



# ENVIRONMENTAL CLEAN TECHNOLOGIES LIMITED

## Shareholder Update

June 2012

### Capital Raising

The 'Monash' transaction is expected to conclude in coming weeks, paving the way for completion of the DFT, and future project funding

Page 2

### DFT Phase 1 complete

Arup have completed phase 1 of the DFT, delivering outcomes in line with expectations and paving the way for phases 2 & 3

Page 4

### EL 5119

ECT enters the resource development sphere with its acquisition of an interest in exploration licence EL5119

Page 5

## Welcome

Dear Shareholders,

This is an important period for your company as we implement strategies to commercialise our valuable Coldry and Matmor technologies while evaluating other commercial opportunities.

We have recently achieved several important milestones that we believe will be critical to the future of your company:

- Confirmation of Monash Capital joint venture company 'IMFAMA's' investments in ECT shares and projects
- Completion of Phase 1 of the Design For Tender (DFT) Program
- Sealing of the Australian Coldry Patent
- Acquisition of Coal Exploration Arrangements in Victoria via EL 5119

The ECT board has a policy of communicating with and informing shareholders of significant developments and has developed this Shareholder Update as one means of updating you. It is envisaged these will be provided quarterly.

We welcome your feedback on this communication and we look forward to providing a further update in coming months.

**Michael Davies**

Executive Chairman and Managing Director



### In this issue...

#### Page Topic

- |   |                                      |
|---|--------------------------------------|
| 2 | Cornerstone investor progress update |
| 3 | Capital management                   |
| 4 | DFT                                  |
| 5 | EL5119                               |
| 5 | Coldry commercial demo               |
| 6 | Vic Gov Coal Tender                  |
| 6 | IP Update                            |
| 7 | Asian opportunity                    |
| 7 | Energy forums                        |
| 9 | Market perspectives                  |

## 1. IMFAMA set to become cornerstone investor

I wish to report to shareholders that documents received yesterday from Monash Capital Group (Monash) confirm the imminent completion of their financing commitment to ECT.

Monash has advised ECT, and ECT has sighted documentary evidence to confirm, that a formal banking process is in place, which will provide for the share placement monies, the provision of funding for the construction and operation of the Coldry Demonstration Facility and funding for the Matmor Pilot Plant development.

It is expected that the funds will be made available to ECT within the next two weeks.

Shares from the placement approved by shareholders at the recent Extraordinary Meeting (EGM) will be issued to IMFAMA Pty Ltd, which is a company jointly owned by Monash and Indigenous Monetary Fund Australia (IMFA). On completion of the transaction, IMFAMA will become the largest holder of the Company's issued capital and a major strategic investor.

As described in the Notice of Meeting for the EGM, funds received from the placement will enable completion of Phases two and three of the Design For Tender (DFT) program as well as providing working capital.

Shareholders will appreciate the necessity to complete the DFT in order to have the engineering detail required to cost the construction of a 2 million tonne per annum (mtpa) Coldry production facility.

It has been agreed in-principle with Monash that following IMFAMA becoming a substantial shareholder, that ECT will offer participation in joint ventures to globally commercialise the Coldry and Matmor technologies, and other appropriate commercial opportunities as they emerge.

The information received by Monash further reinforces ECT's financial future through the funding of the Coldry Demonstration Plant and the funding of the Matmor commercialisation program.



## 2. Capital Management

The Capital Management Committee has supported the Board's strategic capital efforts over the past nine months to achieve the following:

