



AUSTRALIAN **BAUXITE** LIMITED

**ASX ANNOUNCEMENT**

**28 May 2018**

ASX: ABX



AIF<sub>3</sub> for Aluminium smelters & Lithium ion batteries. Corethane: clean as gas, cheap as coal

## **ALCORE Limited Seed Capital Presentation to fund ALCORE Stage 1 refining bauxite into Aluminium Fluoride**

In accordance with the requirements of Listing Rule 3.1 we submit the attached material being presented to investors to the ALCORE project.

### **Summary:**

- ALCORE Limited will be a wholly-owned subsidiary to fund and manage the ALCORE Project, leading to the construction of an ALCORE Production Plant to produce 50,000 tonnes per year of Aluminium Fluoride (AIF<sub>3</sub>) and co-products
- ALCORE technology converts raw bauxite worth approximately \$50 per tonne into products worth more than \$1,000 per tonne of bauxite.
- Preliminary in-house and independent engineering estimates of the operating cost is of the order of \$400 to \$500 per tonne of bauxite, which leaves an attractive operating margin
- ALCORE project is starting with the commencement of Stage 1 pilot plant at a pre-approved factory site in Berkeley Vale, central coast NSW for the production of AIF<sub>3</sub> test samples
- Stage 1 costs reduced to \$2.5 million site operations (including contingencies), plus \$0.5m pre-IPO costs plus \$0.3m working capital and administration cost
- \$1 million of funding has been promised, \$0.5 million has been provided and \$0.2 million has been pledged by parties supportive of this new technology
- It is anticipated that the remaining \$1.6 million of seed capital will be fully subscribed to complete the funding of Stage 1
- Once Stage 1 completes the production of AIF<sub>3</sub> test samples, it will be modified to test the production of Corethane, which is pure hydrocarbon powder refined from low-value coals
- Corethane will provide heat and electrical power for the ALCORE Production Plant and will also demonstrate its use as a gas-substitute in gas turbine electrical generators or its use as a diesel substitute for fuel security purposes. Corethane has many industrial markets
- Discussions with governments and agencies are progressing at the highest levels
- Companies that showed strong interest in purchasing and/or marketing both the Aluminium Fluoride and the main co-products Corethane and silica fume are being consulted
- ALCORE and ABx are on schedule to complete funding arrangements by 30 June 2018

### **ABx CEO, Ian Levy Comments:**

“After 5 years of hard work and fine-tuning the ALCORE technology with the patent holder, Refined Ore Industries Limited (ROIL), ABx can, subject to a successful IPO or superior funding process, unlock considerable shareholder value that is not reflected in ABx’s current share price. ABx and ROIL will control the destiny of ALCORE so as to maximise shareholder values.

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“At current product sale prices, ALCORE has the potential to produce 50,000 tonnes per year of Aluminium Fluoride and deliver a significant annual EBITDA. This is why The ALCORE Project must be pursued without delay to be ready to supply existing Australasian aluminium smelters and new aluminium smelters under construction. Lithium-ion battery demand will be a bonus upside.

“ABx will continue progressing the development of its three core bauxite projects, namely the Tasmanian mine and additional resources, the large Binjour Project in central QLD and the Penrose refractory bauxite project 90km inland of Port Kembla NSW. Separating ALCORE into its own entity with its own management and destiny will unlock considerable value for shareholders in both the short and medium terms. Financing of the ALCORE Production Plant cannot be pre-determined but an IPO during 2019 is one route, should there be no superior offers at the time.”

**For further information please contact:**

Ian Levy, CEO and MD

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**About Australian Bauxite Limited**

**ASX Code ABX**    **Web: [www.australianbauxite.com.au](http://www.australianbauxite.com.au)**

Australian Bauxite Limited (**ABx**) has its first bauxite mine in Tasmania & holds the core of the Eastern Australian Bauxite Province. ABx's 22 bauxite tenements in Queensland, New South Wales & Tasmania exceed 1,975 km<sup>2</sup> & were selected for (1) good quality bauxite; (2) near infrastructure connected to export ports; & (3) free of socio-environmental constraints. All tenements are 100% owned, unencumbered & free of third-party royalties.

