Developing Zandkopsdrift- a world-class rare earth project

February 2012

James Kenny
Chief Executive Officer
Frontier Rare Earths Limited
TSX:FRO
Safe Harbour Statement

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February 2012
Frontier Overview

- **Flagship asset is the Zandkopsdrift rare earth project**
  - World-class deposit in terms of size, rare earth grade, distribution and value
  - Strategically well positioned in South Africa’s oldest mining province

- **Major joint venture with Korea Resources Corporation (KORES) signed in December ‘11**
  - Involves the acquisition by KORES of interests in Zandkopsdrift and Frontier, offtake of up to 31% of rare earth production, financial and technical assistance and development downstream rare earth opportunities
  - KORES forming a consortium of leading Korean companies expected to include Samsung Group, Hyundai Motors, GS Caltex, Daewoo Shipbuilding & Marine Engineering Group and AJU Group to participate in the Frontier/Kores Joint Venture

- **Good potential for rapid development**
  - Objective to become a major new producer of separated REOs commencing H2 2015
  - Discussions on-going with other potential strategic and commercial partners, including in China

- **Strong financial position:** c.$40m cash and fully funded through Pre & Definitive Feasibility Studies

- Experienced Board, management and technical teams
Zandkopsdrift Project Location

- Project well-situated in the Northern Cape Province, South Africa’s oldest mining region
- Excellent mining and related infrastructure available
- Close to N7 highway from Cape Town (c.450 km)
  - 30km to nearest railhead (Bitterfontein)
  - 250km north of deep water port of Saldanha Bay
- Strong support in local communities for the development of the Zandkopsdrift
- Frontier controls c.60,000 ha prospecting right area and has acquired c.4,500 ha of land on which the Zandkopsdrift rare earth deposit and carbonatite complex is situated
Zandkopsdrift Project Area

- Zandkopsdrift carbonatite complex
- N7 tarred road to Cape Town
- Gravel road to N7
- Exxaro Resources Namakwa Sands Mine (~45 km)
- Bitterfontein rail head (~44 km by road)
Zandkopsdrift Deposit
Zandkopsdrift Project Overview

- **A world-class rare earth deposit**
  - Carbonatite complex with c.97% of rare earth mineralization contained in monazite
  - One of the largest known rare earth deposits globally (excl. China) with approx. 950,000 tonnes TREO*
  - NI 43-101 compliant resource declared in Q4 2010 and updated resource estimates scheduled for Q1 and Q3 2012

- **Significant higher grade zones identified within the deposit, extending from surface and likely amenable to preferential mining**

- **Potential for rapid development and production start-up**
  - Good regional infrastructure will also facilitate development
  - Drilling substantially complete and metallurgical test work underway in Canada, South Africa and China
  - PEA close to completion and due for publication in Q1 2012
  - Targeting annual production of circa 20,000 tonnes of separated rare earths commencing in H2 2015

- **Low cost producer**
  - Infrastructure advantages and favorable geological setting should facilitate lower capital cost
  - Metallurgical flowsheet expected to confirm Frontier as a low operating cost producer

*See p.8
Zandkopsdrift Resource Estimate (Q4 2010)

- Large, high confidence resource (c.950k tonnes TREO) with 56% of the contained TREO at the Indicated Resource level
- Higher grade zones identified within the deposit which are expected to be the focus for initial production
- 20,100 metres drilled at Zandkopsdrift in 2011 which is expected to significantly advance the current resource into indicated and measured categories

<table>
<thead>
<tr>
<th>2010 Resource</th>
<th>Cut-off grade (TREO)</th>
<th>Tonnes (Millions)</th>
<th>Average Grade (TREO)</th>
<th>Contained TREO (’000 tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated Resource</td>
<td>1%</td>
<td>22.9</td>
<td>2.32%</td>
<td>532</td>
</tr>
<tr>
<td>Inferred Resource</td>
<td>1%</td>
<td>20.8</td>
<td>1.99%</td>
<td>415</td>
</tr>
</tbody>
</table>

