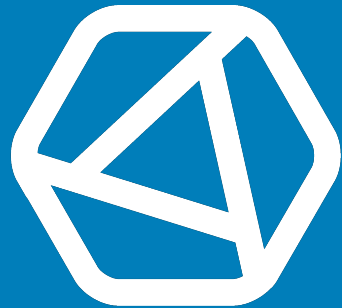


EGM – General Update



**ENVIRONMENTAL CLEAN
TECHNOLOGIES LIMITED**

30 May 2014

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Agenda



- India update
 - Strategy overview
 - Manufacturing & Engineering update
 - Commercial Demonstration Plant status
- Year in review
- Presentation from YES Bank

Why India? Why now?

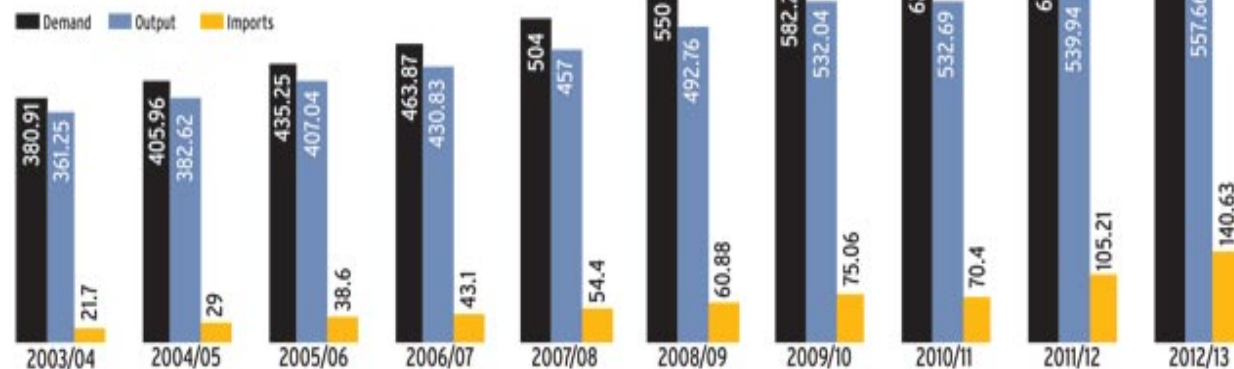


- Population 1.22 bn (July 2013 est)
[Jul'14 est 1.24bn – growth ~20m people]
- Energy 880 bn.kwh (vs Aus 242 bn.kwh) 2010 est
[985.4 bn.kwh in 2011]
- Coal imports