ABx's discovery rate is increasing as knowledge, technology & expertise grows. The Company's bauxite is high quality gibbsite trihydrate (THA) bauxite that can be processed into alumina at low temperature.

ABx has committed a large proportion of its expenditure into Research and Development to find ways to capitalise on the main strengths of its bauxite type, mainly highly clean, free of all deleterious elements and partitioned into layers, nodules, particles and grains of different qualities that can be separated into different product streams using physical, chemical and geophysical methods.

ABx has declared large Mineral Resources at Inverell & Guyra in northern NSW, Taralga in southern NSW, Binjour in central QLD & in Tasmania, confirming that ABx has discovered significant bauxite deposits including some of outstandingly high quality.

ABx's first mine commenced at Bald Hill near Campbell Town, Tasmania in December 2014 – the first new Australian bauxite mine for more than 35 years.

ABx aspires to identify large bauxite resources in the Eastern Australian Bauxite Province, which is a globally significant bauxite province. ABx has created significant bauxite developments in 3 states - Queensland, New South Wales and Tasmania. Its bauxite deposits are favourably located for direct shipping of bauxite to both local and export customers.

**ABx endorses best practices on agricultural land, strives to leave land and environment better than we find it.**

**We only operate where welcomed.**

**Directors & Officers**

Paul Lennon	Chairman
Ken Boundy	Director
Ian Levy	CEO & MD
Henry Kinstlinger	Company Secretary
Leon Hawker	Chief Operating Officer
Jacob Rebek	Chief Geologist
Paul Glover	Marketing, Logistics & Exploration Manager

# ALCORE

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AlF<sub>3</sub> for Al-smelters & Lithium ion batteries & Corethane: clean as gas, cheap as coal

## Refining bauxite into high value products



June 2018



To invest, call  
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# Disclaimer

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Markets for Corethane other than for the ALCORE plant require ROIL’s approval.

Prices were sourced from Asian Metals and verified by comparison with prices from Bloomberg. The price actually achieved will depend upon market conditions at the time of sale.

# ALCORE Investment Highlights

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- ALCORE Limited (“ALCORE”) will be a subsidiary of Australian Bauxite Limited (ASX code “ABX”) which owns the patent pending exclusive global licence to refine bauxite worth ~US\$50 per tonne into products worth over US\$1,000 per tonne bauxite
- Economic studies indicate an operating margin of about US\$400 per tonne bauxite
- Main products include:
  - **Aluminium fluoride  $AlF_3$**  electrolyte for aluminium smelting & Lithium ion batteries
  - **Silica fume** for cement, Titanium fluoride/oxide for electronics/white pigment
  - **Corethane** pure hydrocarbon from coal to provide fuel & electricity
- Full-scale Australian production plant will produce 50,000 tonnes  $AlF_3$  by refining ~100,000 tonnes bauxite per year. More plants to be built in Australia & overseas
- **Customers:** Major aluminium producer agreed to test with a view to buy 50% of ALCORE production at market prices. Trading house offering finance for ALCORE
- **Capital Raising:** A\$0.5m already subscribed. ALCORE is raising a further A\$2.8m seed capital for Stage 1 samples production plant to secure supportive customers
- Development of the ALCORE refinery to be funded via an IPO or superior financing method as agreed by stakeholders in 2019

# ALCORE Investment Structure

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## Subject to adjustments by brokers/advisers

- Seed investors are issued convertible notes that convert into ALCORE shares at IPO at a 30% discount (eg. if listing is at 50 cents, seed investors pay 35 cents per share)
- ALCORE designed to give seed investors an entitlement to the tax benefits of Early Stage Innovation Company (ESIC) (to be confirmed by tax advisers & ATO):
  - 20% immediate tax offset (maximum \$200,000 offset for \$1m invested)
  - 10-year exemption from Capital Gains Tax “CGT”
- Indicative share structure at IPO (assuming listing at 50 cents) Total = 122.3m shares
  - ABx = 60.5 million shares (49.5%)
  - Staff allocation & existing seed (A\$0.5m) = 3.7 million shares (3.0%)
  - Seed investors (A\$1.8m\* @35 cents) = 5.1 million shares (4.2%)
  - IPO investors (A\$26.5m@50 cents) = 53 million shares (43.3%)