Relative distribution of REOs in Zandkopsdrift is shown on page 11 and are as set out in NI 43-101 report dated 29 October 2010. Resource is NI 43-101 compliant and presented in accordance with CIM definitions. The mineral resource estimates reflect 100% of the estimated resources at Zandkopsdrift. Frontier’s 74% owned subsidiary, Sedex, has complied with the BEE equity ownership requirements as laid down by the Mining Charter and MPRDA, through shareholder agreements with historically disadvantaged South African individuals and entities that together hold the remaining 26% of the issued share capital of Sedex. In addition to Frontier’s direct interest in the Zandkopsdrift Project through its 74% shareholding in Sedex, Frontier shall also be entitled to, in consideration for Frontier’s funding of the BEE Shareholders’ share of Sedex’s expenditure on the Zandkopsdrift Project up to bankable feasibility stage, a payment from certain of the BEE Shareholders following the completion of the bankable feasibility study equal to 21% of the then valuation of the Zandkopsdrift Project. This gives Frontier an effective 95% interest in the Zandkopsdrift Project until such payment has been received.
Total Zandkopsdrift Resource
Higher Grade Central Zone identified
### Relative Distribution by REO of Major Deposits

<table>
<thead>
<tr>
<th>RE Oxide</th>
<th>REO price 23/1/2012 ($/kg)**</th>
<th>Lynas</th>
<th>Molycorp</th>
<th>Frontier</th>
<th>R.E.R.</th>
<th>Arafura</th>
<th>Avalon</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Mt Weld</td>
<td>Mtn Pass</td>
<td>Zandkopsdrift</td>
<td>Bear Lodge</td>
<td>Nolans Bore</td>
<td>Nechalacho</td>
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<tr>
<td>LREO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lanthanum</td>
<td>$52</td>
<td>25.1%</td>
<td>34.0%</td>
<td>25.4%</td>
<td>31.3%</td>
<td>19.8%</td>
<td>17.1%</td>
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<tr>
<td>Cerium</td>
<td>$45</td>
<td>45.0%</td>
<td>48.8%</td>
<td>44.2%</td>
<td>47.2%</td>
<td>47.6%</td>
<td>39.5%</td>
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<tr>
<td>Praseodymium</td>
<td>$170</td>
<td>4.9%</td>
<td>4.2%</td>
<td>4.5%</td>
<td>4.0%</td>
<td>5.8%</td>
<td>4.9%</td>
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<tr>
<td>Neodymium</td>
<td>$200</td>
<td>17.2%</td>
<td>11.7%</td>
<td>15.8%</td>
<td>11.9%</td>
<td>21.2%</td>
<td>19.2%</td>
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<tr>
<td>Samarium</td>
<td>$80</td>
<td>2.4%</td>
<td>0.8%</td>
<td>2.3%</td>
<td>2.3%</td>
<td>2.4%</td>
<td>3.8%</td>
</tr>
<tr>
<td>HREO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Europium</td>
<td>$3800</td>
<td>0.6%</td>
<td>0.1%</td>
<td>0.6%</td>
<td>0.5%</td>
<td>0.4%</td>
<td>0.5%</td>
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<tr>
<td>Gadolinium</td>
<td>$100</td>
<td>1.5%</td>
<td>0.2%</td>
<td>1.4%</td>
<td>1.2%</td>
<td>1.0%</td>
<td>3.1%</td>
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<tr>
<td>Terbium</td>
<td>$2820</td>
<td>0.2%</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.4%</td>
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<tr>
<td>Dysprosium</td>
<td>$1420</td>
<td>0.6%</td>
<td>0.1%</td>
<td>0.8%</td>
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<td>1.8%</td>
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<tr>
<td>Holmium</td>
<td>$0</td>
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<td>0.0%</td>
<td>0.1%</td>
<td>0.0%</td>
<td>0.0%</td>
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<tr>
<td>Erbium</td>
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<td>0.0%</td>
<td>0.3%</td>
<td>0.1%</td>
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<td>Thulium</td>
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<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.1%</td>
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<tr>
<td>Ytterbium</td>
<td>$0</td>
<td>0.1%</td>
<td>0.0%</td>
<td>0.2%</td>
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<td>0.0%</td>
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<tr>
<td>Lutetium</td>
<td>$0</td>
<td>0.0%</td>
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<td>0.1%</td>
</tr>
<tr>
<td>Yttrium</td>
<td>$90</td>
<td>2.1%</td>
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<td>4.1%</td>
<td>0.8%</td>
<td>1.3%</td>
<td>7.8%</td>
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<tr>
<td>Total</td>
<td></td>
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<td>100.0%</td>
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<tr>
<td>Total - HREO</td>
<td></td>
<td>5.4%</td>
<td>0.5%</td>
<td>7.8%</td>
<td>3.3%</td>
<td>3.1%</td>
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<td>Total - Big 5</td>
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<td>23.4%</td>
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<td>21.8%</td>
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<td>27.9%</td>
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</table>

