

The Next Gas Generation – *Ugas3*



LIBERTY RESOURCES

Mr. Andrew Haythorpe – Managing Director

ASX : LBY

April 2013

The Next Generation of Unconventional Gas

In today's presentation.....

- How you can expand your gas position by 25 times
- How to get the gas
- How to keep everyone happy – well nearly everyone.



Low Cost Gas

Competent Person Statement

The information in this report relating to exploration results and coal resources is based on information compiled by Mr Tim Jones who is a member of the Australasian Institute of Geoscientist and is a full time employee of the Company. Mr Jones is a qualified geologist and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking, to qualify as Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, the JORC Code" (JORC 2004)."

Mr Jones consents to the inclusion in the report of the matters based on the information, in the form and context in which it appears. Tim Jones

AIG 3788

Claus Wohlert is a mechanical engineer with a Bachelor of Engineering (1st Class Hons) from the University of Canterbury, Doctor of Philosophy from the University of Canterbury. Dr. Wohlert has over 30 years local and international experience in the oil and gas industry. His work experience covers major oil companies and consulting firms, all phases of the oil and gas industry, including design engineering, construction, commissioning, and maintenance and a full range of rotating and static equipment.

Disclaimer

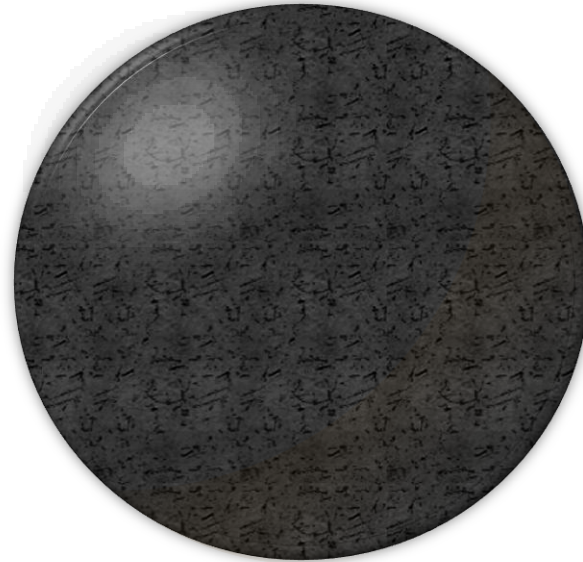
This presentation contains statistical data, market research and industry forecasts that were obtained from government or other industry publications and reports or based on estimates derived from such publications and reports and management's knowledge of, and experience in, the markets in which Liberty operates. Government and industry publications and reports generally indicate that they have obtained their information from sources believed to be reliable, but do not guarantee the accuracy and completeness of their information. Actual outcomes may vary materially from those forecast in such reports or publications, and the prospect for material variation can be expected to increase as the length of the forecast period increases. While management believes this data to be reliable, market and industry data is subject to variations and cannot be verified due to limits on the availability and reliability of data inputs, the voluntary nature of the data gathering process and other limitations and uncertainties inherent in any statistical survey. Accordingly, the accuracy, currency and completeness of this information cannot be guaranteed. The Corporation has not independently verified any of the data from third party sources referred to in this presentation or ascertained the underlying assumptions relied upon by such sources.

The images of production facilities contained in this document are not actual assets of the Company, but are representative of the proposed Urea Corp Fertiliser Project.

