number of points. Its shallow and free-digging resource provides for a cheaper mine plan by reducing waste removal and the need for costly explosives. Its location close to existing port infrastructure provides easy access to Asian markets, the key growth area in expected fertiliser demand. Only publication of the pre-feasibility and definitive feasibility studies will provide accuracy over capital cost and operating cost levels. We will update this table as these studies are released.



Company	Project & ownership (%)	Country	Product	Ore minera- logy	Km to port/ point of sale	Port/ point of sale	Depth to ore (m)	Capex ex. contin- gency (US\$)	Crop trials under- taken	Stage	Produc- tion rate (Ktpa)	Mining method	Production cost (US\$/t), direct operating cash cost
Reward Minerals	Lake Dis- appointment (100%)	Australia	SOP	?	550	Perth	4-156	142m	No	SS	400	Solution mining	132
Potash Ridge	Blawn Mountain, Utah (100%)	USA	SOP	Alunite	Un- known	Un- known	0-?	935m	No	PFS	770	OP	191*
IC Potash	Ochoa, New Mexico (100%)	USA	SOP	Polyhalite	35	Jal, New Mexico	450	1.01bn	Yes	FS	714.4	UG	215
South Boulder Mines	Colluli, Eritrea (50%)	Eritrea	SOP/ SOPM	Carnallite/ Sylvinite/ Kainite	75	Anfile Bay	30-50	Un- known	No	PFS/ FS	Un- known	OP	Un- known
EPM Mining Ventures	Sevier Playa, Utah (100%)	USA	SOP	Brine	24	Nearby main line rail	0.5	342m	No	FS	300	Solution mining	181

Exhibit 10: Peer group comparison table

Source: Company websites, Edison Investment Research. Note: *After US\$302/t acid credit.

South Boulder's management suggests the following with respect to the revised Colluli project strategy:

- The mining of all three salts should materially reduce mining costs.
- The company is indicating a modular approach to Colluli's development, allowing for a smaller capacity plant to start the operation, with expansion geared to the project's success and establishing an appropriately sized reserve base to support expansion.
- A modular plant design will likely require a far smaller initial capital requirement.
- Management anticipates production costs to be below the US\$250/t level. If this is found to be the case, then Colluli will sit within the bottom quartile of producers.

Financials

South Boulder announced a private placement of A\$2.05m on 15 January 2015 to a Hong Kong special purpose vehicle called Well Efficient Limited. The placement comprised 10m ordinary shares at 20.5c each. Total cash on hand is now A\$11m. South Boulder states this cash will complete the PFS and a substantial portion of the DFS.



Contact details				Revenue by geography			
Ground Floor 31 Ventnor Avenue West Perth Western Australia 6005 +61 8 6315 1444 www.southbouldermines.com.au				N/A			
CAGR metrics		Profitability metrics		Balance sheet metrics		Sensitivities evaluation	
EPS 2010-14e	N/A	ROCE 2014e	N/A	Gearing 2014e	N/A	Litigation/regulatory	•
EPS 2012-14e	N/A	Avg ROCE 2010-14e	N/A	Interest cover 2014e	N/A	Pensions	0
EBITDA 2010-14e	N/A	ROE 2014e	N/A	CA/CL 2014e	N/A	Currency	•
EDITDA 2012 14a							
EDITUA ZUTZ-146	N/A	Gross margin 2014e	N/A	Stock days 2014e	N/A	Stock overhang	0
Sales 2010-14e	N/A N/A	Gross margin 2014e Operating margin 2014e	N/A N/A	Stock days 2014e Debtor days 2014e	N/A N/A	Stock overhang Interest rates	0 ●

Management team

Contact dataila

CEO: Paul Donaldson

Mr Donaldson was appointed chief executive officer in February 2013 and joined South Boulder from a series of senior management roles spanning more than 20 years with BHP Billiton. Mr Donaldson holds a master's degree in business and technology from the University of NSW and a degree in chemical engineering from the University of Newcastle.

NED: Tony Kiernan

Mr Kiernan has over 25 years of experience in the mining industry and was previously a commercial lawyer. He is currently a corporate advisor and has extensive experience in the administration and operation of public listed companies. He brings particular skills in the areas of government relations and approvals, corporate strategy and corporate governance.

Principal sharehol

HSBC Custody Nor Cornelius (Liam Ra JP Morgan Nomine Kam Lung Investme Well Efficient Ltd.

Companies named

Belaruskali, Uralkali, BHP Billiton, IC Potash

Non-executive chairman : Seamus Cornelius

Mr Cornelius is a corporate lawyer and former partner of one of Australia's leading international law firms. He specialised in cross-border transactions, particularly in the resources sector.