1. No value attributed by Frontier to Holmium, Erbium, Thulium, Ytterbium and Lutetium as these elements have small markets, are typically produced to special order and do not have regularly published prices.
2. REO prices from Metal Pages January 23 2012
3. Peer group includes selected advanced rare earth projects with >200k TREO calculated on a code-compliant basis
Zandkopsdrift Drilling Update

- Extensive drilling programme completed at Zandkopsdrift in 2011

- 302 holes drilled for a total of 20,100 meters over a 10 month period

- Drill spacing currently circa 40 meters

- Results of 2011 drilling programme are expected to significantly advance the 2010 resource into the measured and indicated resource categories

- Greatly enhanced knowledge of the geology and controls on mineralisation at Zandkopsdrift

- Also pursuing other exploration targets elsewhere in the Zandkopsdrift prospecting right (c.60,000 hectares)
# Zandkopsdrift Geological Map and 2011 Drill programme

## Geological Map Zandkopsdrift 2011 Resource Drilling Programme

### Legend
- **2010 Resource boundary**
- **Phase 2 RC holes 2011**
- **Phase 1 RC holes 2011**
- **Diamond core holes 2011**
- **Metallurgical sample holes 2011**
- **Validation holes 2009/2010**
- **Historical holes**
- **Deeply weathered carbonatite**
- **Fresh fragmental glimmeritic carbonatite**
- **Gneiss**

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**Meters**

<table>
<thead>
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<th>0</th>
<th>100</th>
<th>200</th>
<th>400</th>
<th>600</th>
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<tr>
<td>784000</td>
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<td></td>
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</tbody>
</table>

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Preliminary Economic Assessment Update

- **Resource Development Significantly advanced**
  - A total of 19,674 samples submitted for assay in 2011 with final results received in December
  - Updated NI 43-101 resource estimate being prepared

- **Metallurgical Test work on-going**
  - Mineralogical analysis complete and confirms rare earth at Zandkopsdrift contained in monazite (c.97%)
  - Metallurgical test work underway at SGS Minerals Services (Canada) and at specialist laboratories in South Africa and China
  - Initial results received are encouraging and will form basis for Preliminary Economic Assessment (PEA)

- **Preliminary Economic Assessment being finalised**
  - Multi-disciplinary consultancy team retained and PEA progressing well.
  - Venmyn to compile NI 43-101 compliant PEA scheduled for completion in Q1 2012
  - Positive PEA anticipated and consequently several long lead time items related to the Zandkopsdrift Pre-Feasibility Study have already been initiated

Frontier expects the PEA will confirm Zandkopsdrift’s potential as a low cost producer
Corporate Update

- **Strategic Partnership and Corporate Development Initiatives progressing**
  - Major strategic partnership with Korea Resources Corporation completed in December 2011 and a consortium of leading Korean industrial companies groups being finalised
  - High levels of interest generated in Zandkopsdrift and approaches also received from a number of other potential partners in US, Asia and Europe and discussions continuing
  - Shanghai office opened in 2011 to cover Greater China and significant interest already generated from several major Chinese rare earth sector groups

- **Market Rating, Liquidity and Listing Alternatives under review**
  - Management believes that Frontier’s market rating does not accurately reflect the value of the Company’s assets
  - Consideration being given to certain market based strategies to address this issue and secondary listing options also being explored

