ENVIRONMENTAL CLEAN TECHNOLOGIES LIMITED

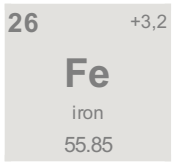
Energy & Resource upgrading solutions for India

Value enhancement, domestic self reliance, CO_2 intensity improvement

Technology 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.



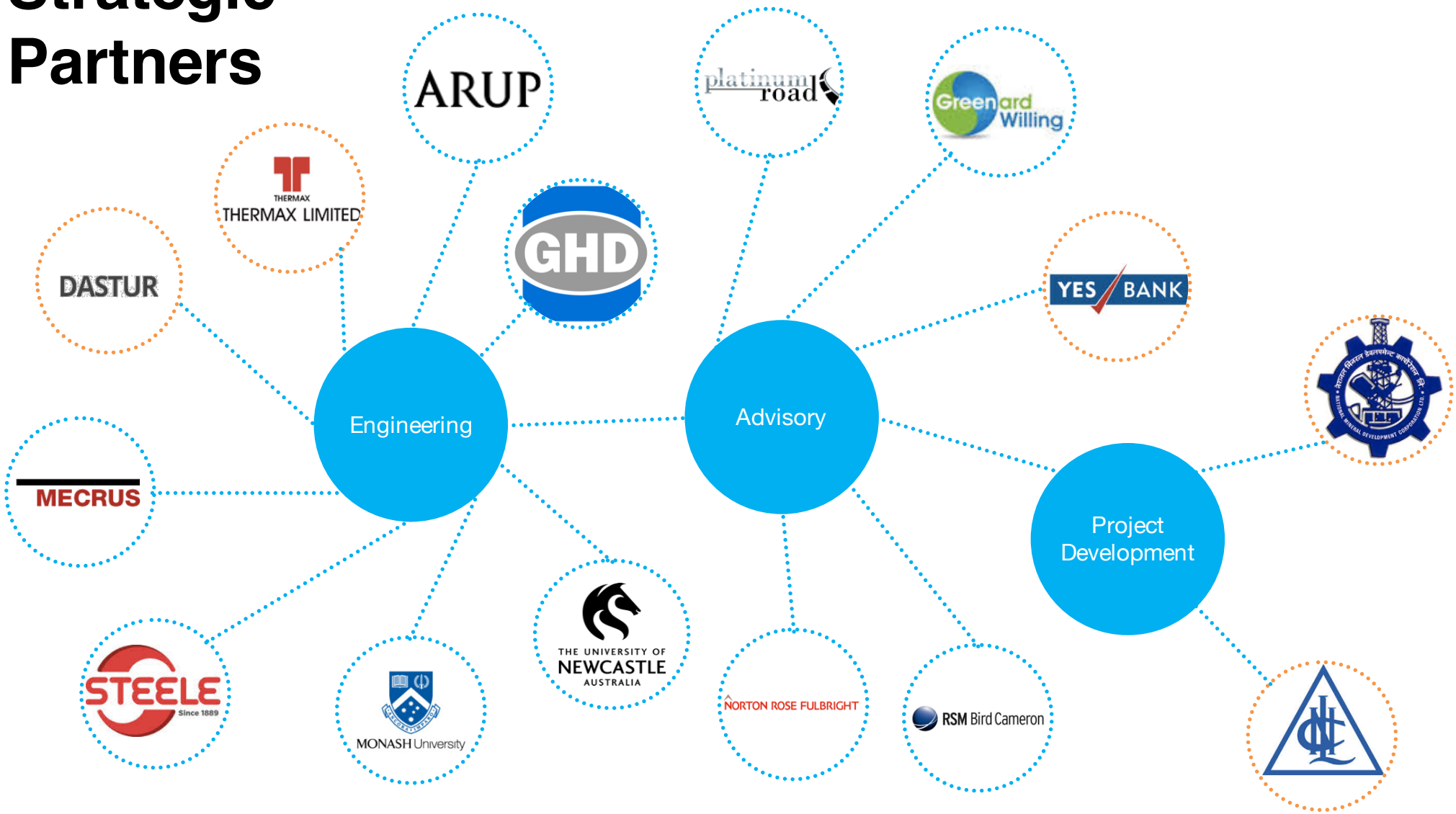
Unique low rank coal drying technology - Coldry

