

The Arckaringa CTL and Power Project

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Company and Project Overview



- **Altona Energy is an Australian based energy company listed on London AIM**
- **Our mission is to create new sources of clean energy based on ‘state of the art’ commercialised technology and strong commercial partnerships**
- **Primary asset is a 49% interest in a 7.8 billion tonne sub-bituminous coal resource in the Arckaringa Basin (1.287 billion tonnes JORC) - one of the world’s largest undeveloped Energy Banks**
- **Currently conducting a Bankable Feasibility Study (‘BFS’) for the Arckaringa CTL and Power Project with our JV partner Chinese energy major CNOOC-NEI**
- **BFS Base Case: Open cut mine up of 15 Million tonne pa capacity to support integrated 10 Million bbl pa Coal to Liquids (‘CTL’) and net 560 MW co-generation power plant**
 - **ideally poised to help tackle SA’s growing power and fuel needs and boost development in the Far North**
 - **And multiple project expansion potential for the future**

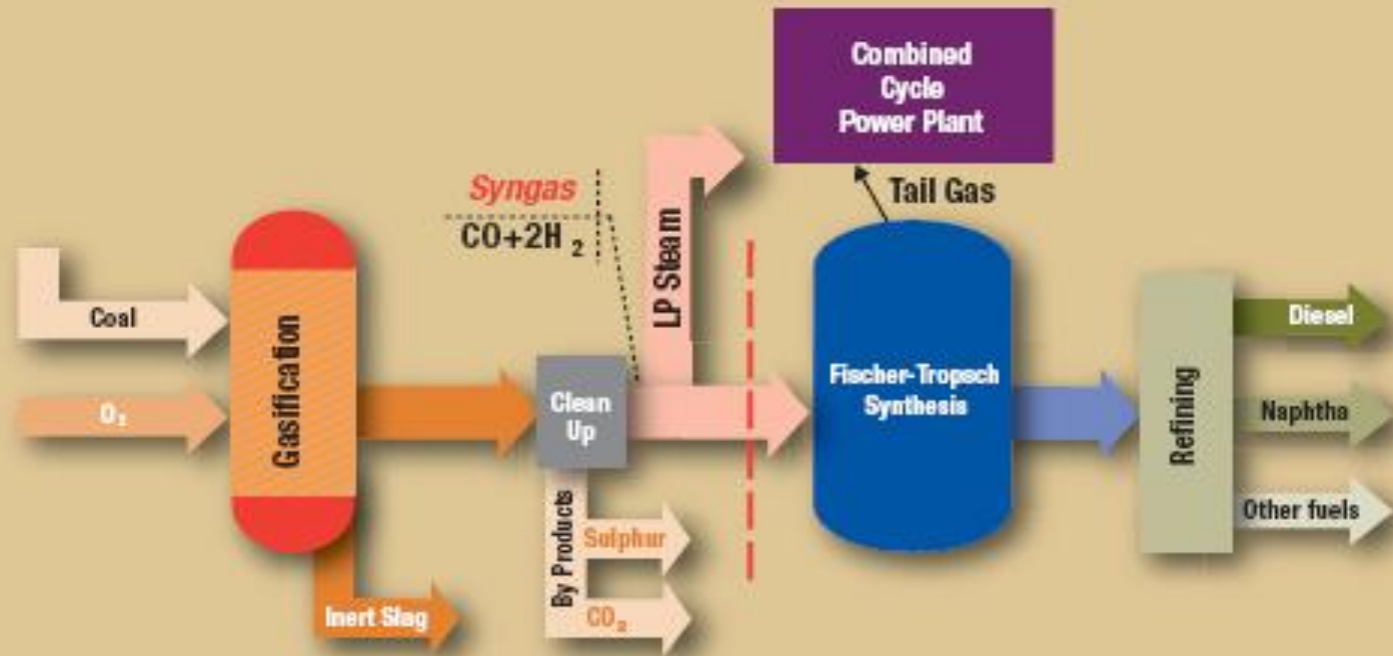
Why Coal to Liquids?