- **Financial**
  - Working Capital position is good with cash c.$40m. Frontier remains fully funded through completion of PEA, Pre-Feasibility and Definitive Feasibility Studies
Korea Resources Corporation

- Korea Resources Corporation ("KORES") (www.KORES.or.kr) is wholly-owned by the Korean government.
- Stated objective of becoming a global top 20 mining company by 2020, principally through international investments and joint ventures.
- Policy mandate to further Korea's access to strategically important mineral resources, both domestically and internationally.
- Exclusively carries out the Korean government's mineral resources policy objectives including the development and production of strategically important mineral resources, and managing the Korea’s stockpile of rare mineral resources.
- Works closely with all major Korean industry groups and plays an active role assembling consortia of Korean companies to selectively participate with KORES in commercial ventures.
- Korean government has designated rare earths as a strategic raw material for Korea’s future economic growth and has undertaken considerable work to identify the most prospective sources of future rare earth supply worldwide.
KORES has formed a consortium to participate in the Frontier Joint Venture that includes some of Korea’s largest and most respected companies and industrial groups.
Shin-Jong Kim, President and CEO of KORES (seated lhs) said:

“KORES on behalf of the Korean Government and our Korean consortium partners is very pleased to have concluded a definitive agreement with Frontier to cooperate on the development of the Zandkopsdrift rare earth project. In order to support Korea’s high technology, automotive and other industries, the development of Zandkopsdrift will be a strategic priority project for the KORES Consortium and a critical element of KORES’ efforts to secure a long term, stable source of rare earth supply for Korean industry.”
Frontier/KORES Joint Venture

Frontier and KORES CEOs Signing The Definitive Joint Venture Agreement

KORES Consortium Representatives Signing Participation Agreement
Key points of the KORES/Frontier Agreement

- KORES to acquire initial 10% interest in Zandkopsdrift post publication of the PEA. Consideration to be based on the Enterprise Value of Frontier subject to a minimum share price of C$2.39.

- KORES will have an option to acquire further 10% interest in Zandkopsdrift post publication of the Definitive Feasibility Study (DFS). Consideration to be based on the valuation of Zandkopsdrift as set out in the DFS.

- KORES will also have an option post publication of the DFS to acquire up to a 10% shareholding in Frontier at market.

- KORES to arrange debt finance to cover the capital requirements of Zandkopsdrift development. KORES to contribute to costs at Zandkopsdrift pro rata to equity interest in Zandkopsdrift.

- KORES to provide financial, technical and operational assistance in relation to the development of Zandkopsdrift.

- If 20% interest in Zandkopsdrift is acquired and the option to acquire a 10% shareholding in Frontier is exercised, KORES will have the off take right and obligation to acquire up to 31% of Zandkopsdrift production.

- Frontier and the KORES Consortium will investigate and pursue downstream business opportunities in the areas of rare earth alloys, rare earth metals and rare earth magnets.

- Zandkopsdrift is KORES’ only investment in a rare earth mine development worldwide to date.
Key Project Milestones 2012-2013

- **Q1 2012**: Preliminary Economic Assessment completion and NI 43-101 resource update

- **Q1 2012**: Investigate satellite pipes around Zandkopsdrift and other exploration targets identified elsewhere in current 60,000 hectare permit. Commence exploration work on other recently awarded 75,000 hectare prospecting right in Namaqualand

- **Q1/2 2012**: Phase 2 bench metallurgical studies completion and initiate pilot plant studies

- **Q3 2012**: Target Pre-Feasibility study completion (est. 6/8 months post filing of PEA) and NI 43-101 resource update

- **Q1 2013**: Target Definitive Feasibility Study completion (est. 6/8 months post filing of PFS)

Note: Frontier is fully funded for its PEA, PFS and DFS programmes at Zandkopsdrift
Project Development Plan 2013-2015

- Conceptual project development plan
  - Construction to commence in 2013
  - Rare earth production scheduled to commence in H2 2015
  - Target production of 20,000 tonnes separated Rare Earth Oxides per annum
  - Mining, flotation and potentially cracking plant on site at Zandkopsdrift
  - Rare earth separation plant to be sited at Saldanha Bay (c.250km south of Zandkopsdrift)
Planned Zandkopsdrift Rare Earth Operations and Infrastructure