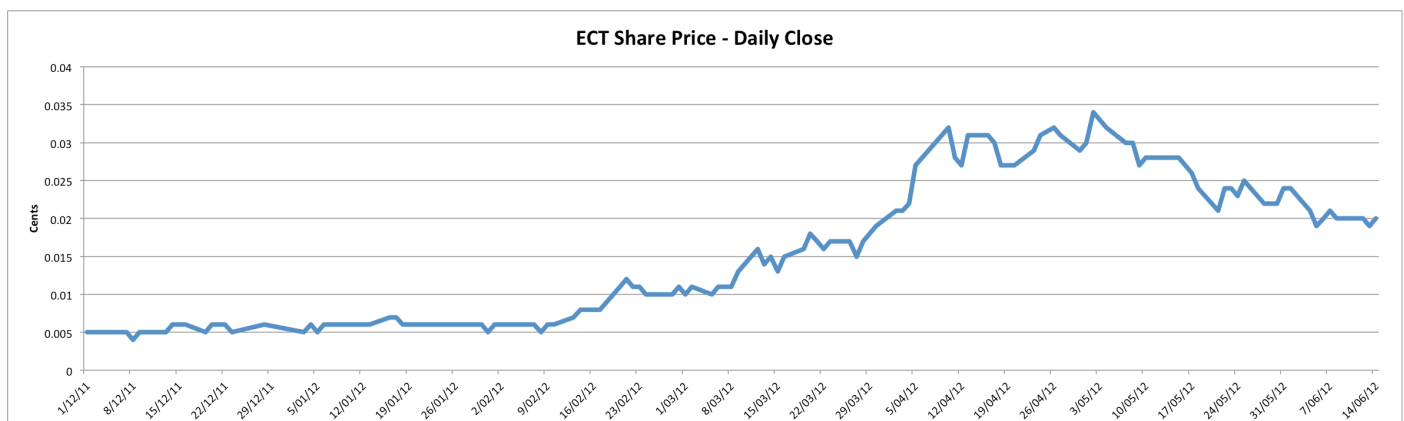
1. Non-Renounceable Rights Issue announced in August 2011 and closed on 23 December 2011 delivered \$2.2m of the anticipated \$3.8m. Though this was \$1.6m short of target, it was considered to be a reasonable outcome given the volatility of both the markets and the company's performance in the preceding six months.
2. As announced on 10 January 2012, the company secured commitments for an additional \$1.1m comprising two separate share placements of \$695,000 and \$405,000. The initial placement was made pursuant to the 15% "head room", with the second placement subject to shareholder approval at the Extraordinary General Meeting. As advised, the \$405,000 placement was subsequently withdrawn as Director's considered the terms and conditions to be mismatched to market.
3. Consistent with a November 2011 Board resolution to meet the balance of the La Jolla Cove Converting Loan facility with cash, a facility was negotiated with Menzies Security on terms and conditions as announced to the market on 28 February 2012. These funds were used to pre-pay the balance of the La Jolla facility. In total, \$743,000 of cash was used to satisfy the La Jolla Cove convertible note.
4. On 15 March ECT advised that a placement with Monash Capital Group for 300 million shares and 300 million ESIO options for \$4.0m had been finalised. This placement was approved by shareholders at the recent General Meeting and provided Monash Capital nominee IMFAMA with approximately 16% of the company's issued capital.

ECT's Board has approved a capital program for the balance of 2012 that includes:

1. Responsible budgeting and conservation of cash-on-hand
2. Delivery of Phases 2 & 3 of the Design for Tender Program
3. Advancing Matmor technology and commercialisation
4. Plans to acquire further interests in coal resources and the development of Exploration Licence EL5119
5. A series of shareholder briefings in Q3

There has been considerable discussion about the use of equity and the subsequent effects of dilution. As investors recognise, in the absence of income, Boards have a choice of debt or equity to fund the activities of the business. In choosing the issuance of equity, the "degree of dilution" is an issue all Boards grapple with. We are committed to achieving an appropriate balance and have delivered a capital management program that has exceeded its capital target by 40%, with a corresponding 2.6% increase in equity against plan. In addition, the Board has ensured that the program has been delivered at a cost of less than 5% of total funds raised.

The company wishes to acknowledge the efforts of its advisory team from Greenard Willing, led by Glenn Fozard. As shareholders will appreciate, capital markets have been extremely volatile, with investor confidence battered by global events, including the turmoil in Europe. Accordingly, the successful completion of the capital management program over the past nine months is the result of a good plan, well executed and solidly backed by you, our committed shareholders. For that, we thank you!