- **Global need for alternate energy and fuel sources due to:**
 - **Economics**
 - global oil reserves estimated at 54 years of production life, 56% of the oil reserves in the Middle East, oil production costs as high as US\$50 per barrel in Europe and breakeven costs for new oil discoveries from the Middle East quoted as US\$30 per barrel
 - Cost of oil discovery has risen 300% since 2000
 - **Environment - CO₂ emissions up 5% on 2008. Will increase further with the replacement of nuclear power plants by thermal power plants**
- **Advances in renewable energy sources such as solar, wave, wind and hydro require major progress in core technology to achieve constant output and solve battery storage problems**
- **Focus now includes alternative proven technologies that can deliver power and fuel from coal, with a low CO₂ emissions profile**
- **CTL, based on gasification and Fischer Tropsch (FT) technology is established**
 - **South Africa –CTL plants started in 1950's and 30% of demand still met by FT synthetic fuels**
 - **FT technology plants have become operational in the last decade in the Middle East and Asia**

Technology

The process is environmentally superior to conventional coal combustion. CO₂ can be extracted for

- storage “Sequestration”
- further processing e.g. fuel grade methanol



FT Synthetic fuels are

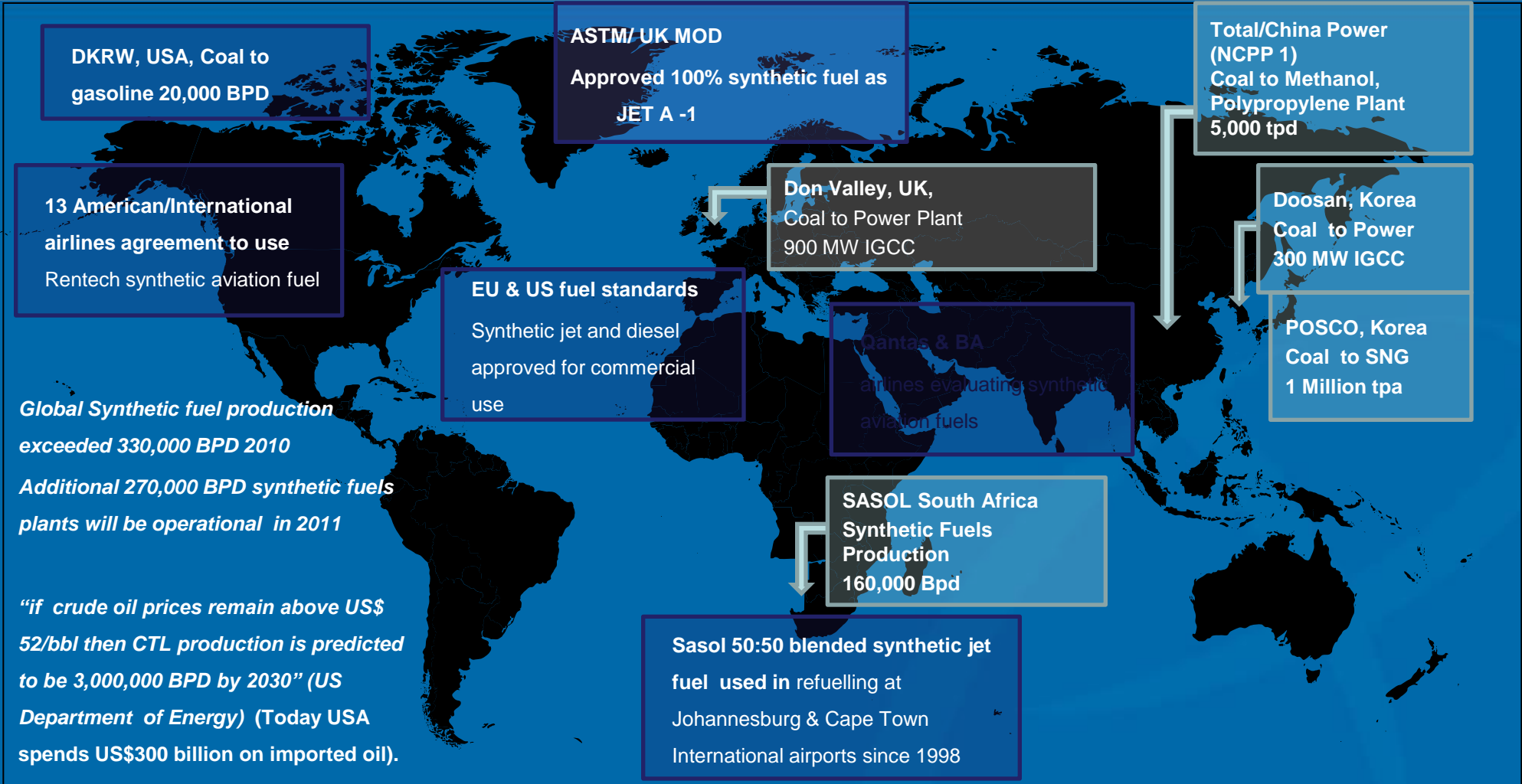
- Ultra clean - sulphur-free, low in particulates and low in nitrogen oxides
- Efficient - zero aromatics and 10% increase in energy for given fuel payload

