

Binding Agreement with NLC and NMDC secured

Wednesday 27 January, 2015: Environmental Clean Technologies Limited (**ASX:ESI** and **ECT** or **Company**) is pleased to announce it has secured a binding agreement to proceed with project development initiatives for its Coldry and Matmor technologies with India's national lignite authority, Neyveli Lignite Corporation (NLC) and India's largest iron ore miner, NMDC Ltd.

Key Points:

- Australian technology development firm strikes world-first collaboration agreement with two Indian resource majors, underpinning joint R&D efforts
- Innovative Coldry and Matmor technology suite poised to upgrade low grade coal and iron ore resources, reduce emissions intensity
- Capital management planning positions Company for next phase of project development activity

Binding Agreement Reached



Above: The Tripartite Collaboration Agreement being signed at NLC

The agreement, which paves the way for the development and joint financing of an integrated Coldry Demonstration Plant and Matmor Pilot Plant at India's largest lignite mine, was signed on Tuesday 19 January 2016.

ECT's Managing Director Ashley Moore stated "This is a significant step forward for our business. We have been working toward this outcome for some time now. To bring India's leading lignite and iron ore players together under a tripartite arrangement, to jointly pursue the development of innovative solutions to help tackle some of India's strategic economic and environmental challenges, is a first for the parties and, to the best of our knowledge, a first for an Australian company."

NLC's Chairman and Managing Director, Mr S. K. Acharya delivered a forward looking speech during the signing ceremony, outlining his company's vision for moving its lignite resource up the value chain and mitigating emissions. He commented specifically that, as the process is suitable for purifying iron from the low grade iron ore, using easily available lignite, the exchange of technical know-how between India and Australia will benefit the companies as well as the countries.

NMDC welcomed the agreement, highlighting their previously stated drive to develop alternatives to metallurgical coal which is in short supply, and to ultimately reduce dependency on imported coking coal.



Above: Mr S.K. Acharya, CMD NLC, holding a commemorative Matmor medallion made using NLC lignite and NMDC iron ore "Australia-India partnership forged in steel".

India has an abundant above-ground iron ore resource in its mine tailings, however the fine size of the tailings means they are unsuitable for blast furnace use, effectively 'stranding' this resource and creating a growing environmental challenge. The problem to date is there have been no metallurgical applications that can cost-effectively upgrade such tailings. Matmor has the potential to deliver an innovative solution to this problem as well as improving India's self-sufficiency through less reliance on coking coal.



Mr Sean Kelly, Australia's Consul-General for South India (pictured centre left) kindly attended the signing ceremony, supporting the Company's efforts in India and highlighting the opportunities for all parties. He noted in a subsequent media release:

"An Australian company has forged an important new partnership under Indian Prime Minister Modi's 'Make in India' initiative to deliver unique Australian technologies which enable India's abundant lignite coal to be used for electricity and steel production, while at the same time minimising CO₂ emissions."

"This exciting Australian innovation further reinforces Australia's position as India's pre-eminent energy partner," Mr Kelly said, "while at the same time helping India reduce the carbon intensity of its rapidly growing steel industry that depends on coal."

"It is also a tangible example of the scope for Australians to bring their world-class technological innovations to India, adapting the technology to suit local requirements and working alongside Indian partners, resonating with [the] Indian Government's 'Make in India' initiative" Mr Kelly said.

Link: Media Release, Australian Consulate-General, Chennai, India - <http://chennai.consulate.gov.au/cnai/Media.html>.

Market Context

- 1) **Economic trends:** India has overtaken China as the fastest growing economy and is predicted to maintain this momentum through the next decade. Its 'open for business' mantra, vision for sustainable growth and reputation for frugal innovation are gaining widespread traction, attracting companies like ECT.
- 2) **Keeping it clever:** The Australian Government has launched its 'National Innovation and Science Agenda', promoting innovation at home and abroad. ECT seeks to innovate across the energy and resources industries, where the desire for economic growth and the need for sustainability often come into conflict. Both NLC and NMDC are focused on developing alternative processes in their respective fields.
- 3) **Climate security:** The recent Paris Climate Conference delivered outcomes intent on achieving meaningful emissions reductions generally, with India specifically committing to significant reductions in emissions intensity. Coldry, as a zero net emissions technology for quality improvement for low rank coals, and Matmor's capacity to significantly reduce CO₂ emissions during the production of crude steel provide significant contributions to this effort.