- Mining, flotation and cracking plant to produce rare earth concentrate at Zandkopsdrift
- Rare earth concentrate transported by road (N7) or rail (Bitterfontein) to Saldanha Bay
- Proposed location for Frontier rare earth separation plant
- Koeburg Nuclear Power Station
Illustrative Production and Revenue Contribution by Element

- Assumes production at 20,000 tonnes separated REO p.a. and an element recovery in line with in situ Zandkopsdrift distribution
- Zandkopsdrift has a favourable distribution of both the high value light and heavy rare earth elements
- These “Big 5” elements represent 22% of illustrative production volumes but contribute c.66% of project revenue**
- Cerium and lanthanum would represent c.70% of the illustrative production volume but contribute only c.28% of potential project revenue**

*Big 5 – Neodymium, Praseodymium, Europium, Terbium and Dysprosium

**Revenue contributions are calculated using FOB China prices from Metal Pages Jan 23 2012
No value is attributed by Frontier to the five heavy rare earths from Holmium to Lutetium
Rare Earth Metallurgy

- Metallurgy is key to development time, capex and opex for all RE projects
- RE minerals in many new projects have never had commercial processes developed for recovery of the contained rare earths
- Zandkopsdrift principally contains “conventional” RE minerals (monazite) for which commercial extraction processes exist
- Metallurgical test work under way in specialist laboratories in Canada, South Africa and China
- Test work results to date are encouraging and will form the basis for the PEA
- Very low radioactivity at Zandkopsdrift, specifically the levels of thorium (average 178ppm) and uranium (average 47ppm) which is expected to reduce environmental, permitting and related issues
### Potential Capital Cost

<table>
<thead>
<tr>
<th>Cost Drivers</th>
<th>Frontier’s position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of plant/economies of scale</td>
<td>The anticipated plant size at the Zandkopsdrift project is of globally significant scale (20,000 tpa TREO)</td>
</tr>
<tr>
<td>Geographic location</td>
<td>South Africa is a mining friendly, lower cost jurisdiction with a benign (arid) year-round climate</td>
</tr>
<tr>
<td>Available Infrastructure</td>
<td>Zandkopsdrift is located in South Africa’s oldest mining province, close to transport and other relevant infrastructure</td>
</tr>
<tr>
<td>Mining method</td>
<td>As the Zandkopsdrift deposit outcrops, it could be mined on an open pit basis with a low/zero strip ratio</td>
</tr>
<tr>
<td>Ore type and process complexity</td>
<td>The principal Rare Earth host mineral at Zandkopsdrift is monazite for which commercial extraction processes exist</td>
</tr>
<tr>
<td>Rare Earth Grade &amp; geological setting</td>
<td>The deposit contains higher Rare Earth grade zones which should reduce throughput &amp; capex to achieve target production</td>
</tr>
</tbody>
</table>

#### Rare Earth Project Capex costs (US$m)

- **Molycorp 19kt***
- **Molycorp 40kt***
- **Lynas 22kt**
- **Arafura 20kt**
- **Avalon 10kt***
- **Greenland 43.7kt**

* Capex is for reopening a closed mine and refurbishing and expanding existing facilities
** Includes capex for a 10ktpa mine & processing plant and 25ktpa separating plant
Corporate Information

- TSX:FRO
- Shares Outstanding: 89,562,781
- Fully Diluted Shares: 90,072,765 (January 2012)
- Market Cap c.$90m
- Share Price $.99 (52 week high/low $3.75 - $0.87)
- Working Capital c.$40m (no debt)

Research Coverage:
- CIBC initiated coverage March 6 2011 - 12/18 month target price $7.30
- Byron Capital initiated coverage March 17 2011 - 12/18 month price target $4.80
- Jacob Securities initiated coverage June 8 2011 - 12 month price target $9.83
- Cormark Securities initiated coverage Sept 13 2011 - 12 month price target $4.30
Summary