- 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 CO_2 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

Strategic Partners

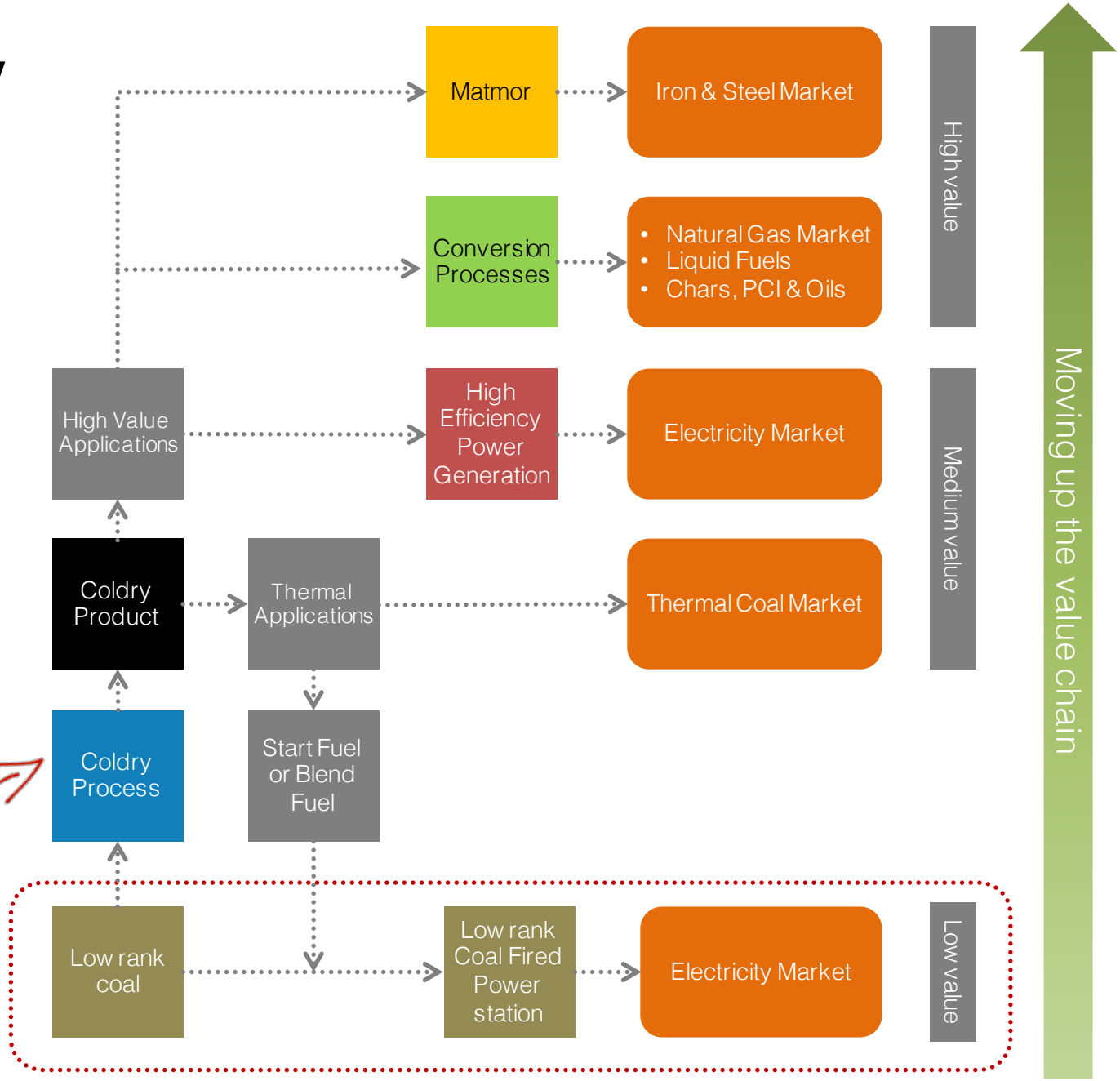


