

Hastings Technology Metals LTD (ASX:HAS)

March 2017

WHO IS IIR?

Independent Investment Research, "IIR", is an independent investment research house based in Australia and the United States. IIR specialises in the analysis of high quality commissioned research for Brokers, Family Offices and Fund Managers. IIR distributes its research in Asia, United States and the Americas. IIR does not participate in any corporate or capital raising activity and therefore it does not have any inherent bias that may result from research that is linked to any corporate/ capital raising activity.

IIR was established in 2004 under Aegis Equities Research Group of companies to provide investment research to a select group of retail and wholesale clients. Since March 2010, IIR (the Aegis Equities business was sold to Morningstar) has operated independently from Aegis by former Aegis senior executives/shareholders to provide clients with unparalleled research that covers listed and unlisted managed investments, listed companies, structured products, and IPOs.

IIR takes great pride in the quality and independence of our analysis, underpinned by high caliber staff and a transparent, proven and rigorous research methodology.

INDEPENDENCE OF RESEARCH ANALYSTS

Research analysts are not directly supervised by personnel from other areas of the Firm whose interests or functions may conflict with those of the research analysts. The evaluation and appraisal of research analysts for purposes of career advancement, remuneration and promotion is structured so that non-research personnel do not exert inappropriate influence over analysts.

Supervision and reporting lines: Analysts who publish research reports are supervised by, and report to, Research Management. Research analysts do not report to, and are not supervised by, any sales personnel nor do they have dealings with Sales personnel

Evaluation and remuneration: The remuneration of research analysts is determined on the basis of a number of factors, including quality, accuracy and value of research, productivity, experience, individual reputation, and evaluations by investor clients.

INDEPENDENCE – ACTIVITIES OF ANALYSTS

IIR restricts research analysts from performing roles that could prejudice, or appear to prejudice, the independence of their research.

Pitches: Research analysts are not permitted to participate in sales pitches for corporate mandates on behalf of a Broker and are not permitted to prepare or review materials for those pitches. Pitch materials by investor clients may not contain the promise of research coverage by IIR.

No promotion of issuers' transactions: Research analysts may not be involved in promotional or marketing activities of an issuer of a relevant investment that would reasonably be construed as representing the issuer. For this reason, analysts are not permitted to attend "road show" presentations by issuers that are corporate clients of the Firm relating to offerings of securities or any other investment banking transaction from that our clients may undertake from time to time. Analysts may, however, observe road shows remotely, without asking questions, by video link or telephone in order to help ensure that they have access to the same information as their investor clients.

Widely-attended conferences: Analysts are permitted to attend and speak at widely-attended conferences at which our firm has been invited to present our views. These widely-attended conferences may include investor presentations by corporate clients of the Firm.

Other permitted activities: Analysts may be consulted by Firm sales personnel on matters such as market and industry trends, conditions and developments and the structuring, pricing and expected market reception of securities offerings or other market operations. Analysts may also carry out preliminary due diligence and vetting of issuers that may be prospective research clients of ours.

INDUCEMENTS AND INAPPROPRIATE INFLUENCES

IIR prohibits research analysts from soliciting or receiving any inducement in respect of their publication of research and restricts certain communications between research analysts and personnel from other business areas within the Firm including management, which might be perceived to result in inappropriate influence on analysts' views.

Remuneration and other benefits: IIR procedures prohibit analysts from accepting any remuneration or other benefit from an issuer or any other party in respect of the publication of research and from offering or accepting any inducement (including the selective disclosure by an issuer of material information not generally available) for the publication of favourable research. These restrictions do not preclude the acceptance of reasonable hospitality in accordance with the Firm's general policies on entertainment, gifts and corporate hospitality.

DISCLAIMER

This publication has been prepared by Independent Investment Research (Aust) Pty Limited trading as Independent Investment Research ("IIR") (ABN 11 152 172 079), an corporate authorised representative of Australian Financial Services Licensee (AFSL no. 410381). IIR has been commissioned to prepare this independent research report (the "Report") and will receive fees for its preparation. Each company specified in the Report (the "Participants") has provided IIR with information about its current activities. While the information contained in this publication has been prepared with all reasonable care from sources that IIR believes are reliable, no responsibility or liability is accepted by IIR for any errors, omissions or misstatements however caused. In the event that updated or additional information is issued by the "Participants", subsequent to this publication, IIR is under no obligation to provide further research unless commissioned to do so. Any opinions, forecasts or recommendations reflects the judgment and assumptions of IIR as at the date of publication and may change without notice. IIR and each Participant in the Report, their officers, agents and employees exclude all liability whatsoever, in negligence or otherwise, for any loss or damage relating to this document to the full extent permitted by law. This publication is not and should not be construed as, an offer to sell or the solicitation of an offer to purchase or subscribe for any investment. Any opinion contained in the Report is unsolicited general information only. Neither IIR nor the Participants are aware that any recipient intends to rely on this Report or of the manner in which a recipient intends to use it. In preparing our information, it is not possible to take into consideration the investment objectives, financial situation or particular needs of any individual recipient. Investors should obtain individual financial advice from their investment advisor to determine whether opinions or recommendations (if any) contained in this publication are appropriate to their investment objectives, financial situation or particular needs before acting on such opinions or recommendations. This report is intended for the residents of Australia. It is not intended for any person(s) who is resident of any other country. This document does not constitute an offer of services in jurisdictions where IIR or its affiliates do not have the necessary licenses. IIR and/or the Participant, their officers, employees or its related bodies corporate may, from time to time hold positions in any securities included in this Report and may buy or sell such securities or engage in other transactions involving such securities. IIR and the Participant, their directors and associates declare that from time to time they may hold interests in and/or earn brokerage, fees or other benefits from the securities mentioned in this publication.

IIR, its officers, employees and its related bodies corporate have not and will not receive, whether directly or indirectly, any commission, fee, benefit or advantage, whether pecuniary or otherwise in connection with making any statements and/or recommendation (if any), contained in this Report. IIR discloses that from time to time it or its officers, employees and related bodies corporate may have an interest in the securities, directly or indirectly, which are the subject of these statements and/or recommendations (if any) and may buy or sell securities in the companies mentioned in this publication; may affect transactions which may not be consistent with the statements and/or recommendations (if any) in this publication; may have directorships in the companies mentioned in this publication; and/or may perform paid services for the companies that are the subject of such statements and/or recommendations (if any).

However, under no circumstances has IIR been influenced, either directly or indirectly, in making any statements and/or recommendations (if any) contained in this Report. The information contained in this publication must be read in conjunction with the Legal Notice that can be located at <http://www.independentresearch.com.au/Public/Disclaimer.aspx>.

THIS IS A COMMISSIONED RESEARCH REPORT.

The research process includes the following protocols to ensure independence is maintained at all times:

- 1) The research process has complete editorial independence from the company and this included in the contract with the company;
- 2) Our analyst has independence from the firm's management, as in, management/ sales team cannot influence the research in any way;
- 3) Our research does not provide a recommendation, in that, we do not provide a "Buy, Sell or Hold" on any stocks. This is left to the Adviser who knows their client and the individual portfolio of the client.
- 4) Our research process for valuation is usually more conservative than what is adopted in Broking firms in general sense. Our firm has a conservative bias on assumptions provided by management as compared to Broking firms.
- 5) All research mandates are settled upfront so as to remove any influence on ultimate report conclusion;
- 6) All staff are not allowed to trade in any stock or accept stock options before, during and after (for a period of 6 weeks) the research process.

For more information regarding our services please refer to our website www.independentresearch.com.au.

Contents

Near Development Rare Earths	1
Key Points	1
Valuation.....	1
SWOT Analysis.....	2
Overview.....	3
Strategy and Project Overview	3
Financial Position	3
Yangibana Rare Earths Project (HAS – 100%, 70%)	4
Background – Rare Earths and Markets	13
Peer Group Analysis	16
Valuation.....	17
Capital Structure	18
Risks	18
Board and Management	18

Note: This report is based on information provided by the company as at March 2017

Investment Profile	
Share Price as at 22 March 2017	\$0.09
Share Price Target	\$0.136
Issued Capital:	
Ordinary Shares (M)	525.1m
Options (M)	0.00m
Performance Rights	15.75m
Fully Diluted (M)	540.8m
Market Capitalisation (M)	\$47.26m
12 month L/H (\$)	\$0.061/\$0.099

Board and Management	
Mr Charles Lew: Executive Chairman	
Mr Anthony Ho Non-Executive Director	
Mr Jean Claude Steinmetz: Non-Executive Director	
Mr Charles Tan: Chief Operating Officer	
Mr Guy Robertson: CFO and Company Secretary	
Mr Andy Border: General Manager - Exploration	
Mr Robin Zhang: Process Engineering Manager	
Mr Aris Stamoulis: Director – Corporate Finance	

Major Shareholders	
Mr Charles Lew*	18.82%
HSBS Custody Nominees	17.60%
Citicorp Nominees Pty Ltd	8.56%
J P Morgan Nominees Australia.	7.53%
KGI Fraser Securities Pte Ltd	7.24%
Top 20	83.28%
Board and Management	20.29%

*Includes direct and indirect holdings



The investment opinion in this report is current as at the date of publication. Investors and advisers should be aware that over time the circumstances of the issuer and/or product may change which may affect our investment opinion.

Senior Analyst – Mark Gordon

NEAR DEVELOPMENT RARE EARTHS

Hastings Technology Metals ("Hastings" or "the Company"), an ASX listed rare earths developer, is concentrating activities on its Yangibana Project ("Yangibana" or "the Project") in the Gascoyne region of Western Australia. Yangibana is characterised by a high proportion of neodymium and praseodymium; elements vital for the growing permanent magnets market, as used extensively in electric motors and generators. The Company is currently completing a definitive feasibility study for Yangibana, which is expected to be completed by Q3, 2017, and is aiming towards production in early 2019.

