



ENVIRONMENTAL CLEAN
TECHNOLOGIES LIMITED

Corporate
Presentation
September 2015



“Upgrading low value resources,
improving environmental outcomes”

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ENVIRONMENTAL CLEAN
TECHNOLOGIES LIMITED

Section 1

Corporate Information

Corporate Overview

Company Highlights

Company Projects

Board & Management

Corporate Milestones

Strategic Partners

Corporate Overview



Share price chart (A¢ per share)

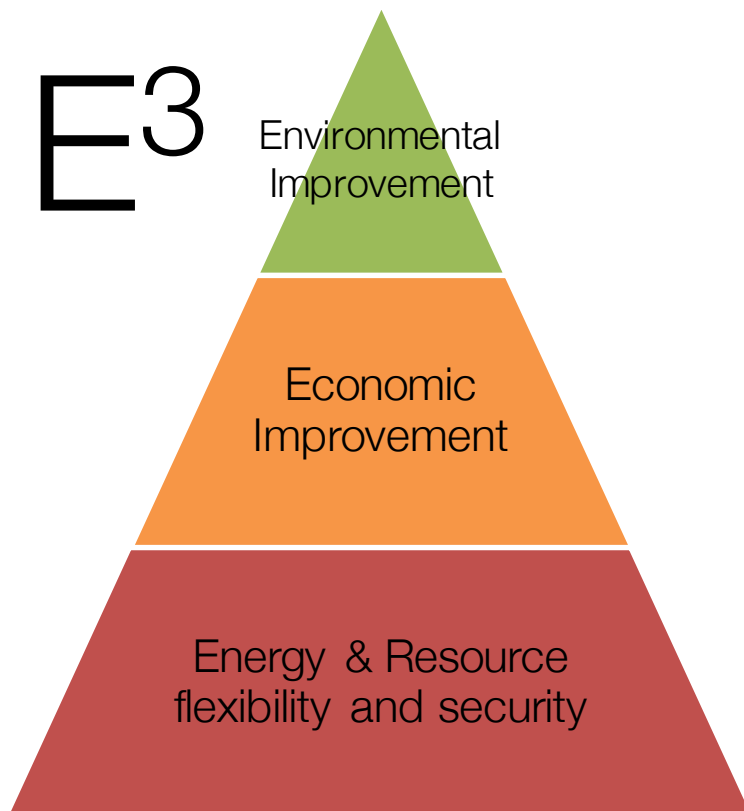


Issued Capital (as at 23 Sept 2015)	
ASX Code	ESI
Shares (pre-issue)	2,547 M
Options ESIOA	1,258 M
Options ESIOB	896 M
Market Capitalisation	~\$43M
Share Price	1.7¢
2015 Trading Range	0.6¢ - 2.8¢

Cash and Debt	
Cash (as at 30 June 2015)	\$940k
Short Term Debt	\$1.74 M
Long Term Debt	Nil

Shareholders (as at 15 Sept 2015)	
Total shareholders	3,853
Top 20	30%
Top 50	42%
Top 100	51%

Corporate Overview

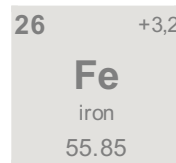


- ASX Listed since 2006
- Technology R&D & Commercialisation
- Energy & Resource Focus
- Emerging market focus, global application
- Unique technologies:
 - Low rank coal upgrading – Coldry
 - Primary Iron production – Matmor
- E³ – Drivers for ECT technology adoption:
 - Energy & Resource flexibility & security underpins improved economic outcomes
 - Economic improvement to low value resources underpins improved environmental outcomes
 - Environmental Improvement is a product of higher GDP per capita, which is the product of affordable energy and resources driving economic development.

Company Highlights

Innovative resource upgrading technologies

Minerals processing technologies focused on transforming low-value resource streams into higher grade, valuable products delivering positive economic, energy, resource and environmental security outcomes.



Unique low rank coal drying technology - Coldry

- IP owned 100% by ECT and protected in all major markets
- World's most efficient pre-drying process for high moisture content coals
- Enables low-rank coal use in downstream conversion process for high value products
- Outstanding environmental credentials including a zero net CO₂ footprint from the process
- Construction-ready designs for first commercial scale plant ready to go

Primary iron processing technology – Matmor

- Intellectual property owned 100% by ECT, patented in Australia and protected in all major markets via Coldry patents as the required, integrated front-end raw material preparation process for Matmor
- Reduces feedstock costs by ~40-70% through use of low cost, abundant raw materials
- Reduces energy costs by up to 50% through innovative thermo-chemical pathway

Company Projects

Targeted Commercialisation Activities

India represents the ideal convergence of macro economic drivers, supportive government policy settings and frugal innovation, making it the focus of our development activities.

Australia has an advanced lignite demonstration program underway, with Coldry as the enabling drying solution for one of the program proponents.



Indian integrated Coldry and Matmor project

- Large Government of India owned partners, National Minerals Development Corporation and Neyveli Lignite Corporation, for an integrated Coldry & Matmor plant.
- Stage 1 commenced July 2015 with construction to follow
- Aiming to prove at a large scale, a multi product plant to service a broad spectrum of energy and steel industry needs



Australian Coldry PCI project

- Techno economic feasibility study to start Q3 2015 for a >200,000 tonne per annum plant to produce high grade PCI coal from lignite
- Coldry is the leading front-end drying solution, enabling high value-add outcomes

Board & Management



Chairman – Glenn Fozard

Glenn has a strong commercial background and extensive experience in finance and capital markets at both board and executive level. With a deep understanding of tailored financial solutions for SMEs in the Cleantech and Agricultural sectors, he supports the company with valuable guidance in the technology development, risk management and capital raising areas. Glenn is the founder of Greenard Willing and Chairman of Platinum Road, both specialist financial advisory firms. Glenn has held an advisory position with the company for over five years and has contributed significantly towards the capital raising for the company during that time.



Managing Director – Ashley Moore

Ashley is a Chartered Professional Engineer, with extensive experience in all facets of manufacturing, plant operations, supply chain management, sales and marketing and major project delivery from 30 years in industry. Ashley joined the company in October 2009 as Business Manager, Coldry. Ashley was appointed to the role of Chief Operating Officer of the company in August 2011, and then to Managing Director in 2013.



Non-executive Director - David Smith

David has a strong legal and commercial background, having practiced commercial law for over 24 years including nearly 17 years as a partner in national firms. He is currently a partner in the intellectual property and technology group at Gadens Lawyers. He has assisted many companies with protecting their intellectual property, IP commercialisation agreements, collaborative research agreements and international negotiations. This year David was recognised as a 'Best Lawyer - Intellectual Property' for the second year running. He is currently Vice President of Bicycle Network where he also chairs the Audit and Risk Committee.



Non-executive Director – Barry Richards

Barry has a strong industry and commercial background of over 30 years including his role as Managing Director of Mecrus Pty Ltd since its formation over 16 years ago, contract and business development roles with Siemens / Silcar, and operations and maintenance management experience with the State Electricity Commission of Victoria (SECV). He provides extensive experience in business management, major project development and delivery, coal plant operations and maintenance and has a broad understanding of technology and process development.

Board & Management continued



Operations Manager & Company Secretary - Adam Giles

Adam has over 20 years business and management experience across both private and public sectors. His long-term involvement with the development of the Coldry and Matmor technologies and as a founding shareholder of the Company provides valuable background, helping inform strategic direction. Key responsibility areas include Operations, Investor and Media Relations and Corporate Governance.



Coldry Development Manager – Warrick Boyle

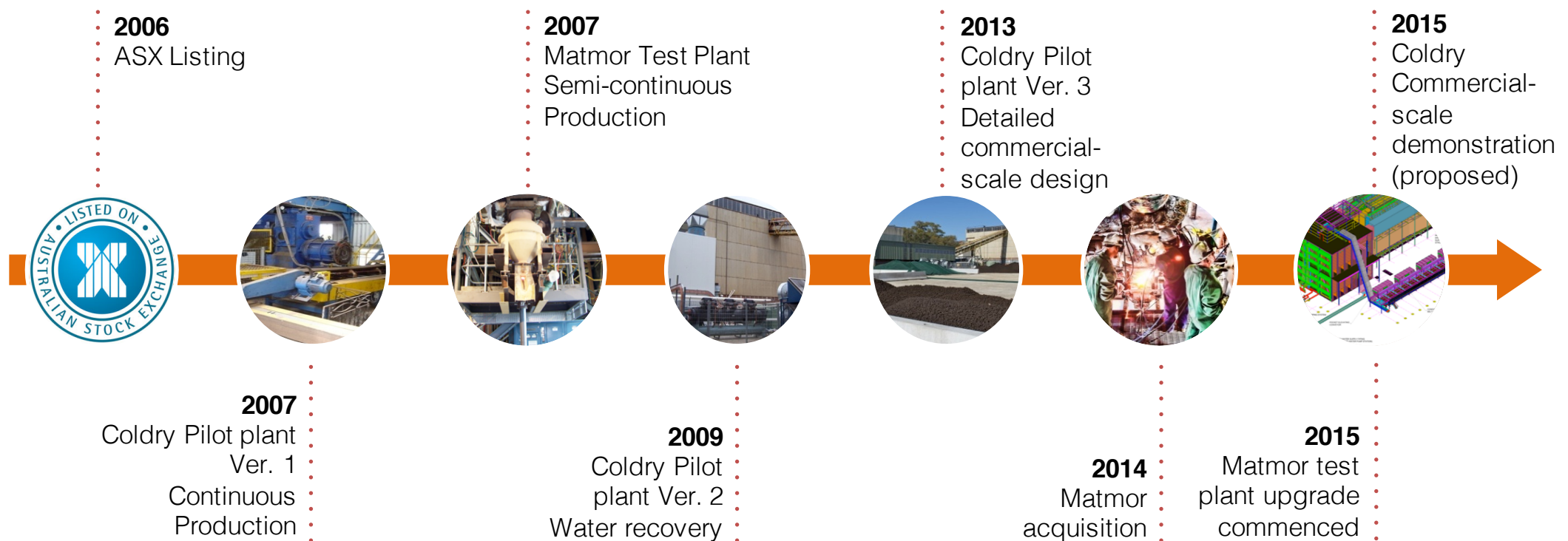
Warrick is a Manufacturing and Chemical Engineer with 20 years experience across diverse manufacturing roles in medical, chemical, industrial, pharmaceutical and consumer goods. Warrick's core responsibility is the fundamental process development of the Coldry technology and product, management of strategic engineering and research stakeholders and pilot plant operations and maintenance.