How to get 25 times more gas



Ugas3
1,600 PJ



Longwall Coal Mining
800 PJ

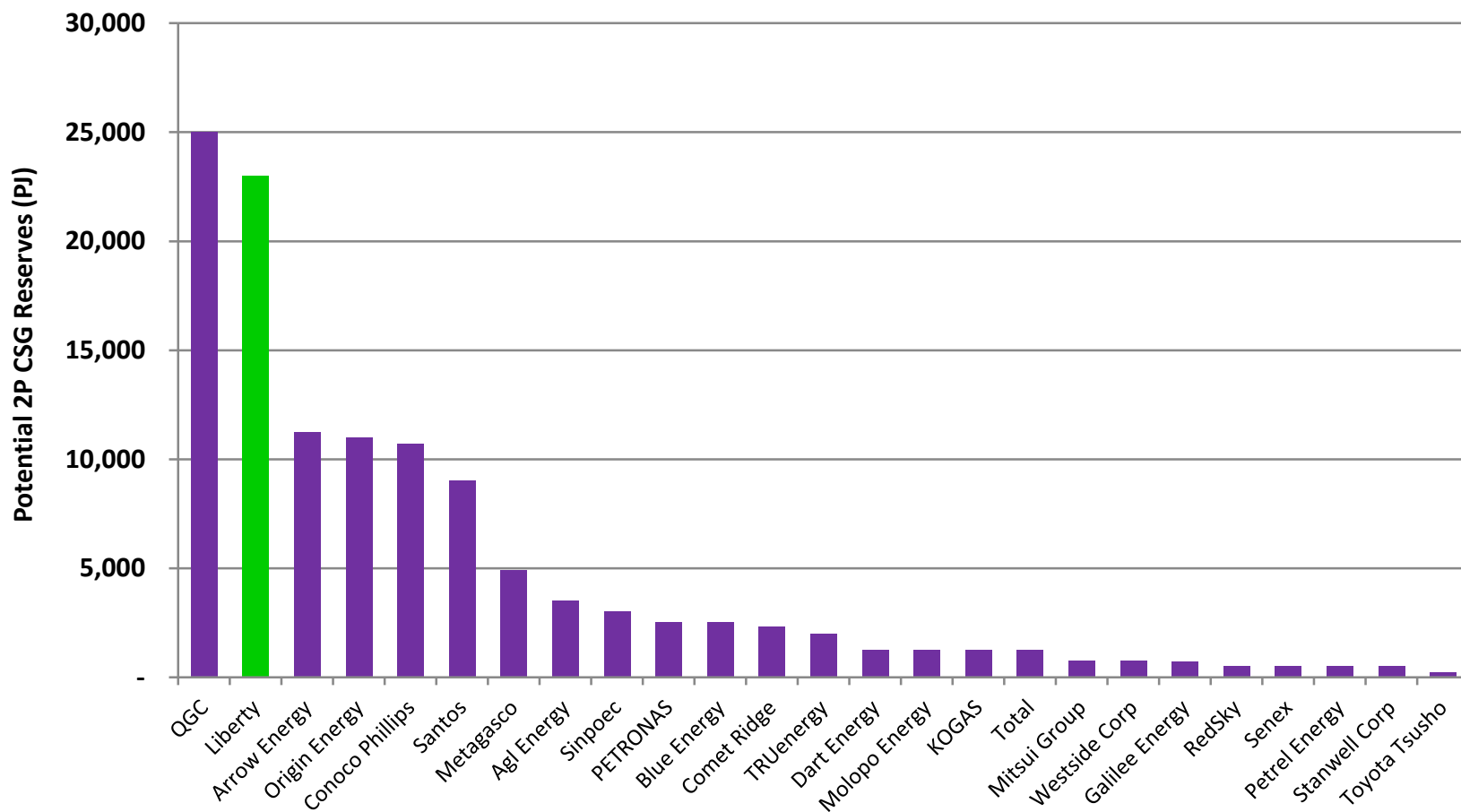


Coal Seam Gas
60 PJ

Source: G.Couch. IEA Clean Coal Centre. Progress with underground coal gasification. www.iea-coal.org.uk
(Energy extraction for typical 12km² deposit)

¹ Source: Cougar Energy. UCG Presentation. October 2008
(<http://www.cougarenergy.com.au/presentations.html>)

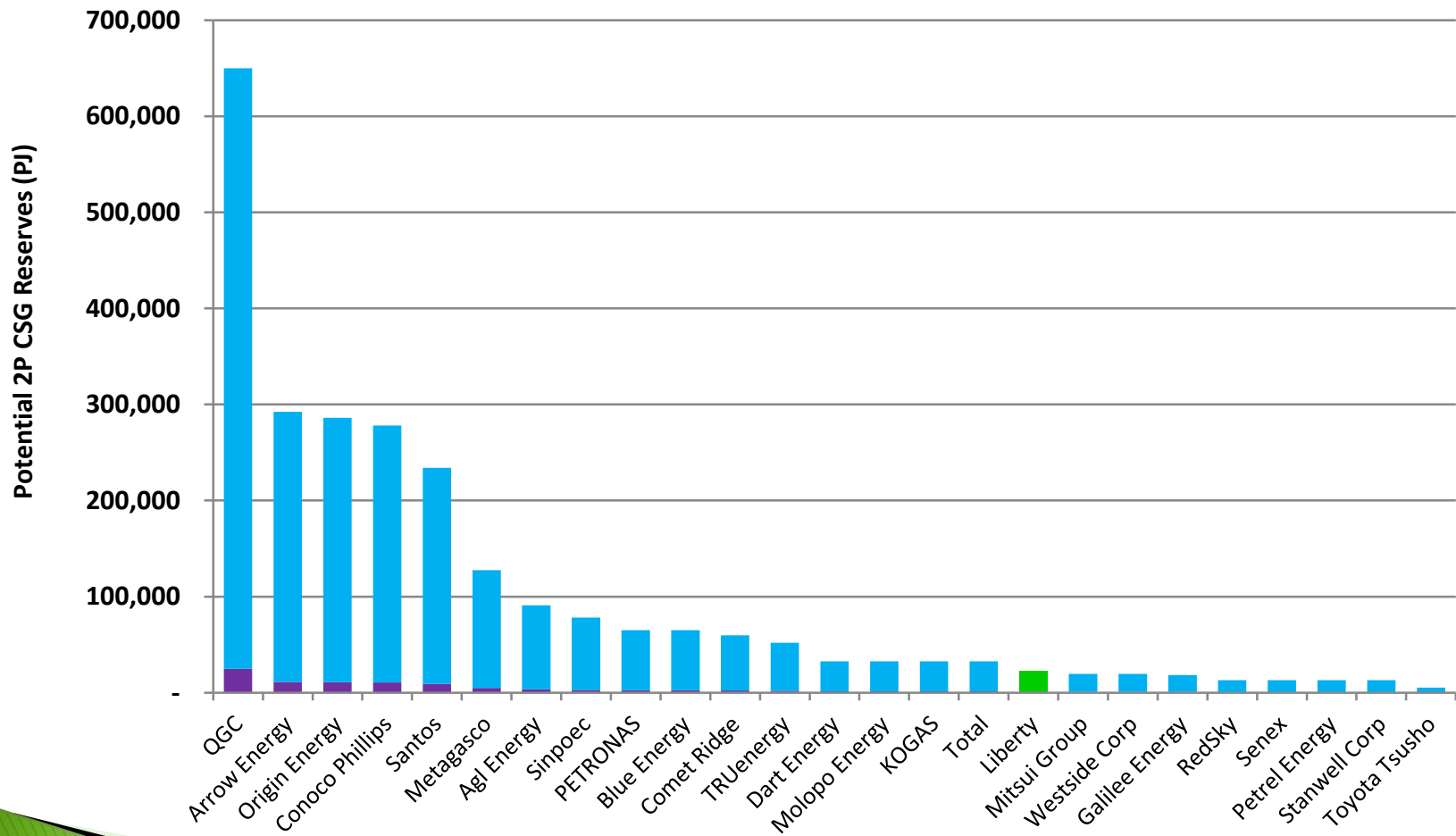
The current Gas position



Source : Department of Energy and Water Supply. 2012, Gas Market Review Queensland. Queensland Government. <http://www.energy.qld.gov.au/documents/energy/gas-market-review-2012.pdf>



You have already drill defined this.

