



YOUR MONEY AS A FORCE FOR GOOD

FRACKING FINANCE

The investors behind
Australia's coal seam
gas companies

INTRODUCTION

Coal seam gas (CSG) is an unconventional gas source that often requires highly invasive extraction methods, including horizontal drilling and hydraulic fracturing (fracking).

While CSG has made up a small part of Australia's gas supply mix since the late 90s, production has increased drastically in the past few years, and with it the threat of many more CSG projects going ahead in the near future.

At the end of 2013, Queensland was home to approximately 5,500 CSG producing wells, however this number is projected to grow to over 14,000 by the end of 2020.¹ Similarly, NSW CSG production is expected to increase dramatically if two major proposed projects go ahead. AGL's Gloucester gas project is expected to produce up to 30 petajoules (PJ) per annum over its 30-year lifespan, and Santos' Narrabri project up to 73PJ per annum over 25 years.² Together, these two NSW projects' annual production would amount to around 40% of the total CSG produced in Queensland during the 2013-14 financial year.³

The massive increase in CSG production is largely due to the development of three liquefied natural gas (LNG) export facilities on Curtis Island in the Great Barrier Reef World Heritage Area near Gladstone, Queensland, which are to be supplied with gas from unconventional sources in eastern Australia.

IMPACTS

In order to stimulate gas flow in CSG wells, huge amounts of groundwater must be removed, destabilising natural flow and putting large underground aquifers, and therefore entire water systems, at risk.

The groundwater can be contaminated with anything from hydrocarbons to heavy metals and even BTEX chemicals (benzene, toluene, ethylbenzene and xylenes), and is also highly saline, posing a major pollution threat to any water system that it is released into.⁴

For example, the exploration phase of Santos' Pilliga forest project has already contaminated an aquifer with heavy metals – including uranium at 20 times the safe drinking water standards⁵ – and the company has reportedly caused at least 20 wastewater spills and leaks in the area.⁶

In the fracking process a mixture of water, sand and chemicals is forced into the coal seam at high pressure, causing the rock to fracture and therefore promoting gas flow. This practice has been demonstrated to contaminate both ground and flowback water, further risking the health of vital water stores.⁷

CSG operations also involve devastating above-ground infrastructure, as huge numbers of wells are required to produce gas from each reserve. Each of these wells must then be serviced by kilometres of roads and pipelines, as well as accommodation and administrative buildings.

With so much of Australia's CSG bound for export as LNG, the energy intensity of the liquefaction process must be considered. Carbon dioxide is produced in the CSG extraction process and at the LNG plants, as well as the subsequent transport of the gas, adding to its huge lifecycle emissions profile. CSG production and processing is also responsible for fugitive emissions of methane, which is 72 times more potent a greenhouse gas than carbon dioxide,⁸ making the climate risk posed by CSG potentially greater than coal.⁹

THREATS

Of the three major LNG projects on Curtis Island, Queensland Curtis LNG has already begun liquefying and exporting CSG, while Gladstone LNG (GLNG) and Australia Pacific LNG (APLNG) are expected to come online during 2015.

In order to supply these projects, plans to massively increase CSG operations in Australia are currently underway. This growth puts some of Australia's most productive farming land and beautiful natural areas in danger of being subjected to the devastating environmental impacts mentioned above, risking the livelihoods of farmers and their families as well as local tourism industries.

On top of the increase in CSG mining operations required to supply the Curtis Island LNG plants, the projects also pose further risks to the health of the Great Barrier Reef, having already triggered a UNESCO inspection of the World Heritage Area that led the UN body to threaten to add the area to its endangered list unless management greatly improved.¹⁰

ROLE OF FINANCE

Australian financial institutions are providing support to the CSG industry through debt finance, equity stakes in companies, financial advice, arranging finance from other institutions, insurance / underwriting services, and a close interchange of key personnel between banks and CSG companies.

Over recent years, there have been many instances of Australian banks financing companies that are leading the CSG charge. Loans are used to support the growth and overall operations of those companies, including the exploration, development and mining of CSG reserves and other parts of the CSG export supply chain, such as LNG plants.