- **Zandkopsdrift is a world-class rare earth deposit**
  - Large, high grade rare deposit, with low radioactivity, located on surface, near significant infrastructure in a mining-friendly jurisdiction
  - Aggressive work programme underway with multiple defined milestones
  - Potential for lower cost, rapid development and early production
  - PEA and update resource estimate due for completion in Q1 2012

- **Experienced Board, management and technical teams**

- **Major strategic partnership completed with KORES and consortium of leading Korean companies which will accelerate and considerably de-risk Zandkopsdrift’s development**

- **Other strategic partnerships and corporate initiatives under consideration**

- **Strong financial position (cash c.$40m) and Company fully funded through PFS & DFS**

- **Share price trading at significant discount to peers**

- **Frontier is well positioned to become a major producer of separated rare earths commencing in 2015**
Senior Management Team

Management team with extensive experience of exploration and development of mineral projects in Southern Africa, financing and corporate development

James Kenny B Comm, MBS
Chief Executive Officer
20+ years experience in natural resources sector as an executive, adviser and broker. Centrally involved in Frontier's corporate strategy and development activities since incorporation.

Dr. Stuart Smith B Sc, PhD
Vice President, Exploration
30+ years experience in mineral exploration with particular experience in rare earths, uranium, base metals and diamonds.

Paul McGuinness B Comm, ACA
Chief Financial Officer
15+ years experience in investment banking and financial control with Arthur Anderson, Salomon Brothers, Schroders, Collins Stewart and MG Capital.

Derick de Wit B Tech, Chem. Eng.
Vice President, Project Development
15+ years experience in minerals industry. Has managed or prepared more than 30 independent review, scoping, pre-feasibility and feasibility studies in Africa and Canada.
Non-executive Directors

Philip Kenny B Eng. MBA (Chairman) (UK)
25 years experience in natural resource sector. Founder and former Executive Chairman, and CEO of Firestone Diamonds plc, an AIM-listed diamond mining company focused on Southern Africa and with operating kimberlite mines in Botswana and Lesotho.

Eamonn Grennan B.Sc, M.Sc (Ireland)
Independent consulting geologist with over 40 years experience as an exploration manager, geologist, consultant and senior lecturer. Former President of the Irish Association for Economic Geology and member of the Consultative Committee of the Irish Geological Survey.

Anu Dhir B.A., J.D. (Canada)
Former VP Corporate Development and Company Secretary of Katanga Mining Limited. Managing Director of Miniqs Limited, Non-executive Director of Anooraq Resources Corporation and Non-executive Director of Compass Asset Management.

Crispin Sonn B.A., B.Comm (South Africa)
Executive Director of Old Mutual South Africa, the largest integrated financial services company in South Africa. Chairman of the Old Mutual Foundation, founding Chairman of Foodbank South Africa and Non-executive Director of Capespan (Pty) Ltd.
KORES has formed a consortium to participate in the Frontier Joint Venture that includes some of Korea’s largest and most respected companies and industrial groups.

**Samsung Group** ([www.samsung.com](http://www.samsung.com)) is a multinational conglomerate whose subsidiaries include Samsung Electronics (the world’s largest information technology company by revenue and the world’s largest manufacturer of smartphones ahead of Apple), Samsung Heavy Industries (one of the world’s largest shipbuilders) and Samsung Life Insurance (the world’s 14th largest insurance company). The Samsung Group’s interests span electronics to financial services, from chemicals and heavy industries to trade and services. In 2010 the company had turnover of over US$134 billion and generated profit before tax of US$17 billion.

**Hyundai Motors** ([www.hyundai.com](http://www.hyundai.com)) is the world’s fourth largest car manufacturer which in 2010 increased global sales by 16.3% selling 3.61 million vehicles. In 2011 Hyundai is targeting sales of 3.9 million vehicles across 193 countries. Hyundai is ranked 65th in the world’s top 100 brands. In 2010 the company recorded sales of US$98 billion and operating income of US$8 billion.