KEY POINTS

The Right Mix in the Resource: With combined neodymium and praseodymium (commonly referred to jointly as "didymium") grades of ~0.4%, or 33% of the total rare earths oxide ("TREO") grade of 1.18%, Yangibana has a relatively high content of these two rare earths oxides ("REO") that are considered to provide the strongest growth potential in the rare earths space over the short to medium term.

Access to Infrastructure: The Project is located 450km by road from the port of Carnarvon, which in Australian terms is a relatively short distance for shipping the planned ~30,000tpa of high value concentrate.

Resource Expansion Potential: Recent drilling and other exploration activities have highlighted the potential for expansions of the current high confidence resources – the Company has steadily increased resources through drilling since the initial estimation in 2014 – the resource expansion potential is both due to the possibility to increase current defined mineralisation, as well as discover new areas of mineralisation at targets defined by reconnaissance exploration activities.

Positive Metallurgy: Results to date have indicated good metallurgical properties, including the recovery through a standard flotation pilot plant of ~70% of rare earths into a low mass pull, 23% high grade concentrate (with ongoing optimisation work showing that this can be further improved); laboratory scale hydrometallurgical work on concentrates has also been positive, with pilot scale hydrometallurgy under way.

Mining Leases Granted: The Company has applied for, and has been granted Mining Leases over 90% of the defined resources, with the Mining Operations Plan now being assessed.

Low Sovereign Risk Jurisdiction: Western Australia is a proven mining jurisdiction, with a well-developed mining law, and which ranked third globally in the 2016 Fraser Institute survey.

Experienced and Committed Personnel: Company personnel, including consultants, have extensive industry experience in varied regions and commodities, including specialisation in rare earths. In addition insiders hold significant share holdings, and thus will be motivated to producing strong returns for shareholders.

Steady News Flow: Ongoing activities related to the current DFS Study ("DFS") will produce steady news flow through 2017.

VALUATION - \$0.136/SHARE

We have carried out a valuation for Hastings, with this including an NPV valuation for Yangibana at current rare earth prices, a nominal value for Brockman and cash as at 31 December 2016.

This gives a base case valuation range \$54 - \$89 million, with a mid-point of \$71 million, equivalent to a per share range of \$0.102 - \$0.169, with a midpoint of \$0.136.

We see upside with further advancing of Yangibana (particularly with material advances in offtake agreements and financing), as well as any increases in rare earth prices from the current depressed levels.

SWOT ANALYSIS

Strengths

- ◆ **Advanced project:** With Yangibana being at definitive feasibility (study “DFS”) stage, the Project is well advanced.
- ◆ **Good metallurgy:** Results of metallurgical test work to date has been positive – getting the metallurgy right is one of the main issues with rare earth deposits.
- ◆ **High basket value rare earths mix:** The rare earths mix includes a high proportion (33%) of high value praseodymium and neodymium, vital for the growing permanent magnet sector.
- ◆ **Location:** Western Australia is a proven mining destination and host to a number of world class deposits, with well develop mining legislation.
- ◆ **Experienced people with skin in the game:** Company personnel have significant experience in the resources game, including rare earths, as well as significant share holdings.

Weaknesses

- ◆ **Resource Size:** The current resource is relatively small, being able only to accommodate a 7 year, 1mtpa operation as per the PFS, however on the upside there is resource expansion potential, and this is also being optimised as part of the DFS.
- ◆ **Grade:** Yangibana is relatively low grade when compared to most peers, and thus the project is very sensitive to changes in costs and prices, however this grade is partially offset by a relatively high basket value rare earth mix as mentioned above, and very positive beneficiation results from the pilot scale test work.
- ◆ **Relatively narrow mineralisation:** Given the narrow nature of mineralisation care will need to be taken in mining to avoid excessive dilution – the Company however has largely addressed this in using diluted resources incorporating 0.5m thick waste skins in development studies.
- ◆ **Monazite mineralisation:** One of the issues here is that the rare earths are hosted in monazite, which also contains elevated thorium – tailings are likely to have elevated radiometrics, and will lead to more stringent permitting requirements.

Opportunities

- ◆ **Resource expansion:** Ongoing work has identified the potential to increase resources, which, if some are converted to reserves or mineable resources will help project economics through either a longer life and/or a larger throughput operation.
- ◆ **Growing magnet sector:** The current and forecast growing demand for didymium, as used in magnets should hopefully lead to increasing prices for neodymium and praseodymium, both well represented at Yangibana.

Threats

- ◆ **Rare earth markets and prices:** This is the key threat facing Hastings – given the Chinese control of the market, fundamentals, including prices are near impossible to forecast and thus it may prove problematic in securing funding for development of the Project.
- ◆ **Costs:** Rare earths can be expensive to treat, and as such the most efficient processes need to be used to ensure the ongoing financial viability of any future project, particularly given the issues with pricing - cost optimisation is one of the key priorities of the DFS.
- ◆ **Permitting:** The main risk here will be dealing with tailings from the monazite mineralisation, given the (albeit expected low level) radioactivity – there are indications that the Project will be considered a controlled action under the Environmental Protection and Biodiversity Act 1999, therefore with quite stringent permitting requirements. However operators in Western Australia, particularly Iluka with large mineral sands operations, have a history of successfully mining and dealing with material with low levels of radioactivity.

OVERVIEW

STRATEGY AND PROJECT OVERVIEW

- ◆ Hastings' activities are concentrated on its 100%/70% owned Yangibana Project, located in the Gascoyne region of Western Australia.
- ◆ The Company is currently completing a DFS on the project, which is upgrading and refining aspects of the 2016 pre-feasibility study ("PFS") which foresaw an average annual production of some 8,600t of rare earth oxides, largely concentrating on neodymium (Nd) and Praseodymium (pr) – two metals required in the growing permanent magnet market as used largely in electric generators and motors.
- ◆ Dependent on a successful outcome from the DFS, permitting and financing, the Company is looking towards construction in 2018 and production in 2019.
- ◆ Hastings also holds a 100% interest in the Brockman Project near Halls Creek in the Kimberley region of Western Australia; however this is of a secondary priority, and will not be covered in detail.
 - Brockman has a JORC compliant resource of 41.4Mt @ 0.21% total rare earth oxides ("TREO"), including 0.18% heavy rare earth oxides ("HREO"), comprised largely of Dy and Y
 - It is in a region that hosts a number of gold and REE occurrences

Figure 1: Project location map



Source: Hastings

FINANCIAL POSITION

- ◆ As of December 31, 2016 the Company had \$9.886 million in cash and no debt.
- ◆ Over the twelve months to December 31, 2016, the Company raised a total of \$12.625 million (before costs) in capital raisings – these included a 96 million share placement at \$0.10/share in April 2016 to raise \$9.6 million, and a 27.5 million share placement at \$0.11/share placement in November 2016 to raise \$3.025 million.
- ◆ Additional funds have been raised through conversions of options.
- ◆ Over the same period the Company spent \$7.257 million on exploration and development activities, and \$1.143 million on staff and administration costs.

YANGIBANA RARE EARTHS PROJECT (HAS – 100%, 70%)

Location and Tenure

- ◆ Yangibana is located in the Gascoyne region of Western Australia, some 250km NE of Carnarvon.
- ◆ The project covers some 650km², and includes a mixture of granted and pending exploration licences ("EL"), mining leases ("ML"), general purpose leases ("GPL") and miscellaneous licences "MSL").
- ◆ All granted tenements are in good standing.
- ◆ Nine MLs were granted at various times between July 2015 and February 2016.
- ◆ The tenements fall into two ownership groups – those held 100% by Hastings and a number of 70% held tenements, with the 30% held by UK based Rare Earth Minerals plc (LSE: REM, "REM"), an AIM listed investment company specialising in specialty and rare earth metals.
- ◆ REM is free carried through to a decision to commission a bankable feasibility study ("BFS"), at which time it will be required to contribute to costs associated with resources on its tenements on a pro-rata basis.
- ◆ Hastings originally acquired 60% of the Project in June 2011, with payments totalling \$2 million – at that time the Company was called Hastings Rare Metals.
- ◆ In June, 2014 the Company acquired a further 10% through the payment of \$150,000 to the vendors.

Historic Work

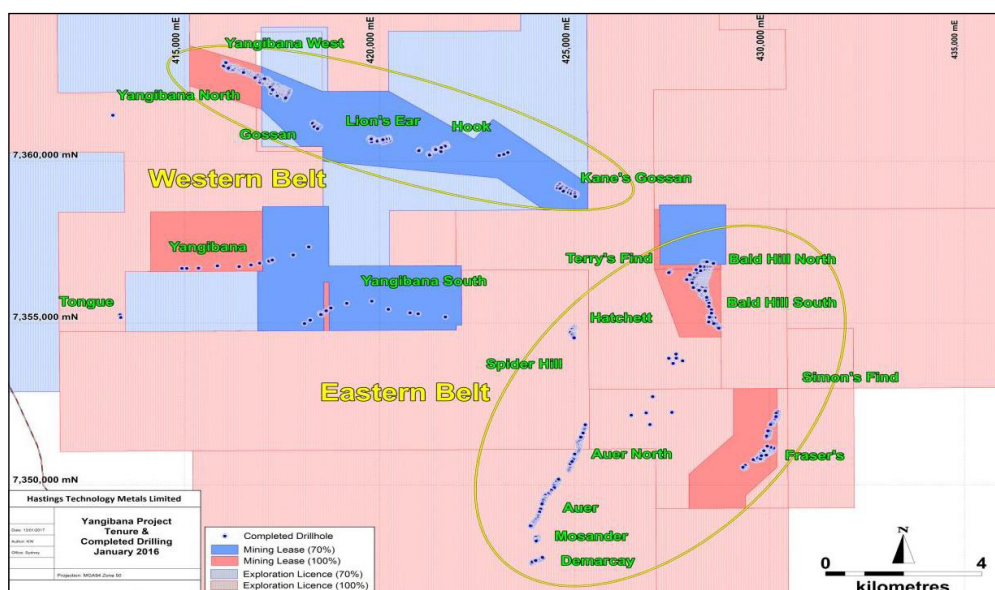
- ◆ Original work in the area was by Noranda in the 1970's, with base metals being the target – this was followed by manganese exploration by Cliffs International.
- ◆ Initial REE exploration was completed by Challenger Mining Corporation NL ("Challenger") and Hurlstone Ltd from 1985 to 1991, which included drilling and the estimation of an non-JORC "indicated shallow resource potential" of over 3.5 million tonnes at 1.64% TREO.
- ◆ Some limited work was carried out by Artemis and GTI prior to Hasting's acquisition of the Project.