Export credit agencies, which are semi governmental financial institutions that participate in project finance, are also integral to the CSG industry's attempts to export large volumes of gas in the form of LNG. These agencies have provided huge sums of debt for specific operations such as the construction of the LNG plants on Curtis Island, as well as CSG pipelines, wells and infrastructure works. The US Export Import Bank, China Export Import Bank and the Japan Bank for International Cooperation have all played a prominent role in financing Australian LNG projects.

Additionally, the vast majority of fund managers hold shares in companies that are heavily involved in the CSG industry, investing large sums in companies on behalf of millions of Australians.

There is also a remarkable amount of personnel crossover between the finance sector and the CSG industry, emphasising the strength of the links between the two.

SANTOS

ABOUT

Santos is an ASX50¹¹ company that conducts oil and gas exploration and production operations throughout Australia and southern Asia.

The company holds the largest (30%) share in the GLNG project, which is supplied by CSG wells in Queensland's Western Downs region.¹²

Santos is also currently planning to develop large-scale CSG operations in northern NSW with its proposed Narrabri Gas Project. If these plans are realised, the project will see 850 new CSG wells drilled in the Pilliga State Forest area in order to supply the GLNG plant.¹³

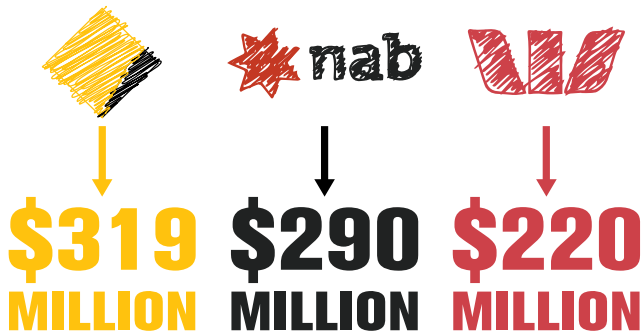
FUNDING FROM AUSTRALIAN BANKS

In 2014, ANZ provided a loan of \$1,000 million to support Santos' operations. In addition, the bank provided \$1,532 million in finance for the GLNG project between 2010-12.



\$2,532 MILLION

Commonwealth Bank (CBA), NAB and Westpac have also contributed \$319.09 million, \$290.03 million and \$222.22 million respectively to GLNG.

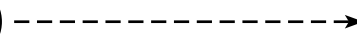


EQUITY

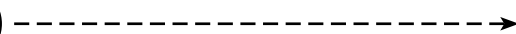
As of August 2015 NAB's fund management arm MLC Investment Management Ltd and CBA's Colonial First State Global Asset Management were the largest shareholders in Santos. Their stakes are reportedly worth \$246 million and \$173 million respectively. However, allowing for the dramatic slide in Santos' share price since early 2014, we estimate these stakes are now worth \$140 million (MLC) and \$105 million (Colonial).

Given Santos' prominence on the Australian stock exchange, we can assume that almost all Australian super funds will be invested in the company. However, due to lack of disclosure, we can only confirm this unequivocally for several funds. We can confirm that neither Future Super nor Australian Ethical hold Santos shares.

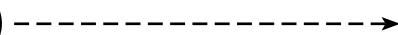
PERSONNEL RELATIONSHIPS



Yasmin Allen, who has previously held senior roles at ANZ, Deutsche Bank AG and HSBC Group Plc, was appointed to the role of independent non-executive director at Santos in October 2014.



Jane Sharman Hemstrich has been a non-executive director of CBA since 2006 and has held a similar position at Santos since 2010.



Santos Chief Financial Officer Andrew Seaton was appointed in 2010, before which he was executive of investor relations. Prior to working with Santos, Seaton held the position of Client Director, Corporate Banking at NAB and was responsible for "relationship management across resources and building materials clients in southern Australia".¹⁴

ORIGIN ENERGY

ABOUT

Origin Energy is a diversified energy company in the ASX50 index, whose interests include gas exploration and production.

The company holds a 37.5% equity stake in the APLNG project, which links coal seam gas wells in southern Queensland - between Roma and Chinchilla - to liquefaction facilities at Gladstone.¹⁵

The APLNG project plans to develop up to 10,000 CSG wells across Queensland's Western Downs region.¹⁶

EQUITY

The largest listed shareholder in Origin Energy is Colonial First State Global Asset Management. As of October 2014 Colonial's Origin Energy shares were valued at \$605.82 million. However, due to share price declines we now estimate this stake to be worth \$574 million. The top ten Origin shareholders are listed in the table below.