\* Assumes \$1m raised from 3<sup>rd</sup> parties via advanced loans on expected R&D rebates

# Patented “CORE” Technology

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- ABx has acquired a global exclusive licence for a bauxite refining technology from Refined Ore Industries Limited (ROIL) via its Intellectual Property subsidiary, Berkeley Process Technologies Pty Ltd
- ABx will provide ALCORE access to this technology and will supply ultra clean bauxite to ALCORE from its Eastern Australian deposits
- ROIL is a private company that developed “The CORE Process” - a new way to process many mineral ores for less cost, with less waste, less energy demand and with fewer emissions. The CORE Process can recover all contents of an ore rather than just extracting the target commodity and discarding the remainder as waste
- Patent application No. 2017902627 dated 5 June 2017

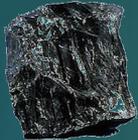
# ALCORE Business Strategy

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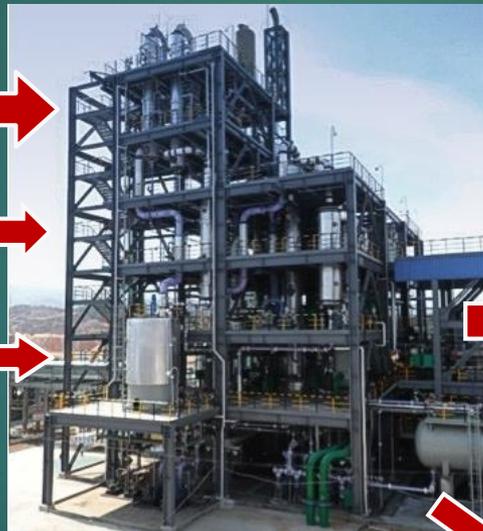
Low grade bauxite

Low grade coal  
(black or brown)



Fluorosilic Acid "FSA"  
By-product from  
fertiliser plants, used  
to fluoridate drinking  
water

ALCORE Refinery



$AlF_3$  electrolyte for more  
efficient Aluminium  
Smelters



$AlF_3$  electrolyte for  
Lithium-ion batteries



Corethane for electricity,  
heat, gas & diesel  
substitute & industrial use

# ALCORE Refining Co-products

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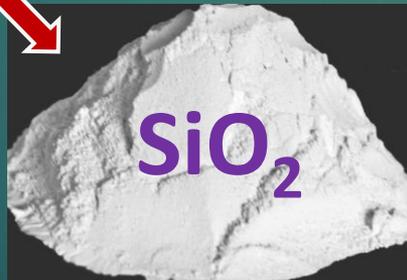


**Bauxite &/or coal ash** =  $36\% \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3 + \text{SiO}_2 + \text{TiO}_2$

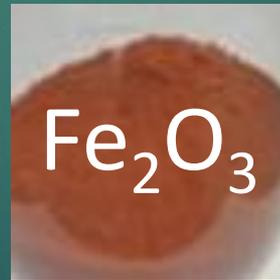
**Reagents:** 2 Fluorine acids & water (mainly “FSA” a waste acid from fertiliser plants and used for water fluoridation).

## Process

1. All minerals except hydrocarbon dissolved by reagents
2. Hydrocarbon floats-off. We call this “Corethane”
3. Metal fluorides form from dissolved minerals
4. Fluorides can be precipitated as oxide products and the Fluorine-based acids recovered if needed
5. Co-products are all in saleable pure forms



Pure Silica Fume  
US\$350 to \$3,000/t



Iron Oxide Pigment  
~US\$600/t



$\text{TiO}_2$  Pigment or  $\text{TiF}_4$   
~US\$1,800/t



Aluminium Fluoride  
~US\$1,500/t

# Why Invest in ALCORE?

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**This Australian CORE technology has operated successfully before**

1. In Japan 1981-86 producing 200,000 tonnes of Corethane for US Military tests
2. In Cooma NSW 2001-07 refining graphite & other ores, including bauxite