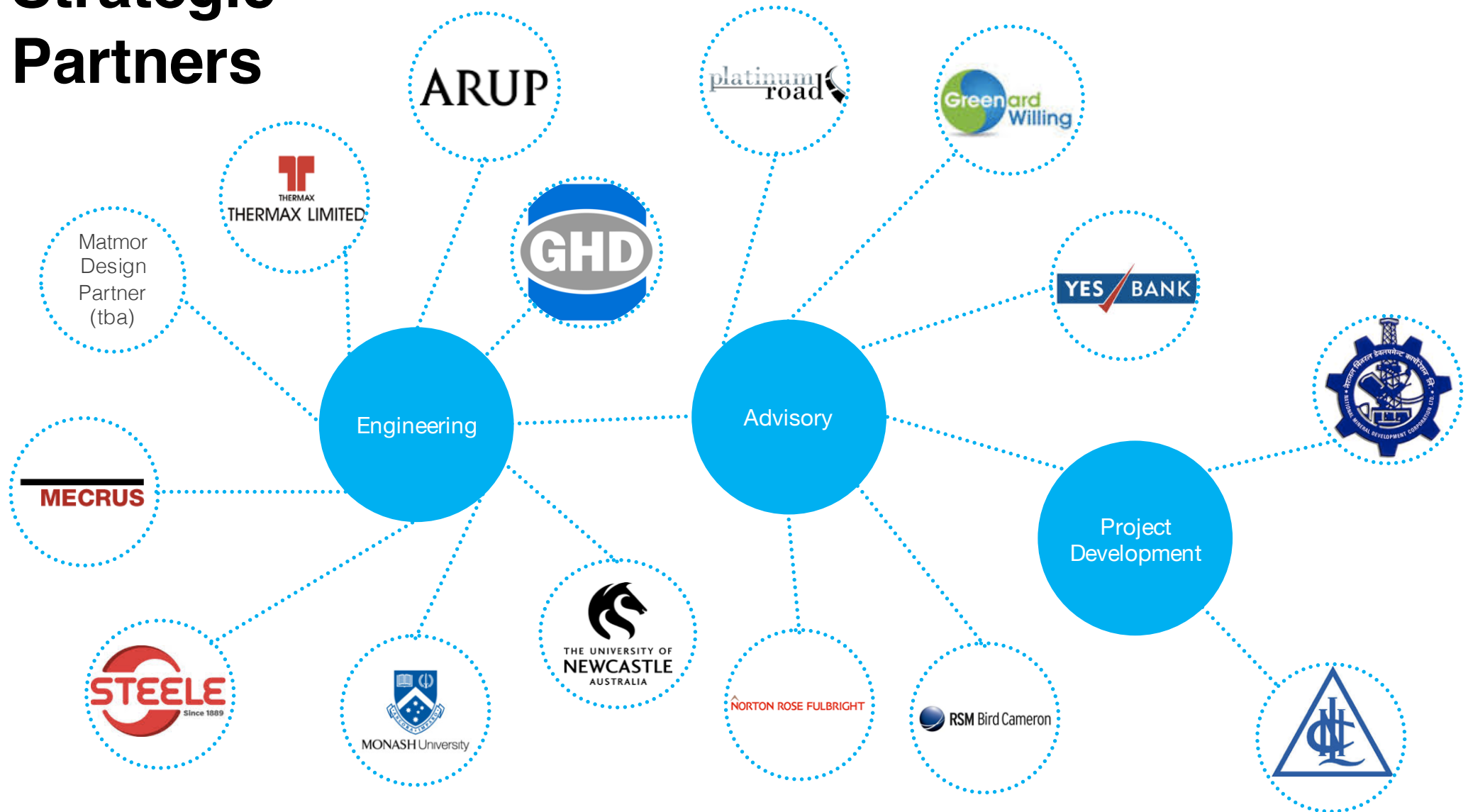
Matmor Research Manager – Keith Henley-Smith

Keith is a chemical engineer, metallurgist and inventor, having developed and patented a fully austenitic stainless steel, called PAK-450. Keith also holds the honour of being the only Australian invited by the Culham Centre for Fusion Energy (CCFE) in Oxford UK to consult on the development of the world's largest Tokamak fusion device in Cadarache, France, the Joint European Torus (JET) Project, Mr Henley-Smith's PAK-450, with its inert magnetic properties, has been identified as a potential key material in the development of the fusion reactor. Mr Henley-Smith leads the fundamental research and development efforts for Matmor and views it as one of the single greatest innovations in primary iron making since the introduction of coke based methods over 200 years ago.

Corporate Milestones



Strategic Partners





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Section 2

Coldry

Value Proposition

Thermal Coal Market

Technology Introduction

The Low Rank Coal Challenge

The Drying Challenge

The Coldry Process

Value Transformation

Market Opportunity

Competing Technology

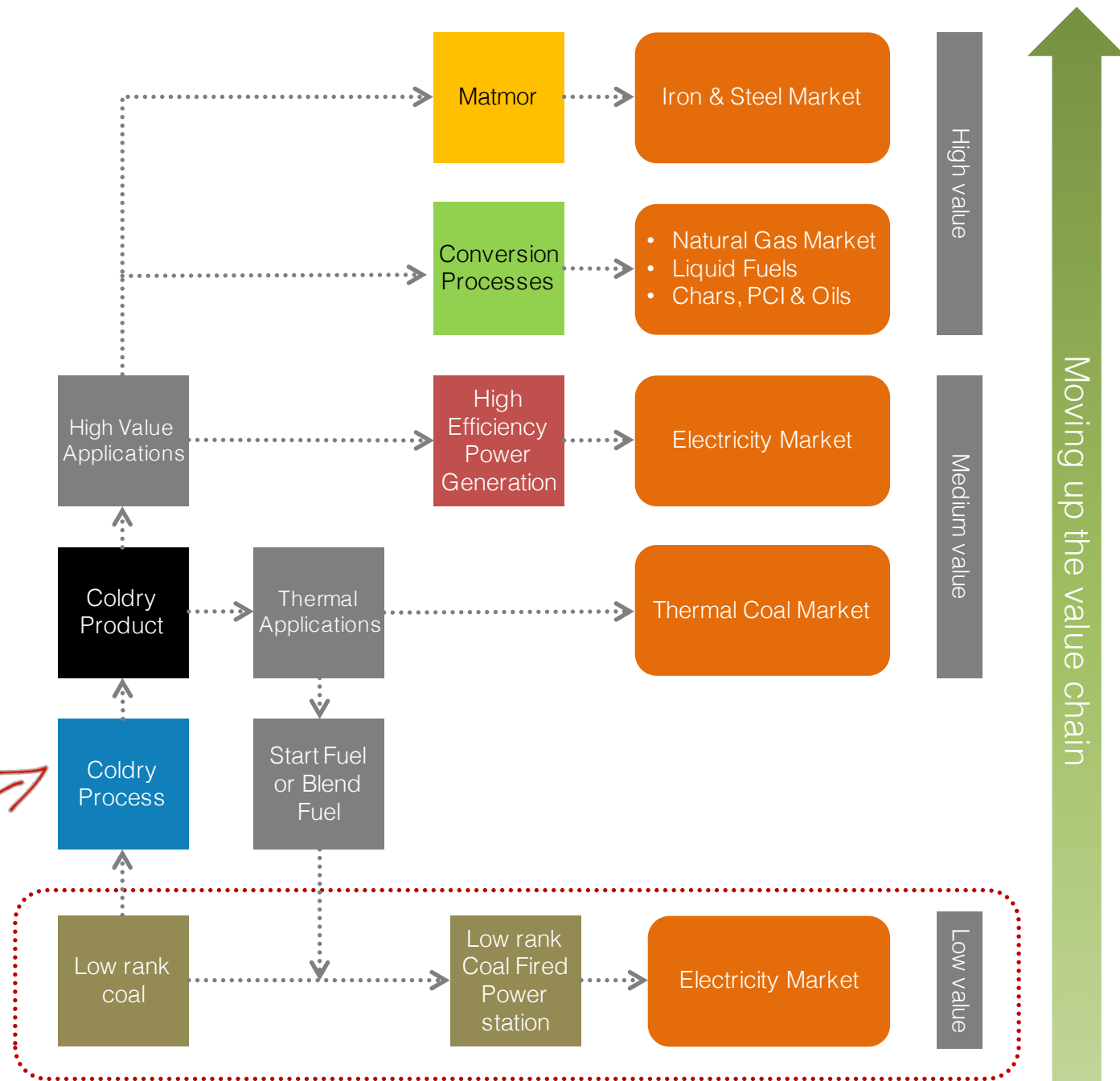
Coldry Business Model

Coldry Value Proposition

- Opens new markets
- Establishes new revenue streams
- Diversifies energy and resource options
- Upward revaluation of stranded or low value low rank coal assets
- Enhanced efficiencies
- Mitigate CO₂ emissions

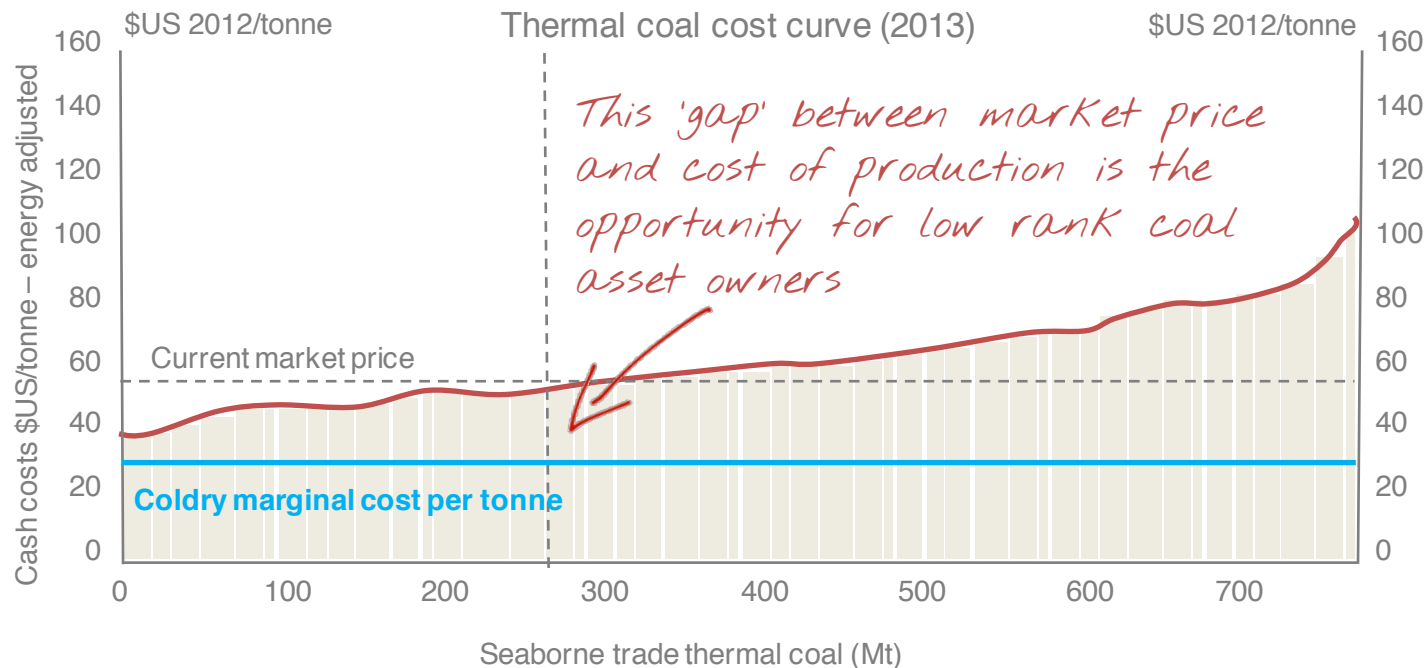
Cost effective low rank coal drying is the 'gateway' enabler.

Traditional utilisation pathway is 'low value'.



Coldry Value Proposition: Spotlight on the thermal coal market

- Incremental income from sales of upgraded product enabled by low marginal upgrade cost
- Competition – Seaborne Thermal coal trade
- To gain competitive space, you must be able to displace others on the supply curve
- With current pricing, less than half of supply generates profitable sales for traditional suppliers (horizontal dashed line). Via Coldry (blue line), ample margin is available even at lower pricing levels.