As an ASX50 listed company, almost all retail super funds will be invested in Origin. Indeed, the Super Switch website confirms that the following funds hold Origin shares: Care Super, Catholic Super, Energy Super, EquipSuper, First State Super, HOSTPlus, Local Government Super (LGS), North, OnePath, State Super, SuperSA, UniSuper, VicSuper and VisionSuper.

Neither Future Super nor Australian Ethical hold shares in Origin.

FUNDING FROM AUSTRALIAN BANKS

Over the period 2011-14, ANZ and CBA each lent \$502.56 million to the APLNG project through corporate debt refinancing, while NAB and Westpac provided \$257.82 million and \$111.86 million respectively through various financings.

PERSONNEL RELATIONSHIPS



Former Managing Director and Chief Executive Officer of CBA Ralph Norris currently serves as an independent non-executive director at Origin Energy.



Helen Nugent, previously director of strategy at Westpac, joined the board of Origin in 2003 and is currently an independent non-executive director at the company.



After serving as director of Westpac from 2004-13, Gordon Cairns is now independent non-executive chairman at Origin.

NAME	SHARES	OWNERSHIP
Colonial First State Global Asset Management	48,276,047	4.35%
The Vanguard Group	15,447,456	1.39%
BlackRock Institutional Trust	12,158,079	1.10%
T. Rowe Price International	11,348,191	1.02%
Norges Bank Investment Management	10,929,006	0.98%
Eastspring Investments	8,632,937	0.78%
Dimensional Fund Advisors	5,527,038	0.50%
APG Asset Management	4,319,634	0.39%
Deutsche Asset Management Americas	3,373,558	0.30%
State Street Global Advisors Australia	2,576,423	0.23%

CONOCOPHILLIPS

ABOUT

ConocoPhillips is a US-based oil and gas explorer and producer with global operations, and is amongst the S&P500.¹⁷ As of 31st March 2015, the company was worth US\$78 billion, but due to a slide in the company's share price, their market capitalisation has fallen to US\$62 billion at the end of July 2015.

Like Origin, ConocoPhillips holds a 37.5% equity stake in the APLNG project, which plans to develop up to 10,000 CSG wells in Queensland to feed the Curtis Island LNG plant.

EQUITY

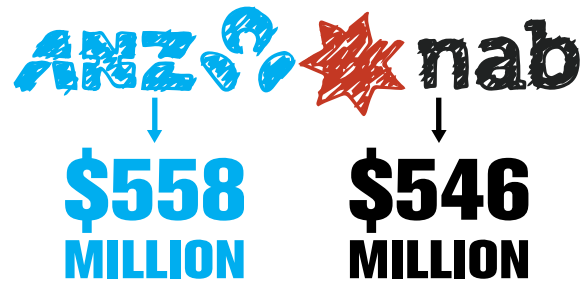
As of August 2015, CBA held ConocoPhillips shares valued at \$20 million, and Westpac's holding was worth \$4 million. The largest ConocoPhillips shareholders are listed in the table below.

We can also confirm that both Energy Super and LGS held shares at the time of the last Super Switch update. It is also likely that many more Australian super funds are invested with ConocoPhillips, but have not disclosed that fact.

We know that neither Future Super nor Australian Ethical is invested in ConocoPhillips.

FUNDING FROM AUSTRALIAN BANKS

Between 2011-14, all four of Australia's largest banks contributed to the ConocoPhillips owned APLNG project.



Of the big four banks, ANZ was the greatest financier, lending \$558.68 million, while CBA and NAB both provided \$456.20 million in funding for the project and Westpac \$307.44 million.



NAME	SHARES	OWNERSHIP
The Vanguard Group	72,876,851	5.91%
BlackRock Institutional Trust Company	56,041,500	4.55%
State Street Global Advisors	54,546,459	4.42%
Capital World Investors	49,623,958	4.02%
Barrow, Hanley, Mewhinney & Strauss	22,112,536	1.79%
Capital International Investors	17,425,459	1.41%
Columbia Threadneedle Investments	14,025,500	1.14%
Dimensional Fund Advisors	12,999,541	1.05%

AGL

ABOUT

AGL Energy is an ASX50 diversified energy company involved in both the generation and retailing of electricity. The company uses black and brown coal, natural and coal seam gas, wind power and hydroelectricity to generate power.