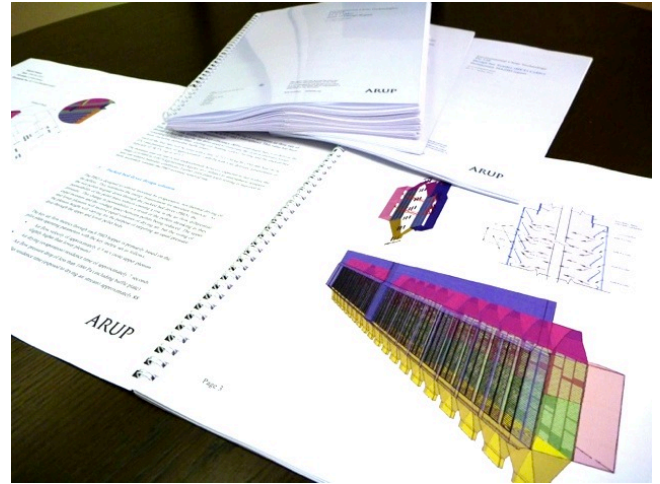




### 3. Status of the Design for Tender Package

Arup has completed Phase 1 of the Design For Tender Program and has finalised all detail in a series of reports documenting works completed, analyses made, designs developed, and the expected operational outcomes. Furthermore, Arup has also begun Phases 2 and 3 of the DFT and will run these stages in tandem where possible.

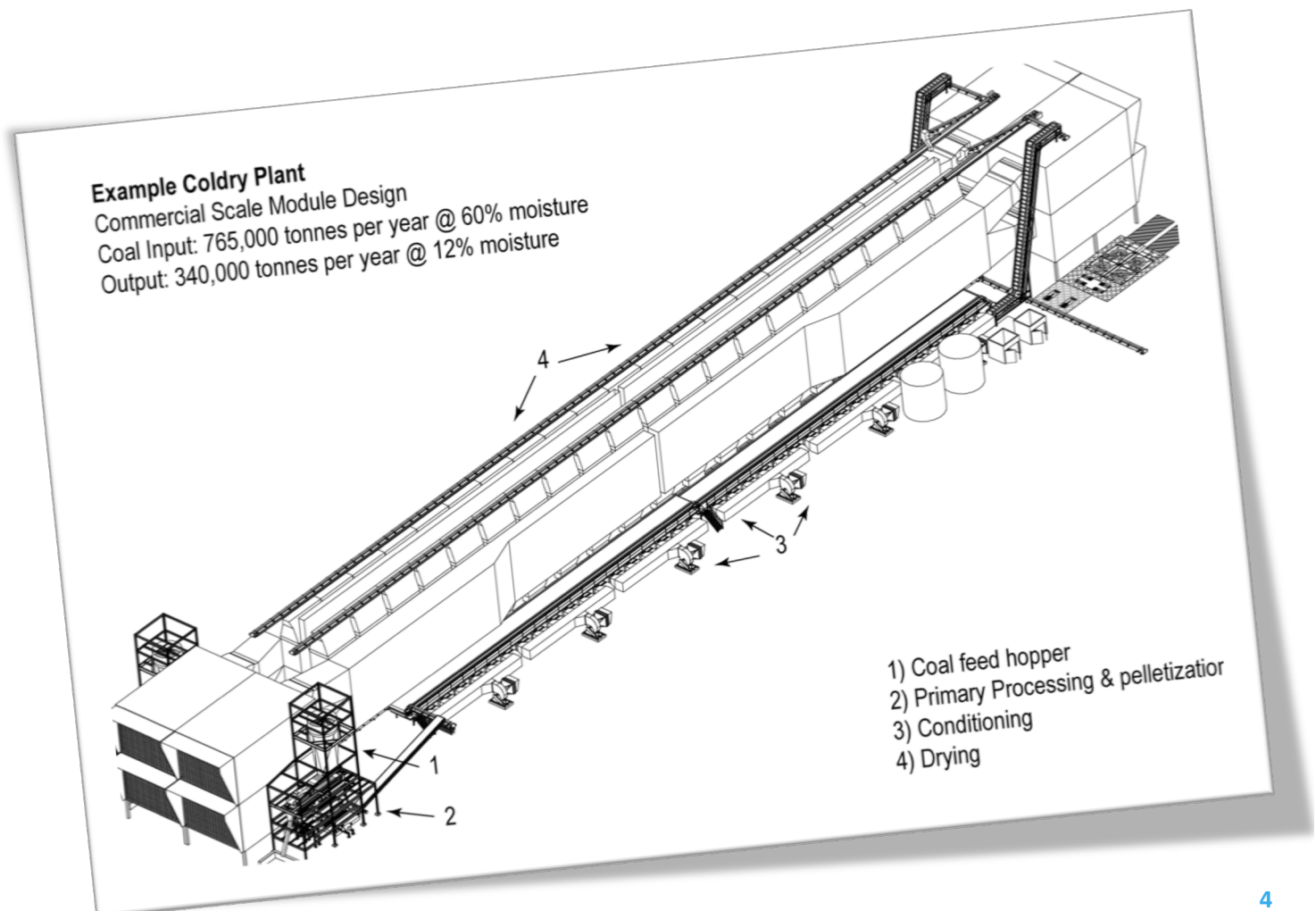
Works undertaken during Phase 1 included the process engineering components, as well as preliminary structural designs. At the core of this work was “options” development. This involves taking those process components, as executed in ECT’s Coldry Pilot Plant, and developing a series of options where they can be completed at large scale.