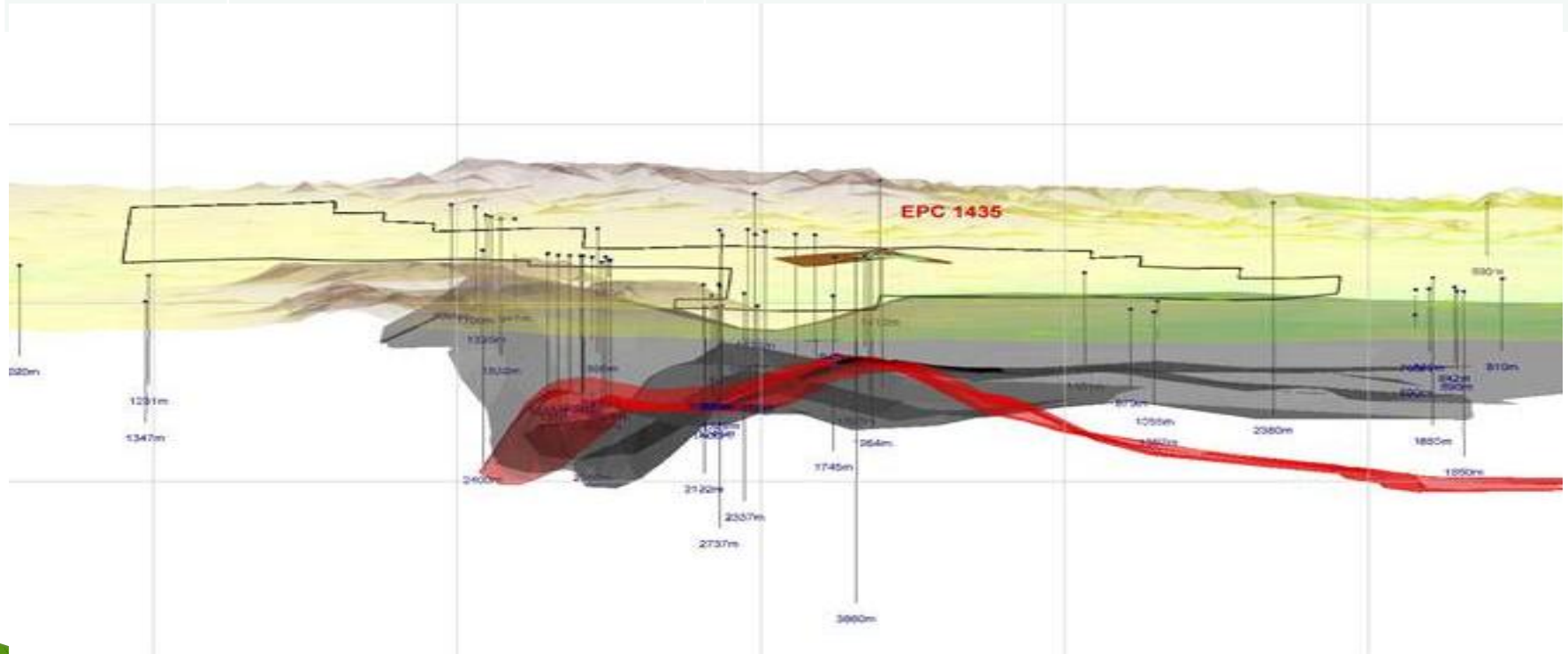


Source : Department of Energy and Water Supply. 2012, Gas Market Review Queensland. Queensland Government. <http://www.energy.qld.gov.au/documents/energy/gas-market-review-2012.pdf>



Ugas3 from substantial untapped coal

PROJECT	INFERRED RESOURCE	AVERAGE COAL QUALITY
DENISON	846mt	Moderate Sulphur thermal coal CV of 6055Kcal/kg



(*) This resource forms part of the Westgrove Project area resource as announced by the Company on 21 September 2009



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For every 100mt of thermal coal...

Commodity produced	Amount recovered
Syngas (CO + H₂)	1,100 PJ
Synthetic Natural Gas (SNG)	880 PJ
Barrels of Oil (LNG equivalent)	135million barrels oil eq.

Based on the Urea Corp Fertiliser Project Economic and Financial Business models as estimated at 2013 which is based on certain assumptions with respect to the method and timing of the Project. By their nature, these estimates and assumptions are subject to significant uncertainties and, accordingly, these sums may materially differ from these estimates and assumptions.