Work by Hastings

- ◆ Although acquired in 2011, Hasting did not commence substantive work on Yangibana until 2014 due to activities being concentrated on the Brockman Project.
- ◆ Early work included a data review, geological mapping, rock chip sampling and a detailed hyperspectral survey and interpretation of the Gifford Creek Ferrocarbonatite Complex ("GCFC").
- ◆ First drilling by Hastings included 44 reverse circulation ("RC") drillholes for 1,836m at the Yangibana North prospect.
- ◆ This was used in an initial JORC 2012 compliant Mineral Resource Estimate ("MRE"), as released to the market in August 2014.
- ◆ A second programme of ~6,500m including both RC and diamond drilling was completed in 2014, with this testing a number of targets, including Yangibana North, Bald Hill, Fraser's, Lion's Ear, Hook, Gossan, Kane's Gossan and Yangibana South.
- ◆ The results of this drilling were used in a resource upgrade as released to the market on November 10, 2014.
- ◆ Other activities ongoing at this time included metallurgical test work and the completion of the heritage site survey which returned no adverse findings.
- ◆ An initial positive scoping study was completed and released to the market on December 3, 2014.
- ◆ Following approval by the Board to continue to a PFS, further drilling to expand and upgrade resources commenced in May 2015 – this largely targeted Bald Hill, Yangibana West and Fraser's, and included RC and diamond drilling.
- ◆ The resulting MRE upgrade was completed in October 2015, and incorporated into an updated scoping study that was finished in November 2015.

- ◆ Further work, including optimising costs resulted in a PFS being released in April 2016 – optimisation work on costs has continued in the preparation of the DFS, with these detailed later in this report.
- ◆ A detailed aeromagnetic/radiometric survey was completed in the June quarter of 2016, with this used to define further targets for follow up work.
- ◆ Further drilling was completed in 2016 – this was used in the latest resource upgrade (released on January 17, 2017) and to provide a 20 tonne sample for pilot beneficiation and hydrometallurgical test work – this included the initial resource for the Auer and Auer North prospects.
- ◆ Beneficiation pilot-scale test work has been completed, with hydrometallurgical test work to be completed soon at ANSTO – laboratory scale test work has largely been completed with positive results.
- ◆ Metallurgical test work has largely been concentrated on mineralisation in the Eastern Belt.
- ◆ Environmental surveys and studies are progressing, with apparently no major issues defined.

Figure 2: Yangibana tenement and resource map



Source: Hastings

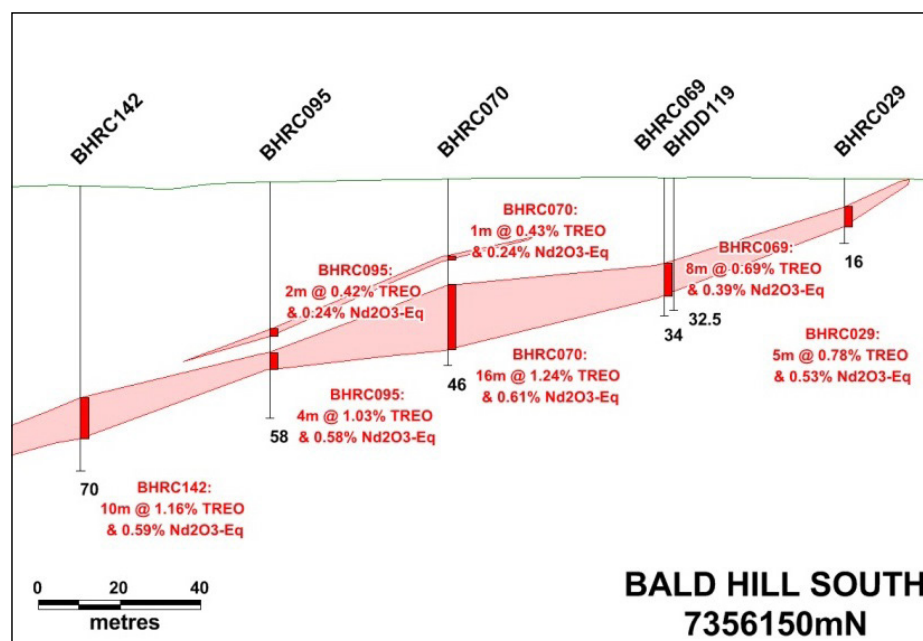
Geology and Mineralisation

- ◆ The Project covers the majority of the Gifford Creek Ferrocarbonatite Complex ("GCFC"), which is located in the Gascoyne Terrane, a mobile belt between the Archean Yilgarn Craton to the south and the Archean Pilbara Craton to the north.
- ◆ The Gascoyne Terrane comprises a sequence of Neoarchean to Paleoproterozoic granite gneisses and metasedimentary rocks, which is interpreted as forming the basement to a number of Proterozoic units, including the Mt Durlacher Supersuite and Pooranoo Metamorphics.
- ◆ The GCFC is characterised by a series of ferrocarbonatite intrusions over an area of some 25km x 25km, with these taking the form of sills and dykes.
- ◆ Mineralisation is within ironstone/quartz veins hosted in granites, interpreted as being associated with the same magmatic/hydrothermal system as the GCFC – the veins have an estimated strike length of ~12km.
- ◆ The veins have average thicknesses of ~4m with this ranging from 1m to 15m – however recent drilling at Bald Hill intersected 23m of mineralisation – this intersection was outside the current resource and ended in mineralisation.
- ◆ The Project contains a number of prospects as shown in Figure 2 above, with a number of these being drilled, however key mineralisation includes Yangibana North/West, Bald Hill and Fraser's, which form the mining inventory in the PFS.
- ◆ These form two groups in the tenement package – the Eastern and Western Belts as shown in Figure 2 – the eastern belt is characterised by better metallurgy.

Bald Hill South

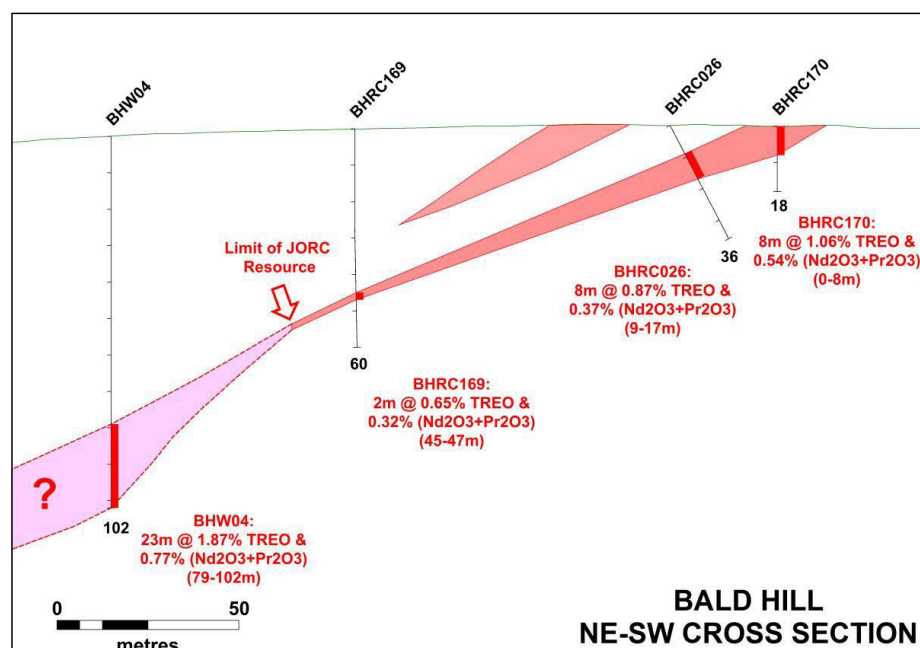
- ◆ Bald Hill South, located on 100% held tenements, strikes NE for ~2,000m, and dips variably (up to 30°) to the SW.
- ◆ The zone, which generally ranges in width from 1m to 10m (however with some thicker zones as shown in Figures 3 and 4 below), has been drill tested to a vertical depth of 100m, and is still open at depth.
- ◆ Recent drilling at Bald Hill (Figure 4) has resulted in an intersection of 23m @ 1.87% TREO, including 0.77% Didymium – the highest accumulation (grade x width) of any drilling at Yangibana to date – this shows the down dip potential at Bald Hill South, as well as the variable nature of the width and grade of mineralisation.

Figure 3: Bald Hill South cross section 7356150mN



Source: Hastings

Figure 4: Bald Hill South cross section showing BHW04



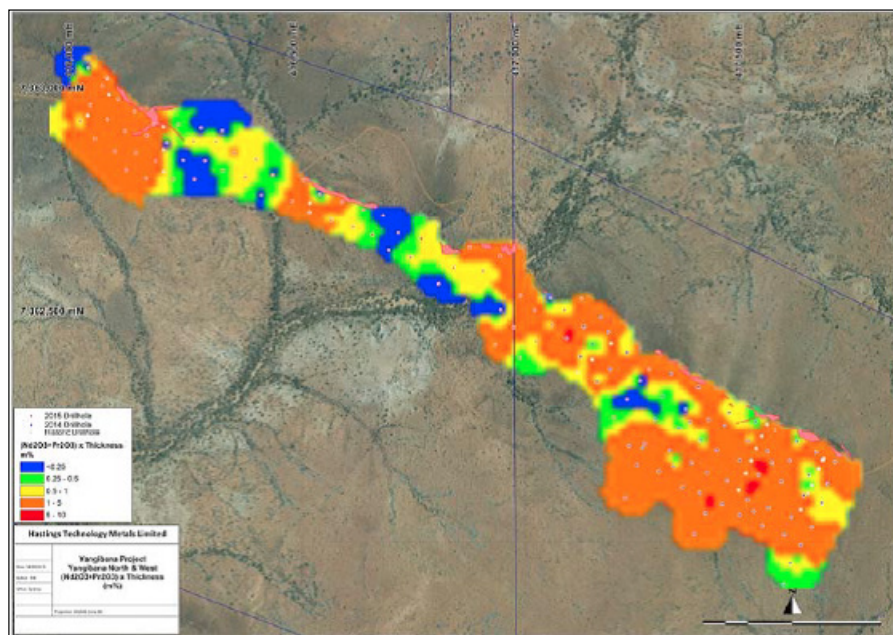
Source: Hastings

Yangibana North and Yangibana West

- ◆ These form one contiguous zone of mineralisation with a strike length of ~1,900m, with the distinction being the location on either 100% held (west) or 70% held (north) tenements.