AGL is currently producing CSG from its project near Camden, NSW, while pushing forward with the development of its Gloucester gas project in northern NSW.

The Gloucester project has been plagued with problems, having been temporarily shut down after the detection of BTEX chemicals in flowback water in January 2015,¹⁸ and continually coming up against strong opposition from concerned local groups such as Groundswell Gloucester.

EQUITY

Although Westpac had appeared as an AGL shareholder in April 2015 through its BT asset management arm, as of August 2015 this stake seems to have been divested. The largest shareholders in AGL are listed in the table below.

As an ASX50 listed company, almost all retail super funds will invest in AGL, and we can confirm unequivocally that the following funds held shares at the time of the most recent Super Switch update: Catholic Super, Energy Super, First State Super, HOSTPlus, State Super, VicSuper and VisionSuper.

We know that Future Super and Australian Ethical hold no shares in AGL.

FUNDING FROM AUSTRALIAN BANKS

During 2011, Australia's big four banks – that is ANZ, CBA, NAB and Westpac – each provided \$64.57 million in corporate finance to AGL.



\$258 MILLION

NAME	SHARES	OWNERSHIP
The Vanguard Group	9,444,949	1.40%
BlackRock Institutional Trust	8,983,416	1.33%
Norges Bank Investment Management	7,818,334	1.16%
Newton Investment Management	7,300,000	1.08%
Nordea Funds	5,153,585	0.76%
ValueInvest Asset Management	4,947,445	0.73%
Nordea Invest Fund Management	3,783,587	0.56%
Schroder Investment Management	3,394,498	0.50%
Kempen Capital Management	2,757,040	0.41%
MFS Investment Management	2,599,481	0.39%

AGL CSG WATER STORAGE PONDS IN FERRISDALE, GLOUCESTER VALLEY, NSW. PHOTO: GROUND SWELL, GLOUCESTER

TAKE ACTION

Take action by visiting the links below

PUT YOUR BANK ON NOTICE

If you bank with ANZ, CommBank, NAB or Westpac, write to them to tell them that if they don't commit to stop funding the gas industry, you will move to another bank.

WWW.MARKETFORCES.ORG.AU/CSGBANKSONNOTICE

MOVE YOUR SUPER

Visit Super Switch to find out if your superannuation is invested in the fossil fuel industry, and most importantly find alternative funds that are not.

WWW.SUPERSWITCH.ORG.AU

Market Forces is here to help Australians use their money as a force for good.

Join the movement working to get banks and superannuation funds out of the CSG and unconventional gas industry.

RESOURCES / DEFINITIONS:

- ¹ Australian Government – Geoscience Australia – ‘Unconventional reserves report’
- ² As above
- ³ Queensland DNRM – ‘Queensland’s petroleum and coal seam gas 2013-14’
- ⁴ The Conversation – ‘Coal seam gas water leaks could be a problem for decades’
- ⁵ Sydney Morning Herald – ‘Santos faces fines for Pilliga coal seam gas salt spill’
- ⁶ Sydney Morning Herald – ‘Waste-water spill at Santos CSG plant’
- ⁷ PNAS (USA) – ‘Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing’
- ⁸ Over a 20 year timeframe. Lock the Gate fact sheet – ‘Emissions’
- ⁹ Climate Institute Report – ‘Coal seam gas: facts, questions and challenges’
- ¹⁰ UNESCO Media Services - ‘Director-General meets with experts responsible for health of Great Barrier Reef’
- ¹¹ The ASX50 is comprised of the top 50 stocks by market capitalisation in Australia
- ¹² Santos LNG – ‘The project’
- ¹³ Santos – ‘The Narrabri gas project overview’
- ¹⁴ Santos News Announcement ‘Santos appoints new investor relations executive’
- ¹⁵ APLNG - ‘Project partners’
- ¹⁶ APLNG – ‘Groundwater technical report – gas fields’
- ¹⁷ Standard & Poor’s index of 500 large companies based on US stock market capitalisation
- ¹⁸ Sydney Morning Herald – ‘AGL faces delays, additional conditions after BTEX chemicals detected’

Market Forces is an affiliate project of Friends of the Earth Australia and a member of the BankTrack network of organisations working towards responsible investment in the banking sector.

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