**ALCORE Technology is a low-cost, low risk application of the CORE Process**

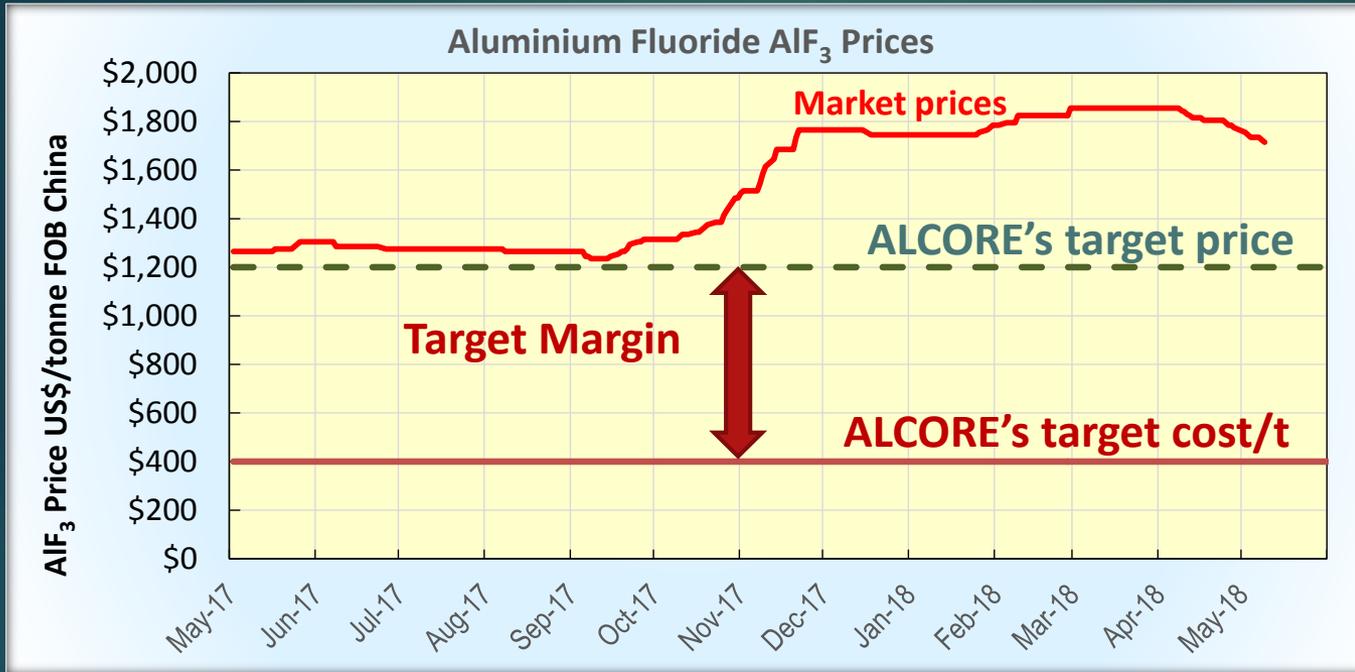
- **ALCORE has low-cost** due to processing bauxite (costing ~US\$50/t), selling all co-products worth more than \$1,000 per tonne bauxite processed & recycling acids
- Traditional  $\text{AlF}_3$  production processes expensive alumina (~US\$450/t) &/or aluminium hydroxide (~US\$600/t) with no co-product sales & no acid recycling
- ALCORE is lower risk than peers, being low pressure & low temperature, targeting existing product markets with some tolerance on purity. Others target “ultra-purity”

**Timing is right: Strong market growth**

- **Aluminium Fluoride** ( $\text{AlF}_3$ ) prices have risen from ~US\$880 to ~US\$1,800 per tonne
- **Silica fume** (amorphous  $\text{SiO}_2$ ) cement-concrete demand strong (US\$300-US\$3,000/t)
- **TiO<sub>2</sub> pigment** market strong (US\$1,800/t) & **TiF<sub>4</sub> for electronics** (US\$10,000/t)
- **Corethane** co-product allows ALCORE to operate off-grid & increase fuel security

# AlF<sub>3</sub> markets are very strong

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## Prices strong

AlF<sub>3</sub> prices positive trend since 2012.