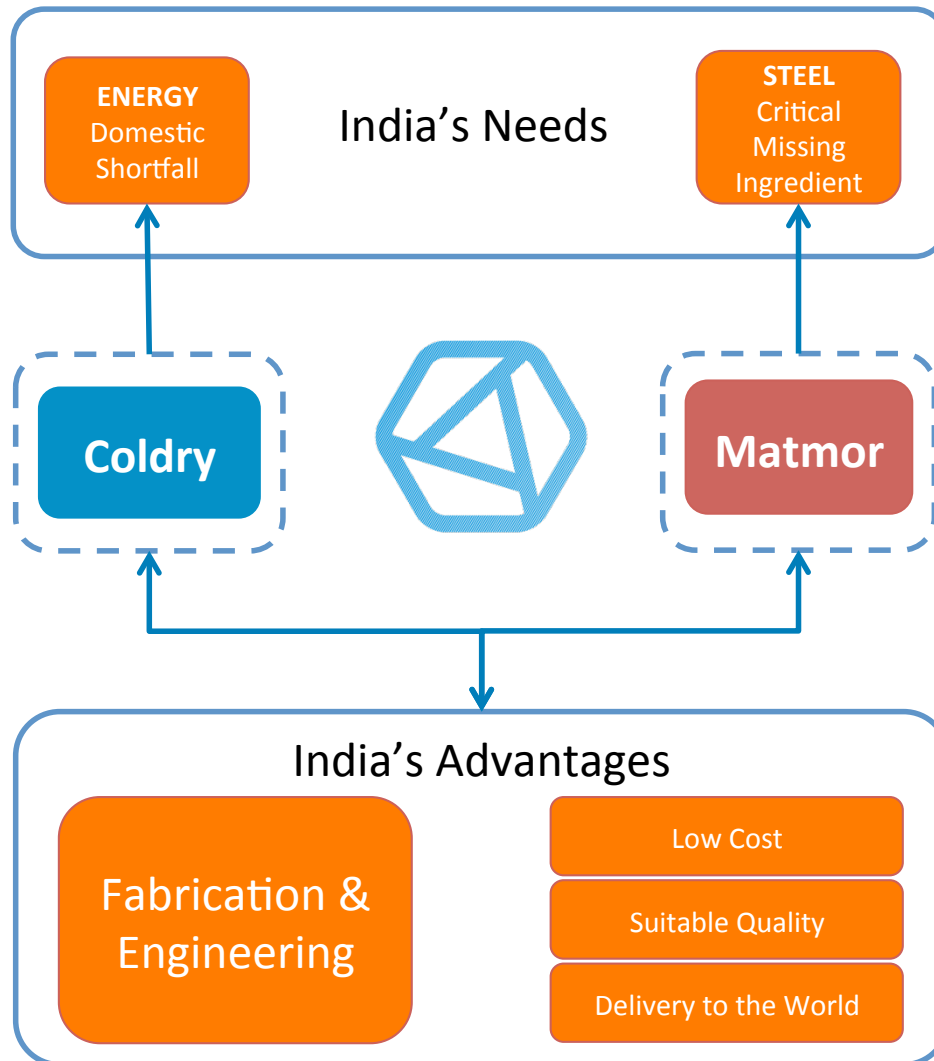
Increasing shortfalls may strand over 20GW of new generation capacity in India in the coming year.
(>\$20bn worth of capital assets lying idle)

INCREASING SHORTFALL

Despite having coal reserves of 293 billion tonnes, India's coal imports doubled in three years



India update - Strategic overview



■ Coldry Demonstration Objective; Twin Strategies

– India Deployment

- Pressing commercial need
- Suitable logistics
- Lower cost pathway

– Manufacturing

- Very capable engineering base
- Low cost
- Potential “Supplier to the world”

Manufacturing & Engineering update



- ECT ran a selection process to determine the best EPC partner to support Coldry demonstration in India
 - Initially a wide selection of top tier EPC firms
 - Progressive narrowing
 - Culminated in appointment of Thermax
 - Announced 19May
- Thermax are:
 - An Engineering firm, specialising in Combustion, Power generation, Waste heat recovery, etc
 - A Manufacturing company, capable of fabricating or sourcing all equipment needed for a wide range of plants, including Coldry
 - A Construction management company for all their projects

Commercial Demonstration Plant status



- Core designs complete
- Lead candidate work in advanced stage (NLC)
 - Technology assessments complete
 - EPC selected (Thermax)
 - Integration engineering underway
 - Project Feasibility study report in progress
- Additional project candidates in development
 - Upgrading at mine mouth power projects in India
 - Review of commercial potential in Australia with newly demonstrated Coldry capital cost structure

The year so far



- Your company has
 - Overcome the largest challenge of Coldry technology demonstration and deployment through capital cost reduction
 - Latrobe CDP was estimated to cost ~\$A60m
 - Current India CDP projections are ~25% of that - \$45m reduction
 - Established a global Coldry plant manufacturing basis to deliver low cost equipment to our Indian CDP, and for future global rollout
 - Determined means to increase the range of Coldry product hardness (fit for purpose)
 - Expanded market reach with a strategic partnership for forward integration into power generation