Energy Transition Advisors stated:
 "... Current spot prices to be below the "cash costs" of production for nearly one-half of total capacity and to be below the "breakeven coal price" (which includes capital costs and economic returns) for two-thirds of total capacity. Over half of China's coal producers have cash costs in excess of domestic Chinese spot prices...."

October 2014

Coldry technology introduction

Low-rank coal drying

- Enhanced efficiency
- Greater energy security
- High value applications
- Low emissions



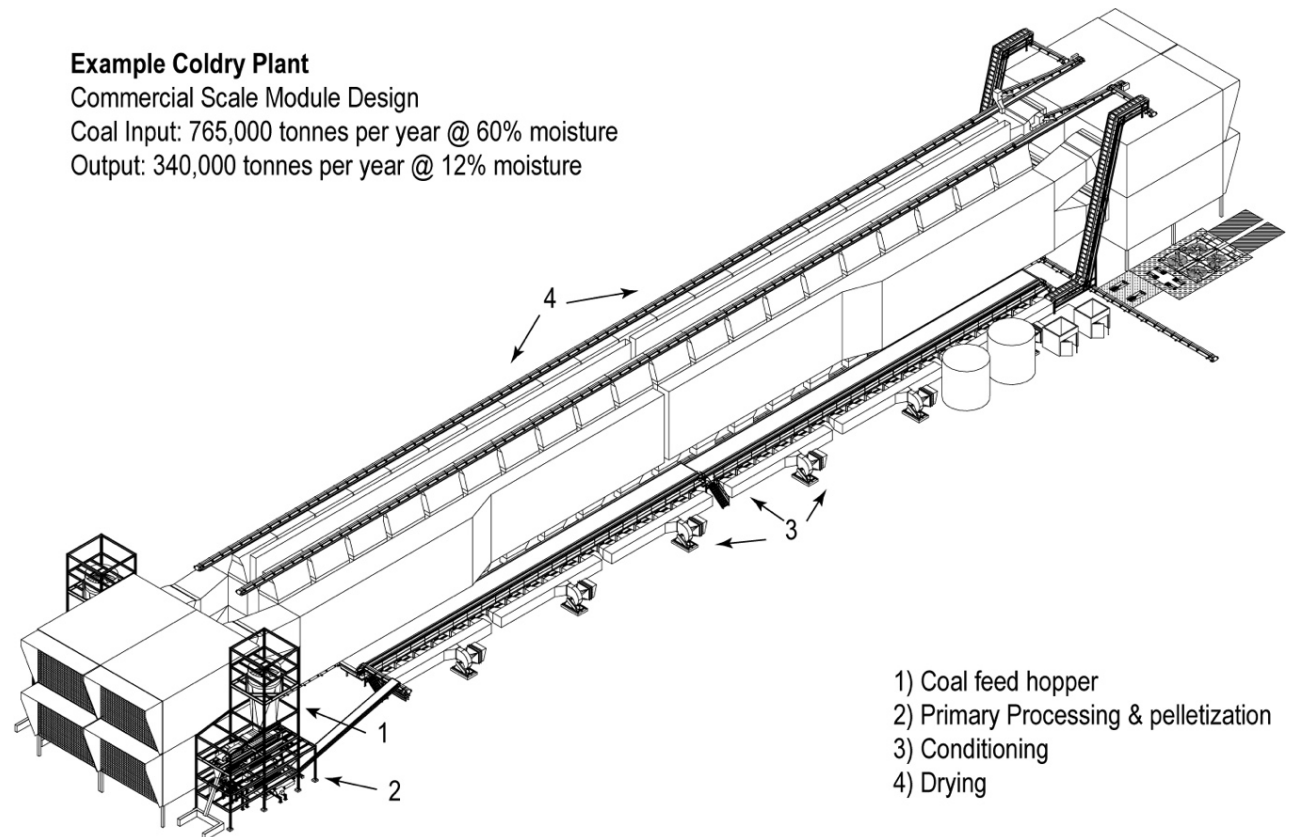
Process Features	Benefits
Low temperature, low pressure	Lower opex cost per tonne
Simple, patented mechanical design	Lower capital intensity, robust, reliable, lower operating & maintenance cost
Unique 'Densification' & waste heat utilisation approach	Enables low temperature, low pressure removal of moisture resulting in net energy uplift, low opex and zero CO ₂
Modular	Scalable, cost effective

Example Coldry Plant

Commercial Scale Module Design

Coal Input: 765,000 tonnes per year @ 60% moisture

Output: 340,000 tonnes per year @ 12% moisture



Coldry technology introduction



'Gateway'



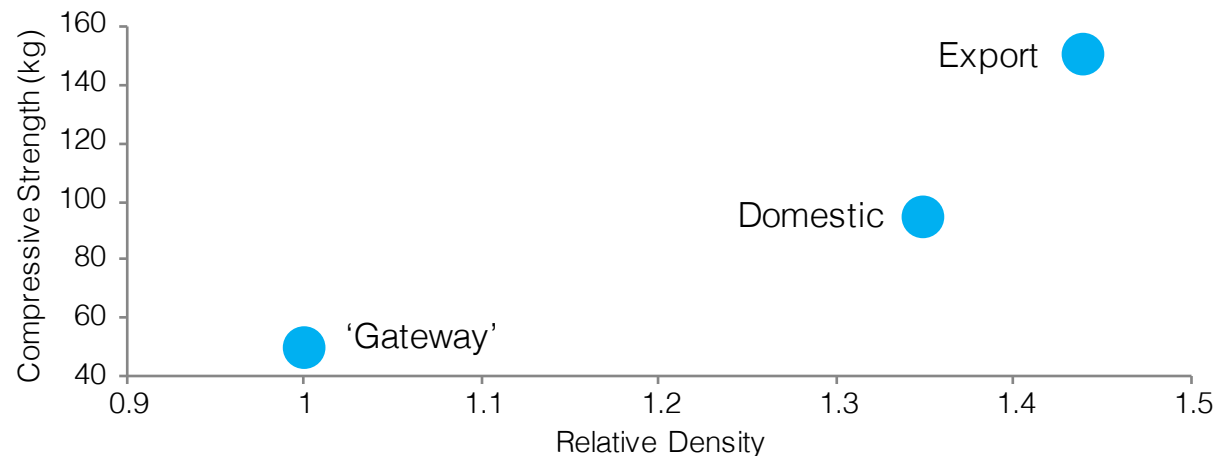
Domestic



Export

Product Features	Benefits
Low moisture, high energy value	Higher price, broader market applications
Stable	Won't permanently reabsorb moisture, low spontaneous combusting risk, storable, transportable
Retained volatile matter	Ideal for coal conversion technologies, yielding more gas and oil than black coal
Variable product output (pictured left)	Fit for purpose product format tailors hardness to customer needs: <ul style="list-style-type: none"> 'Gateway' is ECT's 'fast dry' product, producing a cheaper but more friable product, ideal as a cost-effective front end feedstock for conversion processes. 'Domestic' grade is the 'standard' Coldry product, robust enough to withstand handling and transport in local markets with minimal fines generation. 'Export' grade is designed to withstand the rigors of multiple bulk handing points over long distances with minimal fines generation.

Coldry Product 'Toughness' Indicators



The low rank coal challenge

To enable low rank coal use in higher value applications, it needs to be dried.

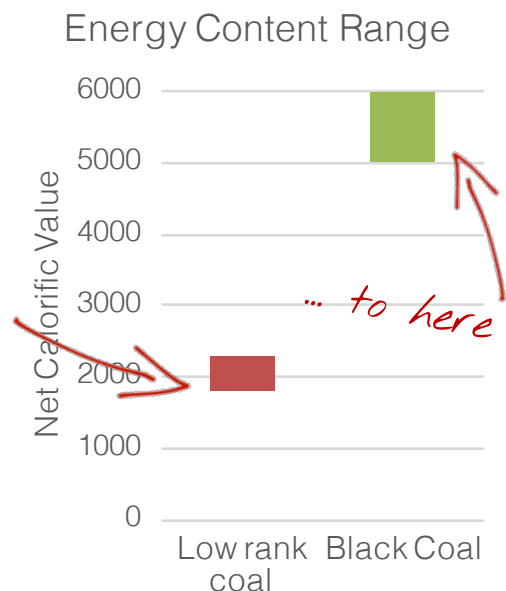
- High moisture content
 - Low energy content
 - Not suitable for use in black coal applications or further upgrading
 - CO₂ intensive power generation
- Significant risk of spontaneous combustion compared to bituminous coal
 - Limits storage volume and duration
 - Increased transport cost
- Inefficient transportation cost due to carting mostly water

The challenge is to get the moisture down from here...

... to there...



... and increase energy content up from there...



... to here

The Drying Challenge

Drying is easy.

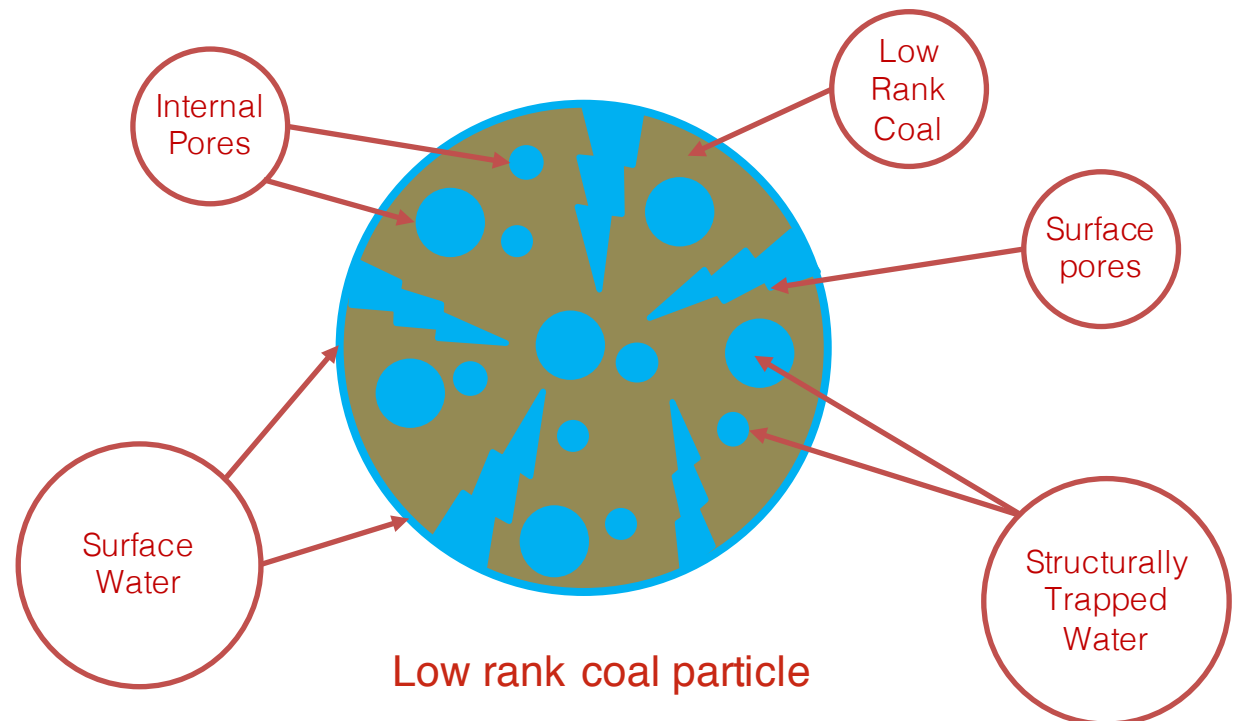
*Drying **efficiently** and **cost-effectively** is the challenge.*

Coldry meets the challenge.