FT Synthetic Fuel Commercial Milestones



- 1998 – Sasol blended synthetic jet fuel (50:50 mix with kerosene) commercially approved and used by airlines refuelling at Johannesburg & Cape Town International airports.**
- 2008 – ASTM/ UK MOD approved 100% synthetic fuel as JETA – 1 fuel for commercial use.**
- 2009 – Qatar Airways uses blended synthetic jet fuel in London Doha route.**
- 2009 – 13 American/International airlines agree to use Rentech synthetic aviation fuel ('Renjet')**
- 2009 – EU & US fuel standards now include synthetic jet and diesel fuel specifications**
- 2010 – First passenger airline flown with 100% synthetic jet fuel in South Africa**
- 2010 – Qantas & BA airlines evaluating the use of biomass sourced Renjet synthetic aviation fuels**
- 2010 – Synthetic fuels plants in operation exceed 330,000 BPD**
- 2011 – Additional 270,000 BPD synthetic fuels plants will be operational**
- 2011 – US Air force will complete 100% certification of its entire fleet to use synthetic fuels blend**

Clean Synthetic Fuel and Energy



Production source
 Market



Why CTL in South Australia?

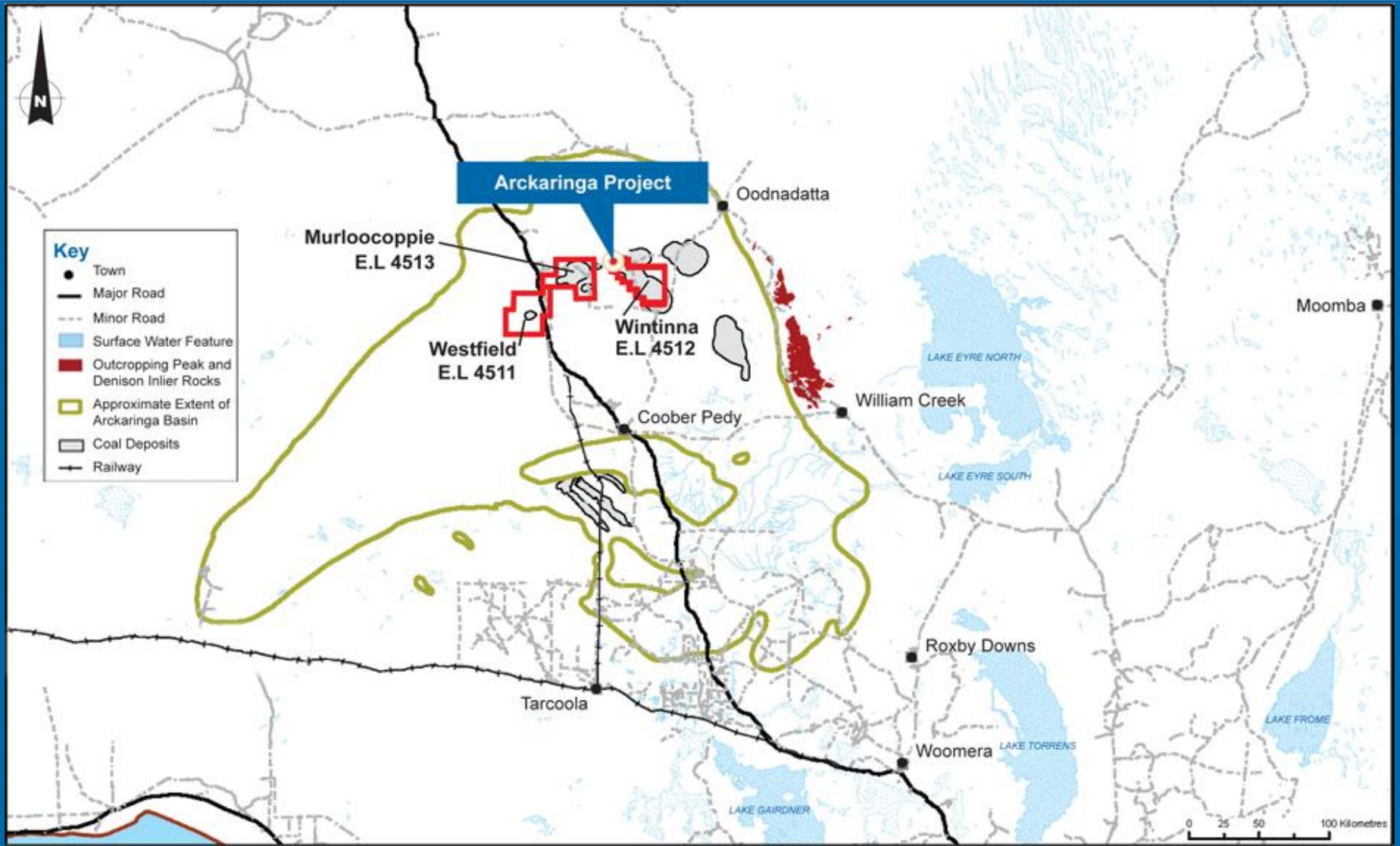
- Today SA imports all its transportation fuels, requiring bulk fuel shipments every 3 days into Port Adelaide
- Political uncertainty in the Middle-East & North Africa is likely to mean continuing oil price and supply volatility