Recent price jump due to Lithium ion battery demand and very strong growth in aluminium production

Graph data: Asian Metals



## Tonnes: AlF<sub>3</sub> is Aluminium index-linked

Aluminium production is growing at record rates and many new smelters in construction

**Past:** AlF<sub>3</sub> demand = 1.5% - 3% of Aluminium tonnes

**Now:** AlF<sub>3</sub> demand growing faster than aluminium due to new markets like Lithium ion battery usage

Graph Data: World Aluminium

# ALCORE Economic Snapshot

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Target economics of full-sized ALCORE production plant			A\$million
Capital cost			<b>-\$59</b>
<b>Operating costs</b>	<b>Bauxite (t)</b>	<b>Cost A\$/t</b>	<b>A\$million</b>
<b>Total Operating expenditure</b>	<b>105,000</b>	<b>\$266</b>	<b>-\$28</b>
<b>Operating revenues</b>	<b>Tonnes Produced</b>	<b>Price A\$/t Produced</b>	<b>A\$million</b>
Aluminium Fluoride AlF <sub>3</sub>	50,000	\$1,600	\$80.0
Silica fume concrete & geopolymer	10,500	\$650	\$6.8
Iron Oxide Fe <sub>2</sub> O <sub>3</sub> pigment/ochre	22,500	\$250	\$5.6
Titanium TiO <sub>2</sub> & TiF <sub>4</sub>	3500	\$1,800	\$6.3
<b>Total sales</b>	<b>86,500</b>	<b>\$1,142</b>	<b>\$99</b>
<b>EBITDA (A\$ millions)</b>			<b>\$71</b>
	<b>Downside</b>	<b>Base Case</b>	<b>Upside Case</b>
<b>Pre-Tax NPV (@15%) (\$ millions)</b>	<b>\$106</b>	<b>\$208</b>	<b>\$345</b>
<b>Pre-Tax IRR</b>	<b>57%</b>	<b>93%</b>	<b>128%</b>

Note: Corethane is additional upside

Forward looking statement – see disclaimer

# ALCORE Target Markets

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- 1. Aluminium Fluoride ( $\text{AlF}_3$ )** is a solid granular electrolyte:
  - Added 3% into aluminium smelters to allow more efficient smelting
  - Australasian smelters import 100% of their  $\text{AlF}_3$
  - Major aluminium producer has agreed to test with a view to buying 50% of ALCORE production at market prices
  - Trading house is offering finance for ALCORE development
  - Selling to Lithium ion batteries is medium-term upside
  - Global demand exceeds 1.5 million tonnes per year & growing rapidly
  - Prices have risen from US\$880/t to US\$1800/t in 3 years (Li-ion demand)
- 2. Silica Fume** is a high value industrial product suitable for making a low  $\text{CO}_2$  eco-cement called Geopolymer cement. Lower quality silica fume is added to concrete to increase its density and strength.
  - One of ABx's cement-grade bauxite customers as well as a global cement major & an Australian concrete company have expressed interest in buying silica fume and may be prepared to assist with trade finance

# ALCORE Target Markets (2)

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1. **All other co-products** (pure bauxite,  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$  &  $\text{TiO}_2/\text{TiF}_4$ ) have strong markets in Australia and overseas for pigment applications and for electronics
2. Long-term growth may involve high-purity products that earn exponentially higher prices, such as 99.99% pure  $\text{Al}_2\text{O}_3$  which sells for ~US\$20,000 per tonne for making scratch-resistant sapphire glass screens

## **ALCORE can also refine coal to make Corethane hydrocarbon products**

By refining a mix of bauxite and low-cost coal, ALCORE also produces a refined ash-free pure hydrocarbon that is called Corethane which has many markets:

1. Providing energy for ALCORE plant to be off-grid if needed
2. As metallurgical coal (eg. ferro-manganese smelting, PCI, sintering)
3. For hi-tech brickmaking
4. As a fuel for gas-turbine electricity generation plants (eg. to fire-up the excess capacity of reliable gas turbines in Bell Bay, Tasmania)
5. **As a diesel substitute (mixed with 50% water) to increase Fuel Security**