- ◆ Mineralisation strikes NW, and dips variably at ~10-30° to the SW, with thicknesses generally ranging from 1m to 5m, however with some thicker zones.
- ◆ Drilling has been undertaken to 140m vertically, with mineralisation open at depth and along strike.

Figure 5: Yangibana plan showing metal accumulation (m% Nd2O3+Pr2O3)

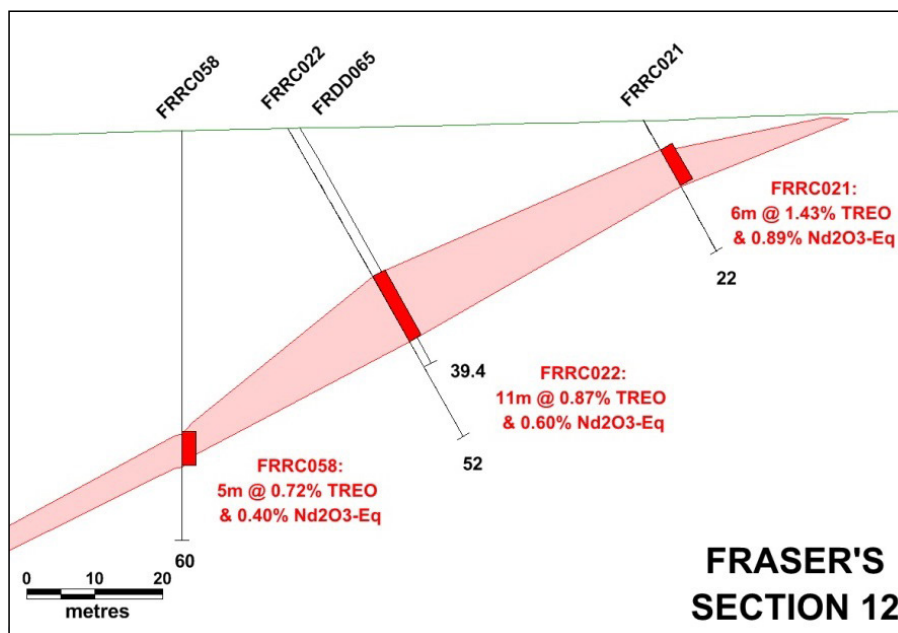


Source: Hastings

Fraser's

- ◆ Fraser's, the third of the deposits that forms the mining inventory in the PFS, ranges from a relatively shallow 30° dip in the NE to 70-80° in the SW part – the mineralisation strikes NE and dips are to the NW.
- ◆ The width of mineralisation generally varies between 1 and 5m, however, as for the other mineralised lenses there are thicker zones, and it is open at depth.
- ◆ Drilling has tested mineralisation to a depth of 140m below surface.

Figure 6: Fraser's cross section 12



Source: Hastings

Resources and Upside Potential

- ◆ The most recent MRE was released to the market on January 17, 2017 – this is the third upgrade to the initial MRE as released in August 2014, with the initial MRE containing 3.36Mt @ 1.34% TREO.
- ◆ The latest estimate of 13.41Mt @ 1.18% TREO includes 56% Measured and Indicated Resources.
- ◆ The current MRE includes 0.5m of dilution on both the hanging and footwall to the veins, which is approximately 30% dilution.
- ◆ A summary of resources is given in Table 1 and a breakdown by ownership in Table 2 and 3.
- ◆ 100% held resources include Bald Hill, Bald Hill SE, Fraser's, Fraser's North/NW, Auer, Auer North and Yangibana West.
- ◆ 70% held resources include Yangibana North, Bald Hill North, Lions Ear, Gossan, Hook and Kane's Gossan.

Table 1: Yangibana Mineral Resource Estimate

Yangibana Mineral Resource Estimate					
Category	Tonnes	Nd ₂ O ₃ +Pr ₂ O ₃	TREO	Nd ₂ O ₃	Pr ₂ O ₃
		%	%	ppm	ppm
Measured	2,155,000	0.42	1.01	3,410	770
Indicated	5,446,000	0.41	1.30	3,260	870
Inferred	5,807,000	0.36	1.12	2,820	770
TOTAL	13,408,000	0.39	1.18	3,100	810

Source: Hastings

Table 3: Yangibana Mineral Resource Estimate – 100% held tenements

Yangibana Mineral Resource Estimate – 100% held tenements					
Category	Tonnes	Nd ₂ O ₃ +Pr ₂ O ₃	TREO	Nd ₂ O ₃	Pr ₂ O ₃
		%	%	ppm	ppm
Measured	2,155,000	0.42	1.01	3,410	770
Indicated	3,221,000	0.41	1.13	3,300	820
Inferred	3,416,000	0.36	0.98	2,890	740
TOTAL	8,792,000	0.39	1.04	3,200	780

Source: Hastings

Table 4: Yangibana Mineral Resource Estimate – 70% held tenements

Yangibana Mineral Resource Estimate – 70% held tenements					
Category	Tonnes	Nd ₂ O ₃ +Pr ₂ O ₃	TREO	Nd ₂ O ₃	Pr ₂ O ₃
		%	%	ppm	ppm
Indicated	2,225,000	0.42	1.55	3,200	940
Inferred	2,391,000	0.35	1.32	2,730	810
TOTAL	4,616,000	0.38	1.43	2,960	870

Source: Hastings

- ◆ There is resource upside in a number of areas:
 - Magnetics/radiometrics surveying has identified a number of targets that require drilling – two such targets that have been subsequently drilled include Auer and Auer North, which between them contain 1.394Mt @ 1.03% TREO, and which were not included in the PFS.
 - Down dip extensions of current resources – this is highlighted by the recent 23m intersection at Bald Hill which is outside the current resource.
 - Along strike extensions of existing resources – given the lens-like nature and pinching and swelling mineralisation there is potential for mineralisation that doesn't outcrop
- The Company is continuing drilling programmes to both upgrade and expand the resources.

Pre-Feasibility Study

- ◆ Hastings completed a PFS in April 2016, which has been now advanced into the DFS, with continuing work including further optimisation of costs as discussed later.
- ◆ This followed an initial scoping study which was completed in December 2014 and updated in November 2015.
- ◆ The Study, which used forecast prices some ~70% above estimated current prices, resulted in a pre-tax, pre-funding NPV of \$700-750 million and an IRR of 40%.
- ◆ Prices used were those forecast for the year 2019 by a well-regarded independent consulting group.
- ◆ This was based on an estimated capital cost of \$390-420 million, and a seven year mine life mining 1mtpa of ROM, and producing 60,500t of TREO over the life of mine.
- ◆ Study inputs and outcomes are presented in Table 5.

Table 5: Parameters and results, Yangibana 2016 PFS

Parameters and results, Yangibana 2016 PFS		
Item	Units	Value
Commencement date		2019
Mining/Processing Rate	Million tonnes per annum	1
Mine/Processing Life	Years	7
Exchange Rate	A\$:US\$	0.72
Total Mined	Mt	73.36
Total Diluted Mineralisation Mined	Mt	7
Average Stripping Ratio		9.4:1
Average Diluted Mineralisation Grade	%TREO	1.15
Total Separated Oxides Produced	T	60,500
Main TREOs produced (metallurgical recoveries)	Nd (71%), Pr (71%), Dy (40%), Eu (58%)	
Commodity Prices (US\$/kg) - as forecast by a well-regarded independent consulting group for the year 2019	Nd (103.69), Pr (92.55), Dy (480.79), Eu (420.49)	
Total REO Sales	A\$bn	3.00-3.50
Total Capital Costs (detail below)	A\$m	390 - 420
Total Operating Costs (detail below)	A\$bn	1.50-1.60
State Royalty	%	2.5
Discount Rate	%	8
Net Present Value (NPV)	A\$m	700-750
Internal Rate of Return (IRR)	%	40
Payback on Capital Costs	Years	2.5

Source: Hastings

- ◆ The diluted mineral resource inventory was based around Bald Hill South, Yangibana and Fraser's as detailed in Table 6 below – this is based on the October 2015 MRE, and thus doesn't include resources subsequently drilled.
- ◆ We note that some 90% of the estimated revenue comes from neodymium and praseodymium.

Table 6: Mining inventory, Yangibana 2016 PFS

Mining Inventory, Yangibana 2016 PFS				
Parameter	Bald Hill South	Yangibana	Fraser's	Total
Pit Size (kt)	21,903	39,357	12,102	73,362
Strip ratio (w:o)	6.3	10.2	20.3	9.4
Mining inventory (kt)	2,997	3,507	569	7,074
Waste (kt)	18,906	35,849	11,533	66,289
TREO (%)	0.86	1.43	0.97	1.15
Nd ₂ O ₃ (ppm)	3,018	3,061	3,556	3,083
Pr ₂ O ₃ (ppm)	663	893	869	794
Dy ₂ O ₃ (ppm)	62	46	59	54
Eu ₂ O ₃ (ppm)	76	95	67	85

Source: Hastings

- ◆ Mining and processing includes the following:
 - Contractor drill and blast mining,
 - On-site concentration and initial hydrometallurgical treatment to a mixed rare earth carbonate concentrate, and,
 - Transport of concentrate to an offshore toll treatment plant for separation of and production of final products – the Company is in negotiation with potential toll treaters and offtakers.
- ◆ A breakdown for the estimated capital and operating costs are given in Tables 7 and 8.