- Transportation fuels & SNG produced from indigenous coal resources can provide both economic benefit and homeland security

“Energy security is absolutely critical to Australia’s economic prosperity and I believe coal-to-liquids and gas-to-liquids will play a major role in Australia’s energy future.”

(Hon. Martin Ferguson, Minister for Resources and Energy)

- South Australia maintains a supportive framework for resources development

The Arckaringa Basin



Key

- Town
- Major Road
- - - Minor Road
- Surface Water Feature
- Outcropping Peak and Denison Inlier Rocks
- Approximate Extent of Arckaringa Basin
- ▭ Coal Deposits
- + Railway

A World Scale Energy Bank



7.8 billion tonne resource, of which 1.287 billion tonnes is JORC compliant at Wintinna

Deposit	Million Tonnes			
	Measured ¹	Indicated ¹	Inferred ¹	Total
Wintinna	1,150	750	2,000	3,900
Westfield	100	200	500	800
Murloocoppie	250	300	2,600	3,150
				7,850
Million Tonnes (JORC)				
Wintinna	187	650	450	1,287

[1] Not current JORC standard, based on SA Dept. of Minerals & Energy standards of the day

Feedstock	Transportation Fuel (Mbl)	Gas (Bcf)
Australian Proven Reserves ²	3,360	88,600
Wintinna JORC	419	5,341
Wintinna Total (non-JORC)	1,268	16,185
Arckaringa Total (non-JORC)	2,535	32,370