# Stage 1 Use of Funds: site ops

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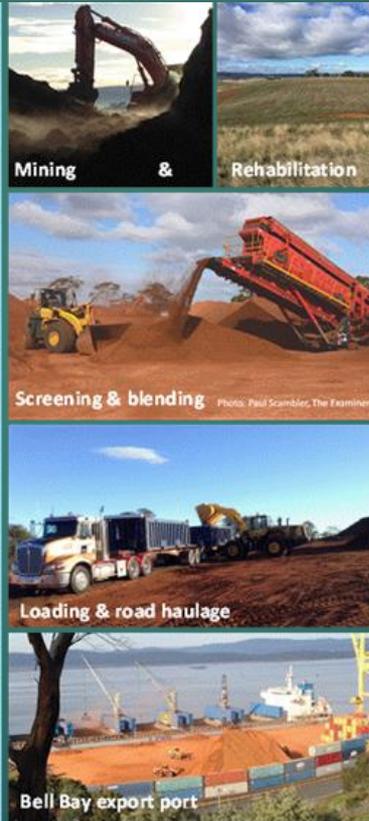
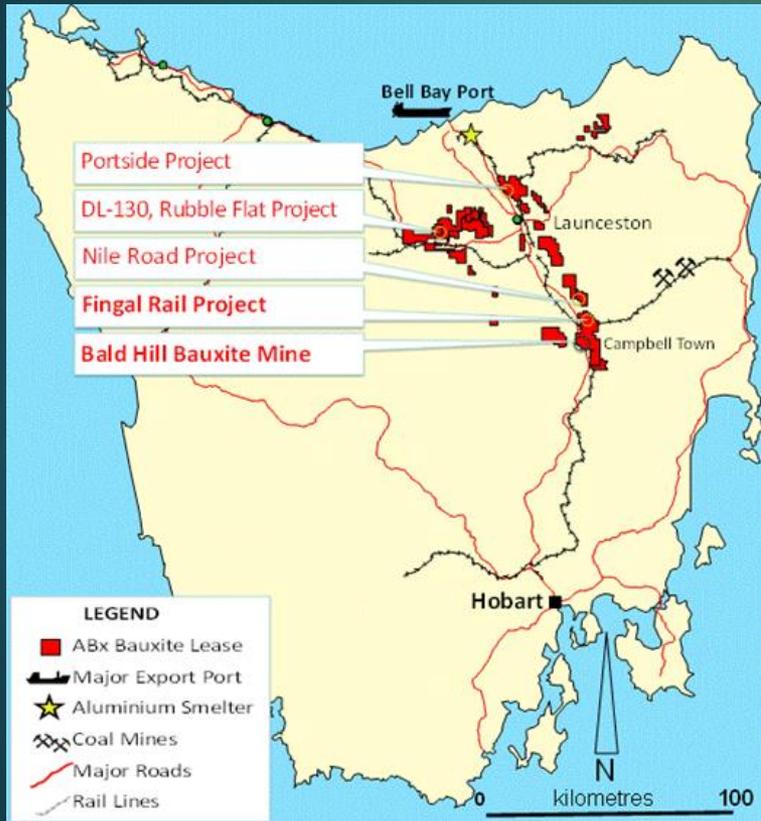
1. To build & operate a pilot plant for refining batches of bauxite
  - Produce ~10 kg samples of aluminium fluoride for testing by customers
  - Produce samples of Silica Fume & other co-products for customers
2. Negotiate off-take agreements that will underwrite the construction of the full-scale commercial bauxite refinery
3. Collate the engineering data required for the design, construction and operation of larger, full-scale commercial bauxite refineries
4. Turnkey Innovative Engineering (“**Turnkey**”) will build & operate pilot plant
5. Turnkey works with scientists from senior Government technology agencies on high-technology projects and is widely acclaimed for its innovations
6. A recent Turnkey project achieved the world-first low-cost conversion of lithium brine (in Argentina) into lithium carbonate for the lithium-ion battery industry. This has resulted in a US\$500m project

# ALCORE's Refinery

Tasmania as an example

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Australian Bauxite Limited (ABx) to supply bauxite from its mines to an ALCORE bauxite refinery at Bell Bay, Tasmania for a fixed price. ABx has 125 million tonnes bauxite resources (12mt in Tasmania), sufficient for ALCORE for decades



Bell Bay Port & Industrial Precinct.  
**Note:** TEMCO ferro-manganese smelter (top right) & the Pacific Aluminium Smelter (bottom right) are prospective customers

