

Narrabri Gas Project

Submission to the Independent Planning Commission

The Narrabri Gas Project will not increase energy security and reliability for NSW and is likely to increase gas prices. The Department's assessment of the project overstates the economic benefits to the region, relying on modelling commissioned by the proponent and ignoring research and actual experience from the failed CSG experiment in Queensland. The Assessment also presents the project's emissions, which are equivalent to an entire year of NSW emissions, as "small", incorrectly claiming they are consistent with Australia's Paris commitments.

Submission

Mark Ogge

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Level 1, Endeavour House, 1 Franklin St

Canberra, ACT 2601

Tel: (02) 61300530

Email: mail@tai.org.au

Website: www.tai.org.au

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Summary

The New South Wales Department of Planning, Industry and Environment (DPIE) Assessment of the Narrabri Gas Project (NGP) uncritically repeats many of Santos's misleading claims justifying the project.

The Assessment's recommendation for approval of the NGP is largely based on the project "increasing energy security and reliability in NSW" and providing economic benefits to NSW and the Narrabri region. In reality, it will do nothing to improve energy security and reliability and provide few benefits to the local community.

The DPIE's justification of the NGP as a way to "stimulate the economic recovery from the effects of the COVID-19 pandemic" is misguided. Gas is one of the least job-intensive industries in Australia. If creating jobs is the objective, supporting almost any other industry would be more effective.

Further, the belief that the NGP can create manufacturing jobs by leading to fertiliser and baking soda factories is far-fetched. Production cost estimates from the Australian Energy Market Operator (AEMO) show gas from Narrabri is higher cost than gas already supplying NSW from the Cooper Eromanga basin that it would displace. If fertiliser factories were viable, they would have been built when gas prices were lower— a high-cost gas supply will make them even less viable. If baking soda from waste salt from coal seams was viable, there would be baking soda factories all over Queensland.

The DPIE assessment of the NGP also incorrectly describes the NGP's greenhouse gas emissions of 120.6–127.8 million tonnes as "small" and "consistent with NSW's and Australia's commitments to a low carbon future".

Key findings

Energy security and reliability:

- The project will not increase energy security or reliability for NSW or help avoid shortfalls because even if the gas from Narrabri is used in NSW, Santos can simply divert the equivalent amount of gas currently supplying NSW from the Cooper Eromanga Basin to its LNG export facility in Queensland.
- The project will not bring down gas prices as the Assessment claims. This has been acknowledged by Santos in their response to questions from the Department's expert review and by the DPIE Director Mr David Kitto at his appearance before the Independent Planning Commission.
- Instead the project is likely to increase prices as it will displace lower cost Cooper Eromanga Basin gas.

- The NGP will not “support the development of gas-fired power stations in NSW to provide dispatchable energy to the National Electricity Market (NEM)” as the Assessment claims. The Australian Energy Market Operator is projecting overall capacity of gas power stations in the NEM to fall, and for gas demand for electricity generation (GPG) to fall by up to 80 per cent.

Local social and economic impacts:

- Detailed research from Queensland’s CSG regions shows that most local stakeholders surveyed believe CSG development has led to a deterioration in most measures of community assets, including economic benefits, infrastructure, the environment and social cohesion.
- There are few spillover jobs from CSG into other sectors of the economy. CSIRO research into spillover jobs related to CSG in Queensland found there were virtually no additional jobs created in the retail, services or manufacturing sectors and 1.8 agriculture jobs lost for every new CSG job.
- CSIRO research found only around 6 per cent of people in gas field areas in Queensland thought gas development had changed their region for the better. The remainder were “adapting”, “coping”, “not coping”, or “actively resisting”.
- Santos’s own modelling shows the project would lead to a reduction in employment in farming, mining and manufacturing.

Greenhouse gas emissions:

- According to the Assessment, the NGP would result in lifecycle greenhouse gas emissions of 120.6 Mt to 127.8 Mt over its lifetime. This is equivalent to almost an entire year of NSW emissions, and would increase NSW annual emissions by almost 4 per cent on current levels.
- The Department’s description of the emissions being “small” and “consistent with NSW’s and Australia’s commitments to a low carbon future” are incorrect.

Introduction

The Australia Institute has made detailed submissions to the assessment process of the Narrabri Gas Project (NGP), including in response to Santos’s Environmental Impact Statement (EIS) in 2017, and following Santos’s Response to Submissions in 2018. These submissions focused on the benefit-cost analysis undertaken by GHD on behalf of Santos and the macro-economic modelling undertaken by Acil Allen. Our analysis found serious flaws in both, and the issues we raised were not adequately addressed by Santos or the Department of Planning, Industry and Environment’s economic expert review by BAEconomics.