Achieving a net energy uplift and zero CO₂ emissions at the lowest possible marginal cost, is the goal.

"It is difficult to dry low rank coal with high efficiency. For hard coals, the majority of the moisture is present on the surface of coal particles. Energy required to remove free moisture is simply the latent heat of evaporation (~2.27MJ/kg). In contrast a considerable portion of the moisture is held by hydrogen bonds in the capillary pores or interstices of low rank coal particles. Hydrogen bonding increases the strength of moisture holding and more energy is needed to remove a certain amount of moisture from low rank coal. Another severe problem with drying low rank coal is the ease of reabsorption of moisture. To achieve deep drying of low rank coal, the number of hydrogen bonds has to be reduced by destroying them either using thermal or mechanical methods, which is the key to any effective drying process."

Dr Nigel S Dong, IEA Clean Coal Centre



Coldry Process

“One distinct advantage of Coldry is the relative low heat requirements in the drying process, allowing for the opportunity to make use of waste heat from an industrial facility or power plant.”

Dr Victor Der

Former Assistant Secretary for Fossil Energy, US Dept. of Energy

General Manager, North America, Global CCS Institute

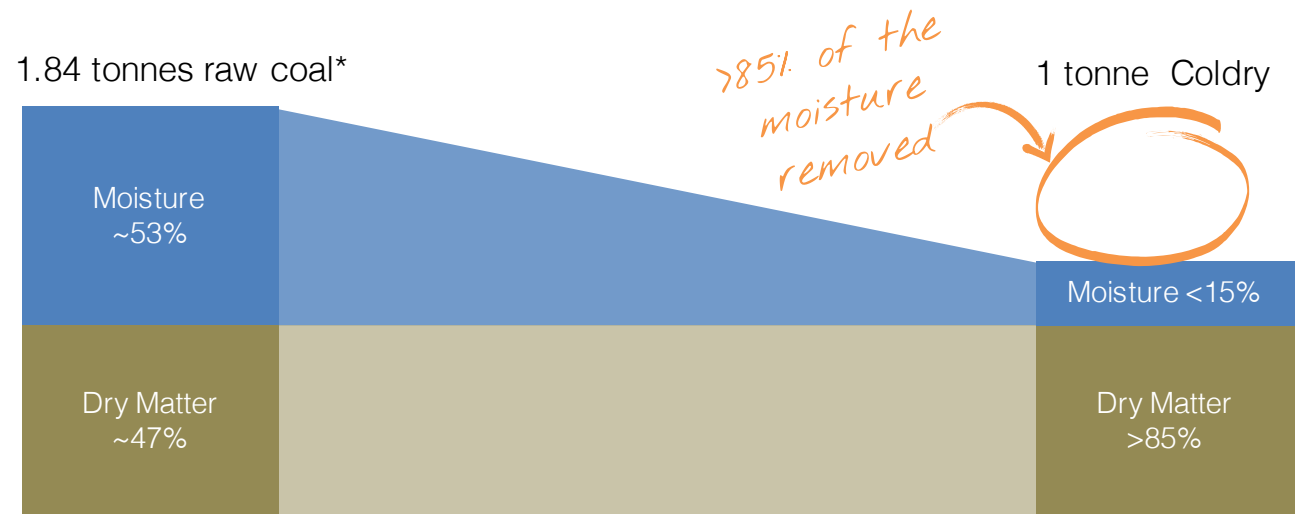


Coldry Value Transformation

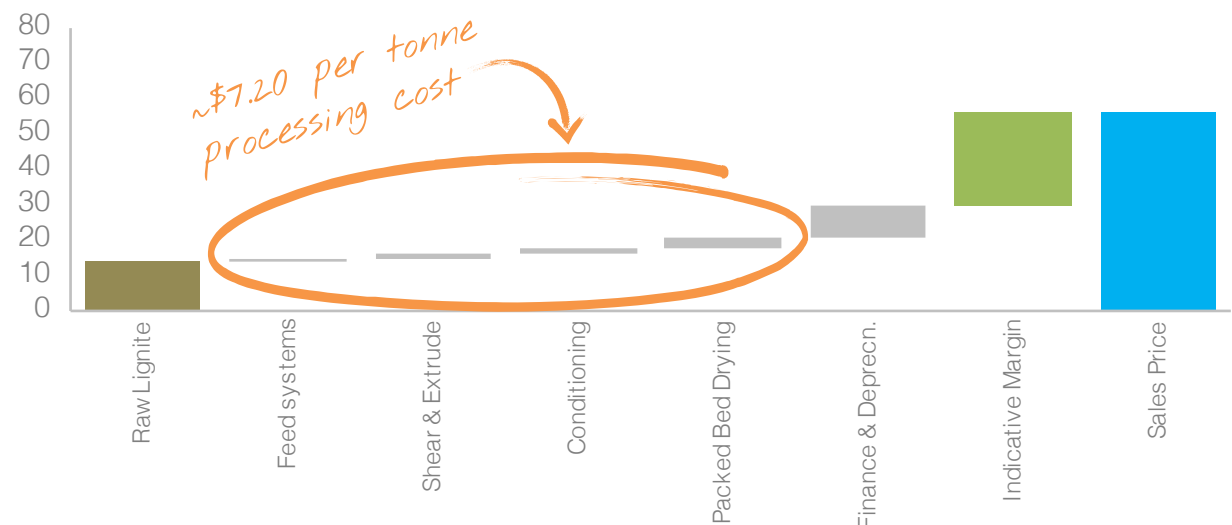
“Given India’s large demand-supply mismatch of thermal coal, the Coldry technology offers an efficient and cost-effective solution to utilize the 43 BT (est.) lignite reserves of India efficiently to bolster the energy security of the country while mitigating any adverse impact on the climate.”

YES Bank Ltd, India

The marginal upgrading cost supports substantial value add through allowing low-rank coal to service higher value coal markets, with significant margin.



Processing cost and Margin \$US

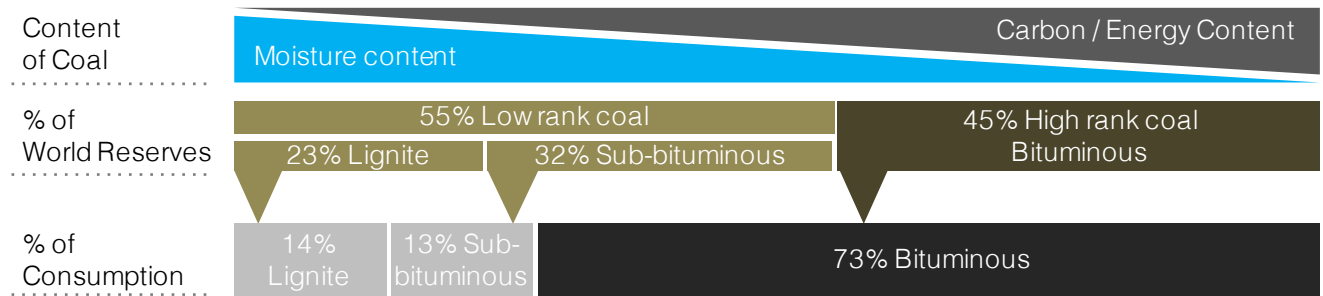


* Indian lignite via ‘gateway’ product used as an example

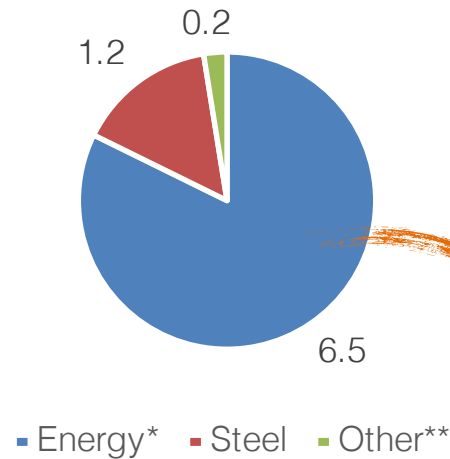
Market Opportunity

Coldry enables enhanced utilisation of low-rank coal resources by allowing them to service higher-rank coal applications

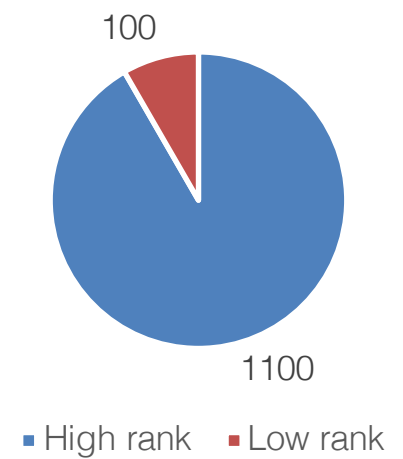
World Recoverable Coal Reserves & consumption



Coal use (Bn tonnes per year)



Electricity generation (GW)



0.1 Bn tonnes market penetration = 250 Modules of capacity similar to India project

*Energy; electricity, steam and conversion to gas and liquid fuels

**Including cement manufacture, fertiliser

Source: World Energy Energy Council

Market Opportunity Global Application

Major low rank coal reserves

- Australia
- China
- Indonesia
- India & Pakistan
- Turkey
- Thailand
- Germany
- Czech / Serbia / Poland ...
- North America