Locations of ABx bauxite mines, projects & transport infrastructure in Tasmania

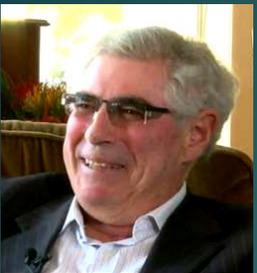
# ALCORE Board

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## Paul Lennon AO

Chairman, Australian Bauxite Limited (ABx)  
Premier of Tasmania 2004-2008  
Specialist industry advisor

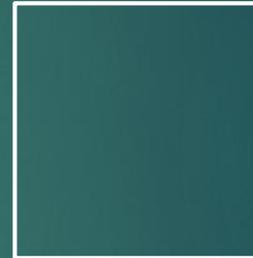


## Derek Firth MNZM

Chairman, Refined Ore Industries Limited (ROIL)  
Former Senior Partner  
Simpson Grierson (NZ Lawyers)  
Specialist construction and energy lawyer



Company Secretary  
**Henry Kinstlinger**  
Company Secretary of  
ABx & ROIL



Third director  
identified

# Advisory Committee



## Barrie Hill

Minerals Process Engineer  
Former director of engineering ANSTO  
Former head of Comalco Engineering  
Director of ROIL subsidiaries since 2006



## Senior Adviser (being recruited)

Chemical Process Engineer  
Former Senior Process Engineer at Queensland Magnesia  
Currently Executive Adviser - Risk at a major engineering firm  
Managed the former ROIL licensed refinery for 4 years



## Costa Vrisakis

Founding Director  
Computer Resources Ltd  
Business forms Printing.  
Director Computer  
Accounting Ltd

# ALCORE Management

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**Ian Levy - CEO**

CEO of ALCORE Limited & Australian Bauxite Limited  
Experienced mining geologist & senior company executive



**Phill Hall - COO**

CEO of Refined Ore Industries Limited  
Experienced project manager



**Dr. Robert O'Brien - CFO**

Head of research for Refined Ore Industries Limited  
Experienced chartered accountant & biochemist



**Jean Francois Dyonziak - OH&S Manager**

Experienced Fire, HAZMAT &  
Risk Assessment Specialist

# ALCORE Stage 1 budget-schedule

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## Budget

- 12 month \$3.3 million budget for the Stage 1 pilot plant & production of  $AlF_3$  test samples program is \$2.5m at site, \$0.5m pre-IPO costs and \$0.3m administration & overheads (which will be kept low under ABx administration & tight control)

## Schedule

- 3 months for all design and specifications
- 3 months for fabrication
- 1 month for certification and commissioning
- 5 months estimated to finalise product samples production

## Sample Testing

- Within 9 months, on-spec aluminium fluoride will be produced, tested and confirmed by aluminium smelters
- This will be the trigger to launch the Initial Public Offering (IPO)

# ALCORE R&D Rebate Status

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- The Stage 1 batch plant program qualifies under the Federal Government's AusIndustry, Research & Development (R&D) incentive scheme which provides cash rebates of 41% of approved expenditure for approved R&D projects
- Part of the funding for Stage 1 will be via advanced loans from and to a third party on expected R&D Rebates
- Stage 1 budget contains \$1 million for these advanced R&D loans
- **Later Stage R&D:** It is anticipated that the budget for the first of five 21,000 tonnes per year bauxite refinery modules will also qualify for this R&D rebate and an advance loan will make a positive impact on the IPO budget

# ALCORE Funding Stage 1

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- In addition to the \$1 million advance R&D loan, a supportive ABx shareholder has contributed A\$0.5 million existing seed capital
- Others have pledged a further A\$0.2 million for the seed raising and it is anticipated that the remaining A\$1.6 million will be fully subscribed
- The directors of ALCORE reserve the right to select appropriate investors and to determine the result of oversubscription if required
- Minimum investment is \$20,000. Investors must be investors exempt under s708 of the Corporations Act 2001 (Cth)
- Seed Investors will receive shares in the ALCORE Initial Public Offering (IPO) at a 30% discount to the IPO share price