Key features of the process design developed were:

- A back-to-back module design, dramatically reducing structural steel requirements
- An integrated air plenum & packed bed dryer design to reduce separate support structure needs
- Lowest possible energy consumption through optimising water recovery, while retaining the power station evaporative loss mitigation

ECT is extremely pleased with the work done to date. The outcomes continue to support Coldry’s commerciality and instill confidence in the timeframes set to deploy the first Commercial Demonstration plant at Loy Yang.



## 4. Acquisition of interest in coal exploration licence EL 5119

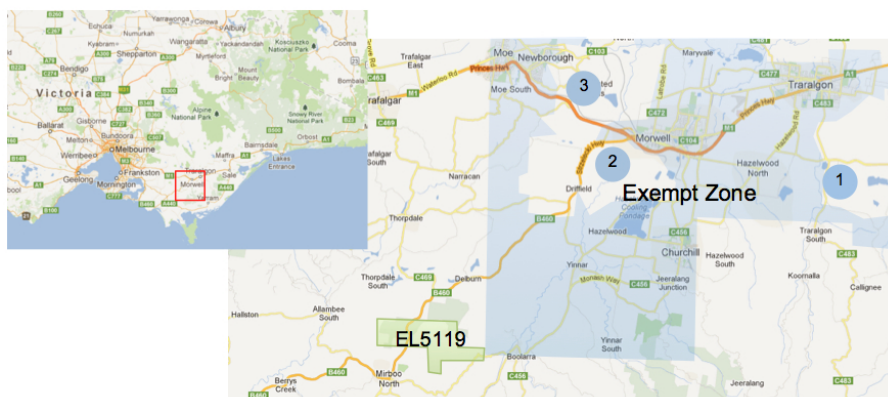
On 23 May we advised we had entered into an agreement to secure an interest in a coal exploration licence in Victoria known as EL5119.

The agreement essentially provides access to an area of approximately 33 sq. kms adjacent to the existing Exempt Zone and south east of the Hazelwood power station and mine.

Under the agreement with Mecrus, ECT will meet the costs of all exploration work required to prove up the reserves of lignite located within EL 5119 up to “measured reserve” status as defined in The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the “JORC Code”).

It is estimated the expenditure will be up to \$1.0 million over a two to three year period. In return, ECT will acquire from Mecrus all rights in relation to the in-ground coal that may be delineated within EL5119.

ECT has secured these rights over EL5119 to potentially provide an additional lignite resource in the Latrobe Valley. Such a resource would complement commercialisation of the Coldry technology in this region and assist in securing partners and finance for future projects.



## 5. Coldry: Development of a commercial demonstration plant

As a lead-in to the deployment of the 2 million tonne per year Coldry plant at Loy Yang, ECT has developed a proposal seeking investment in the first module – a Commercial Demonstration plant. – of around 170,000 tonnes per annum capacity.

ECT intends to establish a Joint Venture (JV) company for the purposes of constructing and operating this Commercial Demonstration facility. After proving the economics of Coldry production at this scale, ECT will expand the facility progressively to increase production capacity to the 2 million tonne target.

The final production capacity of the expanded production facility could feasibly extend beyond the initial 2 million tonnes to be over 20 mtpa as the various sources of waste energy are progressively tapped.

It is expected that the cost to establish the initial Commercial Demonstration facility at Loy Yang, together with the operating expenses over the first 12 months of operation, will be around \$70m.

ECT and its shareholders want to attract globally recognised resource companies and globally significant thermal coal consumers as investors in this project.

Equity investors in the JV will be entitled to a share of production from the facility equal to the percentage of equity held by the investor.

ECT will offer the shareholders in the JV the right to maintain their percentage equity share in an expanded production facility (first expansion to 2 mtpa) for appropriate financial consideration.