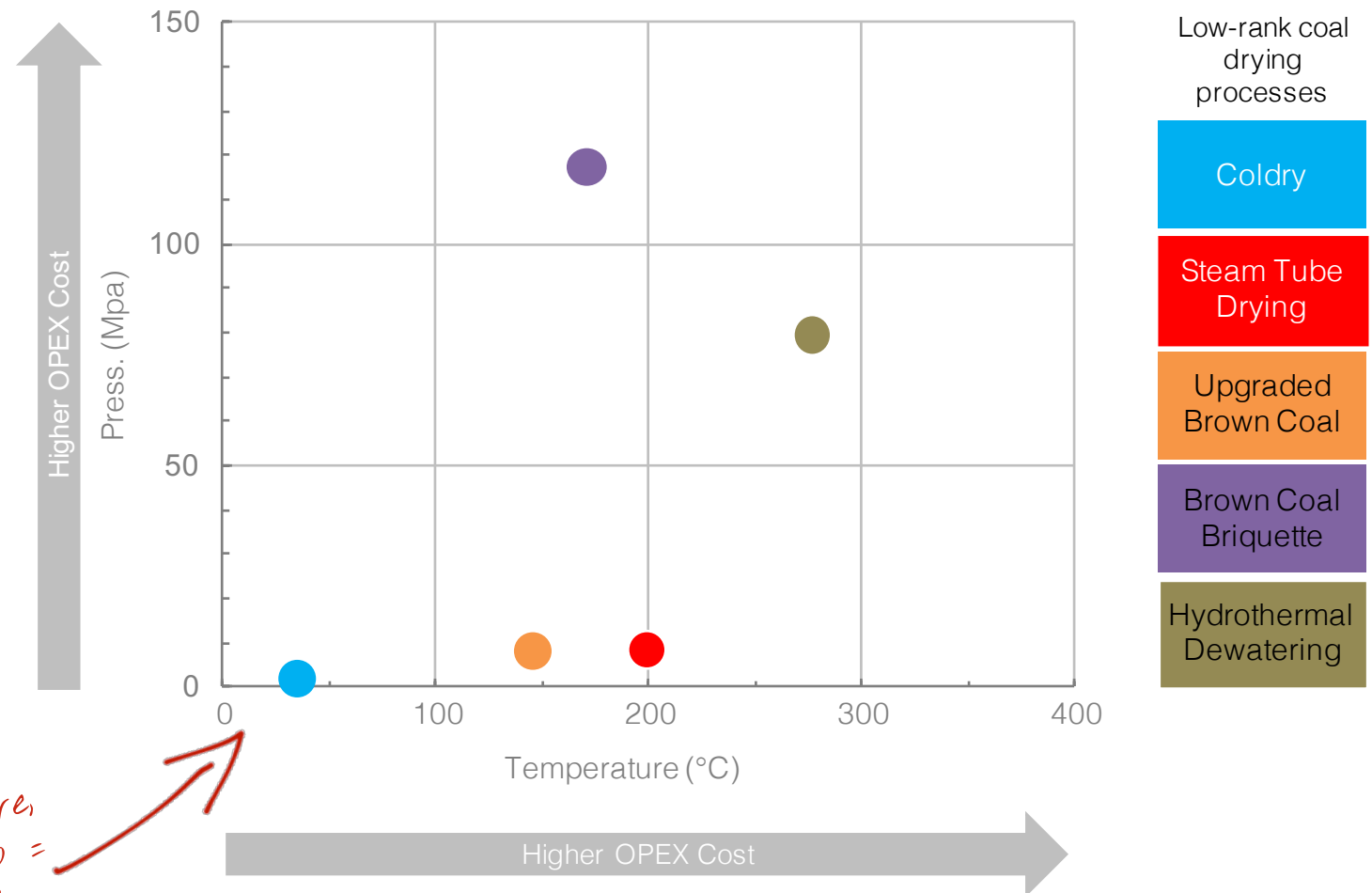


Fast Fact – Capacity represents significantly more than 500 years of consumption at current rates, i.e. ample space for growth if achieved with improved sustainability.










Coldry Competitors

Coldry is the world's first low temperature, low pressure drying method capable of producing a black coal equivalent product via a low cost, zero CO₂ process.

- This graph is a proxy for process energy efficiency.
- High temperature and pressure requires energy input.
- Energy needs to be generated, either from gas or coal, adding cost to a process.
- ECT have 'cracked the code' of efficient low rank coal drying.



Coldry Business Model

Key Partners 	Key Activities 	Value Propositions 	Customer Relationships 	Customer Segments 
<ul style="list-style-type: none">• Thermax• ARUP• JC Steele• YES Bank• Mecrus• Platinum Road• Greenard Willing India• Norton Rose• RSM Bird Cameron• GHD• Monash University	<ul style="list-style-type: none">• Fundamental R&D• IP development & protection• Platform Development• Engineering• Business Development	<ul style="list-style-type: none">• Cost effective low rank coal drying• Open new markets• Establish new revenue streams• Diversify energy and resource options• Revalue assets• Enhance efficiency• Mitigate CO₂ emissions	Direct relationships with: <ul style="list-style-type: none">• Mine and power station owners• Plant & Equipment Vendors• Regulatory authorities	<p>Process integration</p> <ul style="list-style-type: none">• Mine & power station owners• Conversion process owners <p>Product consumption</p> <ul style="list-style-type: none">• Power stations• Conversion processes• Matmor
	<p>Key Resources</p> <ul style="list-style-type: none">• Researchers• Engineers• Business development• Sales Support• OM&S support		<p>Channels</p> <ul style="list-style-type: none">• Direct• Indirect via route-to-market• Indirect via partner vendors	
Cost Structure 			Revenue Streams 	
<ul style="list-style-type: none">• Patents• Salaries• Plant & equipment• Business development• Business admin & support			<ul style="list-style-type: none">• License fees – plant sales• Royalty fees – plant capacity deployed• Maintenance and servicing fees	



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Section 3

Matmor

“The worlds first low rank coal based
primary iron making solution.”

Value Proposition

*Technology
Introduction*

Opportunity

Steel Intensity

Process Overview

Inputs

*Commercialisation
Pathway*

Technology Introduction

Technical Comparisons

Business Model

Matmor Value Proposition

- *Lower cost raw materials*
- *Lower capital cost plant*
- *Lower emissions*
- *Higher value products*
- *Resource diversity & security*
- *Waste remediation solution*
- *Coldry provides essential feed preparation step*



Matmor technology introduction



ECT Matmor Test Plant
Melbourne, Australia

Process Features	Benefits
Uses low-rank coal and alternative iron ore materials.	<ul style="list-style-type: none">• Low rank coal replaces coking coal• Wide range of iron oxide sources• Ability to use lower grades of iron ore• Lower raw material cost• Diversified supply chain• Decoupling from coking coal and high grade iron ore improves energy and resource security• Waste remediation solution improves environmental outcomes• Economic advantages: Import replacement, monetise waste streams and add value to lower grade coal and iron oxide resources
Lower operating temperature, <1,000°C	<ul style="list-style-type: none">• Lower capital cost plant• Higher quality metal product• Increased energy efficiency
Uses Coldry as the feed preparation process	<ul style="list-style-type: none">• Low cost, zero CO₂ drying and pelletising• Eliminates coking ovens and sinter plants

Matmor technology introduction



DRI pellet



Hot liquid metal



Solid iron

Product Features	Benefits
High Fe yield	<ul style="list-style-type: none"> • Metallic yield of 95%+ means maximum value extracted • Fe content of the finished product is 95%-99%, delivering a high quality iron with minimal impurities
High Fe content	<ul style="list-style-type: none"> • Low impurities • Lower downstream processing cost
Flexible output: <ul style="list-style-type: none"> • DRI pellet • Hot Liquid metal • Solid Iron 	<ul style="list-style-type: none"> • Flexible applications • Integrate seamlessly with existing steelmaking operations • Feed Induction or Electric Arc furnaces • Export



Input flexibility: Matmor has successfully processed iron oxide inputs ranging from 45% to 65% Fe content.

Output: In solid metal form, Matmor delivers a high quality product with >95% Fe content.

The ‘alternative raw material’ opportunity

There exists a vast, distributed ‘above ground ore body’ in the form of iron ore mine fines and slimes, and industrial wastes such as millscale and nickel refinery tailings.

Matmor enables a lower cost primary iron production pathway by leveraging two unique features:

1 **Decoupling iron making from coking coal**

By utilising the rich organic chemistry within low rank coal, the Matmor process is able to deliver a high quality product without the need for high quality coking coal, resulting in decreased raw material cost and diversified supply options.

2 **Exploiting the ‘above ground ore body’**

By harnessing the vast above ground ore body that exists as mine tailings, fines and slimes and from industrial wastes such as millscale and nickel refinery tailings, Matmor is able to leverage sunk mining and processing costs by providing a waste remediation solution that turns a contingent liability into a revenue stream.

The 'steel intensity' challenge

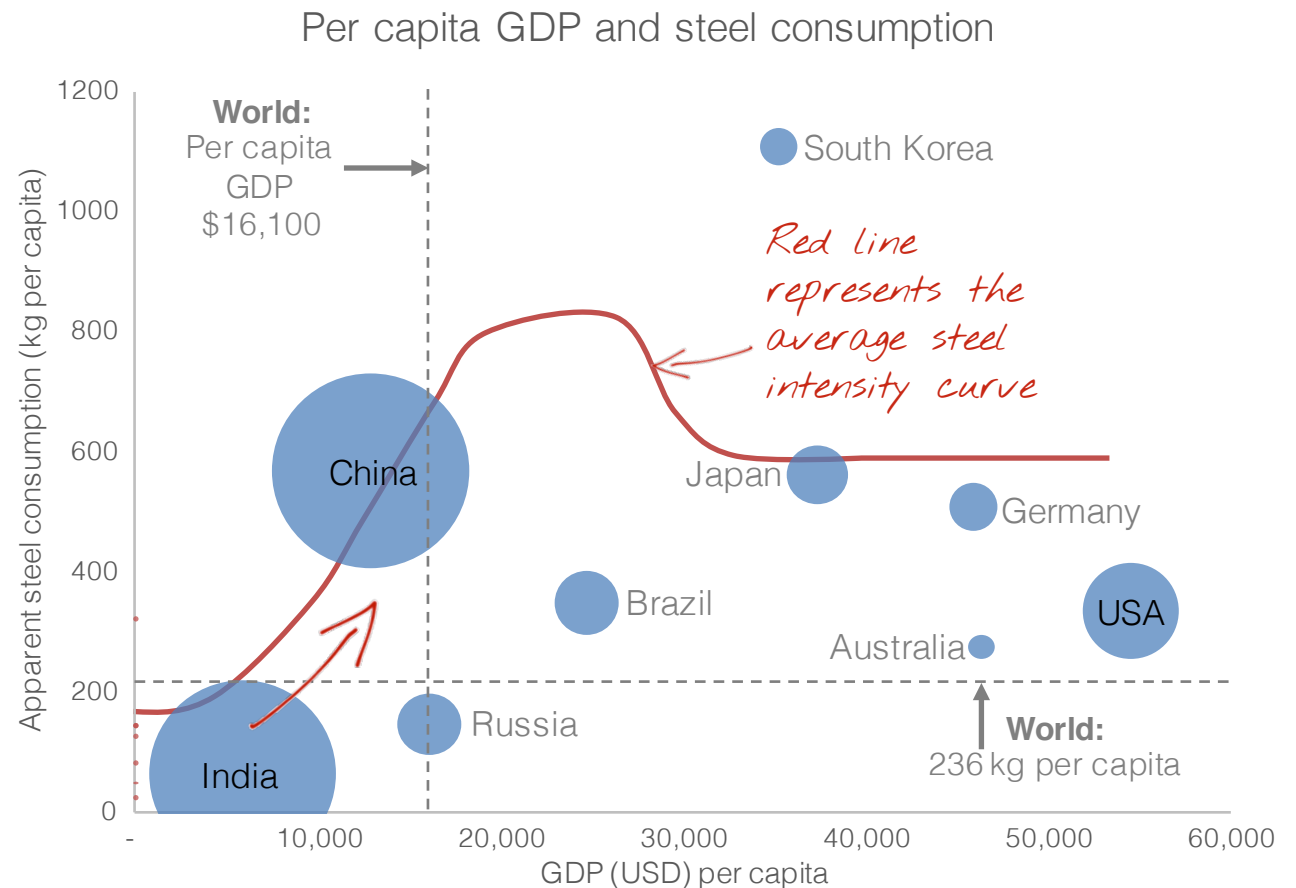
India is positioned to substantially increase its steel demand, yet is heavily reliant on imports of coking coal and iron ore.

Matmor opens up new domestic raw material supply options in support of growth in emerging nations.