Presentation to ECT Shareholders

Date: 30th May 2014

**Presented by: Rajnesh Trivedi, Senior Director,
Investment Banking, YES BANK**



Private & Confidential

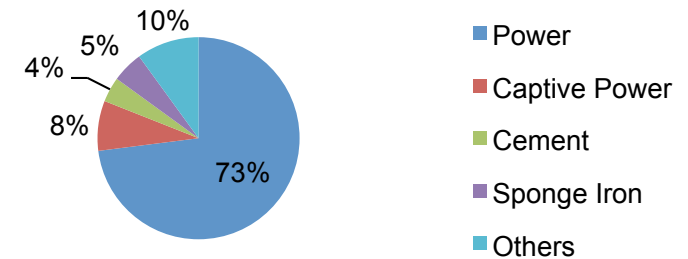
Overview of Thermal Coal Industry in India

Huge demand Supply Gap

Introduction

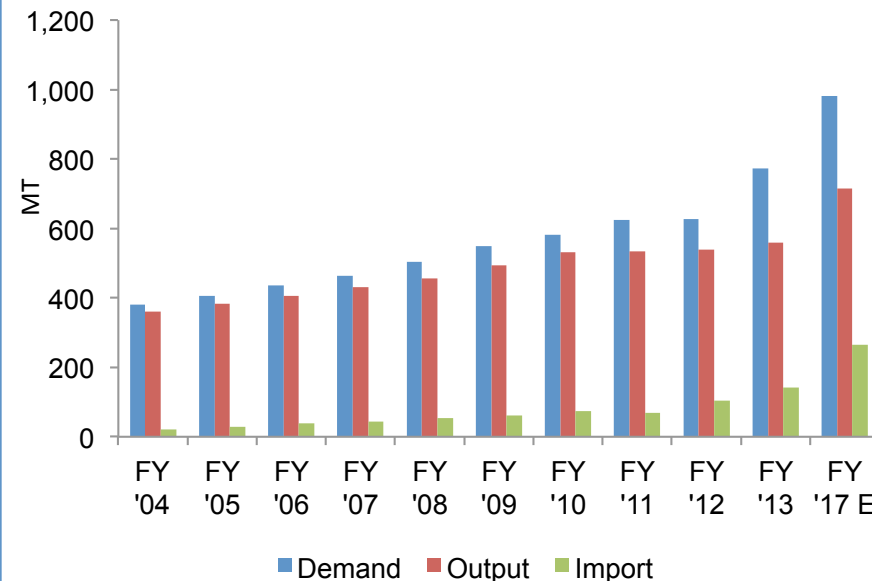
- Coal is the most important source of energy for India, fuelling 53% of the country's energy needs. Total demand of 702 MT in FY 13.
- The power sector alone (including captive plants) accounts for nearly 81% of the total coal demand in 2012-13. Cement, textiles, chemicals, sponge iron, paper etc. Account for balance demand.
- Coal mining in India is highly regulated in India, with bulk of the mines controlled by public sector units. Government has now started allocating mines to private sector for captive usage.

Coal Demand



Demand Supply Mismatch – Imports fuelling the gap

- In-spite of having one of the largest reserves of coal in the world (294 bn tonnes), India has a large demand supply mismatch of thermal coal which is likely to exacerbate further given the regulatory challenges for new coal mining and limited output increase from existing mines.
- India's coal demand has grown at a CAGR of 6% between 2003 and 2012, while coal production has only grown by 4.5% in the same period
- Per the working group report on 12th plan, the government has estimated a shortfall of 266 MT by FY 17.
- This massive demand supply gap has fuelled the import of coal making India the third largest importer of coal in the world. In FY 13, India saw a total coal import of 140.6 tonnes of which 78% was thermal coal. The total import bill for coal in India was USD 15 bn in FY 13 which is likely to double by FY 17.



Impact of Coal Shortage

- Given the heavy dependence of the power and cement sector on coal, the increasing shortage of coal is affecting the growth of the nation. Some of the key indicators are highlighted below
 - **Existing Thermal Power Plant** – The average PLF of existing power plants reduced from 75% in FY 11 to 69.9% in FY 13, primarily due to shortage of coal.
 - **New Captive Power Plants** - According to a proposal framed by the Power Ministry, only captive power plants that were operational by 2015 will be considered for domestic coal fuel linkage allocations. This will lead to nearly 5 GW of captive power plants without domestic coal linkages.
 - **New Utility Power Plants** - The Coal Ministry is of the view that due to coal shortages it may not be able to provide linkages to approx. 16 GW of power plants which are in advance stage of commissioning.