Coldry Technology Value Creation

- *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 CO_2 emissions*

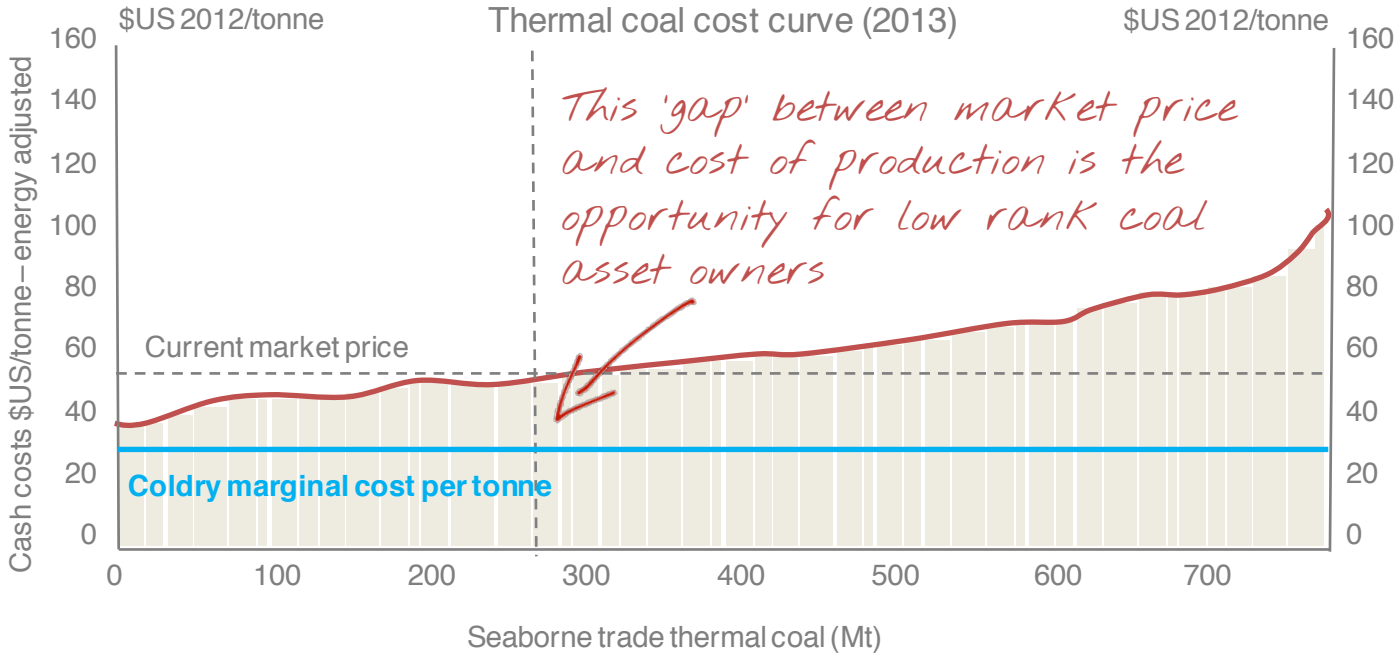
Cost effective low rank coal drying is the 'gateway' enabler.