Table 7: Capital cost estimate, Yangibana 2016 PFS

Capital cost estimate, Yangibana 2016 PFS	
Capital Cost Centre	Total A\$m
Mining	\$30-\$35
Processing	\$130-\$140
Infrastructure	\$30-\$35
Management, Services, EPCM	\$60-\$65
Other – includes camp, services, pre-production	\$70-\$75
Contingency	\$70-\$75
TOTAL CAPEX	\$390-\$420

Source: Hastings

- ◆ We note that in a subsequent presentation the Company has indicated that capex will be lower due largely to lower costs in the industry and being able to source equipment globally – this results in an estimate of \$246 for direct capex and \$104 for indirect capex, for a total of \$350 million, some 10-15% lower than the PFS estimate.
- ◆ In the operating cost table we have calculated mid-point costs per ROM tonne as well as per kg of TREO produced – this is based on 7Mt mined and 60,500t of REO production as stated in the PFS.
- ◆ Of these costs, mining is well understood, and, using a strip ratio of 9.74:1 gives a cost/tonne moved of \$4.60/tonne – this is reasonable, if not conservative compared to costs of other mining operations.
- ◆ The treatment and toll treating costs are more problematic to assess, however we noted that Lynas quoted a cash operating cost of \$14/kg in its December Quarterly for their Mt Weld/Malaysian operation – we would expect this to be cheaper given the considerably higher grade of mineralisation, and with this not including mining – the mining at Mt Weld is operated on a campaign basis.

Table 8: Estimated operating costs, Yangibana 2016 PFS

Estimated operating costs, Yangibana 2016 PFS			
Category	Total Operating Cost A\$m	Per ROM Tonne	Per kg TREO production
Contract Mining	\$340-\$350	\$49.29	\$5.70
Labour	\$175-\$190	\$26.07	\$3.02
Power/Fuel	\$65-\$75	\$10.00	\$1.16
Product Transport	\$45-\$55	\$7.14	\$0.83
Toll Treatment	\$240-\$250	\$35.00	\$4.05
Reagents	\$575-\$600	\$83.93	\$9.71
Other	\$90-\$110	\$14.29	\$1.65
TOTAL OPEX	\$1,500-\$1,600	\$225.71	\$26.12

Source: Hastings. IIR Analysis

- ◆ More recent optimisation work, the results of which includes interest, depreciation and royalties is presented below – this is still work in progress, and is being carried out as part of the DFS.
- ◆ We note that the direct operating costs (excluding interest, depreciation and royalties) here total \$15.89/kg of TREO production (based on an annual production of 8,500t of REO) – this is some 40% lower than the equivalent figure calculated in the 2016 PFS.
- ◆ Should these be achievable they will significantly affect the project economics and hence viability in a low rare earths price environment.

Table 9: Estimated operating costs 2016 PFS - refinement is ongoing

Estimated operating costs, Yangibana 2016 PFS		
Category	Annual Cost (m) Cost/ROM t	Per kg TREO production
Mining Costs – based on 1 m t.p.a. mined	\$31.50	\$3.71
Reagents - Beneficiation	\$16.80	\$1.98
Reagents - Hydromet	\$21.70	\$2.55
General Operating Costs - Fixed	\$18.90	\$2.22
General Operating Costs - Variable	\$19.00	\$2.24
Product Transportation	\$4.40	\$0.52
Toll Treatment	\$22.70	\$2.67
Sub-Total – Site Operating Costs	\$135.00	\$15.89
Royalties (2.5% of revenue)	\$5.70	\$0.67
Depreciation (15 year life on AUD 250 m)	\$16.70	\$1.96
Interest Expense (Snr Loan and Working Capital)	\$20.30	\$2.39
Total	\$177.70	\$20.91

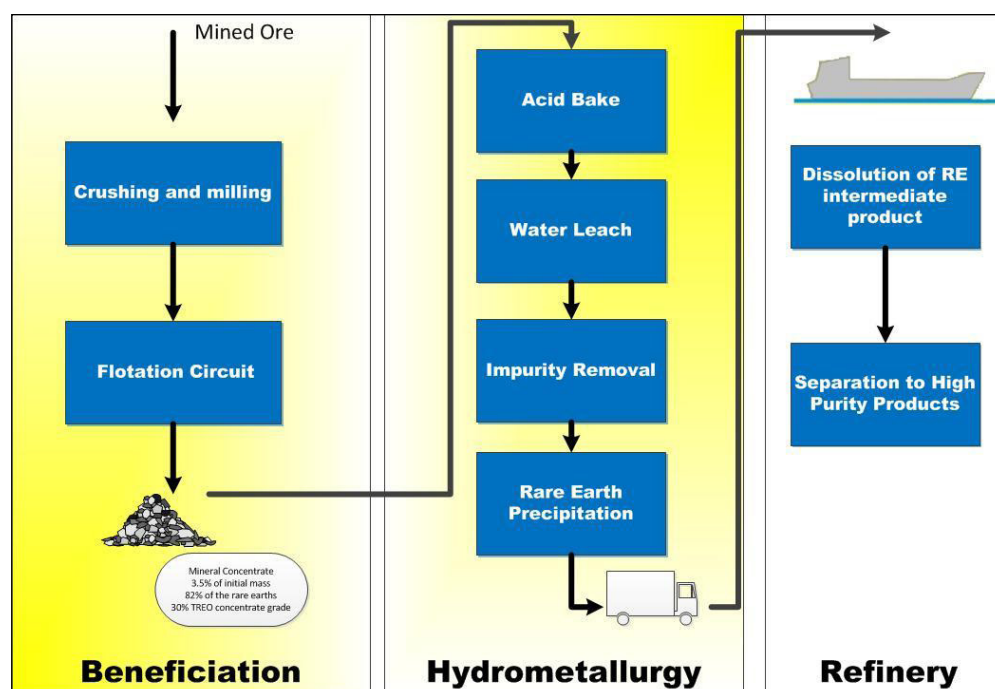
Source: Hastings. IIR Analysis

Mining

- ◆ Mining will be conventional drill and blast, operated by a mining contractor.
- ◆ This will be carried out in three pits, Bald Hill South Fraser's and Yangibana North/West.
- ◆ Resources have allowed for dilution which includes a 0.5m skin on both the hanging and footwall to the veins.
- ◆ Saprolite material will be free dig with overall pit slope angles of ~28 degrees, with weathered and unweathered granite being mined by drill and blast with overall pit angles of ~40 degrees.

Treatment

- ◆ A summary of the treatment process is presented in Figure 7 below.
- ◆ On site activities will include comminution, followed by flotation, with the float concentration being treated, using an acid bake process, to produce a mixed rare earths carbonate concentrate.
- ◆ It is planned to then ship this offshore for toll treating – this has the advantages of significant savings in capital, as well as utilising groups who have expertise in rare earths treatment which is a complicated and potentially troublesome process.

Figure 7: Proposed treatment route

Source: Hastings.

- ◆ This will also significantly cut construction and commissioning time.
- ◆ The PFS was based on a mass pull of 5.05% to a concentrate grade of 20% TREO – however subsequent work has indicated that a 3.1% mass pull to a 30% concentrate can be achieved, thus considerably cutting operating and capital costs due to the smaller hydrometallurgy plant required.
- ◆ The latter, in our analysis results in a lower flotation recovery of 80% as opposed to 85% for the former case.
- ◆ Results of metallurgical test work to date have been positive.

Infrastructure and transport

- ◆ Power (with estimated requirements of 5MW) will need to be supplied by diesel, with the option of solar power for some supply also being considered – there is no grid power on site.
- ◆ The Company is actively looking for water – some sources have been found that were originally thought to be adequate for the operation, however subsequent metallurgical work has indicated that more water than initially thought may be required - this is being worked through in the DFS
- ◆ The operation will be FIFO, with an accommodation camp on site, and workers flown in to a purpose-built airstrip.
- ◆ It is planned to truck concentrate 450km to Carnarvon for shipping to toll treaters in Asia.

Current and Planned Activities

- ◆ Activities are targeted towards completion of a DFS in the first half of CY2017, as shown in Figure 8.
- ◆ On the metallurgical front, the Company is about to commence the pilot hydrometallurgical test work at ANSTO, with this expected to take a month to complete.
- ◆ The 150tph pilot scale beneficiation work has recently been successfully completed with positive results, demonstrating the potential to translate the process from bench to production scale, and confirming 70% TREO recovery to a 23% TREO concentrate, including 9.8% $\text{Nd}_2\text{O}_3 + \text{Pr}_6\text{O}_{11}$ - ongoing optimisation test work will look at improving recoveries to >80% at higher TREO concentrate grades.
- ◆ Ongoing work shows that minor modifications to the flotation circuit chemistry can further improve recoveries.
- ◆ This will provide samples for the pilot scale hydrometallurgical work and downstream engineering equipment design testwork.
- ◆ Documents relating to the Mining Proposal/Mining Rehabilitation Plan have been submitted in recent weeks.
- ◆ These include submissions to the Environmental Protection Agency (“EPA”), who have made the decision to assess the proposal, with a four week public review period underway – the decision also states that the proposal will likely be declared a controlled action under the Environmental Protection and Diversity Act 1999.
- ◆ The Company is carrying out ongoing negotiations with potential offtake customers, with product from the pilot hydrometallurgical plant to be used as samples for potential customers.

Figure 8: Planned work programme

	FY15				FY16				FY17				FY18				FY19			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Stages	Pre-Feasibility Study	Completed																		
	Definitive Feasibility Study					In Progress														
	Production Plan Evaluation					In Progress														
	Pilot Plant Work					In Progress														
	Mining Application/Approval					In Progress														
	Financing					In Progress														
	Design						Prelim Design		Detailed Design											
	Procurement																			
	Construction												Plant Construction							
	Commissioning *																Track 1		Track 2	

Source: Hastings – Track 1 refers to the beneficiation plant and track 2 to the hydromet plant.