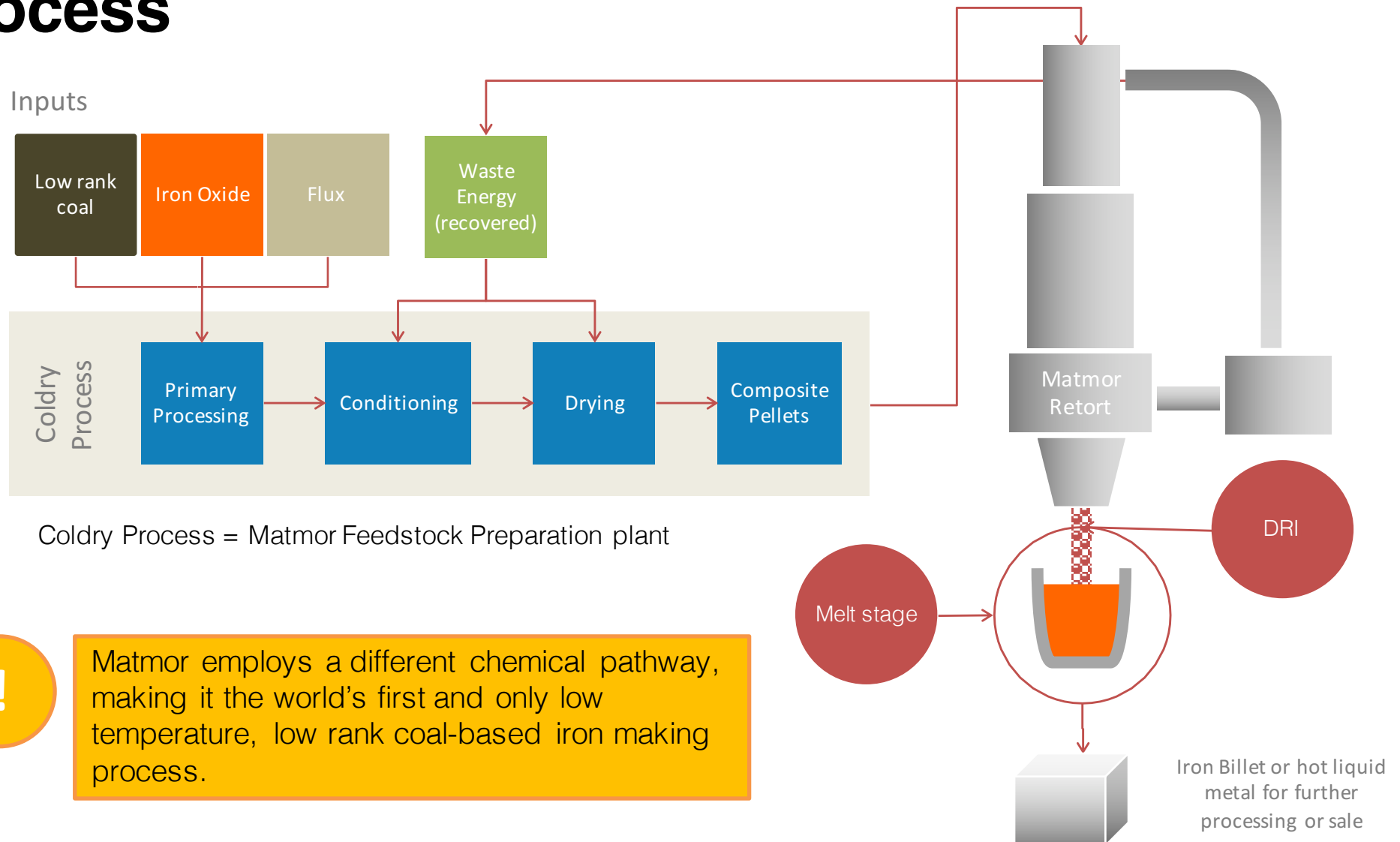
In countries with mature steel intensity curves, Matmor is an ideal waste remediation solution.

Data: World Steel Association
Bubble size represents population

The most powerful forces driving steel demand are aligned. As economies develop and modernise, steel consumption per capita grows, reflecting a wide range of growing applications – basic infrastructure, water treatment plants, food processing distribution centres, roads, bridges – and, as the middle class emerges, durable goods such as appliances and cars.

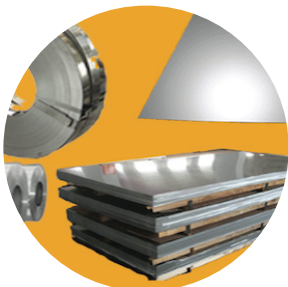
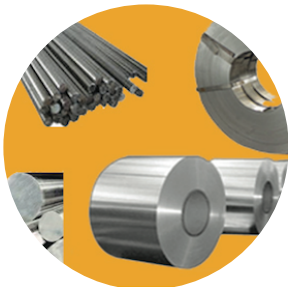
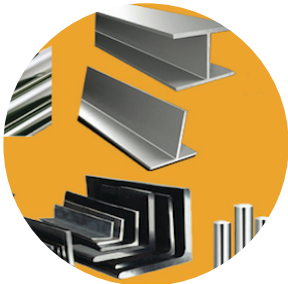


Matmor Process



Inputs

Creating higher value product opportunities



- The Matmor process combines metal oxide bearing media, low rank coal and a flux via the Coldry process to produce a composite pellet
- Feedstock flexibility: Matmor can reduce the following metal oxides to metal:
 - Iron Ore:
 - Hematite: Fe_2O_3
 - Magnetite: Fe_3O_4 – without the need for sintering
 - Waste streams:
 - Mill scale
 - Blue Dust
 - Fe within Nickel ores (Limonite) and Nickel refinery tailings:
 - Also recovers Ni within the alloy
 - Has also recovered Cr content within these same materials
 - Positive test results on both Ilmenite (Ti source) & Mn ores with further development required

Periodic Table of the Elements

<div>Mg</div> <div>magnesium</div> <div>24.31</div>											3p	<div>Al</div> <div>aluminum</div> <div>26.98</div>	
	3 III B	4 IV B	5 V B	6 VI B	7 VII B	8 VIII B	9 VIII B	10 VIII B	11 I B	12 II B			
<div>Ca</div> <div>calcium</div> <div>40.08</div>	3d	21 Sc scandium 44.96	22 Ti titanium 47.87	23 V vanadium 50.94	24 Cr chromium 52.00	25 Mn manganese 54.94	26 Fe iron 55.85	27 Co cobalt 58.93	28 Ni nickel 58.69	29 Cu copper 63.55	30 Zn zinc 65.41	4p	<div>31</div> <div>Ga</div> <div>gallium</div> <div>69.72</div>
		39 Y yttrium 88.91	40 Zr zirconium 91.22	41 Nb niobium 92.91	42 Mo molybdenum 95.94	43 Tc technetium 98	44 Ru ruthenium 101.1	45 Rh rhodium 102.9	46 Pd palladium 106.4	47 Ag silver 107.9	48 Cd cadmium 112.4		
<div>Sr</div> <div>strontium</div> <div>87.62</div>	4d	71 La lanthanum 138.91	72 Ce cerium 140.12	73 Pr praseodymium 140.91	74 Nd neodymium 144.24	75 Pm promethium 144.91	76 Sm samarium 150.36	77 Eu europium 151.96	78 Gd gadolinium 157.25	79 Tb terbium 158.93	80 Dy dysprosium 162.50	5p	<div>81</div> <div>In</div> <div>indium</div> <div>114.82</div>
		71 La lanthanum 138.91	72 Ce cerium 140.12	73 Pr praseodymium 140.91	74 Nd neodymium 144.24	75 Pm promethium 144.91	76 Sm samarium 150.36	77 Eu europium 151.96	78 Gd gadolinium 157.25	79 Tb terbium 158.93	80 Dy dysprosium 162.50		

Matmor

Commercialisation Pathway

Current stage
of
development

Bench
Scale

Test
Scale

Pilot
Scale

Demo Scale

Commercial
Scale



Bench Test Unit

- 10kg output
- Batch Process
- Complete and in active service



Test Plant

- 1 tonne per day
- Semi-continuous process
- No pellet making integration
- Stage 1 complete
- Stage 2 due to commence H2 2015

~8,000 tpa
capacity

Pilot Plant

- 1 tonne per hour
- Full automation
- Integrated pelletisation

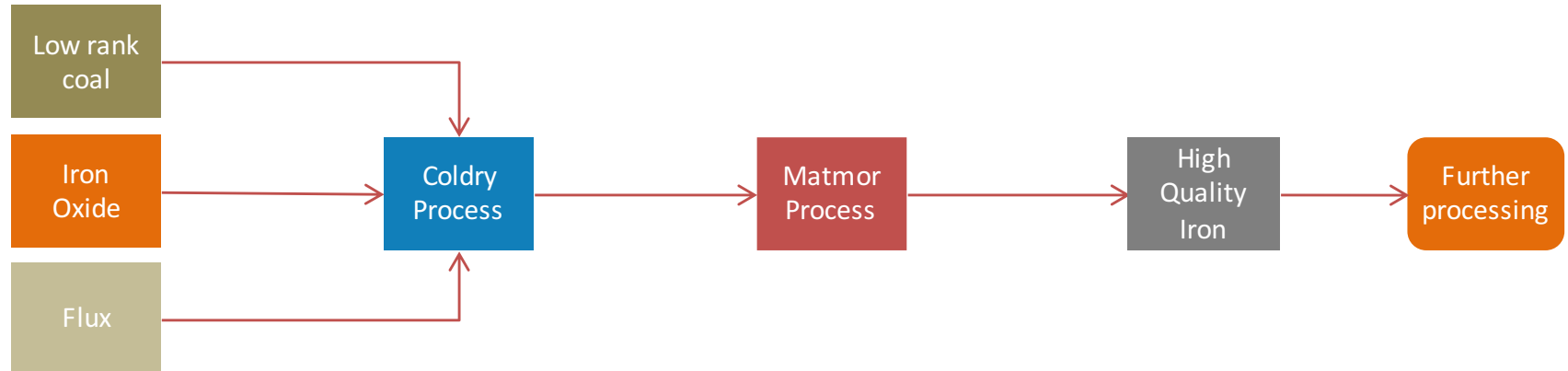
~80,000 tpa
capacity

>200,000
tpa
capacity

Matmor Process vs. Blast Furnace

Matmor Process

- Lower Cost
- Simpler
- More flexible
- Less CO₂



- **Lower cost** inputs
- Utilise domestic raw materials
- Utilise waste grade ore

Environmental Improvement
Eliminates:

- Sinter plant
- Coke ovens

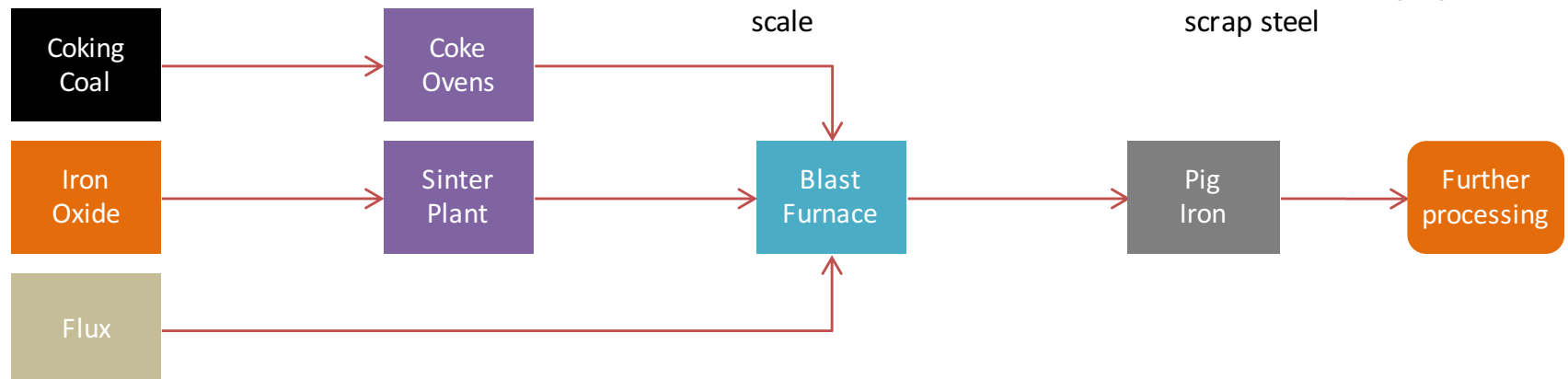
Efficient
Lower temperature than Blast Furnace:

- **Lower** capex
- **Lower** maintenance cost
- Economic at smaller scale

High quality product:

- 95-97% Fe vs 90-95% via Blast Furnace
- Low inclusions
- Ideal steel making feedstock
- Substitute for high-grade scrap steel

Blast Furnace



Benefits vs Blast Furnace

- Coking coal is replaced by low rank coal which can cost as little as \$5 a tonne to mine
- Diversified raw material supply; in addition to high grade iron ore, access to the 'above ground ore body' or low grade (waste) iron oxide sources is enabled, increasing resource security
- Capital cost is estimated to be less than half that of a comparable traditional blast furnace due to smaller foot print and lower temperature materials of construction
- The need for traditional blast furnaces is eliminated
- Integrates with existing downstream steel making
- Emissions are significantly reduced, as no coking ovens or sinter plants are needed
- Produces a consistent, high quality iron product

Raw Material Input	Traditional Iron Making (65% Fe raw material)	Matmor (65% std Fe raw material)	Matmor (Iron Ore Fines as raw material)
Reductant	0.75 tonnes coke x 1.37 t/t x ~\$120 (coking coal) = \$125	2.0 tonnes x ~\$20 (lignite) = \$40	1.2 tonnes x ~\$20 (lignite) = \$25
Iron Ore	1.8 tonnes x \$50 = \$90	1.8 tonnes x \$50 = \$90	1.9 tonnes x \$15 = \$30
Flux (Limestone)	~\$20	~\$10	~\$10
Total \$/tonne hot metal	~\$235	~\$140	~\$65

40%
improvement

>70%
improvement

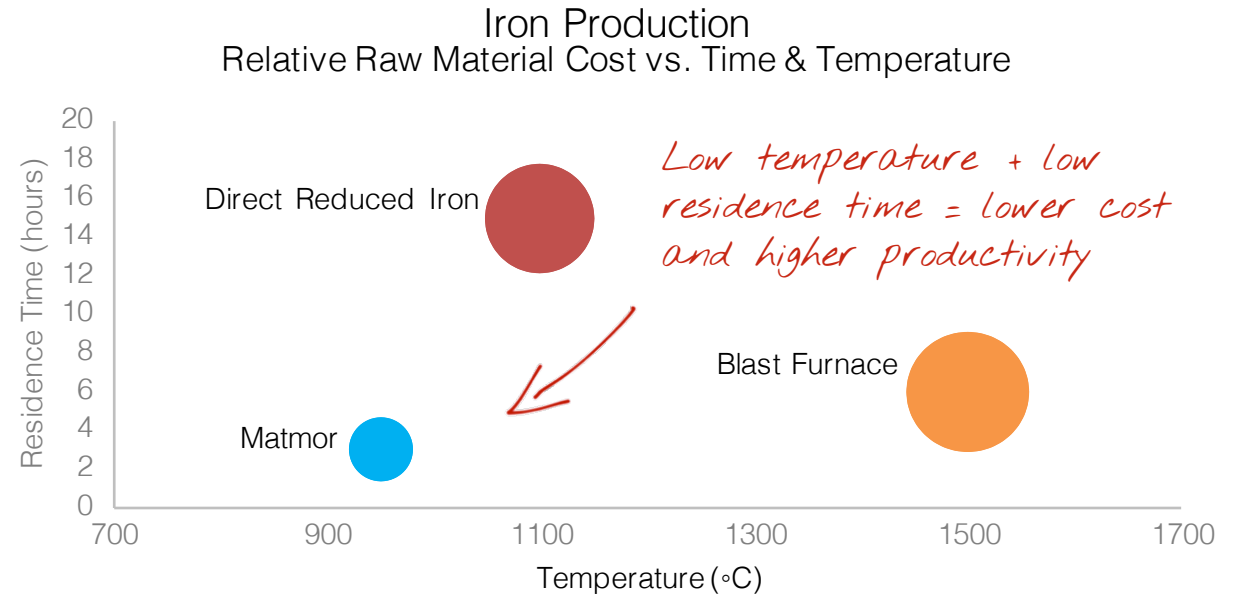
Currency: USD

Benefits vs other methods

- Lower Temperature
- Lower residence time, higher productivity
- Lower Cost












- Residence time is a proxy for asset productivity
- Temperature is a proxy for asset capital intensity
- Bubble size represents 'Relative Raw Material Cost'



Primary Iron Making Process			
	Blast Furnace	DRI	Matmor
Temperature (degrees C)	1300-1500	1000-1100	850-950
Residence Time (hours)	6	12-18	3

Matmor Business Model

Key Partners 	Key Activities 	Value Propositions 	Customer Relationships 	Customer Segments 
<ul style="list-style-type: none"> Matmor Design Partner (tba) Thermax ARUP JC Steele YES Bank Mecrus Platinum Road Greenard Willing India Notron Rose RSM Bird Cameron GHD Monash University University of Newcastle 	<ul style="list-style-type: none"> Fundamental R&D IP development and protection Platform Development Engineering Business Development 	Matmor <ul style="list-style-type: none"> Cost effective primary iron production Waste remediation solution Open new markets Establish new revenue streams Diversify energy and resource options Revalue assets Enhance efficiency Mitigate CO₂ emissions 	Direct relationships with: <ul style="list-style-type: none"> Mine and power station owners Plant & Equipment Vendors Regulatory authorities 	Process integration <ul style="list-style-type: none"> Integrated steel plants Stand alone plant Product consumption <ul style="list-style-type: none"> Integrated steel plants Electric Arc Furnace Induction Furnace
	Key Resources  <ul style="list-style-type: none"> Researchers Engineers Business development Sales Support OM&S support 		Channels  <ul style="list-style-type: none"> Direct Indirect via route-to-market Indirect via partner vendors 	
Cost Structure  <ul style="list-style-type: none"> Patents Salaries Plant & equipment Business development Business admin & support 		Revenue Streams  <ul style="list-style-type: none"> License fees – plant sales Royalty fees – plant capacity deployed Maintenance and servicing fees 		



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Section 4

Projects

India - Coldry

India - Matmor

India – Project Pathway

Capital Requirement

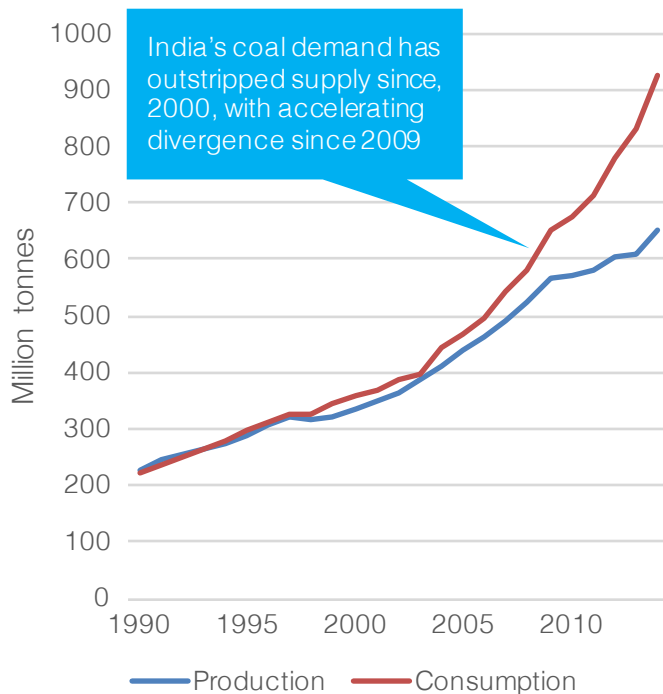
India:

The place to be for Coldry

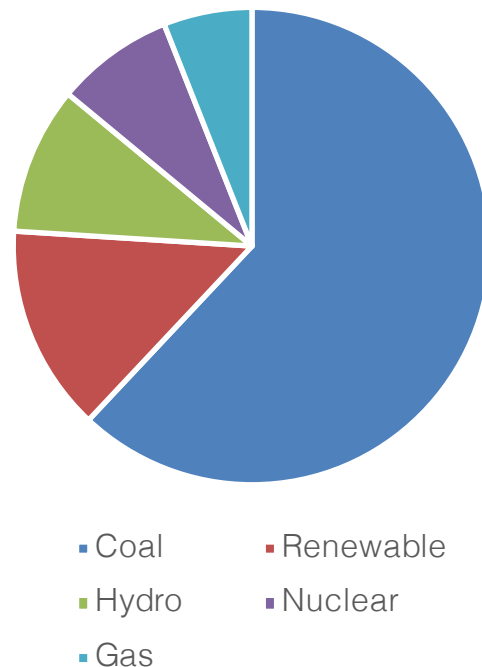
India is in a major growth phase:

- Energy demand increasing, outstripping domestic primary energy source growth
- With over 4.5 Bn tonnes of proved recoverable reserves in India, low rank coal is able to play a major supporting role via application of ECT technologies
- India will be the fastest growing major economy in 2016, with the IMF projecting GDP growth of 7.5 percent against China's 6.8 and a global rate of 3.8 percent.
- India's coal-based energy production is projected to double by 2030