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

Source: Australian Treasury publication 2014 – Long term commodity pricing projections

Matmor technology introduction

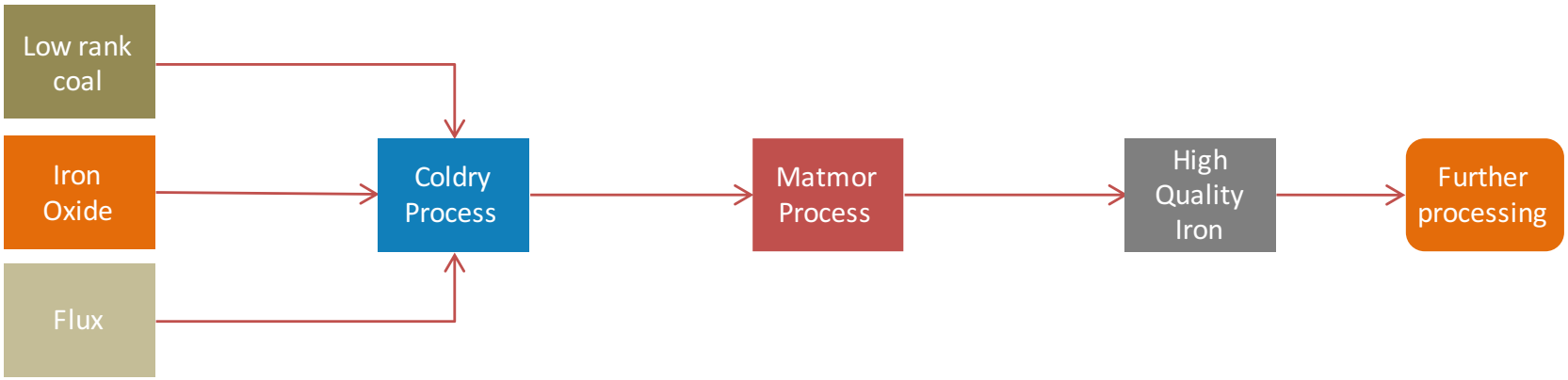
ECT Matmor Test Plant
Melbourne, Australia

Process Features	Benefits
Uses low-rank coal and alternative iron ore materials.	• 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	• Lower capital cost plant • Higher quality metal product • Increased energy efficiency
Uses Coldry as the feed preparation process	• Low cost, zero CO_2 drying and pelletising • Eliminates coking ovens and sinter plants

Matmor Process vs. Blast Furnace

Matmor Process

- Lower Cost
- Simpler
- More flexible
- Less CO_2



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

Environmental Improvement
Eliminates:

- Sinter plant
- Coke ovens

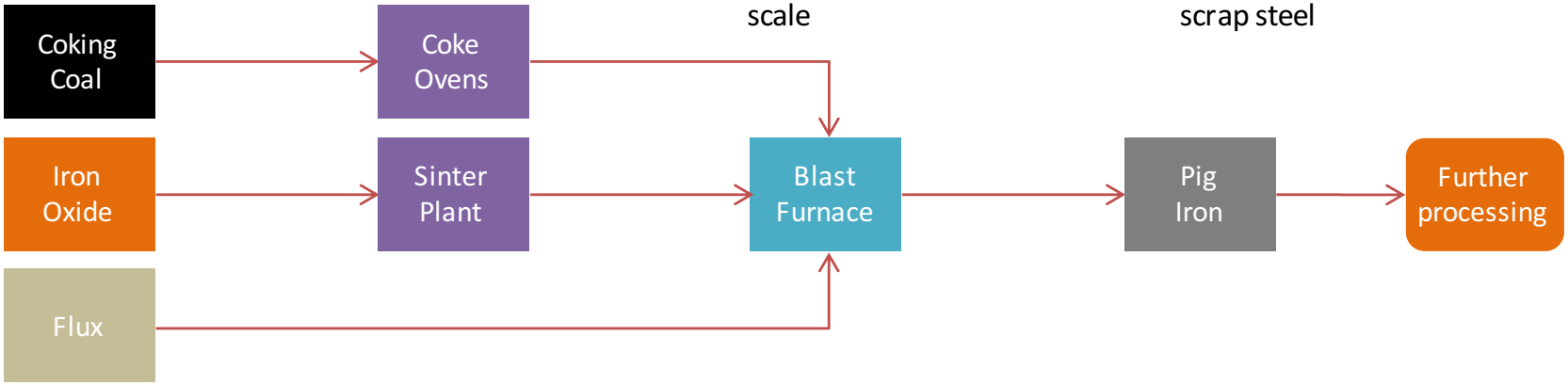
Efficient
Lower temperature than Blast Furnace:

- **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

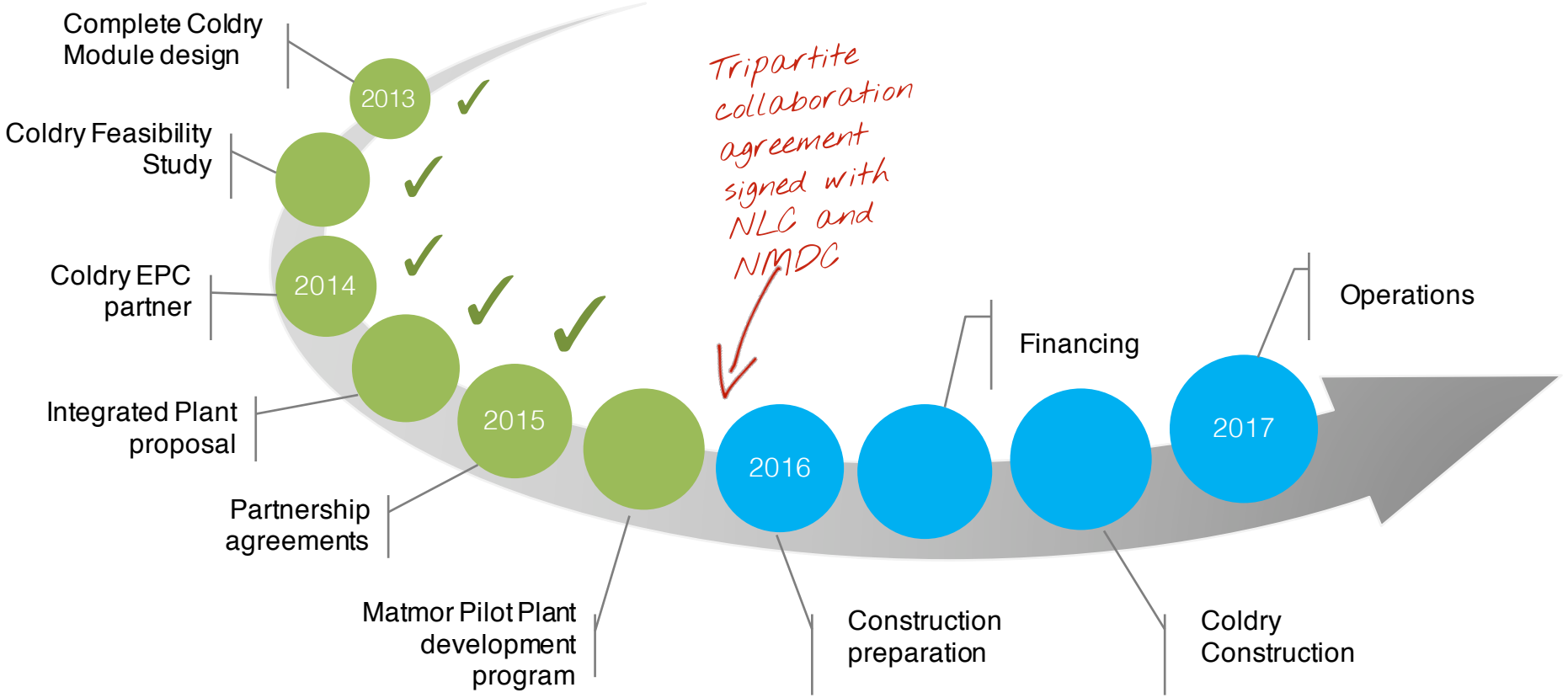
Currency: USD

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



Tripartite Agreement

- Signing Ceremony for the Tripartite Collaboration Agreement between Neyveli Lignite Corporation, NMDC and Environmental Clean Technologies Limited
- Joint development of the Coldry and Matmor technologies in support of improved economic, resource and environmental outcomes

Glenn Fozard
Chairman

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