The capital costs to construct the first, single module Commercial Demonstration Plant are expected to be substantially higher than subsequent units as construction and manufacturing efficiencies become available, including the sourcing of low cost pre-fabricated structures and other components from overseas.

## 6. Victorian Government Allocation of Coal Reserves

The Victorian Government has begun a process of assessing the level of interest by companies in bidding for new allocations of brown coal from the State's vast reserves. ECT welcomes this initiative by the Government, particularly as it recognises a need to dovetail these resource allocations with the utilisation of technologies, which increase the value of the resource and mitigate environmental impacts.

Currently, Victoria has an estimated 430 billion tonnes of brown coal, of which more than 30 billion tonnes could be economically developed from the Latrobe Valley alone. About 65 million tonnes of brown coal is mined in the Latrobe Valley for domestic use each year, but none is exported.

In its raw form lignite cannot be economically exported due to its high moisture content (more than half is water) and its propensity to self-combust.

Coldry provides an economic solution to this dilemma.

As such, ECT is keen to explore the coal allocation opportunities as they emerge and believes the ability of Coldry to dewater raw lignite from 60% moisture to less than 14% moisture forms a sound basis for a premium export product in addition to a high quality feedstock for downstream value added process such as coal-to-gas.

We consider that consortium based approach, which can demonstrate the following, will have the best chance of success in being awarded suitable coal allocations:

- Leverage the high commercial value of Victoria's vast lignite (brown coal) reserves
- Attract new investment in long-life projects
- Generate substantial new, permanent employment
- Improve the historically 'low-value', high CO<sub>2</sub> intensity brown coal, through the application of new technologies

We will keep shareholders informed of any outcomes from the Governments process that may impact the Company.

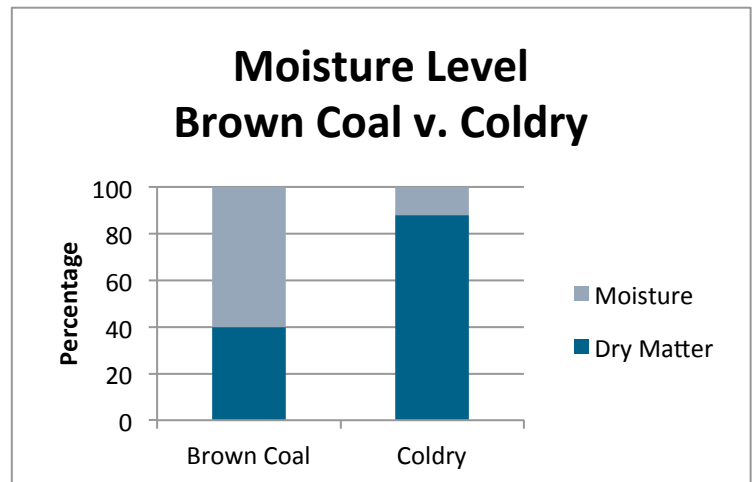
## 7. Status of Coldry Intellectual Property

Our Coldry patent in Australia has been sealed, and was formally advertised as such in the Official Journal of Patents on 12 April 2012.

Patents have been issued in China, USA, New Zealand, and now in Australia.

Applications are progressing in Europe, Canada, Brazil and India.

In addition to patent protection in jurisdictions that feature significant brown coal reserves and a robust legal system, ECT employs detailed legal agreements as part of a broad IP protection strategy.



## 8. Korea Western Power/K-Coal/Sojitz Announcement

Korea Western Power Co. Ltd (KOWEPO), part of Korea Electric Power Co (KEPCO) has announced the development of an integrated coal project in East Kalimantan, Indonesia with project partners Sojitz Ltd of Japan and K-Coal Co. Ltd of Korea.

K-Coal is ECT's sales and marketing affiliate for North Asia, based in Busan South Korea.

The Memorandum Of Understanding (MOU) signed on 16 May 2012, outlines a plan for the joint development of a coal mine, coal processing facility and coal-loading terminal in East Kalimantan. The processed coal will be exported to Korea for use by KOWEPO at its power stations in the western part of Korea, including the Taean #9 and #10 power stations, which are scheduled for commissioning during 2016.

KOWEPO notes that it is working with K-Coal to utilise low rank coal upgrading technology at the processing facility to produce a higher value, stable coal product for export to Korea.

K-Coal has advised ECT that it is promoting Coldry technology to KOWEPO for the project.