BACKGROUND – RARE EARTHS AND MARKETS

What are Rare Earths?

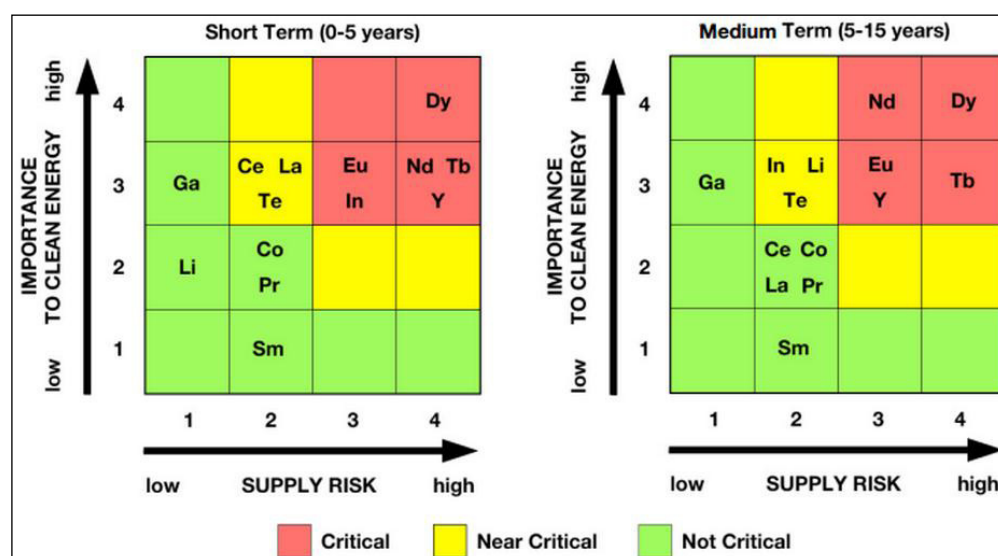
- ◆ Rare earths are a group of elements, including lanthanides that have atomic numbers ranging from 57 to 71, but also including the non-lanthanides Yttrium and Scandium as shown in Table 10.
- ◆ Despite their name they are not particularly rare, and are found in a number of minerals, however it is rare to find them in accumulations that are economically viable to exploit.
- ◆ Traditionally they have been classified into two groups – the light rare earth elements (“LREE”) and heavy rare earth elements (“HREE”) – in the past it has been a rule of thumb that the HREE’s are more valuable than the LREEs, largely due to supply factors.
- ◆ They are also referred to as light rare earth oxides (“LREO”) and heavy rare earth oxides (“HREO”).

Table 10: Rare earth elements

Rare Earth Elements			
LREEs		HREEs	
La	Lanthanum	Tb	Terbium
Ce	Cerium	Dy	Dysprosium
Pr	Praseodymium	Ho	Holmium
Nd	Neodymium	Er	Erbium
Pm	Promethium	Tm	Thulium
Sm	Samarium	Yb	Ytterbium
Eu	Europium	Lu	Lutetium
Gd	Gadolinium		
Non-Lanthanide REEs			
Sc	Scandium	Y	Yttrium

- ◆ Another classification, critical rare earth elements (“CREE”) has been defined by the US Department of Energy (“USDoE”), which reflects the importance of certain REEs to clean energy and modern technologies – this is illustrated in Figure 9, and is thought to better reflect the value of the different elements than the widely accepted LREE and HREE groupings.
- ◆ As can be seen here one of the CREE’s is Neodymium (Nd), which is one of the key targets of Hastings activities.

Figure 9: USDoE ranking of REEs



Source: Frontier Rare Earths website, extracted March 5, 2017

Rare Earth Geology

- ◆ Two of the commonest rare earth bearing minerals are monazite (a phosphate) and bastnasite (a fluoro-carbonate).

- ◆ These are commonly found in carbonatites and hydrothermal systems associated with carbonatite intrusive complexes – examples include Bayan Obo (China), Yangibana (WA), Mountain Pass (Ca), Mt Weld (WA) and Ngualla (Tanzania).
- ◆ These deposit styles are largely a source of LREE, and residual supergene enrichment is a common feature, including at Yangibana and Mt Weld.
- ◆ Another Chinese source are laterites which are enriched in HREE, with the elements loosely bound to clay minerals – these deposits have been variously described as “ionic clays”, “elution deposited” and ion-adsorbed”, and form the dominant source of global HREE production.

Rare Earth Uses

- ◆ Rare earths have a multiplicity of uses as shown in Figure 10 below.
- ◆ The economically largest and fastest growing market is for magnetics, which in 2016 accounted for some 37% of the market by value – this was followed by phosphors at 31%.
- ◆ The addition of rare earths to permanent magnets makes the magnets extremely strong, and also allows them to operate at higher temperatures – the advent of new technology is driving the demand for such magnets, including those used in wind turbines and hybrid electric vehicles.

Figure 10: REE uses



Source: Frontier Rare Earths website, extracted March 5, 2017

Rare Earth Supply

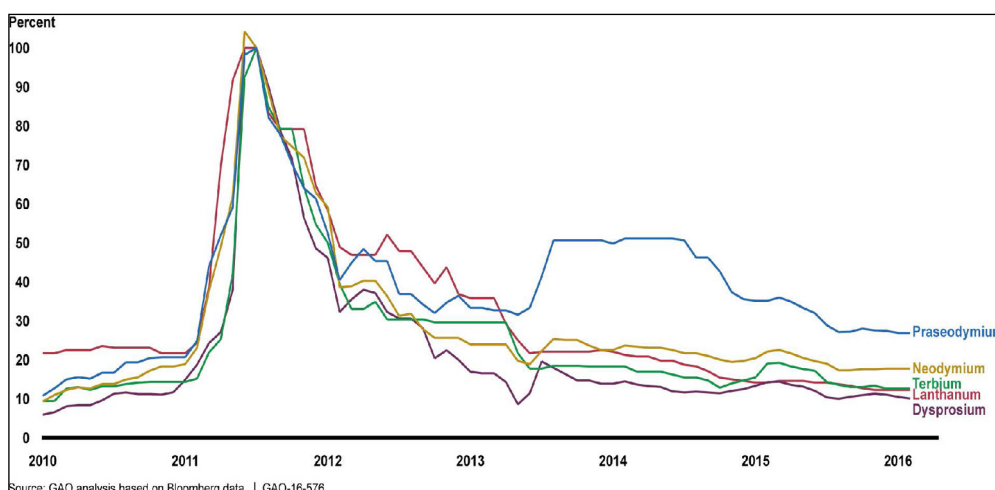
- ◆ Total mine production in 2016 was estimated at 126,000t (USGS, 2017), with 105,000t (83.3%) of this from China, however with China effectively supplying 100% of HREE.
- ◆ However this production does include up to an estimated 30,000-40,000t mined illegally and smuggled out of China.
- ◆ The only major non-Chinese producer is Lynas, which in CY2016 produced 13,815t of TREO (12% of global production), including 4,511t of didymium.
- ◆ The only other major operation outside of China, Mountain Pass in California, was put under care and maintenance in December 2015 after the owner, Molycorp, was forced into bankruptcy due to low rare earth prices.
- ◆ Minor producers, according to the USGS include Brazil (1,100t), India (1,700t), Malaysia (300t), Russia (3,000t) Thailand (800t) and Vietnam (300t).
- ◆ Until the late 1940's the main supply was from monazite bearing placer sands in Brazil and India, with rare earths being a by-product of mineral sands mining.
- ◆ This was followed by South Africa taking the mantle until around 1965, with production from vein-style monazite mineralisation – however global demand was low, with generally <10,000tpa of global production in this period.
- ◆ The mid-1960's to mid-1980's saw Mountain Pass become the major global producer, with demand rising from ~10,000tpa to 40,000tpa in this period.

- ◆ The mid-1980's saw the commencement of significant Chinese production, with this continuing to the current day.
- ◆ China has at various times placed export quotas on rare earth production and exports, which led to uncertainty of supply (decreasing the quota from ~60,000tpa to 35,000tpa caused the 2010/2011 price spike), and also had the effect of forcing some producers of products containing rare earths to move operations to China to ensure continued supply.
- ◆ Quotas were lifted in 2015 following a decision that China was in breach of the WTO in applying quotas, which subsequently led to falls in prices.
- ◆ Recent activities have included a crack-down on illegal mining in China, which has led to a slight improvement in prices, and hope that prices may further improve – one of the reasons for the crack-down is that the illegal miners are causing significant environmental damage.
- ◆ In addition China is stockpiling some of its production, which may help increase prices in the short term.
- ◆ However, despite recent activities by China, the market is controlled by China and remains opaque.

Rare Earth Demand and Prices

- ◆ Prices over the last six years, which covers the 2011 spike, are shown in Figure 11.

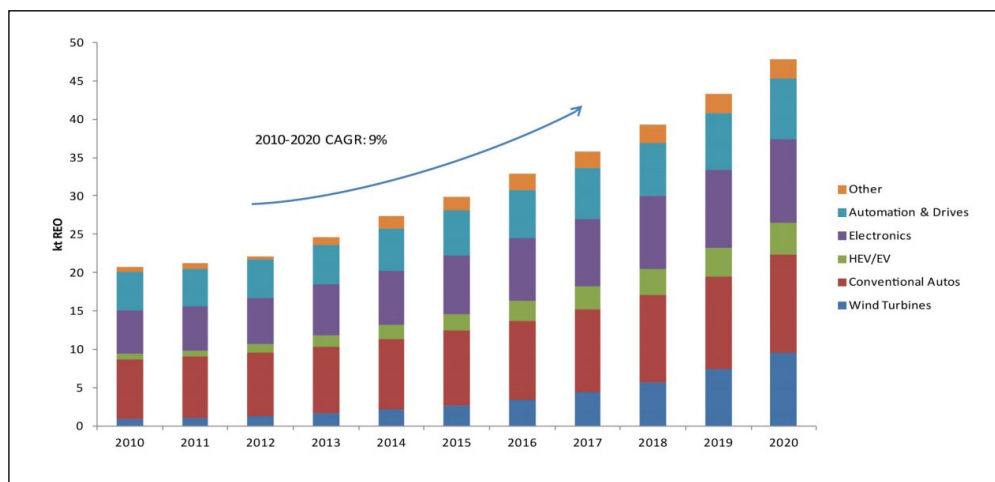
Figure 11: Indexed rare earth prices



Source: US GAO-16-576

- ◆ China consumes some 65% of rare earths produced, and thus is a net exporter.
- ◆ Other consumers include Japan, the US and the EU.
- ◆ Some forecasters see demand rising at ~8% CAGR until 2025 – this, if correct, would result in a demand for ~230,000t by 2025, an 85% increase on current “official” demand.
- ◆ Given the different applications, market metrics for different REE's are different.