How to get gas - 3 unconventional methods

➤ Coal Seam Gas I

➤ Shale Gas II Moomba 191 Well flows – *16th August 2012 BPT ASX*

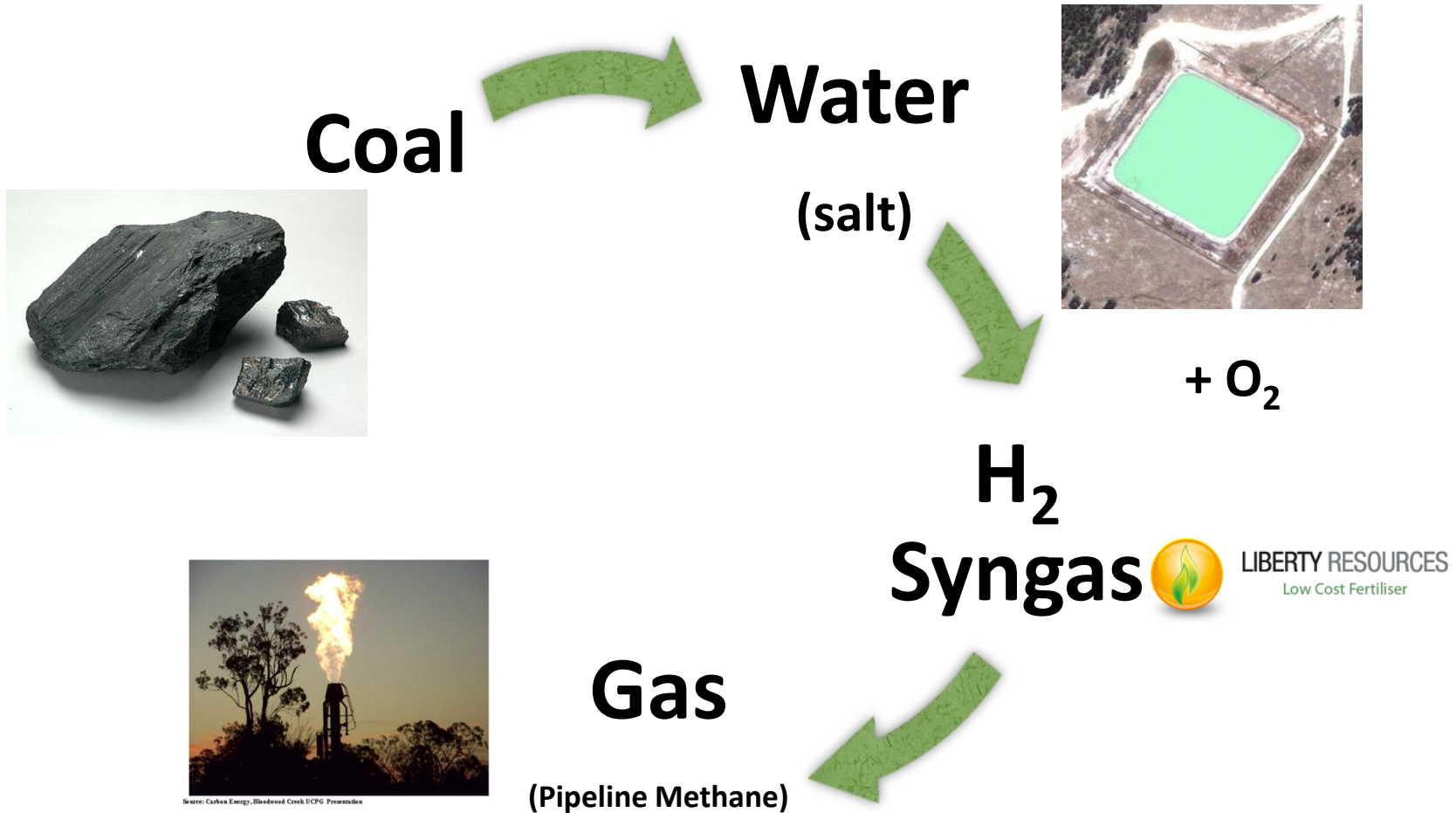
➤ **Ugas3** III

Unconventional gas: the new Eldorado for petroleum industry?

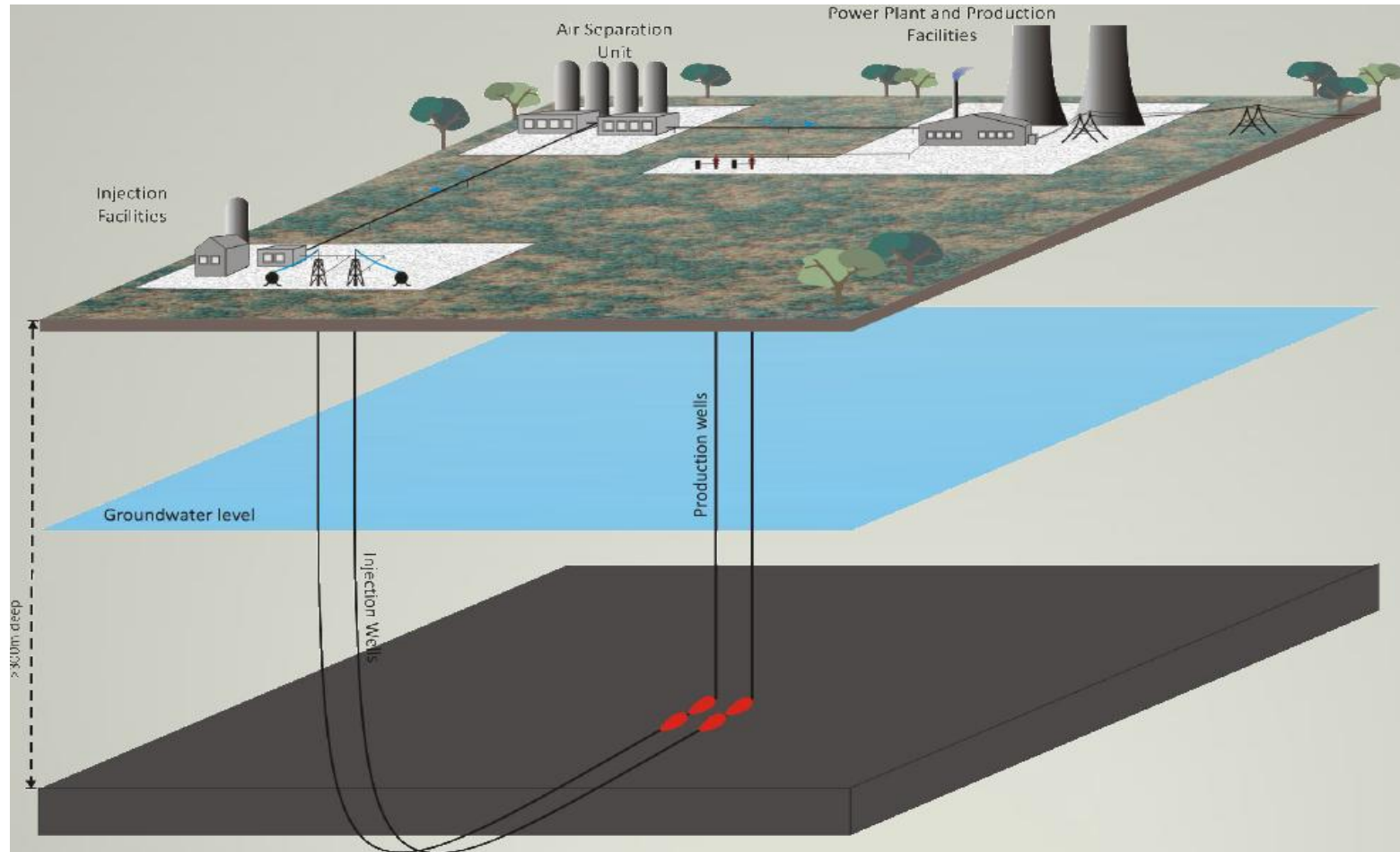
<http://energy.sia-partners.com/20120827/unconventional-gas-the-new-eldorado-for-petroleum-industry/>