"This backdrop is highly supportive of such a collaborative approach to innovation, starting in India and expanding the offerings to other geographies reliant on emissions-exposed industries," said Mr. Moore, adding "We look forward to working with such highly regarded and capable companies as NLC and NMDC to deliver solutions focused on the upgrading of their domestic resources in India's national interest."

ECT Chairman, Mr Glenn Fozard (pictured, right) added, "We must also acknowledge our in-country business adviser YES BANK. Doing business in India is challenging and their support has been instrumental in navigating the complexities."

"Thanks must also be extended to the Australian High Commission and Austrade for their assistance with engaging India's National Government over the past 12 months."

This agreement validates the company's strategy with regard to selecting India as the launch pad for its technologies and is arguably the single most important milestone delivered for shareholders in the Company's history. It is the fulfilment of a crucial step in the Company's previously announced India strategy which has been built on a confluence of factors. These include India's reputation for frugal innovation, its abundant lignite resources, energy challenges, limited domestic coking coal, concerns around national resource and energy security and the political and business impetus to tackle these challenges in sustainable and innovative ways which have created supportive market conditions.

The Company will provide further updates as activities progress.



Next Steps

This agreement forms the basis for the forthcoming project planning and execution activities and leads into the substantive project phase, aiming to commercialise both Coldry and Matmor in the India market ahead of potential broader global deployment.

The project development activities will proceed immediately with the assistance of world class engineering partners Thermax and MN Dastur supporting Coldry and Matmor initiatives, respectively.

The next major deliverable will be the techno-economic feasibility study projections for an integrated commercial plant, targeted for delivery mid-year, will provide sufficient refinement of the capital estimates and commercial projections upon which the parties will rely to finalise the funding mix and financial and commercial commitments.

In relation to the immediate next steps, Mr Moore commented “We have a busy time ahead of us as we execute and deliver on the plans set forth in the agreement, including key elements such as the pre-construction works for Coldry, together with the Matmor-Coldry integration aspects, as well as the scale up of Matmor from its current Test Plant size to Pilot stage.

“In relation to Coldry, these next steps will include the conversion of existing engineering drawings to suit local requirements, construction codes and available ‘steel sections’, as well as vendor development for supply of certain technology-specific equipment items. In fact, preparatory work has been underway with Thermax on this particular activity, with formal kick-off expected soon on the end-to-end works program.”

In relation to Matmor, Mr Moore added “We look forward to commencing the work with MN Dastur in coming weeks. This work program will involve significant activity to bring Matmor’s readiness in line with Coldry.”

Agreement Overview

The Tripartite Agreement is binding and establishes the collaborative framework to deliver an integrated Coldry and Matmor facility, providing high-level milestones and pivotal decision points along the development pathway.

The framework provides agreed pathways for key activities, broadly including:

- 1) Detailed Integrated Techno-Economic Feasibility Study (parallel activity to 2 & 3)
- 2) Coldry Demonstration Plant development
- 3) Matmor Pilot Plant development

Successful progression through the activities will lead to a series of subsequent steps under the framework:

- 1) Commercial structure agreements
- 2) Financial Close
- 3) Project construction
 - a. Coldry
 - b. Matmor
- 4) Commissioning
- 5) Validation & optimisation activities
- 6) Operations
- 7) Expansion

The Company will continue to own its Coldry and Matmor intellectual property, which will be licensed into the India project.

Capital Management

The Company has recently undertaken a complete review of its financing plans in support of business initiatives for 2016.