## 9. Recent Energy Related Forums

As part of our ongoing marketing strategies, we are ensuring ECT is prominent at appropriate global forums where new energy solutions and technologies are highlighted to the international energy community.

### Clean Tech Forum, USA March 2012

ECT Chief Operating Officer Ashley Moore recently presented at the 10th Annual CleanTech Forum in San Francisco.

The event headline was "The Power of Global Partnerships" and our presentation was focused on bridging the gap between the "holy grail" of renewable energy solutions and achievable, cost effective energy supply.

Mr. Moore informed delegates that our Coldry coal upgrading technology, which creates black coal equivalent pellets from low-rank brown coal, could provide this much sought after cost effective energy solution, particularly in the Asian region.

Coal use is forecast to increase by 1 billion tonnes a year by 2035. There is a recognised global need for innovations, which help to mitigate the inevitable emissions increases due to increased energy production.

While renewables are forecast to increase their market share from ~3% to ~15% by 2035, there exists a tremendous opportunity to target and mitigate the inevitable CO2 increase from the forecast growth in coal use by electric utilities, especially in the Asia region where the majority of the coal demand growth is focused.

Mr. Moore told delegates that with the forecast increase in coal demand, low rank coal is becoming increasingly more attractive in terms of price and availability, despite its somewhat higher CO2 intensity.

ECT presented at the forum as part of a delegation of five companies led by consulting firm Deloitte.

### Power Stations Conference, New Delhi India

Ashley Moore also presented at the Indian Power Stations Conference in New Delhi on Tuesday 14 February 2012. The topic of the presentation; '*Enhancing Energy Security through Lignite Beneficiation*' was timely and topical given the very real coal shortages currently experienced in India.

Key points noted:

- According to India's Central Electricity Authority, as at 11 Jan 2012 60% of India's generation capacity had



critical supply shortages with less than 7 days supply.

- Approximately 28% of India's generation capacity had less than 4 days of supply on hand.
- Some recently commissioned power stations such as DVC's Koderma are sitting idle due to lack of coal supply.

India has the opportunity to apply the leading-edge Coldry technology to its brown coal reserves, transforming them into black coal equivalent pellets suitable for use in power generation and that are able to be transported with lower spontaneous combustion risk.

Coldry also offers the ability to acquire and upgrade brown coal resources in places like Indonesia, further enhancing supply options for Indian power stations.

ECT presented both its Coldry and Matmor technologies, in collaboration with Neyveli Lignite Corporation (NLC), to a broad audience in this significant market.

### **Low Rank Coal Symposium, Melbourne**

The 2nd Annual Low Rank Coal Symposium was held in Melbourne during 16-19 April and was attended by over 200 delegates from 23 countries.

*The common thread throughout the event was that despite the carbon dioxide tax here in Australia and elsewhere around the world, coal demand is likely to rise by several billion tonnes a year by 2035 under current policies.*

This message highlighted the very clear and urgent task ahead – how best to mitigate CO<sub>2</sub> emissions from the inevitable increase in low-rank coal use driven by emerging nations.

CCS programs (Carbon Capture and Storage) were discussed at length. These initiatives have the ability to significantly mitigate CO<sub>2</sub> emissions, but costs are significant.

It's worth noting that the conference generally acknowledged there is no silver bullet or single solution to mitigating CO<sub>2</sub> from brown coal use. We need a multi-pronged approach to deliver CO<sub>2</sub> abatement at

least cost.

The conference organisers, Victoria's Department of Primary Industries, agreed to include an optional tour of ECT's Bacchus Marsh facilities as part of the conference program. This tour occurred on 20 April and attracted a broad group of 30 attendees including engineers, technology developers, multinational companies, academics and investors from around the world. Our guests were given a tour of the Coldry pilot plant in operation, and an overview of our Matmor test plant, followed by an overview of our planned commercial scale Coldry project here in Victoria's Latrobe Valley.