**Daewoo Shipbuilding & Marine Engineering** ([www.dsme.co.kr](http://www.dsme.co.kr)) operates as a shipbuilder and offshore contractor that builds various vessels (i.e. tankers, passenger ferries, ro-ro carriers) offshore platforms, drilling rigs, floating oil production units, submarines, and destroyers and is ranked as the second largest shipbuilder in the world. In 2010 the Company had turnover of over US$11 billion and net income of US$666 million. Daewoo Shipbuilding & Marine Engineering Co. is also very active in the wind turbine sector.

**GS Group** ([www.gs.co.kr](http://www.gs.co.kr)) is a Korean holding company focusing on oil refining and retail. Its main asset is a 50% interest in GS Caltex, Korea’s second largest refiner, and which is a joint venture with Chevron Corporation. GS Group’s principal business activities consist of petroleum refining and marketing, the production of petro-chemicals and the blending of lubricant oils. In 2010 the CS Group reported revenues of over US$36 billion and an operating profit of approximately US$1 billion.

**AJU Group** ([www.aju.co.kr](http://www.aju.co.kr)) is a privately owned group with operations spanning energy, resources, construction materials, finance, tourism and leisure and real estate development. In 2010 the company reported assets of US$4.1 billion, sales of approximately US$800 million and operating profits of US$33 million.
Rare Earths – Overview

- Series of 15 chemically similar elements that occur and are recovered together
  - Distribution of elements varies from deposit to deposit
  - Two distinct categories based on atomic weight: Light Rare Earths and Heavy Rare Earths
- Each element has a range of distinctive physical properties which allow them to be used in a variety of technological applications
  - Magnetic, optical, electrical, catalytic and metallurgical
- Underpin the “green economy”
  - Hybrid motor and battery technology
  - Energy efficiency
  - Wind power
  - Consumer electronics
  - Defence
- Most have no substitutes and are indispensable in many applications
Rare Earths – Uses

- Biggest use is for magnets, phosphors and metal alloys and accounts for 82% of demand by value

Value of RE usage by application

Source: Roskill (2010)
Rare Earths – Historical Supply

- China has dominated world rare earths supply since mid 1990’s; currently controls 94% of supply
- No increase since 2005 despite steadily increasing demand
- China’s supply dominance likely to continue

Source: Roskill (2010)
Rare Earths – Supply/Demand Forecasts

- Demand projected to grow at 7-10% CAGR from 2010 to 2015
- China’s domestic demand continues to increase faster than its supply
- Supply deficit widely forecast
  - 55kt of REO required from non-China sources by 2015, up from 5kt in 2010
  - Significant opportunity for new producers

Source: Roskill (2010)
Rare Earth Market Developments 2011

- Chinese pricing and export policy changes dominate the rare earth market. 2012 export quotas (Dec 2011) appeared flat but in reality were considerably lower given inclusion of more products within the quota i.e. with > 10% rare earth content. First time individual quotas have been introduced for light and heavy rare earths.

- Although prices have declined in recent months, there has been significant increase in REO prices over the last 12 months and price growth forecast both in China domestically and FOB China prices in medium-term.

- Restructuring of Chinese export quota system, forced industry consolidation and 'clampdowns' on Chinese rare earth mining and processing industries likely to have significant price implications for certain rare earth prices.

- China has confirmed only 15-20 years reserves of Heavy and Medium REOs and clear indications that it may be a net importer of certain rare earths by 2015.

- Plans by several countries including China, Japan, South Korea and US announced to stockpile rare earths widely reported. India and Russia also developing rare earth strategies.

- Major industrial users seeking to lock in long-term supply/partnership from credible potential producers i.e. Frontier/KORES, Lynas/Siemens.
Metallurgical Sample Recovery Sites (Q1 2011)
Angled and Vertical Core Drilling at Zandkopsdrift (Q2 2011)
Angled Core Drilling at Zandkopsdrift (Q3 2011)
Diamond Core Marking & Logging at Zandkopsdrift
Transition from Weathered to Fresh Carbonatite Visible in Core

- High Grade Weathered Carbonatite
- Weathered Carbonatite
- Lower Grade Fresh Carbonatite
Visitors arriving at Springbok-125km from Zandkopsdrift
Frontier management and consultants at Zandkopsdrift camp
Zandkopsdrift in Springtime