

#### **Investor Presentation**

## Carbon Energy May 2009



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#### **Competent Person Statement**

The information in this presentation (where it relates to resources) is based on information compiled by Dr C.W. Mallett, Executive Director Carbon Energy Limited who is a member of the Australian Institute of Mining and Metallurgy. Dr Mallett has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Dr Mallett consents to the inclusion in the presentation of the matters based on his information in the form and context in which it appears.



#### Carbon Energy (CNX)

#### Recent History

Company restructured over the past year

- shift in strategic focus from diversified minerals exploration (Metex Resources) to dedicated UCG producer (Carbon Energy)
- acquired 100% of UCG joint venture with CSIRO in November 2007

Changed name to Carbon Energy Ticker CNX (changed from MEE 15 July 2008)

New management team established in Brisbane during 2008

Registered office: Brisbane, QLD (transferred from Perth in January 2009)

#### Listed Status

Shares on issue 497.3 million

- Highly liquid with 140-150% turnover

Market Capitalisation: \$250 million (@ \$0.50 ps)

Admitted to S&P/ASX 300 Index September 2008

- S&P/ASX Materials Index
- S&P/ASX Metals and Minerals Index

Diverse and supportive shareholder base

- CSIRO 18%
- Corporate (IPL) 11%
- Institutional 9%
- Directors 4%



#### **Underground Coal Gasification (UCG)**

UCG is the gasification of coal underground

- the energy in coal is extracted without the environmental impacts associated with coal mining

Gasification is a process where Oxygen and Steam react with coal at high temperatures

- an energy rich gas mixture is produced called *syngas* 

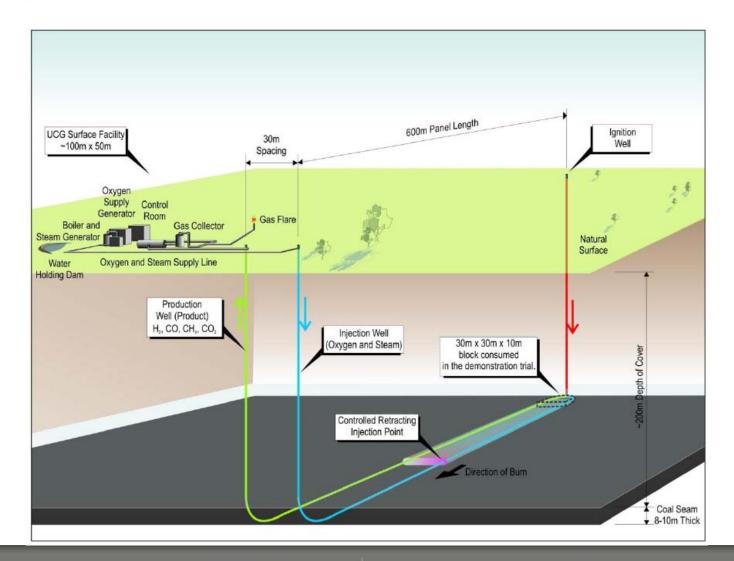
UCG syngas is comprised of four gases

- Hydrogen, Carbon Monoxide, Methane and Carbon Dioxide



#### Carbon Energy 1PJ UCG design

**Carbon**Energy





#### **Carbon Energy Management Team**



Left to right Prem Nair – CFO, Peter Swaddle GM – Commercial, Cliff Mallett – Technical Director, Andrew Dash - Managing Director and CEO, Rusty Mark – GM Business Development, John Wedgewood - GM Operations.





#### **Strategic Focus**

*"To produce clean energy (power generation & synthetic natural gas) and chemical feedstock from UCG syngas"* 

Transforming from a minerals focus to an energy focus

- Focusing on our UCG technology (developed through 10 years of research by the CSIRO into 50 yrs of operational data) and coal resource opportunities
- UCG technology can be applied to any suitable coal seam anywhere in the world
- Completed successful \$20m commercial trial
- Currently pursuing a number of commercialisation projects



#### **Operational Milestones – Past 12 Months**

April '08	Key government approvals gained for \$20m commercial scale UCG Trial
May	MOU executed with Incitec Pivot to gain exclusive rights to technology for ammonia
May	Commencement of work at the Bloodwood Creek trial site
July	Directional drilling commenced
Aug	Construction of above ground infrastructure commenced
Aug	Directional drilling completed
Oct	Construction completed and first Gasification (on air) achieved
Nov	Commercial volumes achieved – 100 day trial commences
Jan '09	Oxygen/steam gasification commences
Feb	Trial complete (gasification and data collection continues)
Mar	Analysis & announcement of results





#### Commercial Trial – Initial Results

The average in-situ energy on an air dried basis is 20 GJ/tonne of coal

Average gas energy contribution as follows:

Methane58%Ethane10%Carbon Monoxide6%Hydrogen26%

Methane & Ethane (constituents of natural gas) account for 68% of energy in the gas

Note: The above gas components do not include carbon dioxide or other inert gases which are present in the gas stream but do not contribute any energy content.