These issues are examined in a separate submission by The Australia Institute.

This submission examines the findings of the Department’s Assessment of the NGP that it is necessary for “increasing energy security and reliability” and that it will provide economic benefits to NSW and the Narrabri region.¹

It also examines the Department’s interpretation of the NGP’s greenhouse gas emissions.

The Department’s conclusions in relation to the NGP’s impact on energy security and its economic benefits are summarised in the Executive Summary of the Assessment:

This assessment was informed by advice from Narrabri Shire Council, government agencies and independent experts, including a Water Expert Panel which was specifically set up for the project, and has concluded that the project:

- is critical for energy security and reliability in NSW as it would:
 - provide essential gas supplies to the domestic market to address forecast shortfalls from 2024;
 - facilitate the extension of the existing gas pipeline network to northern NSW, bringing it closer
 - to the strategic gas supplies in both Queensland and the Northern Territory;
 - support the development of gas-fired power stations in NSW to provide dispatchable energy to the National Electricity Market (NEM) as it transitions away from a long-term reliance on coal fired power stations to a greater reliance on renewable energy; and
 - put downward pressure on gas prices;

¹ DPIE (2020) Narrabri Gas Project State Significant Development SSD 6367 (Assessment), P.iv
<https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-6456%2120200611T101108.126%20GMT>

- deliver significant economic benefits to NSW and the Narrabri region and stimulate the economic recovery from the effects of the COVID-19 pandemic, including:
 - creating jobs and attracting investment to the region;
 - providing up to \$14.5 million to Narrabri Shire Council for community projects and infrastructure;
 - setting up a Community Benefit Fund with up to \$120 million to share the benefits of the project with the local community; and
 - facilitating economic development in Narrabri, including the development of a new industrial estate.²

Virtually all of the above reasons for recommending approval of the NGP uncritically repeat Santos's arguments, and are incorrect or at least highly questionable.

² DPIE (2020), p.iv

Greenhouse gas emissions

The Department presents the 120.6-127.8 million tonnes (Mt) of lifecycle greenhouse gas emissions that the NGP would produce over its lifetime as “consistent with NSW’s and Australia’s commitments to a low carbon future”.³

This is equivalent to almost a full year of NSW emissions (131.7 Mt in 2018).⁴ Annually, based on current levels, it would increase NSW emissions by almost 4 per cent.

The scientific evidence is clear that most existing fossil fuel reserves must remain unburned if we are to have any chance of avoiding irreversible and catastrophic climate change. As leading ANU Climate Scientist Professor Will Steffen told the Independent Planning Commission (IPC) Narrabri hearings, based on scientifically robust carbon budget analysis:

Existing fossil fuel infrastructure will push us well beyond the Paris targets. That means quite clearly that we cannot allow any new or extensions to fossil fuel infrastructure. That would be in violation of the Paris agreement, and we have seen what it means to violate temperature targets in the bleaching of the Great Barrier Reef and fires that drastically impacted NSW and other parts of Australia over the summer.⁵

As such, the Department’s Assessment is wrong in its assertion that the NGP is “consistent with NSW’s and Australia’s commitments to a low carbon future”.

NSW has recently experienced the devastating impacts of fires made more likely and more extreme by global warming. The Australian Bureau of Meteorology and the CSIRO project fire danger and extreme heat will continue to increase as emissions rise.⁶ To throw more fuel on the fire of global warming is dangerous and irresponsible.

For the Department to present an increase in NSW’s emissions of almost 4 per cent from a single project as “small” demonstrates a lack of understanding of the seriousness of global warming and its potential impacts on NSW.