Assuming 50:50 ratio of Coal converted to Liquid Fuels and SNG, the Arckaringa coal resources are respectively 75% and 37% of Australian proven reserves

[2] BP Production Statistics for Australian Sector June 2011

Source: Jacobs Engineering Process & Technology, Nov 2009

Arckaringa Project - Rationale



- Arckaringa coal quality is suitable for conversion to syngas and derivative products using existing commercial technologies
 - High value ultra clean fuels and chemical feedstocks
 - Low cost and low emission power
- South Australia faces a shortage of fuel, base load power and water, both generally and especially for the growing mining sector
 - SA has lacked fuel security since closure of the Port Stanvac refinery
 - SA will need > 1000 MW of additional base load power over the next 10 years

All these projects need fuel, power and water



With CNOOC-NEI as our JV partner, the project can also realistically target coal and liquids exports to China and other Asian destinations

Arckaringa Energy and Fuels



Feedstock

Mine/ Process

Conversion

Output

Markets

**Multi Billion
Tonne Coal
Resource**

Open Cut Mining
Gasification
Clean up
*[SO₂ and CO₂
extraction]*

**Fischer-Tropsch
Fuel production**

**100% Diesel Fuel
(or 80 % Diesel
20% Naptha)**

**South Australia
Exports to Asia**

**Combined Cycle
Power plant**

**Power 562 MW
Export Capacity**

**Southern Australia
electricity
consumers**

Mine Life 100 years + +

Capex - US\$3.5 Billion (+ / - 30%)

Project NPV10% - US\$2,553 m, IRR - 22.6%

Opex - US\$38 bbl at 10 Million bbl pa

- US\$24 bbl (with power sales credit)

Est. Annual Revenue

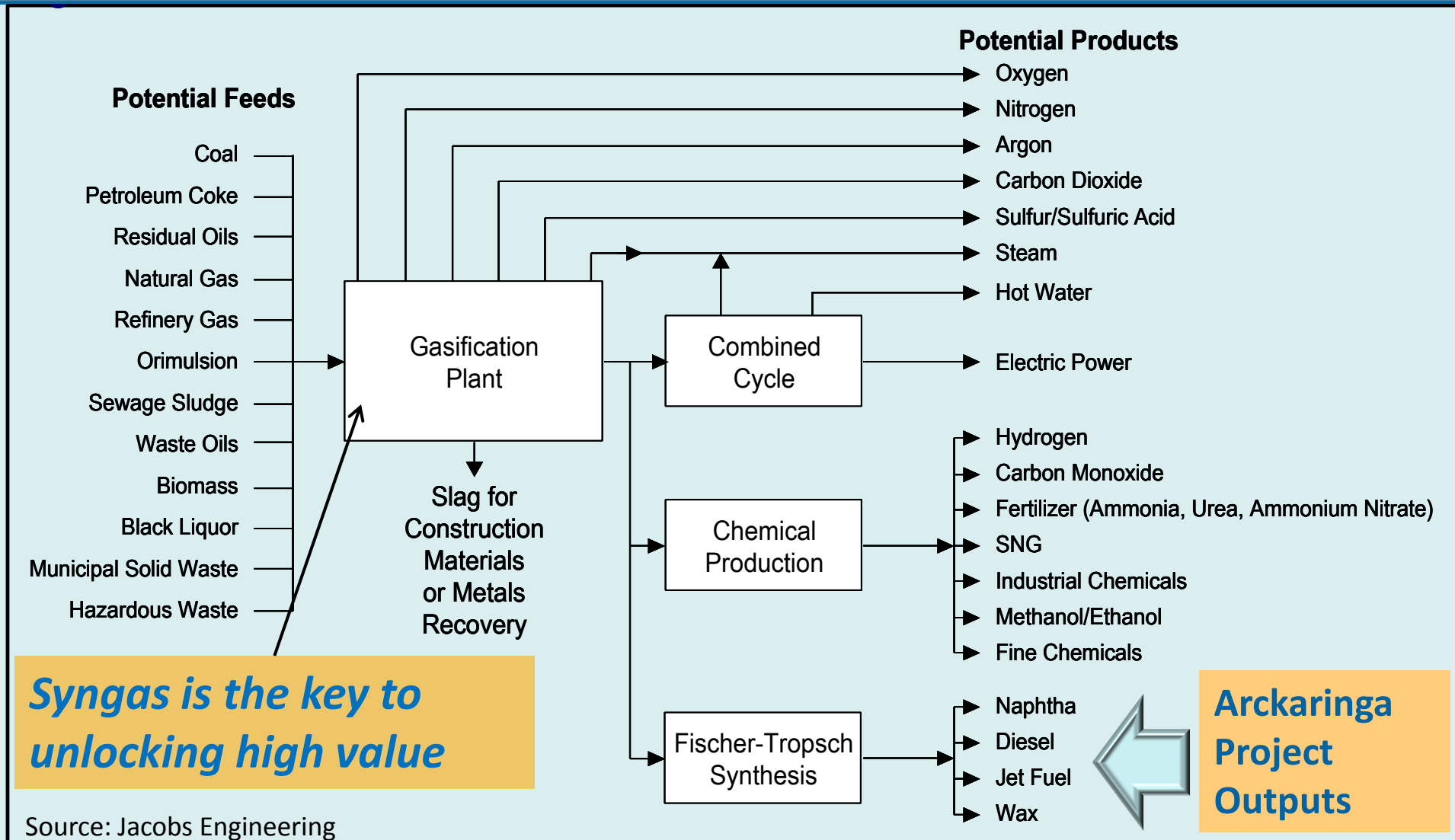
Diesel: US\$100/bbl (oil US\$85/bbl)