#### UCG – Commercial Design

**Commercial Panel Design** 

- Each panel produces 1 PJ p.a (consuming approx. 50,000 tonnes of coal p.a)
- Operates for approximately 5 years

Likely Commercial Configuration

- 10-20 Operating Panels (10 20 PJ p.a production)
- Planned additional panels as 5 year production life is completed
- Dedicated to a particular downstream use

Multiple Operating Panel Configurations to support multiple customers/products including:

- Power Generation,
- Synthetic natural gas
- Chemicals (eg ammonia)
- Liquid Fuels



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#### UCG – Economics

**Operating Panel Configuration** 

- 10 20 panels operating on oxygen and steam injection
- Capital assumptions include Air Separation Unit, boiler and above ground facilities
- Ongoing drilling required to replace completed panels
- Modeling indicates an approximate whole of life cost of \$1.25/GJ for UCG syngas

Power Generation on UCG Syngas

- Fuel cost for power generation of \$10.50/MWh (@ \$1.25/GJ), plus opex of \$12/MWh
- Short run marginal cost approximately \$22.50/MWh on UCG syngas
- QLD base load electricity price (average quarterly data) is \$43/MWh

Natural Gas Pricing

- Current East Coast Gas Prices \$3.50 \$4.00/GJ
- Short term price forecast \$4.50 \$5.50/GJ
- Medium term forecast \$6.50 \$7.50/GJ

Note: Further processing and associated capital and operating costs are required to produce pipeline quality natural gas from UCG syngas



#### Queensland

Interest in 2,000 km2 of EPC's

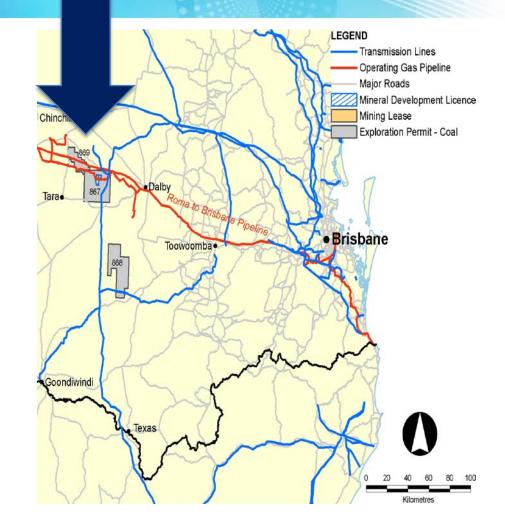
668 Mt (450 Mt Inferred and 218 Mt indicated with 2m cut-off) of JORC compliant coal resource (13,360 PJ of insitu energy, of which at least 7,750 PJ is recoverable)

Short term commercialisation

- Power generation into the NEM
- Synthetic natural gas

Medium term commercialisation

- Chemicals (eg ammonia)
- Liquid fuels





#### **Commercial projects - Power Generation**





#### **Power Generation**

## Phase

Size

Location

Network Connection

Project – commit

**First Generation** 

5MW

Bloodwood Creek

Local distribution system

Mid 2009

Oct- Dec 09





#### **Power Generation**

Phase

Size

Location

20MW

Bloodwood Creek

Network Connection

Project – commit

**First Generation** 

Local distribution system Oct – Dec 2009 Approx 12 months later





#### Power Generation - Blue Gum

### Phase





## Power GenerationBlue Gum Energy ParkPhase



Central gas processing and Gas Power-Station
Ammonia Plant
Chemical Plant
Transport Fuel manufacture

- 5 Synthetic Natural Gas manufacture
- 6 Commercial and Administration Facilities
- 7 Carbon Energy's existing UCG facility (Bloodwood Creek)

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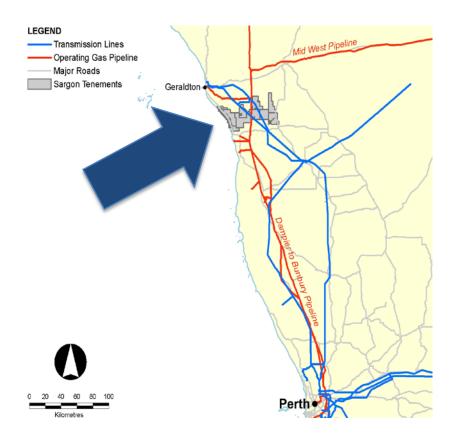


#### Western Australia

Executed HOA with Eneabba Gas Limited March 2009, completion dependent on further exploration and ENB identifying their target of 300Mt of JORC inferred coal resource (approx 6,000PJ in-situ energy) suitable for underground coal gasification by mid 09.

Negotiating Gas Sale Agreement to supply Eneabba's planned 168 MW power station

Ideally located close to electricity and natural gas transmission infrastructure





#### **Commercialisation Strategy – International**

India

- Existing JV with Singareni
- Currently in discussions with a number of major Indian corporates
- Exploring complementary business development partnerships with other Australian businesses for Indian projects

North America

- Currently assessing entry strategy
- Opportunities exist to secure coal resources in our own right or alternatively, farmin opportunities by applying Carbon Energy technology



#### Summary

Trial complete – demonstrating Carbon Energy's world leading UCG technology

Market opportunities are significant

- power generation
- synthetic natural gas production
- chemical manufacture (fertiliser, industrial explosives, plastics)
- transport fuels

Significant interest in Carbon Energy's technology in Australia and overseas

- currently assessing which opportunities are best for us
- Qld Significant progress achieved in recent months at Bloodwood Creek
  - land secured
  - resource increased
  - tenure security achieved
  - Mining Lease Application submitted
- WA Conducting Due Diligence and drilling results expected mid 2009