Figure 12: Nd-Pr demand forecast



Source: Roskills, in Hastings November 2016 presentation

- ◆ The strongest demand growth is expected for magnet applications, and as such is forecast to drive the demand for didymium more than for the other rare earths – a forecast is presented in Figure 11, with the relative out performance of praseodymium and neodymium highlighted in Figure 11.
- ◆ However it needs to be stressed that forecasting, especially in specialty metals is an inexact science – we note some forecasts from 2011 had expected demand in 2015 as 220,000t – even if we add on 40,000t of illegal supply to the 130,000t of legal supply this figure is 30% higher than actual.
- ◆ The same issue comes into pricing – past forecasts have often proved to be wildly inaccurate and generally highly optimistic, given the opaqueness of the market, the degree of control by China and the lack of normal supply/demand metrics.

Where to From Here?

- ◆ This depends upon who you listen to.
- ◆ Various commentators forecast demand to rise at around 8% CAGR over the next 8 years, with this resulting in additional demand of up to 100,000t of TREOs.
- ◆ There is the potential to source this from new deposits outside of China (including Yangibana), however a lot will ride on what actions the Chinese take – China is the 800 pound gorilla in the rare earths markets.

PEER GROUP ANALYSIS

- ◆ There is only a handful of ASX-listed rare earth companies, as shown in Table 11 below.
- ◆ Most projects are relatively advanced, with one producer (Lynas) in the mix.
- ◆ We have included a basket price based on published rare earth mixes for each company and late 2016 rare earth prices.
- ◆ However this may not reflect ultimate prices received – due to processing costs it may not be economical to extract full value.
- ◆ These may be considered reasonably close to actual prices – we note that the basket price received by Lynas as published in their December 2016 quarterly report was A\$19.40/kg, as compared to our estimate of A\$23.
- ◆ Greenland will also be looking at extracting uranium from Kvanefeld and thus the basket price does not reflect the value of what may be produced.
- ◆ Northern Minerals' Brown Range deposit is a HREE dominant resource.
- ◆ Peak is basing their activities on the high grade oxidised portion of their Ngualla Project – we have included the global resource as well as weathered resources in our comparison.

Table 11: LPI peer group comparison

LPI peer group comparison								
Company	Project	Ownership	EV (A\$m)	Tonnage (mt)	TREO (%)	Pr/Nd %	Basket Price (A\$/kg)	Stage
Lynas Corporation	Mt Weld, WA	100%	\$841.8	23.2	7.34%	20.50%	\$23	Operating
Greenland Minerals	Kvanefjeld, Greenland	100%	\$108.6	1010	1.21%	14.50%	\$21	Permitting negotiations
Northern Minerals	Browns Range, WA	100%	\$74.3	8.98	0.63%	0.00%	\$36	To develop a pilot plant
Peak Resources	Ngualla, Tanzania	75%	\$42.36	214.4	1.16%	17.82%	\$20	Undertaking BFS
Peak Resources	Ngualla weathered	75%	\$42.6	21.3	4.75%	18.83%	\$20	Undertaking BFS
Hastings	Yangibana, WA	90%	\$37.3	13.4	1.18%	33.10%	\$29	Undertaking DFS, Pilot
Arafura Resources	Nolans, Northern Territory	100%	\$28.3	56.00 mt	2.60%	22.90%	\$25	Looking at Pilot Plant

Source: IRESS, Company reports

VALUATION

- ◆ We have completed a pre-tax and pre-funding DCF valuation for Hastings using a discount rate of 8% and an AUD/USD exchange rate of 0.75.
- ◆ This results in a mid-point company valuation of \$71 million, or \$0.136/share.
- ◆ This valuation has to be considered indicative only given the inherent uncertainty in rare earth markets and prices as discussed earlier, with the Project being most sensitive to prices.
- ◆ Any funding structure, particularly relating to dilutive equity raisings will affect the “per share” valuation.
- ◆ We have used capital and operating cost figures as provided in the Company’s November 2016 investor presentation and the mining inventory and recovery figures as provided in the April 2016 PFS – these are presented in earlier tables.
- ◆ We note that these figures will change with ongoing DFS work.
- ◆ The base case has been calculated on our current estimated basket price of US\$22/kg for Hastings’ product mix, and discounted for the weighted average of resource tonnages and confidences:
 - Measured Resources are weighted at 50% - 80%.
 - Indicated Resources are weighted at 20% to 50%.
 - Inferred Resources are weighted at 10% to 20%.
- ◆ We note that there are no Inferred Resources used in the mining inventory.
- ◆ This results in a risk multiple of between 29-59% for Yangibana which is applied to the NPV.
- ◆ We have estimated Hastings share of the project value as 90% - this is the weighted average of the total resources held by Hastings – no allowance has been made for differences in resource confidence or grades between the 70% and 100% owned resources.

Table 12: HAS indicative valuation

HAS indicative valuation				
	Discounted for resource status			
	Full NPV	Low	High	Mid
	100%	29%	59%	44%
Yangibana 100%	\$132 m	\$38 m	\$77 m	\$57 m
Yangibana Hastings - 90%	\$118 m	\$34 m	\$69 m	\$51 m
Brockman - nominal	\$10 m	\$10 m	\$10 m	\$10 m
Cash - December 31, 2016	\$9.9 m	\$10 m	\$10 m	\$10 m
Total	\$138 m	\$54 m	\$89 m	\$71 m
	Per share valuation			
Yangibana Hastings - 90%	\$0.225	\$0.064	\$0.132	\$0.098
Brockman - nominal	\$0.019	\$0.019	\$0.019	\$0.019
Cash - December 31, 2016	\$0.019	\$0.019	\$0.019	\$0.019
Total	\$0.263	\$0.102	\$0.169	\$0.136

Source: IIR analysis

- ◆ As part of our analysis we have completed a sensitivity analysis, with this indicating that Yangibana is most sensitive to revenue (determined by US\$ denominated prices and exchange rates) and operating costs – these are compared in the table below.
- ◆ Revenue will be affected by both changes in US-denominated rare earths prices and the AUD/USD exchange rate.
- ◆ Note that the opex used in these calculations is some 40% lower than that used in the PFS, with prices being some 45% lower – when the PFS figures are substituted into our DCF model we arrive at a similar NPV to that stated in the PFS release.
- ◆ Our view is that the trend for rare earth prices will be upward rather than downward.

Table 13: Yangibana un-risked sensitivity analysis

Yangibana un-risked sensitivity analysis						
		Change in Revenue				
		-20%	-10%	0	10%	20%
Change in Opex	-20%	\$38 m	\$153 m	\$268 m	\$383 m	\$498 m
	-10%	-\$31 m	\$85 m	\$200 m	\$315 m	\$430 m
	0%	-\$99 m	\$17 m	\$132 m	\$247 m	\$362 m
	10%	-\$167 m	-\$52 m	\$64 m	\$179 m	\$294 m
	20%	-\$235 m	-\$120 m	-\$4 m	\$111 m	\$226 m

Source: IIR analysis

CAPITAL STRUCTURE

- ◆ Hastings currently has 525.1 million shares and 15.75 million performance rights on issue.
- ◆ The top shareholder is the Executive Chairman, Mr Charles Lew, holding 18.82% through both direct and indirect interests.
- ◆ Total insiders interests are 20.29%, with the top 20 holding 83.29%
- ◆ The Company has close to 1,000 shareholders.

RISKS

- ◆ **Rare Earths Prices** – Our view is that this is the key risk facing Hastings – as mentioned earlier the market is opaque and largely controlled by China, with this bringing uncertainty into prices and price forecasting – at current prices the Project does not work.
- ◆ **Funding** – Given the above, there may be difficulty in obtaining project development funding, even if offtake agreements are put in place – financiers do need certainty in revenue forecasts, else an operation that can absorb large negative changes in prices.
- ◆ **Permitting** – This is a risk facing any potential developer, however being located in Western Australia should help things – there will be issues with the presence of thorium in leach residues, however the Company is of the view that these are not insurmountable.
- ◆ **Mining** – Should Yangibana progress, given the generally narrow nature of the mineralisation, care will be needed in mining to avoid excessive dilution above that already allowed for in the mining inventory.
- ◆ **Costs** - Although a Company cannot affect prices, it can affect operational costs – given the relatively high price of rare earth processing the Company will need to actively control costs – are the current optimised costs, being some 40% lower than those in the PFS, optimistic?

BOARD AND MANAGEMENT

- ◆ **Mr Charles Lew – Executive Chairman:** Mr Lew has more than 30 years of investment banking experience, including serving as Managing Director of ABN Amro's investment banking business in Singapore from 1997 to 2000. He has been involved in a diverse range of investment banking activities, including IPOs, equity placements, corporate mergers and acquisitions, debt/equity restructuring, private equity investments and venture capital financing.

After leaving ABN Amro in year 2000, Mr Lew started his own investment management company, Equator Capital, which manages a hedge fund that is primarily involved in trading global managed futures, US equities and options. In addition, the company has been a pre-IPO investor in growth companies in Singapore, Malaysia and China some of whom were subsequently listed on the Singapore Exchange.