Total: US\$1,000m

Power @US\$35/MWh

Total: US\$150m

Multiple Project Potential



Economic Impacts – Far North



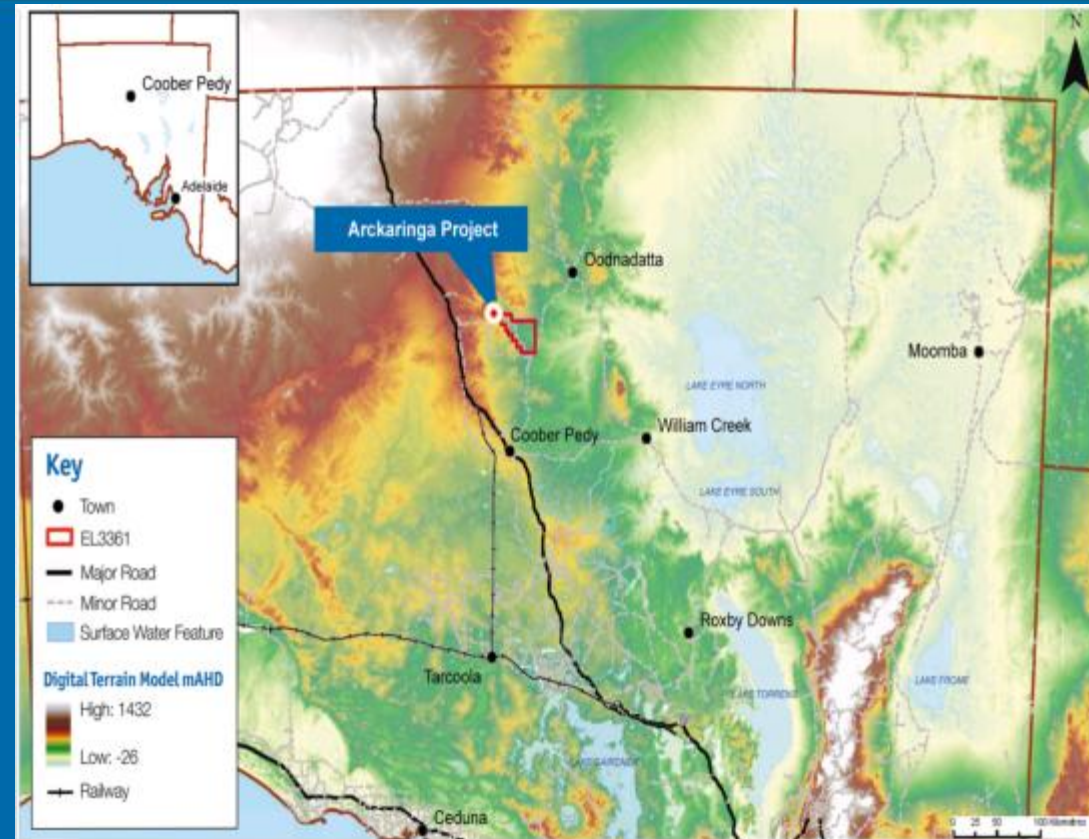
□ *Employment Impacts*

- *780 direct jobs - 550 in mining, 230 in the CTL/power plant*
- *Potentially another 2000 or more jobs in support industries with flow on benefits to the Far North Region and the State*

□ *Local source of clean fuel (for mines, towns, the railway and SA/NT)*