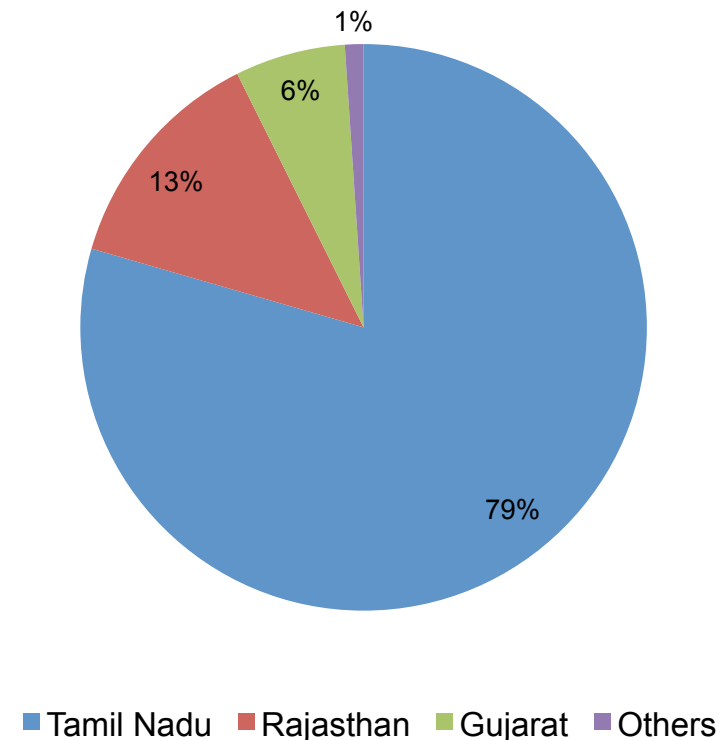
Challenges with imported coal

- While imported coal can meet the demand supply gap, apart from energy security it poses several threats which affect the viability of projects dependent on imported coal
 - **Price** – Imported coal is expensive viz-a-viz domestic coal, making it tough for large UMPP projects to import coal without PPA price increases. Further, imported coal becomes unviable for projects situated far away from the port, given the high transportation charges.
 - **Volatility** – Imported coal prices are highly volatile. The volatility is further exacerbated by the fluctuation in currency prices. Hence building long term infrastructure projects based on floating price of imported coal is not financially attractive.
 - **Policy threats** – Change in policies/regulations in coal exporting nation can substantially impact the supply and pricing of imported coal. This is exemplified by severe issue faced by Indian coal importers when Indonesia changed its policies in 2011 to benchmark coal export prices to international market even in case of captive mines.

Lignite a Solution to meet the Coal Demand Gap??

- India has 42 BT reserves of lignite. The reserves are primarily concentrated in Tamil Nadu and balance distributed across Rajasthan and Gujarat . Nearly 75% of the lignite is utilized to fuel mine mouth power stations (current installed capacity of 5,211 MW).
- In-spite of large lignite reserves, the physical properties of lignite make it challenging to replace coal.
 - **Difficult to transport** – Given the high moisture content, it is difficult to economically transport lignite over large distances. This has curtailed the usage of lignite to mine mouth power station/closely located industries.
 - **Low thermal efficiency**–The low calorific value of high moisture fuel does not allow to achieve high thermal efficiencies due to lower combustion temperatures.
 - **Environmental Issues** – Low thermal efficiency means more CO2 emissions, a significant greenhouse gas.
 - **High capital costs** – Due to the nature of the high moisture fuel, large combustion chambers and other critical flue gas handling infrastructure are typically required, increasing costs per MW of capacity.