³ DPIE (2020) Narrabri Gas Project State Significant Development SSD 6367 (Assessment), P.104
<https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-6456%2120200611T101108.126%20GMT>

⁴ AGEIS (2020) State Greenhouse Gas Inventory, <https://ageis.climatechange.gov.au/SGGI.aspx>

⁵ Professor Will Steffen, IPC NGP hearings, July 23,
<https://www.facebook.com/climatecouncil/videos/671077576830703>

⁶ BOM (2018) State of the Climate 2018, <http://www.bom.gov.au/state-of-the-climate/State-of-the-Climite-2018.pdf> ; Hennessey et al (2005) Climate change impacts on fire-weather in south-east Australia, http://www.cmar.csiro.au/e-print/open/hennesyjkj_2005b.pdf

Gas price and supply

As noted above, the Department's Assessment argues the NGP being "critical for energy security and reliability in NSW" as it would:

- provide essential gas supplies to the domestic market to address forecast shortfalls from 2024;
- facilitate the extension of the existing gas pipeline network to northern NSW, bringing it closer to the strategic gas supplies in both Queensland and the Northern Territory;
- support the development of gas-fired power stations in NSW to provide dispatchable energy to the National Electricity Market (NEM) as it transitions away from a long-term reliance on coal fired power stations to a greater reliance on renewable energy; and
- put downward pressure on gas prices.⁷

None of these statements are correct.

THE NGP WILL NOT INCREASE THE SECURITY AND RELIABILITY OF THE NSW GAS SUPPLY

The Assessment argues that because NSW "currently imports more than 95% of its gas from other states" the Narrabri Gas Project "would produce up to 200 TJ of gas a day for about 20 years, enough to supply 50% of NSW's forecast gas demand".⁸

These assertions are lifted uncritically from Santos's 2016 Environmental Impact Statement (EIS).⁹

While it is technically correct that 200 TJ/ day of gas (around 70 PJ/ year) is *enough* to supply 50 per cent of NSW's forecast gas demand, there is no reason to believe that it would make any difference to "energy security and reliability in NSW" as the Assessment asserts.

NSW does not have its own autonomous gas market where NSW can somehow make decisions on how much gas it imports or exports. The gas market is an interconnected system where gas is "sold and transported under bilateral agreements between producers, pipeline owners, retailers and major users" irrespective of the state those parties are from.

⁷ DPIE (2020), p.iv.

⁸ DPIE (2020) p.23

⁹ Santos (2016) Narrabri Gas Project Environmental Impact Statement, p. ?,
<https://www.planningportal.nsw.gov.au/major-projects/project/10716>

¹⁰ Since the opening of gas export terminals at Gladstone, this market is also connected to the global Liquefied Natural Gas (LNG) market.

As such, if the NGP does produce 70 PJ of gas per year and it is supplied to NSW consumers, Santos could, for instance, simply send 70 PJ less gas to NSW customers from the Cooper Eromanga Basin and export it instead.

Suggestions that there are insufficient gas reserves in the Cooper Basin to supply NSW are incorrect.

Cooper Basin gas reserves dwarf those of the Gunnedah Basin (which would feed the NGP). As shown in Table 1 below, independent analysis of gas reserves by AEMO show no 2P reserves for the Gunnedah Basin, whereas the Cooper Basin has 927 PJ. The Cooper Basin has nine times 2C reserves of Gunnedah and over forty times the prospective reserves.¹¹

This is an immense amount of gas and could supply NSW for decades if it is not diverted to Gladstone for export.

Table 1: Reserves, Cooper Eromanga Basin v Gunnedah Basin

| Basin | Project | 2P developed | 2P undeveloped | 2C | Prospective |
|----------|-----------------------|--------------|----------------|-------|-------------|
| Cooper | Cooper Eromanga Basin | 658 | 269 | 8,938 | 128,133 |
| Gunnedah | Gunnedah | | | 971 | 3,052 |

Source: AEMO (2019) GSOO 2019

If the NGP goes ahead it will simply displace this Cooper Eromanga Basin gas that is currently supplying NSW consumers, allowing it to be exported, despite Santos’s GLNG export facility having been approved on the basis that it would be fed by Santos CSG tenements in Queensland.

As such, Santos’s undertaking that “the gas would be made available to the NSW Market”¹² and the Department's condition that Phase 2 and Phase 3 are conditional on pipeline

¹⁰ AEMO (2020) Gas webpage, <https://aemo.com.au/energy-systems/gas>

¹¹ AEMO (2019) GSOO 2019, https://www.aemo.com.au/-/media/Files/Gas/National_Planning_and_Forecasting/GSOO/2019/2019-GSOO-report.pdf

¹² Santos (2017) Narrabri Gas Project, Environmental Impact Statement, Executive Summary P.1, <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-6456%2120190228T034754.407%20GMT>

connection to the domestic market¹³ are meaningless from an energy security and reliability perspective.