### **World Coal Magazine**

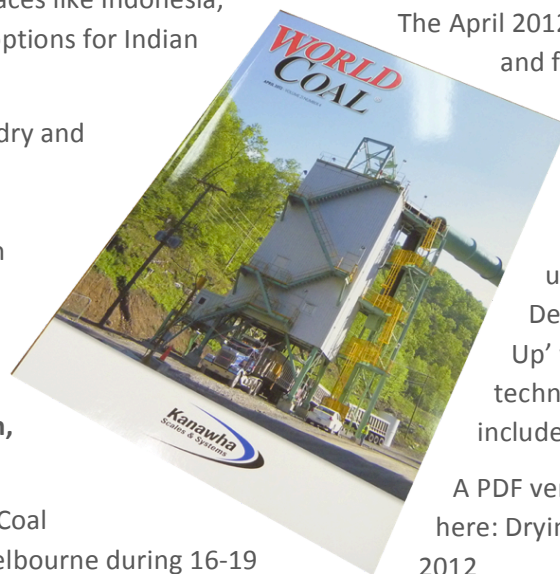
The April 2012 edition of World Coal Magazine is out and features an article on Coldry titled 'Drying Out'.

This month's issue focuses on coal preparation with an article by the IEA's Nigel S. Dong on low-rank coal upgrading. It follows on from his December issue article titled 'Soaking it Up' which explained trial and commercial technologies for drying low rank coal (Coldry included).

A PDF version of our article can be downloaded here: [Drying Out – World Coal Magazine – April 2012](#)

### **Coldry and Matmor Workshop, Jakarta**

ECT, in collaboration with K-Coal and BPPT presented a Coldry & Matmor workshop for delegates in Jakarta, Indonesia on 31 May. The workshop highlighted the market drivers behind the Coldry and Matmor opportunities and showcased the unique features and benefits of both technologies. Of great interest were the economics, with Coldry providing a low cost drying solution and Matmor providing the opportunity to decouple iron making from the price of coking coal.





## 10. Market Perspectives

Since the last shareholder update, external trends have continued to influence the regional markets in which we operate. Australia, as the world's largest coal exporter, and Indonesia, as the world's largest thermal coal exporter, are sensitive to the trends of the major growth economies, as well as those affecting more established nations. Chief amongst them are:

- China – the largest coal consuming country in the world, and the major economic growth engine in Asia
- India – the second most populous nation, with rapidly accelerating needs for primary energy sources
- Japan – a very important trading partner, key coal customer, and still recovering from disasters suffered during and following the 2011 tsunami

Factors affecting these nations and several others have led to some changes in the global marketplace over recent months. Specific changes to draw your attention to are:

- Significant increases in China's domestic coal supply capability, meaning the need to purchase growing quantities from foreign sources has been significantly mitigated. This has provided Chinese coal traders more opportunity to 'cherry pick' coal purchases.
- A tightening of China's monetary policy, driving coal traders to reduce working capital and de-stock, which means their purchase frequency has decreased – not to be confused with a decrease in demand. This has largely now been played out, with coal stocks now at the low end.
- Japan, a nation with significant immediate needs for coal and natural gas, recently announced it has completed the closure programs for ALL its nuclear generation facilities. Higher consumption at gas plants – previously used only in the role of peaking supply – means there is a growing and significant disparity in natural gas pricing globally. This has some far-reaching implications, including the option for Japan to import electricity via sub-sea cable from expanded coal-fired generation in Korea.
- India's ambitions for generation capacity growth to support its overall GDP plans have (finally) recognised the gap in its ability to supply via domestic coal reserves. All new thermal power stations are mandated by government to purchase at least 30% of coal requirements from imported sources. This has driven a higher number of Indian companies to seek coal resources outside India.
- US growth in non-conventional gas supplies has driven down US domestic pricing. This has led to a short-term trend of increasing export of US coal from the Powder River Basin. It is also expected to lead to investment in LNG facilities to enable export of the large & low cost supplies of gas, leading to an equalisation in the global gas prices (eg. US pricing of \$2-3/GJ vs. Japan pricing at ~\$15/GJ).

ECT has ongoing business development activity in India, China, Japan and South Korea.

Overall, the short term pricing for benchmark coals has declined, driven by several of the reasons above. While this is not welcome, underlying growth trends in Indian demand, pressures on US gas pricing (upwards, drawing coal away from the export market), and an expected easing of Chinese monetary policy (allowing coal traders access to increase their O/S purchases), are likely to see the prices remain on trend.

### We're Moving!

On Monday 2<sup>nd</sup> July we will move one floor down to new offices. The new address and phone contact details will be as follows:

Environmental Clean Technologies Limited  
Suite 712, 530 Little Collins Street, Melbourne, VIC, 3000, Australia  
Tel: +613 9909 7684 Email: [info@ectltd.com.au](mailto:info@ectltd.com.au)