State-wise distribution of lignite resources in India



Cost effective technologies that can improve calorific value of lignite thereby improving thermal efficiency have significant scope in India

Coldry an efficient solution to utilize Indian lignite resource to meet the huge thermal coal demand in India



Coldry has a large market potential in India offering substantial benefits to lignite mine operators as well as to the overall energy security of the nation

- Coldry offers a unique and cost effective solution to convert lignite into a storable, transportable, energy rich fuel ideal for thermal coal market. Coldry can offer substantial benefit for the energy security of the nation and provides lucrative commercial opportunities to lignite mine operators
 - **Energy Security** – Coldry can enable India to more effectively use its large domestic lignite resources to reduce dependence on imported coal and also help to preserve its limited reserves.
 - **Alternative to expensive imported coal** – Coldry can provide a financially viable alternative to expensive imported coal. This could be a game changer for the Indian power sector and industries enabling financial feasibility for several thermal power plants which are stalled or unutilized due to expensive feedstock.
 - **Geographical spread of lignite, an advantage** - Availability of lignite in India is confined largely in the States of Tamil Nadu, Gujarat and Rajasthan where higher grades of coal are almost completely absent. Coldry could therefore be a cost effective feedstock to power plants/industries in these region.
 - **Increases the market reach for lignite mine operators** – Given the high moisture content, lignite transportation beyond ~200km is not economic. This constrains the market reach of lignite to pit head power plants/nearby industries. By reducing the moisture content, Coldry can be transported to longer distances.
 - **Improved energy profile enables higher realization** - Market prices of coal increase non linearly compared to the increase in calorific value. By improving the calorific value, Coldry offers the ability to improve the realization for lignite mine resource companies



Current Status of India Operations

- ECT is in advance stage of setting up its first Commercial Development Plant (CDP) with NLC.
- Thermax, a USD 1.8 bn, Indian engineering conglomerate has been finalized as the EPC partner for the project and strategic partner for global rollout of Coldry technology.

- Thermax finalized as EPC partner for ECT's Coldry Commercial Development Plant (CDP) in India and strategic partner for roll-out of Coldry technology.
 - Selected as part of a detailed evaluation process involving top Indian EPC players;
 - HoA entered between the top management of Thermax & ECT;
 - Detailed cost estimation exercise being undertaken to arrive at a firm costing for NLC project;
- In advance stage with NLC for setting up CDP at their pit-head location in Neyveli.
 - ECT's Coldry technology has been selected based on a tender/EOI floated by NLC in January 2013;
 - Undertook a joint site visit along with EPC partner to study technical and site specific parameters addressed in the feasibility report to NLC;
 - Estimated to submit Feasibility report to NLC in July 2014 which shall be followed with discussions to sign a binding 'Agreement to proceed' for setting up the CDP;
- Substantial break-through with other private sector project developers for setting-up of Coldry projects;
 - JSW;
 - Thriveni Mining;
 - Discussion ongoing with other large private/public conglomerates;
- Evaluating setting up ECT India which will be the operating company of ECT in India.

Next Steps & Indicative Timelines

- With bulk of the key time consuming issues of setting up an infrastructure project already addressed, ECT is well poised to get contracted for CDP.
- It is expected that by Q4 of calendar year 2014, ECT may be in a position to enter into a binding contract for execution of CDP.

Description	June	July	August	September	Q4
Indigenization & firm cost estimate	■				
Finalizing funding structure	■				
Submission of feasibility report to NLC		■			
Establishment of ECT India**			■		
Definitive EPC contract with Thermax			■		
'Agreement to Proceed' with NLC				■	
Statutory approvals and authorization				■	
Definitive Contract with NLC					■
Project Execution*					■

*12 to 18 months from start of construction to commissioning

** Signing of Technology Licensing Agreement to ECT India

- Typically infrastructure projects in India take 24-36 months to begin construction. Key activities that take substantial time to complete include tendering process, land acquisition, regulatory approvals and rehabilitation.
- The Coldry project with NLC has inherent advantages and most of the time consuming activities have already been completed/adequately addressed.
 - Tendering – Already completed; Coldry has been qualified for the CDP project for treating low grade lignite.
 - Land Acquisition & rehabilitation – Land is already available with NLC and will be provided for the project; No rehabilitation is required.
 - Regulatory Approval – NLC to arrange for necessary regulatory approvals.