Even the inconsequential promise by Santos that gas from the NGP would supply the NSW market is questionable. Santos's promise to do so is just that, a promise, and the Department has not even made it a condition of their recommended approval. There is no law in NSW that can require a particular project to supply NSW consumers, and it is questionable whether such a law would be constitutionally valid. If Santos sold the NGP, there is no reason to believe the new owners would feel bound by such a promise.

The NGP will not prevent gas shortages

The Assessment echoes Santos's arguments that gas from the NGP will be required to address forecast "shortfalls in gas supply from 2023-4 which could result in significant job losses".¹⁴ The shortfalls refer to potential shortfalls projected by the AEMO in its annual *Gas Statement of Opportunities (GSOO)*.¹⁵

There is no shortage of gas in Australia. Production in Eastern Australia has tripled in just a few years to feed three new LNG export facilities in Gladstone Queensland.¹⁶ However, if gas continues to be exported at the rate of double Australia's domestic consumption every year, reserves will inevitably deplete, and the addition of the NGP would make no difference. Because the east coast gas market is interconnected, the more gas that is extracted, the more that can be exported. The Queensland LNG terminals have never reached their full capacity.¹⁷ Even if they did, additional LNG trains could be built and the capacity increased.

¹³ NSW Government 1 Narrabri Gas Project Department of Planning, Industry and Environment (2019) Recommended Development Consent for Narrabri Gas Project SSD 6465, [https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-6456%2120200611T101109.699%20GMT, S A9](https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-6456%2120200611T101109.699%20GMT,S A9)

¹⁴ Department Assessment (2020) Op. Cit P.24

¹⁵ AEMO (2020) GSOO 2020, https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/gsoo/2020/2020-gas-statement-of-opportunities.pdf?la=en

¹⁶ Owen (January 2020) Australia officially the world's largest exporter of LNG, <https://www.lngindustry.com/liquid-natural-gas/06012020/australia-officially-the-worlds-largest-exporter-of-lng/#:~:text=Western%20Australia%20continued%20to%20dominate,garnering%2029%25%20of%20those%20exports.>

¹⁷ McDonald Smith (July 2019) LNG breaks record with \$50.5b of exports, <https://www.afr.com/companies/energy/lng-breaks-record-with-50-5b-of-exports-20190715-p5278v>

In 2017, AEMO forecasted potential shortfalls in 2018 and 2019.¹⁸ These shortfalls did not eventuate. They did not eventuate because the forecasts assumed LNG exporters could export as much gas as they wanted to and did not take into account any market or government response.

AEMO's annual GSOO uses information from gas producers "to project supply-demand balance and potential gaps under a range of plausible scenarios" in the east coast gas market.¹⁹ Identifying potential gaps is aimed at assisting the market and governments to respond to ensure supply. As such the projections do not take into account market responses to shortages or government actions to avoid those shortfalls. The shortfalls would only happen in the absence of market and government responses to avoid them. Of course, with the potential shortfalls identified in 2018 and 2019, markets and governments did respond, and consequently there were no shortfalls.

Current AEMO projections of potential shortfalls after 2025 cited in the Department's Assessment similarly do not take into account market and government actions to avoid shortfalls, and importantly have not taken included the impact of the global pandemic:

[Impacts of the COVID-19 coronavirus \(not modelled\) may lead to decreased levels of global LNG demand and domestic gas consumption in the short term.](#)²⁰

The International Energy Agency describes the impact of Covid-19 as the largest ever decrease in consumption, and that it will affect every sector:

[The magnitude of the impact remains however unprecedented: this would be the largest recorded annual decrease in consumption since the natural gas market developed at scale in the second half of the 20th century and the drop would be twice bigger than the latest downturn in 2009, when natural gas demand fell by 2%. Natural gas consumption is expected to fall in every sector and region in 2020, but most of the declines are in mature markets and power generation.](#)²¹

These impacts will reduce demand for gas in Australia, and for LNG globally, which consumes around two-thirds of Australian gas production.

¹⁸ AEMO (2017) GSOO 2017, https://www.aemo.com.au/-/media/Files/Gas/National_Planning_and_Forecasting/GSOO/2017/2017-Gas-Statement-of-Opportunities.pdf

¹⁹ AEMO (2020) GSOO 2020, p.3, https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/gsoo/2020/2020-gas-statement-of-opportunities.pdf?la=en

²⁰ AEMO (2020) GSOO 2020, https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/gsoo/2020/2020-gas-statement-of-opportunities.pdf?la=en

²¹ IEA (2020) Gas 2020, 2020: Meldown. Uncharted macroeconomic territory, <https://www.iea.org/reports/gas-2020/2020-meltdown>

As explained above, even if an actual shortfall did eventuate because the east coast gas market (ECGM) is an interconnected network with export facilities, the NGP will make no difference because any additional gas produced anywhere in Australia can simply be exported.