□ *Expanded and upgraded electricity network for the Far North with back up to the national grid*

□ *Increasing volumes for the Tarcoola – Darwin railway (60km from Wintinna)*



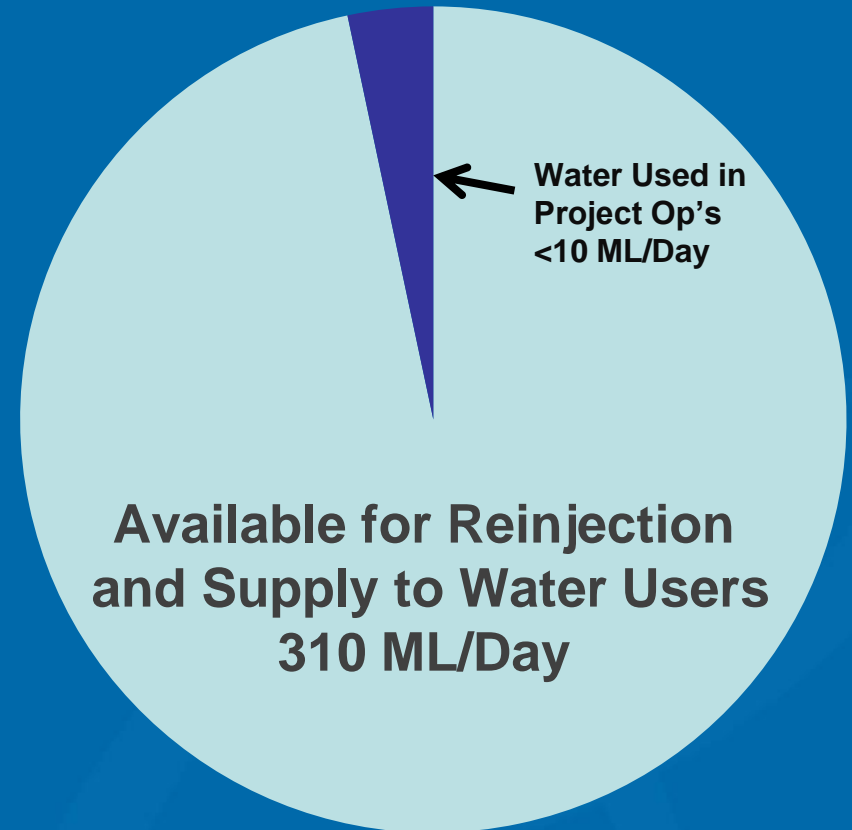
□ *Water Supply to regional towns, pastoral leases and Mine sites (subject to approvals)*

Sustainable Water Management



Water management is a key challenge and opportunity for the Arckaringa Project - an approved and sustainable Groundwater Management Plan (GMP) will be needed to obtain a Water Allocation Licence