NED: Liam Cornelius

Devenue hy geography

Mr Cornelius graduated from Curtin University of Technology with a BApp.Sc in geology. He has been involved in the exploration industry within Australia, Asia and Africa for nearly 20 years. While originally specialising in gold he has experience with a wide range of commodities including nickel, copper, platinum, uranium and potash.

ders	(%)
ninees Australia Ltd	11.37
/mond)	8.00
es Australia Ltd.	6.75
ints Ltd.	6.69
	6.69
in this report	

Edison, the investment intelligence firm, is the future of investor interaction with corporates. Our team of over 100 analysts and investment professionals work with leading companies, fund managers and investment banks worldwide to support their capital markets activity. We provide services to more than 400 retained corporate and investor clients from our offices in London, New York, Frankfurt, Sydney and Wellington. Edison is authorised and regulated by the Financial Conduct Authority (www.fsa.gov.uk/register/firmBasicDetails.do?sid=181584). Edison Investment Research (NZ) Limited (Edison NZ) is the New Zealand subsidiary of Edison. Edison NZ is registered on the New Zealand Financial Service Providers Register (FSP number 247505) and is registered to provide wholesale and/or generic financial adviser services only. Edison Investment Research Inc (Edison US) is the US subsidiary of Edison and is regulated by the Securities and Exchange Commission. Edison Investment Research Limited (Edison Aus) [46085869] is the Australian subsidiary of Edison and is not regulated by the Australian Securities and Investment Commission. Edison Germany is a branch entity of Edison Investment Research Limited [4794244]. www.edisongroup.com

DISCI AIMER

Copyright 2015 Edison Investment Research Limited. All rights reserved. This report has been commissioned by South Boulder Mines and prepared and issued by Edison for publication globally. All information used in the publication of this report has been compiled from publicly available sources that are believed to be reliable, however we do not guarantee the accuracy or completeness of this report. Opinions contained in this report represent those of the research department of Edison at the time of publication. The securities described in the Investment Research may not be eligible for sale in all jurisdictions or to certain categories of investors. This research is issued in Australia by Edison Aus and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act. The Investment Research is distributed in the United States by Edison US to major US institutional investors only. Edison US is registered as an investment adviser with the Securities and Exchange Commission. Edison US relies upon the "publishers' exclusion" from the definition of investment adviser under Section 202(a)(11) of the Investment Advisers Act of 1940 and corresponding state securities laws. As such, Edison does not offer or provide personalised advice. We publish information about companies in which we believe our readers may be interested and this information reflects our sincere opinions. The information that we provide or that is derived from our website is not intended to be, and should not be construed in any manner whatsoever as, personalised advice. Also, our website and the information provided by us should not be construed by any subscriber or prospective subscriber as Edison's solicitation to effect, or attempt to effect, any transaction in a security. The research in this document is intended for New Zealand resident professional financial advisers or brokers (for use in their roles as financial advisers or brokers) and habitual investors who are "wholesale clients" for the purpose of the Financial Advisers Act 2008 (FAA) (as described in sections 5(c) (1)(a), (b) and (c) of the FAA). This is not a solicitation or inducement to buy, sell, subscribe, or underwrite any securities mentioned or in the topic of this document. This document is provided for information purposes only and should not be construed as an offer or solicitation for investment in any securities mentioned or in the topic of this document. A marketing communication under FCA Rules, this document has not been prepared in accordance with the legal requirements designed to promote the independence of investment research and is not subject to any prohibition on dealing ahead of the dissemination of investment research. Edison has a restrictive policy relating to personal dealing. Edison Group does not conduct any investment business and, accordingly, does not itself hold any positions in the securities mentioned in this report. However, the respective directors, officers, employees and contractors of Edison may have a position in any or related securities mentioned in this report. Edison or its affiliates may perform services or solicit business from any of the companies mentioned in this report. The value of securities mentioned in this report can fall as well as rise and are subject to large and sudden swings. In addition it may be difficult or not possible to buy, sell or obtain accurate information about the value of securities mentioned in this report. Past performance is not necessarily a guide to future performance. Forward-looking information or statements in this report contain information that is based on assumptions, forecasts of future results, estimates of amounts not yet determinable, and therefore involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of their subject matter to be materially different from current expectations To the purpose of the FAA, the content of this report is of a general nature, is intended as a source of general information only and is not intended to constitute a recommendation or opinion in relation to acquiring or disposing (including refraining from acquiring or disposing) of securities. The distribution of this document is not a "personalised service" and, to the extent that it contains any financial advice, is intended only as a "class service" provided by Edison within the meaning of the FAA (ie without taking into account the particular financial situation or goal on in a source of general information only and is not intended to constitute a recommendation or opinion in relation to acquiring or disposing (including refraining from acquiring or the FAA (ie without taking into account the particular financial situation or goals). As such, it should not be relied upon in making an investment decision. To the maximum extent permitted by law, Edison, its affiliates and contractors, and their respective directors, officers and employees will not be liable for any loss or damage arising as a result of relience being placed on any of the information contained in this report and do not guarantee the returns on investments in the products discussed in this publication. FTSE International Limited ("FTSE") © FTSE 2015. "FTSE®" is a trade mark of the London Stock Exchange Group companies and is used by FTSE International Limited under license. All rights in the FTSE indices and/or FTSE ratings vest in FTSE and/or its licensors. Neither FTSE nor its licensors accept any liability for any errors or omissions in the FTSE indices and/or FTSE ratings or underlying data. No further distribution of FTSE Data is permitted without FTSE's express written consent.

Frankfurt +49 (0)69 78 8076 960 Schumannstrasse 34b 60325 Frankfurt Germany

London +44 (0)20 3077 5700 280 High Holborn London, WC1V 7EE United Kingdom

New York +1 646 653 7026 245 Park Avenue, 39th Floor 10167, New York US

Sydney +61 (0)2 9258 1161 Level 25, Aurora Place, 88 Phillip Street, Sydney NSW 2000, Australia

Wellington +64 (0)4 8948 555 Level 15, 171 Featherston St Wellington 6011 New Zealand