This is even more likely because although the Queensland LNG projects were approved on condition that they would supply gas from their own tenements, this has not been the case. Instead LNG export projects have sucked up massive amounts of gas that were developed for the domestic gas market in Victoria and South Australia. This is particularly the case with Santos's Cooper Basin gas fields. Santos over-estimated the productivity of their CSG fields and have been diverting Cooper Basin gas for export.

The shift away from gas

Gas is already being replaced by lower cost-efficient electrical systems for most uses.

While the pandemic will reduce global and domestic gas demand as noted above, the LNG terminals will continue to export vast quantities of gas every year. Because gas companies generally prioritise lower cost gas reserves for extraction, these exports will steadily deplete lower cost reserves, leaving increasingly higher cost gas for Australian customers. As a result, domestic gas prices will continue to rise.

A large part of domestic gas use in Australia is for space and hot water heating in homes and businesses. Efficient electrical systems are already cheaper than gas for space and water heating in households and businesses,²² and there are many options for electrification of industrial uses that would save users considerable costs and have a fast return on investment.²³ Renewable energy with storage is already a cheaper option than gas for delivering firm power.²⁴

The vast quantities of gas being exported every year mean reserves will inevitably deplete. As noted above, gas with lower production costs will deplete leaving only more expensive gas for domestic customers and gas prices will rise. As gas prices rise, gas power stations will be increasingly displaced by renewable energy with storage. Households and businesses will shift to electric heat pumps for heating and hot water, which are already cheaper than gas, often even when the cost of replacing gas systems is included.²⁵ If the gas saved is not exported as LNG, it could be used to by industrial users, who will also electrify their

²² Lombard and Price (2018) Gas versus electricity: Your hip pocket guide, <https://renew.org.au/renew-magazine/efficient-homes/gas-versus-electricity/>

²³ Beyond Zero Emissions (2018) Electrifying Industry, <https://renew.org.au/renew-magazine/efficient-homes/gas-versus-electricity/>

²⁴ CSIRO/AEMO (2019) GenCost 2020, https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning_and_Forecasting/Inputs-Assumptions-Methodologies/2019/CSIRO-GenCost2019-20_DraftforReview.pdf

²⁵ ATA(2014) Are we still Cooking with Gas? https://renew.org.au/wp-content/projects/CAP_Gas_Research_Final_Report_251114_v2.0.pdf

processes over the longer term. Whether the NGP goes ahead or not, it will make little difference to this inevitable shift away from gas.

Assessment ignores Australian Domestic Gas Security Mechanism (ADGSM)

The Department's Assessment makes no mention of the Australian Domestic Gas Security Mechanism, the ADGSM. This is extraordinary because the Assessment echoes Santos in making much of potential shortages, yet it completely ignores the Australian Government's main policy regarding gas shortages.

If AEMO warns of a potential shortfall, due to the fact that the LNG producers are choosing not to supply sufficient gas to the domestic market (which is the only possible reason for a shortfall), the Federal Minister for Resources and Northern Australia can declare a shortfall year and divert LNG exports to the domestic market.

Before this happens, the LNG industry is given the opportunity to supply enough gas to avoid a shortfall as it did in 2017.²⁶

It is inconceivable that if there was a domestic gas shortfall that the Government would fail to trigger the ADGSM and allow Australian gas to be sent overseas while Australian consumers go without.

THE NGP IS LIKELY TO INCREASE, NOT REDUCE GAS PRICES

The Assessment states the NGP is "critical for energy security and reliability in NSW" as it would "put downward pressure on gas prices".²⁷

This ignores Santos's own acknowledgement to the Department's Expert Review that the NGP will not reduce gas prices:

In analysing the economic impact of the Narrabri gas Project, it was assumed that the project did not add to total gas supply at the national level. Rather, it was assumed that it benefited NSW by being an alternative to new gas supply located outside of NSW. Therefore, it was assumed that the project itself did not drive

²⁶ Hepburn (2017) *The government's new gas deal will ease the squeeze, but dodges the price issue*, <https://theconversation.com/the-governments-new-gas-deal-will-ease-the-squeeze-but-dodges-the-price-issue-85175>

²⁷ Assessment P.iv

changes to gas market prices. In effect, the project was a gas price taker and not a price maker.²⁸ (Emphasis added.)