From coal to gas – standard tech now



New directional drilling – no fracing



Source: Linear CRIP layout, Mostade, November 2012



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Oxygen plant – Proven equipment



Source : Air Products PRISM
VSA layout with back-up LOX
Process schematic <http://www.airproducts.com/>



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Low Cost Fertiliser

Gas plant – Proven equipment



Haldor Topsoe SNG reactors 3D plant layout <http://www.topsoe.com>



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Many pilot wells already

ISCG/UCG Production Asset	Company	Energy Production	Location
Linc Energy Panel 1	Linc Energy	0.00018 - 0.000228 PJ pa ¹	Queensland, Australia
Linc Energy Panel 2	Linc Energy	No Information Available	Queensland, Australia
Linc Energy Panel 3	Linc Energy	0.038 - 0.048 PJ pa ²	Queensland, Australia
Linc energy Panel 4	Linc Energy	0.108 – 0.137 PJ pa ³	Queensland, Australia
Linc Energy Panel 5	Linc Energy	0.012 – 0.0152 PJ pa ⁴	Queensland, Australia
Yerostigaz UCG Plant	Linc Energy	1.27 - 1.42 PJ pa ⁵	Angren, Uzbekistan
Carbon Energy Panel 1	Carbon Energy	>0.83 PJ pa (O ₂ & Steam) ⁶	Queensland, Australia
Carbon Energy Panel 2	Carbon Energy	No Information Available	Queensland, Australia
ISCG Panel	Swanhills Synfuels	0.78 PJ pa ⁷	Alberta, Canada
Solid Energy Operation	Solid Energy New Zealand	No Information Available	Huntley, New Zealand

¹Couch, G.R. 2009 p.67

²Linc Energy ASX announcement 10th March 2009, assume heating value as in Couch, G.R. 2009 p.67

³Linc Energy ASX announcement 24th October 2011, assume heating value as in Couch, G.R. 2009 p.67

⁴InvestorLINC June 2012, assume heating value as in Couch, G.R. 2009 p.67

⁵Linc Energy ASX announcement 11th October 2007, Couch, G.R. 2009 p.50

⁶Carbon Energy ASX announcement 20th January 2009

⁷Swanhills Synfuels, Swan Hills In-Situ Coal Gasification Technology Development, Final Outcomes Report May, 2012 p.48,58

How to keep everyone happy with gas



Source: Carbon Energy, Bloodwood Creek UCPG Presentation



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Shale Gas to the rescue?

Production Well	Company	Energy Production	Location
Moomba-191 well	Santos	1 PJ pa	Cooper Basin, South Australia
Moonta-1 well	Beach Energy	0.6 PJ pa	Cooper Basin, South Australia

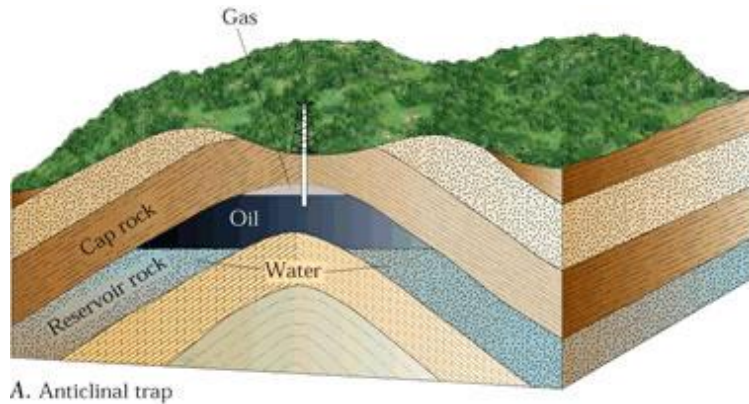
Challenges include;

- Shale gas location
- Number of suitable rigs in Australia
- Time for well completion and hook up
- Time required to import new rigs