Mr Lew served as an Independent Non-Executive Director of the RHB Banking Group from March 2004 until his retirement from the Group in May 2016. During this period, he was on the board of RHB Investment Bank Berhad (2004 to 2016), RHB Capital Berhad

(2005 to 2007); and RHB Islamic Bank (2008 to 2016). He was an Independent Director on the board of Singapore Medical Group between 2007 and 2013. He is also Founder and Chairman of Muddy Murphy Holdings, an operator of traditional and concept pubs that was established in 1996.

He holds a BA (Hons) in Finance and Accounting from the University of East London and a MSc in Management Science from Imperial College, University of London.

- ◆ **Mr Anthony Ho – Non-Executive Director:** Tony is an experienced company director having held executive directorships and chief financial officer roles with a number of publicly listed companies. Mr Ho was executive Director of Arthur Yates & Co Limited, retiring from that position in April 2002. His corporate and governance experience includes being Chief Financial Officer/Finance Director of M.S. McLeod Holdings Limited, Galore Group Limited, the Edward H O'Brien group of companies and Volante Group Limited.

Mr Ho holds a Bachelor of Commerce degree from the University of New South Wales and is a member of the Institute of Chartered Accountants in Australia and a fellow of both the Chartered Institute of Company Secretaries and the Institute of Company Directors.

- ◆ **Mr Jean Claude Steinmetz – Commercial Director:** Mr Steinmetz's was previously Chief Operating Officer for Lynas Corporation where he had operational responsibility for the mining operations and concentration plant at Mount Weld in Western Australia and the Lynas Advanced Materials Plant (LAMP) in Malaysia. He also had oversight of the sales and marketing activities at Lynas.

Mr Steinmetz has been involved in the chemical industry for more than 25 years with a strong focus on the automotive industry leading breakthrough projects in body developments and major reductions programmes of carbon dioxide (CO₂) in compliance with European and global legislation. Mr Steinmetz has also held management positions in Rhodia-Solvay, GE and Du Pont. He currently serves as Chairman of the Auto Plastic and Innovative Materials Committee of Sino-EU Chemical Manufacturers Association.

Mr Steinmetz has a BSc in Chemical Engineering and an MSc in Industrial Management from the University of Birmingham, United Kingdom. He is fluent in English, Dutch, German and French.

- ◆ **Mr Charles Tan – Chief Operating Officer:** Charles has more than 20 years of Commercial & Procurement experience in a number of Multi-National Companies (MNCs) in Singapore & a couple of mining companies in Australia. He has worked in Singapore for 20 years and held appointments as a Procurement Director, which has given him Asia Pacific management experience. He has held senior management roles in both Mining and a Power company since migrating to Australia in 2008.
- ◆ **Mr Guy Robertson – Chief Financial Officer and Company Secretary:** Guy Robertson has 30 years' experience as a Director, CFO and Company Secretary of both ASX listed and private companies in Australia and Hong Kong. Experienced in corporate aggregation, IPO, capital raising and acquisition due diligence. In addition to experience in the resources sector, previous roles include Finance Director and NSW MD of Jardine Lloyd Thompson, Group Director Finance and COO of Colliers Jardine Asia Pacific (based in Hong Kong) and GM Finance of Franklins Limited.
- ◆ **Mr Andy Border – General Manager - Exploration:** Andy is a geologist with over 30 years' experience in the exploration and mining industry covering a wide range of commodities and projects from grass-roots exploration through to development and mining. In the last 20 years he has held roles including Exploration Manager, Chief Operating Officer and Managing Director of a number of ASX-listed companies with projects in Australia and overseas.
- ◆ **Mr Robin Zhang – Process Engineering Manager:** Mr Zhang has more than 20 years' experience in research & development, project engineering, plant commissioning and running of operations in the rare earth industry. He has extensive experience in design and running a rare earth processing and separation plant.

Mr Zhang spent 8 years with Lynas Corporation serving as Senior Technical Services Manager and Senior Project Development Manager and had worked in all phases of the development of Lynas Advanced Materials Plant in Malaysia. Prior to this, he spent 11 years with Gansu Rare Earth Group - one of the largest rare earth companies in China where he served as the Deputy Director of its Technical Centre.

- ◆ **Mr Aris Stamoulis – Director, Corporate Finance:** Aris was previously with Deutsche Bank and Morgan Stanley in London, Singapore and Hong Kong and has significant experience in capital markets and structured financing. He holds a Bachelor of Administration (Honours) degree in Economics from the University of Pretoria, South Africa. In addition to Corporate Finance and Investor Relations responsibilities, Aris has responsibility for equity and debt financing for the mine development and production capability of the Yangibana project.

DISCLAIMER

(a) Disclaimer

The information, reports, financial models, forecasts, strategies, audio broadcasts and other media (referred to as "Content" throughout this Legal Notice), provided on this web site has been prepared and issued by Altavista Research Pty Ltd trading as Independent Investment Research "IIR," Independent Investment Research Holdings Pty Ltd (ACN 155 226 074), as authorised to publish research under an Australian Financial Securities Licence (AFSL No 420170) which allows Independent Investment Research to offer financial service advice to retail and wholesale clients. Users of this web site should not act on any Content without first seeking professional advice. Whilst the Content contained on this web site has been prepared with all reasonable care from sources which we believe are reliable, no responsibility or liability is accepted by Independent Investment Research, for any errors or omissions or misstatements however caused. Any opinions, forecasts or recommendations reflect our judgement and assumptions at the date of publication or broadcast and may change without notice. Content on this web site is not and should not be construed as an offer to sell or the solicitation of an offer to purchase or subscribe for any investment. We are not aware that any user intends to rely on the Content provided or of the manner in which a user intends to use it. In preparing our Content it is not possible to take into consideration the investment objectives, financial situation or particular needs of any individual user.

Access by any user to this website does not create a client relationship between Independent Investment Research and the user. Users seeking to invest must obtain individual financial advice to determine whether recommendations are appropriate to their investment objectives, personal financial situation or particular needs, before acting on any recommendations. Any Content is not for public circulation or reproduction, whether in whole or in part and is not to be disclosed to any person other than the intended user, without the prior written consent of Independent Investment Research.

(b) Disclosure of Interest

General

Independent Investment Research, its officers, employees, consultants and its related bodies corporate have not and will not receive, whether directly or indirectly: any commission; fee; benefit; or advantage, whether pecuniary or otherwise, in connection with making any recommendation contained on this web site. Independent Investment Research, discloses that from time to time, it or its officers, employees and its related bodies corporate: may have an interest in the securities, directly or indirectly, which are the subject of these recommendations; may buy or sell securities in the companies mentioned in the Content; may effect transactions which may not be consistent with the recommendations in the Content; may have directorships in the companies mentioned in the Content; and/or perform paid services for the companies that are the subject of such recommendations.

However, under no circumstances, has Independent Investment Research been influenced, either directly or indirectly, in making any recommendations contained on this web site.

Corporate Research

Independent Investment Research has or may have, received a fee either directly by a company itself or by a third party, to provide coverage and/or corporate research (the "Fee"). Where a Fee has been received, Independent Investment Research does not publish:

Buy / Hold / Sell recommendations for the security or managed investment schemes.

(c) Copyright Protection

All Content at this web site is protected by copyright. Apart from any use permitted under the Copyright Act (Cth) 1968, you must not copy, frame, modify, transmit or distribute the material at this web site, without seeking the prior written consent of the copyright owner. Content on this web site is owned by the business Independent Investment Research. Users are prohibited from copying, distributing, transmitting, displaying, publishing, selling, licensing, creating derivative works or using any content on the web site for commercial or public purposes

Copyright 2010 Independent Investment Research. All rights reserved.

(d) Trade Marks

The trade marks and logos displayed on this web site belong to Independent Investment Research or other parties. Such trade marks include registered trade marks and trade marks pending registration. Users are prohibited from using any of these trade marks, without seeking the prior written consent of IIR or such third party, which may own the trade mark content on this web site.

(e) Limitation of Liability

To the fullest extent permitted by the law, Independent Investment Research and any of its officers, employees, agents, consultants or related bodies corporate disclaim any liability, whether based in contract, tort, strict liability or otherwise, for any direct, indirect, incidental, consequential or special damages arising out of or in any way connected with the use of any Content made available on this web site by any person or entity.

(f) No Warranties

Independent Investment Research does not make any claims, promises, guarantees, representations or warranties regarding the accuracy, completeness or fitness for purpose of the Content made available on this web site. All information on this web site is provided to you on an as is basis, without warranty of any kind either express or implied. To the extent that research can be provided by third parties, Independent Investment Research makes no warranty or representation as to the accuracy or completeness of such information displayed on this site, and accepts no liability for errors or omissions arising from such third party information. To the fullest extent permitted by law, under no circumstances will Independent Investment Research be liable for any loss or damage caused by users reliance upon information obtained through this web site. It is the responsibility of the user to evaluate the accuracy, completeness or usefulness of any information, opinion, general advice or other content made available through this web site. Furthermore, Independent Investment Research does not warrant or represent that this web site is error free or free from viruses or defects. A user must do all that is necessary (including using virus checking software) to satisfy itself that accessing this website will not adversely affect its system.

For further information, please contact IIR at: client.services@independentresearch.com.au



Independent Investment Research (Aust.) Pty Limited

SYDNEY OFFICE

Level 1, 350 George Street
Sydney NSW 2000
Phone: +61 2 8001 6693
Main Fax: +61 2 8072 2170
ABN 11 152 172 079

MELBOURNE OFFICE

Level 7, 20–22 Albert Road
South Melbourne VIC 3205
Phone: +61 3 8678 1766
Main Fax: +61 3 8678 1826

HONG KONG OFFICE

1303 COFCO Tower
262 Gloucester Road
Causeway Bay, Hong Kong

DENVER OFFICE

200 Quebec Street
300-111, Denver Colorado USA
Phone: +1 161 412 444 724

MAILING ADDRESS

PO Box H297 Australia Square
NSW 1215