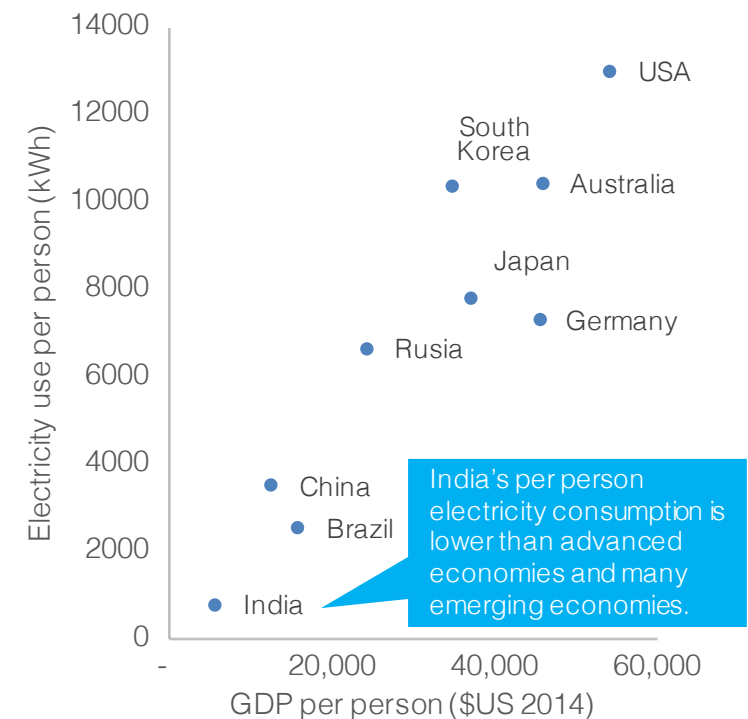
Coal Demand-Supply Gap widens



Estimated Energy Mix India 2030



Electricity Use

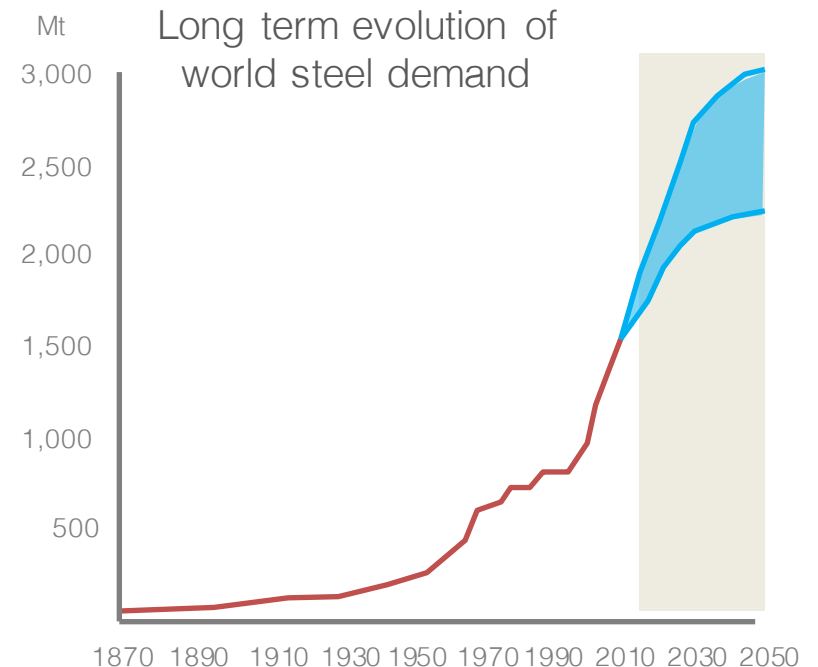
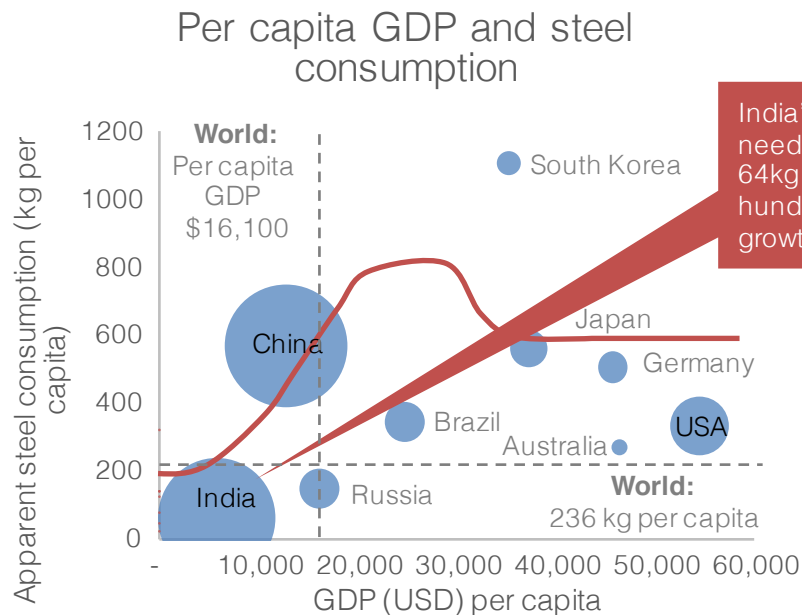


India:

The place to be for Matmor

India is in a major growth phase:

- Infrastructure development requiring substantial increases in iron & steel production
- Domestic coking coal reserves, effectively zero, heavily reliant on imports
- Low value resources (low rank coal & iron ore fines & slimes) able to play a major role in bridging this gap via application of ECT technologies
- World Steel Association projects India's steel consumption growth rate to remain the highest in the world at 7.3% pa for 2016
- India is currently the world's third largest producer of crude steel
- If India increase consumption to half of global average, this represents an increase of 85% or ~70Mt pa
- If ECT can capture 5% of the growth via Matmor, this represents 3.5M tpa or ~17 commercial size modules



India Project

● Objective:

- Development of an integrated Coldry demonstration + Matmor pilot facility in India
- Launchpad for global commercial rollout

● Partners:

- Neyveli Lignite Corporation is the custodian of India's lignite resources, the lead partner on Coldry and the project host
- The NMDC (National Mineral Development Corporation) is India's largest Iron ore miner.
- Both companies are PSUs (Public Sector Undertakings, i.e. Government entities)

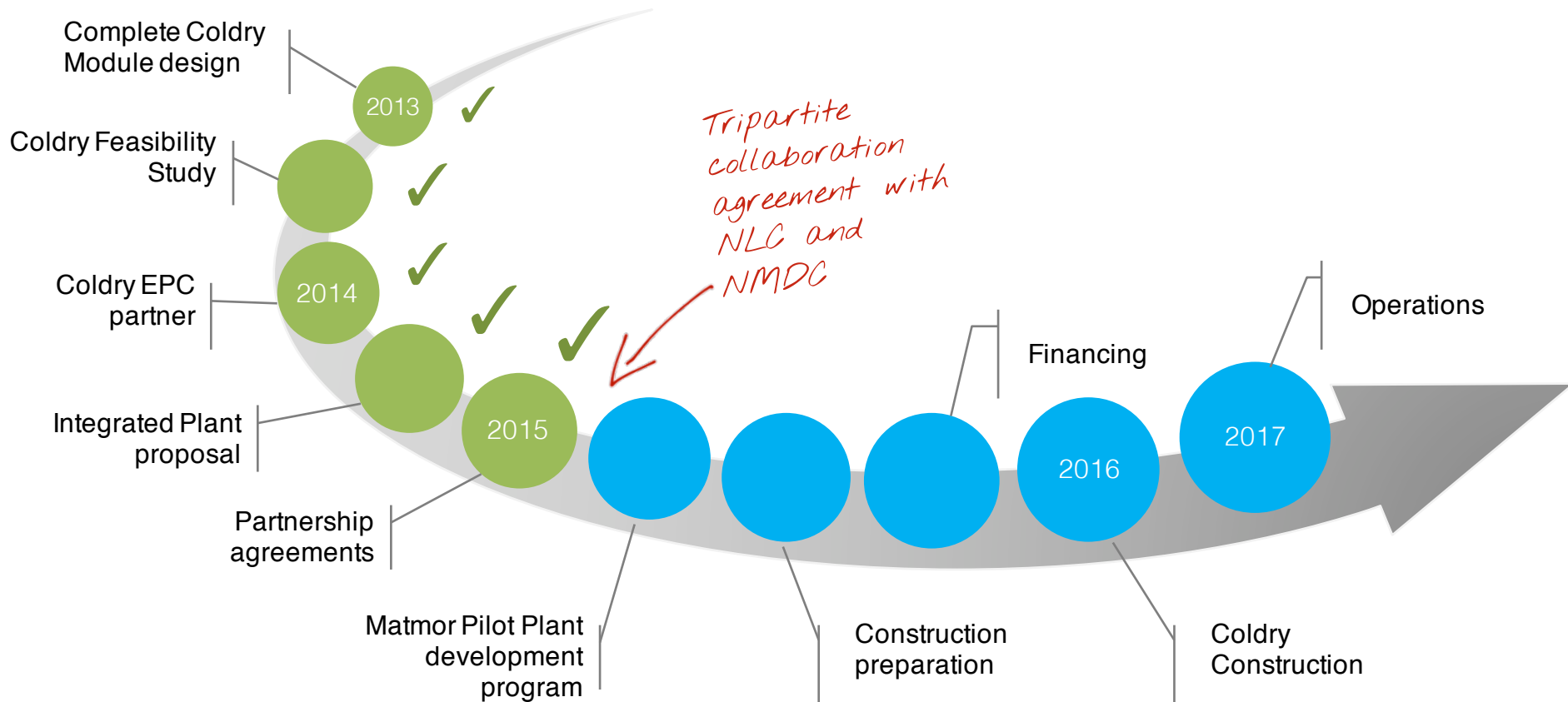
● Location

- Neyveli, Tamil Nadu
- ~2.8GW power station
- ~25m tpa mine output



India Project Pathway

- Demonstrate as a platform for subsequent larger scale commercial roll out
- 'Demonstration' achieves:
 - Capital defined
 - O&M capability displayed
 - Product quality, value and use validated
 - Business model proven





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Section 5

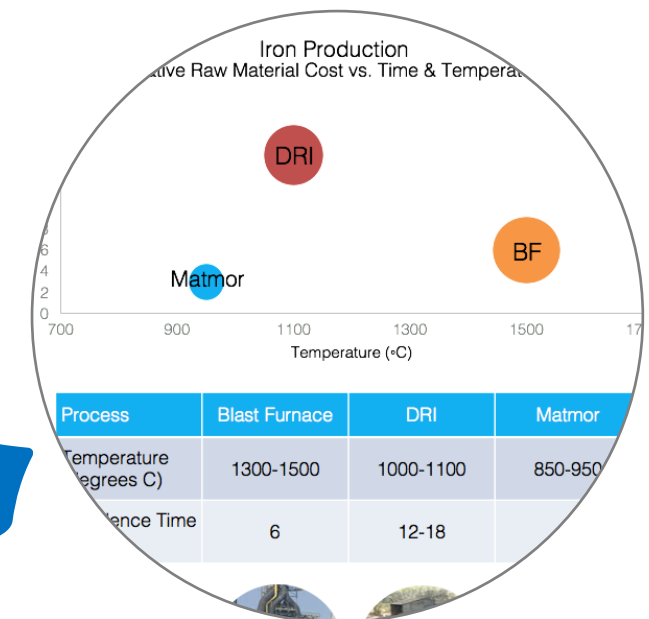
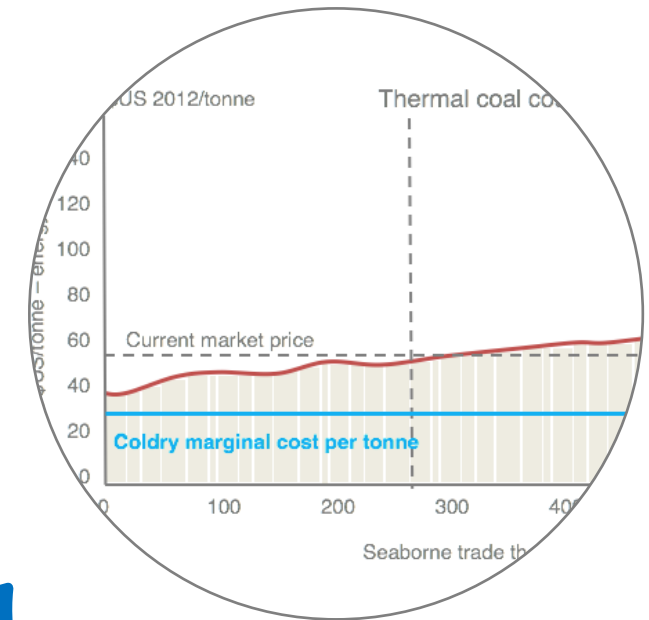
ECT Value Proposition

Summary

Value Proposition for Low rank coal asset owners

Incremental sales from existing low rank coal assets into higher value markets:

- Coldry - participate in thermal coal markets on a competitive marginal cost basis against thermal coal miners.
- Matmor - participate in the iron and steel markets with a fundamental raw material and operational cost advantage against incumbent processes.



Thank you.

Glenn Fozard
Chairman



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