Confined reservoir and cap system

- Traditional oil and gas “trapped” in underground reservoirs
- Until - a drill hole accesses the trapped reservoir

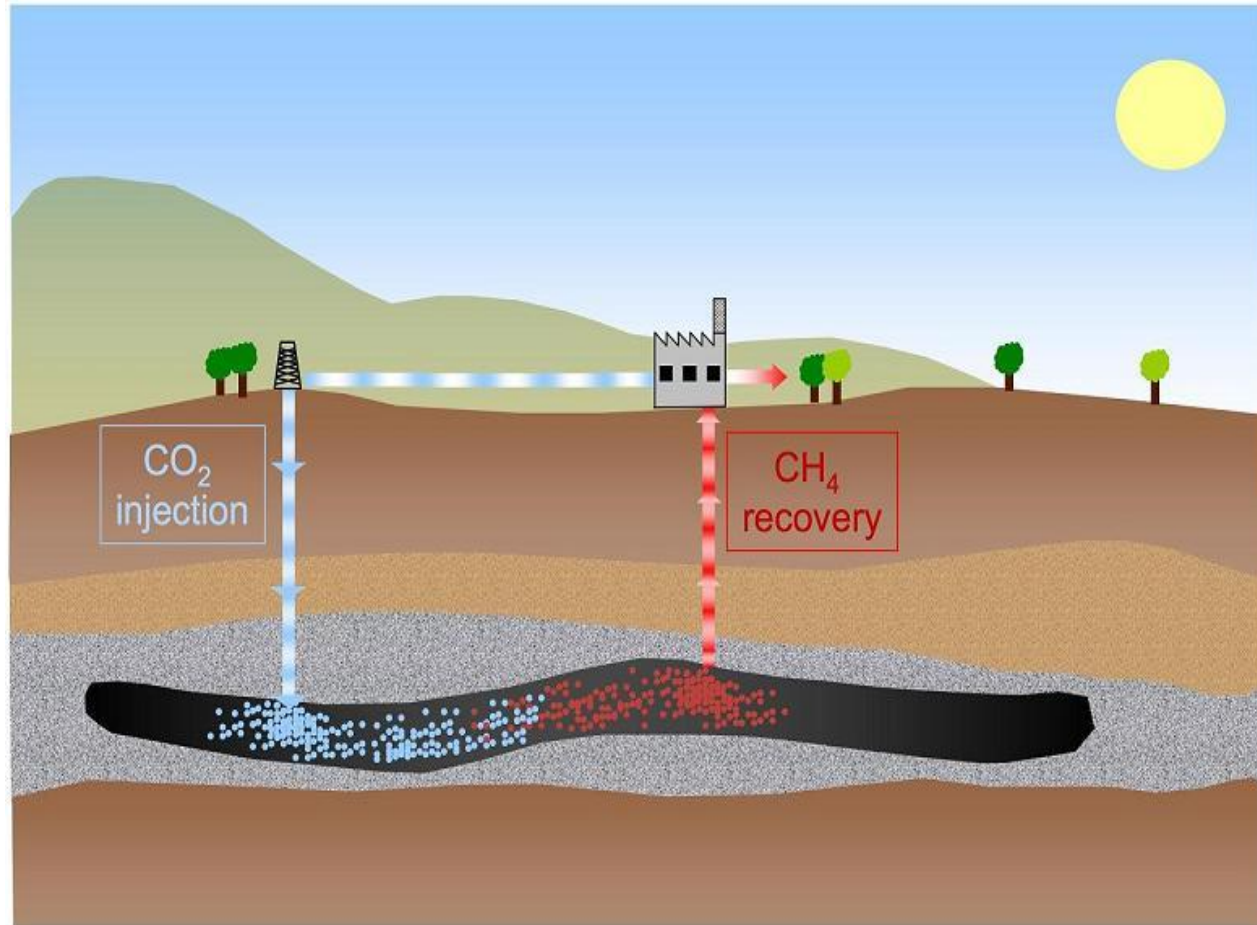


- Ugas3 uses coal and water, trapped under a cap
- Gas formed in trap – then recovered