These initiatives, detailed at the recent AGM, include preparation and budgeting for:

- The Indian project's next major deliverable
- The upgrade of the Bacchus Marsh pilot plant to a higher volume test facility
- The next 6 months of working capital

To this end, in recent days investors in the existing 'FAST Finance' facility took up the option to convert the debt obligation of ~\$1.5M into fully paid ordinary shares, which along with the recently received ATO refund of \$1.1M, now places the company in a significantly improved net asset position, leaving only \$300,000 of secured debt, which expires in late April 2016.

The Company is also finalising the negotiations for a debt facility with an SEC registered US debt fund to finance future R&D expenditure where the Company's accrued R&D refund can be used as the security. This facility will become particularly important to the financing mix of the Indian project in the event the Company receives an Overseas Ruling for the project (i.e. a finding that R&D activities conducted overseas are eligible under the Australian Government's R&D Tax Incentive).

Lastly, the Company has also reactivated its options exercise program to assist with the conversion of "deep in-the-money" listed options with a financing cashflow available to the company in excess of AU\$23M. Realisation of this cashflow in an orderly and regular fashion over the intervening period between now and the expiry of these options in mid 2017 will assist greatly in supporting both share price stability, working capital and project financing.

The Company intends to continue developing more flexible alternatives for financing and broader relationships with institutional investors and brokers. This will become particularly important as we reach the heights of our growth aspirations across 2016.

The activities above were drivers for the recent trading halt (19 Jan 2016) and request for voluntary suspension (21 Jan 2016).

The Company requests reinstatement to quotation, effective immediately.

About NLC

Neyveli Lignite Corporation Limited is a Government of India 'Navratna status' Enterprise established in 1956, under the administrative control of the Ministry of Coal.

A pioneer among the public sector undertakings in the energy sector, NLC operates:

- Three opencast lignite mines of total capacity of 28.5 million tonnes per annum at Neyveli and one open cast lignite mine of capacity 2.1 million tonnes per annum at Barsingsar, Rajasthan.
- Three Thermal Power Stations with a total installed capacity of 2490 MW at Neyveli and one thermal power station at Barsingsar, Rajasthan with an installed capacity of 250 MW.

NLC have plans to expand their thermal power capacity, with several projects totalling ~3500MW, in addition to supporting increases in mining capacity. Further power generation initiatives include a 51MW wind farm and a 10MW solar installation.

About NMDC

Incorporated in 1958 as a Government of India fully owned public enterprise. NMDC is a 'Navratna status' Enterprise under the administrative control of the Ministry of Steel, Government of India.

Since inception NMDC has been involved in the exploration of a wide range of minerals including iron ore, copper, rock phosphate, lime stone, dolomite, gypsum, bentonite, magnesite, diamond, tin, tungsten, graphite, beach sands etc.

NMDC is India's single largest iron ore producer, presently producing about 30 million tonnes of iron ore per annum from 3 fully mechanised mines.

Future plans include strategic positioning of the company to minimise short term fluctuations in commodity markets and business cycles through the vertical and horizontal growth of assets domestically and internationally across mining and value added production. This includes increasing mining of iron ore to over 75 million tonnes per annum, and expanding iron and steel making capacity.

For further information, contact:

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About ECT

ECT is in the business of commercialising leading-edge coal and iron making technologies, which are capable of delivering financial and environmental benefits.

We are focused on advancing a portfolio of technologies, which have significant market potential globally.

ECT's business plan is to pragmatically commercialise these technologies and secure sustainable, profitable income streams through licencing and other commercial mechanisms.

About Coldry

When applied to a range of high-moisture coals, the Coldry beneficiation process produces a black coal equivalent (BCE) in the form of dry, densified pellets. Coldry pellets have equal or superior energy value to many black coals and lower CO₂ emissions intensity than raw lignite.

About MATMOR

The MATMOR process is a significant advancement in the field of primary Iron production, being the only process to utilise relatively low-cost low-rank coal in place of higher cost metallurgical coal.

MATMOR is a simple, low cost, low emission, continuous production technology, incorporating the patented Coldry Process as the front-end material preparation stage ahead of the unique MATMOR retort, which enables the use of lower cost raw materials to produce primary iron and iron based alloys.