# ALCORE corporate directory

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<b>Lawyers</b>	Piper Alderman
<b>Administration</b>	Managed by Australian Bauxite Limited
<b>Auditors</b>	K.S. Black & Co.
<b>Bankers</b>	ANZ Banking Corporation
<b>OHS&amp;E</b>	A major engineering firm (contract pending) & Turnkey Innovative Engineering, Sydney
<b>R&amp;D Advisors</b>	IMG Reperio
<b>IPO Management</b>	MMR Corporate Services
<b>Lead Brokers</b>	State One Stockbroking Ltd - Alan Hill
<b>Project Site Contractor</b>	InterGraphite, Berkeley Vale NSW
<b>Share Registry</b>	Computershare Investor Services Pty Limited

*More Information Contact:* Ian Levy  
CEO ALCORE Limited  
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Mobile: 0407 189 122 Email: ilevy@australianbauxite.com.au

# Appendix: Pilot Plant Modules

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Stage 1 pilot plant to be delivered as ready-for-use “skid-mounted” modules to ROIL’s approved research & development factory at Berkeley Vale, Central Coast of New South Wales.

Pilot plant will also have support equipment, analytical laboratory, ore storage & admin offices

Turnkey are running computer simulations of the ALCORE process thermodynamics to confirm technical factors & issues



Typical skid mounted processing unit produced by Turnkey Innovative Engineering

Simulation results are subjected to a process economics program to determine the bauxite refining costs as described in this presentation

Turnkey to carry out engineering, computer simulation & engineering design drawings for the pilot plant program in exchange for equity in ALCORE Limited on the same terms and conditions offered to incoming seed capital investors

# Production Cost Estimates

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Full-sized 50,000tpa AlF <sub>3</sub> Plant		A\$ million
Labour	A\$m	\$2.62
Energy	A\$m	\$3.33
Fluorine makeup	A\$m	\$8.85
Capital maintenance	A\$m	\$3.53
20% contingency & other	A\$m	\$3.66
<b>Subtotal processing</b>	<b>A\$m</b>	<b>\$22.0</b>
Tonnes raw bauxite per year	tonnes	105,000
Subtotal bauxite cost	A\$m	\$5.25
<b>Total Operating Cost</b>	<b>A\$m</b>	<b>\$27.2</b>
<b>Total Cost / tonne bauxite</b>	<b>A\$/t</b>	<b>\$259</b>
Tonnes AlF <sub>3</sub> per year	tonnes	51,790
<b>Production Cost / tonne AlF<sub>3</sub></b>	<b>A\$/t</b>	<b>\$526</b>
AUD:USD Fx Rate		0.75
<b>Production Cost / tonne AlF<sub>3</sub></b>	<b>US\$/t</b>	<b>\$394</b>

## Assumptions

No cost offsets from sales of co-products

No cost offsets from sales of Corethane

All costs attributed to AlF<sub>3</sub>

Construction jobs ~30

Plant jobs 25

Transport jobs 8-15

Minesite jobs 10-15

Subtotal FTE jobs 40-50

Note: Corethane is additional upside

Forward looking statement – see disclaimer

# ALCORE environmental benefits

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**Value adding with no smoke-stack, no emissions, no wastes**

1. ALCORE Production Process uses waste acids from zinc refineries and fertiliser plants for reagent make-up
2. Reagents are recycled
3. No emissions, particulates or waste generated
4.  $AlF_3$  improves aluminium smelting efficiency - saves electricity
5. Lithium Ion Battery recharge rates improved by  $AlF_3$
6. Can be energy self-sufficient for heating & electricity (using co-product Corethane gas)
7. ALCORE can supply Corethane gas to produce electricity
8. **Corethane mixed 50% with water creates an inexpensive diesel substitute to increase Fuel Security**

# ALCORE technology confirmation

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Coal refinery at Maizaru Japan produced 200,000 tonnes of Corethane in 1981-86 to challenge OPEC oil price hike

- Proved satisfactory for Mitsubishi gas turbines (~14 months operation)
- Fuelled two gas turbine powered Cadillac El Dorado cars for 2 years in USA. Google “Coal Powered Cars”



2,300tpy plant at Cooma NSW 2002-07 refined graphite for heat storage application

- Also conducted hundreds of new tests on coals & OTHER ORES (Bauxite, Iron Ore)
- Possibility to make  $AlF_3$  from bauxite & coal ash was first-noted
- OH&S was improved, plant simplified