CO₂ capture and storage potential

- Gas plant captures most CO₂



Gas production with less land impact

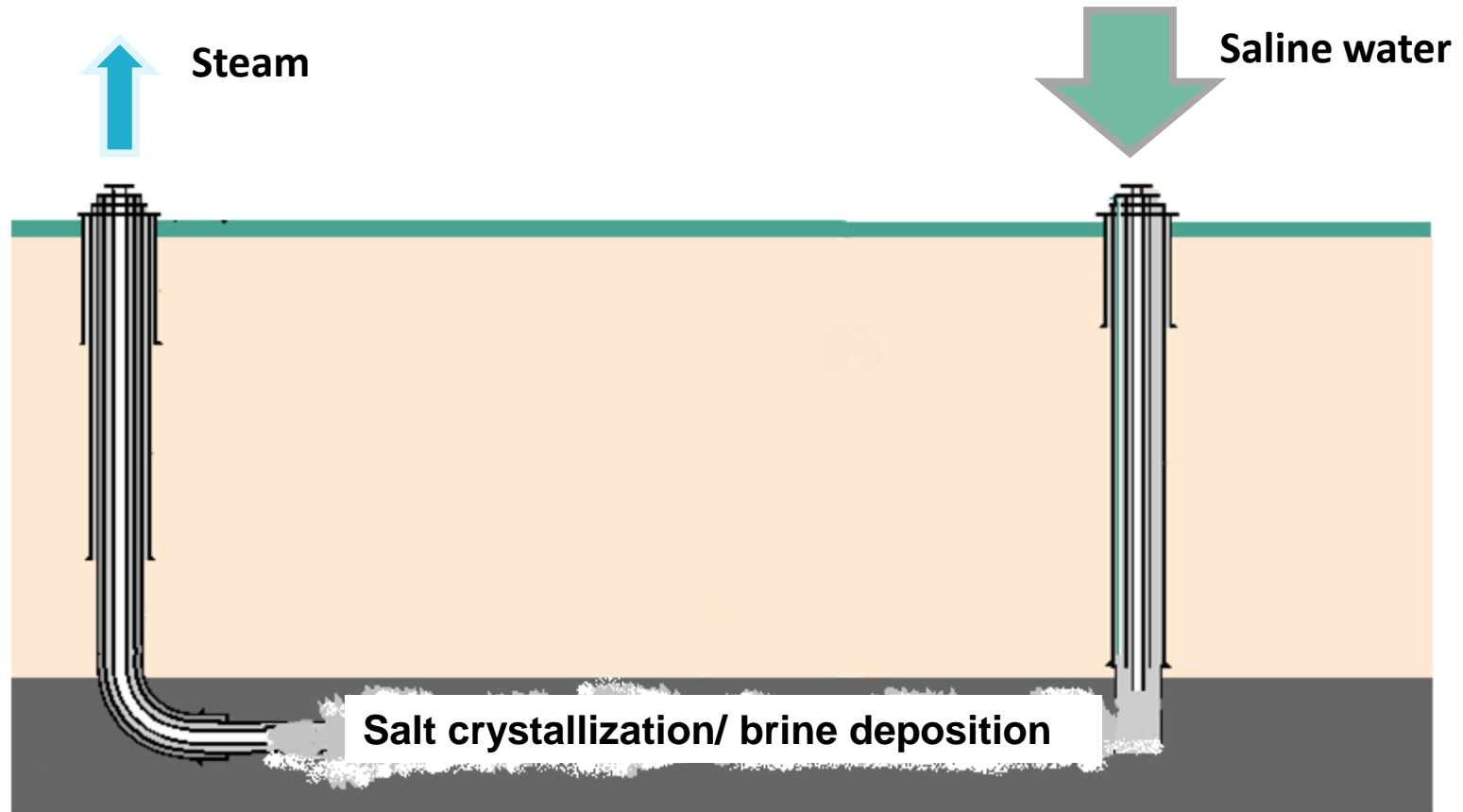
Ugas3



CBM

Salt Sequestration – a first?

Partial water evaporation (residual heat in chamber)



Source: Adapted from Couch, G.R. Underground Coal Gasification, © IEA Clean Coal Center 2009

Someone else's trash is your treasure

Denison



Victus



Gas plant



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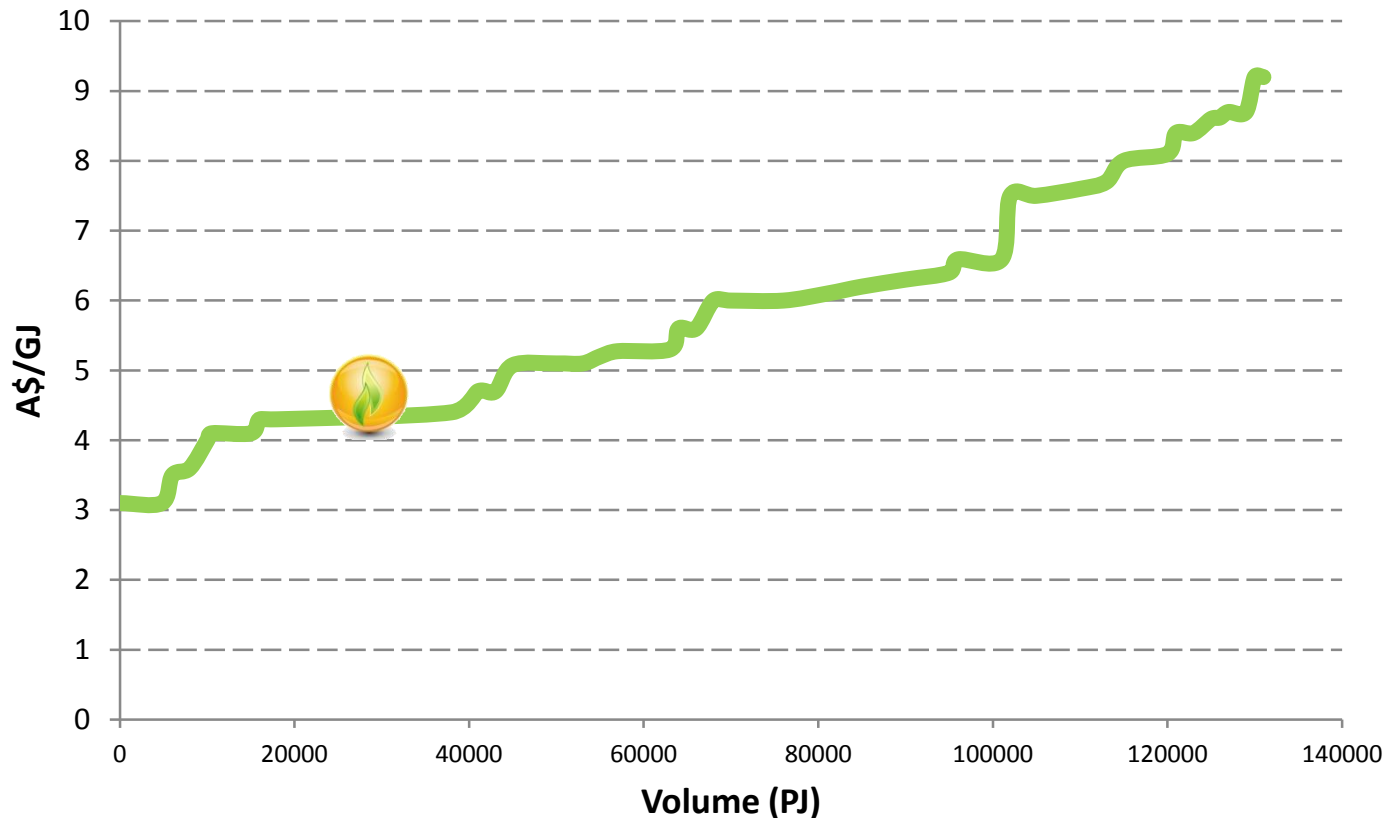
Low cost products – happy customers