- The GMP will involve
 - control of mine dewatering volumes (average 320 ML/day)
 - aquifer re-injection
 - water distribution to local users
 - Final mine void management (to avoid loss of water to evaporation)
- The Plan *must* protect
 - GAB Spring flows and associated flora and fauna
 - Aboriginal Heritage values
 - Pastoral and other regional water supplies



The Arckaringa Project is virtually self sufficient in water via moisture released from coal gasification

Community Engagement



Coober Pedy



Accessibility
Transparency
Trust

Wintinna

This is a commercial project but Altona has recognised that community engagement from the earliest stages is fundamental to gaining an overall social licence to operate and the continuing support of Government Stakeholder engagement already includes

- *Conferences and Regional Forums*
- *Community event sponsorship*
- *SA Government Departments - particularly PIRSA, Water, DTED, Environment and Natural Resources, Transport, Energy and Infrastructure*
- *Federal Government Departments - Resources Energy and Tourism, Environment, Water, Heritage and the Arts, Climate Change, Geoscience Australia*
- *Coober Pedy District Council*
- *Regional Development Australia Far North*
- *SA Arid Lands NRM Board*
- *Great Artesian Basin Coordinating Committee*

The Arckaringa Joint Venture – Pathway to Development



- Joint Venture Agreement with CNOOC-NEI signed Nov 2009
 - JV Agreement formalised between Australian subsidiaries, 15 April 2010
 - Notice of “No objection” received from FIRB, 25 May 2010
- The Arckaringa JV provides the framework to complete the BFS for the Arckaringa project and the pathway for its commercial development



Arckaringa JV Signing Ceremony, Canberra ,21 June 2010

Bankable Feasibility Study



- Historical expenditure plus Altona's Pre Feasibility Study investment exceeds A\$20m
- CNOOC NEI will fund the BFS, at a cost of A\$40m , and will take responsibility for Project Development
- BFS expected to take 24 – 30 months overall, leading to a 3 to 4 year construction phase
- BFS work programme directed by JV Operating Team (CNOOC NEI and Altona personnel) from the new JV Adelaide office , utilising
 - CNOOC corporate management resources
 - in house project development and planning expertise
 - expert technical consultants in China and Australia





BFS Work Programme

Altona Energy's Pre Feasibility Studies for Base Case CTL and Power Project	Completed
JV Adelaide Office Establishment	Completed
<input type="checkbox"/> Coal Resource and Coal Quality Confirmation	Completed
<input type="checkbox"/> Mine Plan Drilling (Coal and Geotech) and Hydrogeological Testing	Underway
<input type="checkbox"/> Groundwater Management Plan development	Underway
<input type="checkbox"/> Product Market Research and Planning	Underway
<input type="checkbox"/> Transport and Infrastructure Studies	Underway
<input type="checkbox"/> Coal Conversion Options Study (PFS Level) including CTL and Power	Underway
<input type="checkbox"/> Environmental baseline studies	
<input type="checkbox"/> Long Term Mine Plan	
<input type="checkbox"/> Detailed Engineering of selected coal conversion option (integrated with mine)	
<input type="checkbox"/> Engineering transport and support infrastructure	
<input type="checkbox"/> Environmental Management Plan	
<input type="checkbox"/> Procurement and Construction Planning	
Approvals Phase	
<input type="checkbox"/> Environmental Impact Assessment	
<input type="checkbox"/> Financing	

Summary



Arckaringa CTL and Power Project

Feasibility Study Schematic For 10 million barrels CTL Fuel per annum and 560 MW Export Power



Source: Jacobs Engineering UK Limited

- **World class resource**
- **Supportive political and economic environment**
- **World class JV partner**
- **Proven commercial technologies**
- **Domestic and export markets**
- **BFS Funded**
- **BFS Work Programme under way**
- **Project finance pathway secured**
- **Unlimited long term development potential – multi project**

The Arckaringa Project

Clean and Abundant Energy for South Australia

Thank you