Step	Product	Made From	Cash cost
1	Syngas (CO + Hydrogen)	Coal	\$1/GJ
2	Electricity	Syngas	1c/kWhr
3	Synthetic Natural Gas (SNG)	Syngas	\$4.5/GJ
4	Ammonia	Hydrogen, SNG	\$95/t
5	Urea	Ammonia	\$70/t

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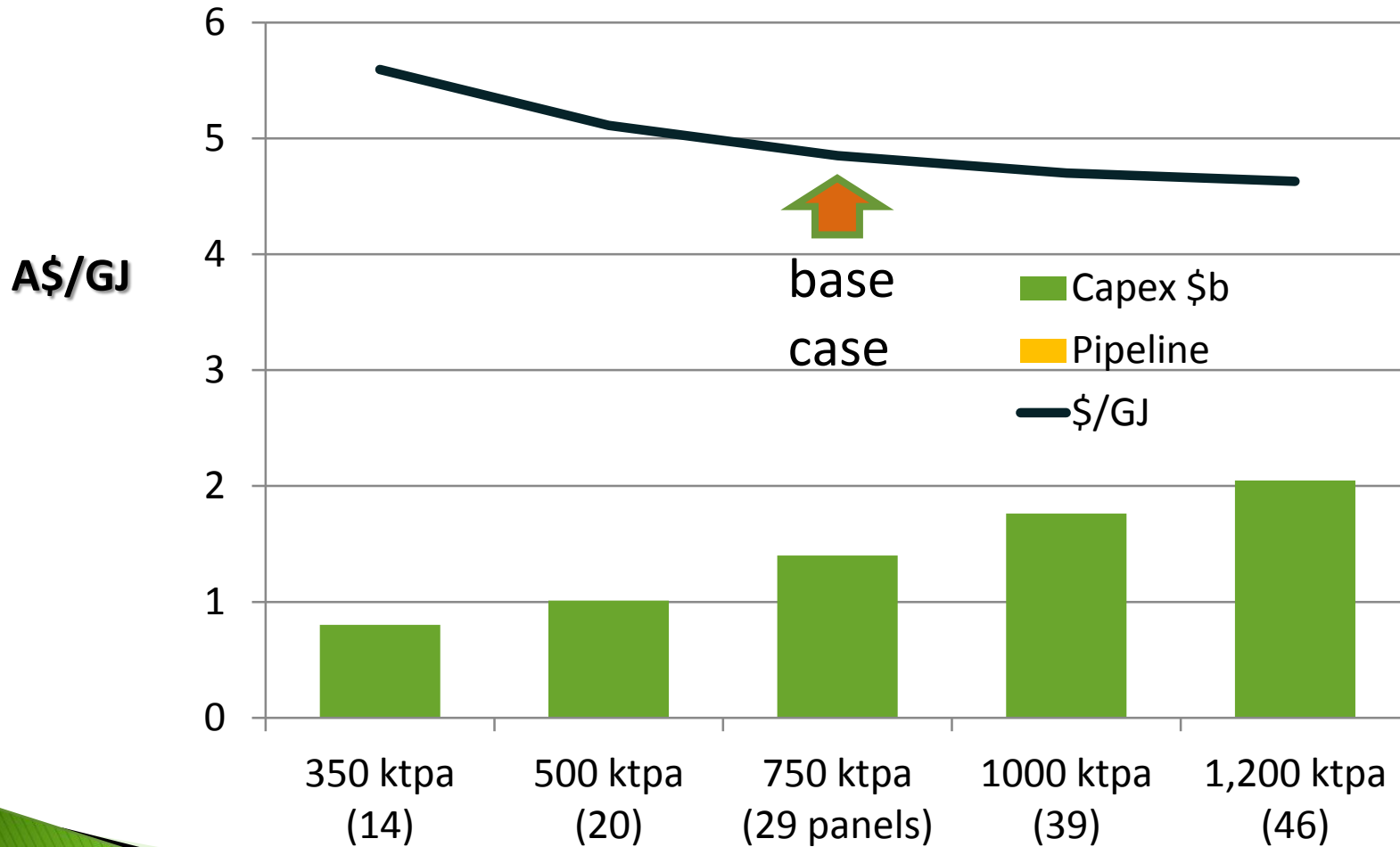
Demand is pushing gas costs up



Source : Department of Energy and Water Supply. 2012, Gas Market Review Queensland. Queensland Government.
<http://www.energy.qld.gov.au/documents/energy/gas-market-review-2012.pdf>



These gas costs drop as you expand



Source; LBY and various. 2013\$, 750ktpa SNG modules, learning curve assumptions for drilling and UCG gasifier dimensions, no salt credit

Benefits for all of us
You've seen the game changer and the hard
work is already done



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