Under questioning from the IPC, the Department’s Director David Kitto also acknowledged that the NGP would not reduce gas prices: *We're certainly not saying, in our assessment, that the Narrabri Gas Project will reduce gas prices*”.²⁹

In fact, not only is the NGP unlikely to reduce gas prices, it is likely to increase them.

This is because gas supplied to NSW customers from the NGP will displace lower cost gas currently being supplied to NSW customers. Much of that gas is from the Cooper Eromanga Basin in South Australia. As shown in Table 2 below, independent analysis shows this gas can be produced at a considerably lower cost than gas from the Gunnedah Basin which would feed the NGP.

Table 2: Comparison of production costs, Cooper Eromanga and Gunnedah gas basins, AUD/GJ

| Basin | Project | 2P | | 2C |
|-----------------|-----------------|-----------|-------------|------|
| | | Developed | Undeveloped | |
| Cooper Eromanga | Cooper Eromanga | 2.95 | 6.25 | 7.00 |
| Gunnedah | Gunnedah | | | 7.40 |

Source: AEOM (2019), *Gas Statement of Opportunities*, https://www.aemo.com.au/-/media/files/gas/national_planning_and_forecasting/gsoo/2020/2020-gas-statement-of-opportunities.pdf?la=en

Santos CEO Stephen Gallagher highlighted comments by the Australian Competition & Consumer Commission (ACCC) that customers in NSW and Victoria pay \$2 to \$4 more per gigajoule for gas due to gas transportation costs, perhaps implying that the NGP could lower gas prices to NSW customers by this amount.³⁰

However, a comparison of Sydney and Brisbane gas prices on the Short Term Trading Market (STTM) in Figure 1 below, shows a much smaller difference, with Brisbane prices around 60c higher than Sydney prices on average since 2014 when the LNG export terminals opened. This 60c gap would not be eliminated for gas supplied by the NGP because the NGP would also require several hundred kilometres of pipeline to be built and tariffed. As such, there is likely to be little, if any, saving to NSW consumers from reduced transport costs.

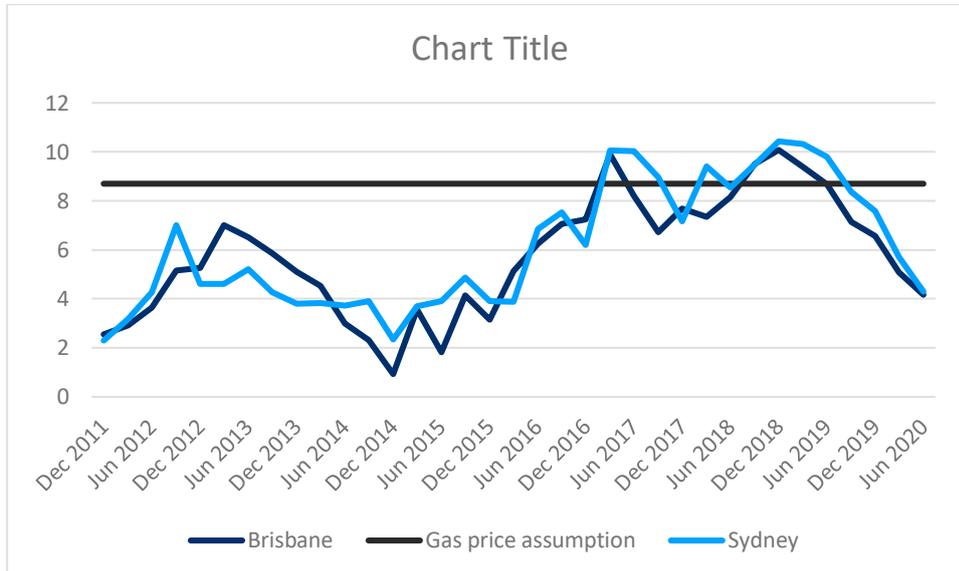
²⁸ BA Economics (2018), Appendix H2-B-Economic Expert Advice, P.5, <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-6456%2120200611T102102.329%20GMT>

²⁹ IPC hearings Monday

³⁰ Santos (17 July 2020) Narrabri Gas Project (SSD 6456) Santos response to questions on notice - Independent Planning Commission, https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/03/narrabri-gas-project/correspondence/applicant/200717_in_santos-responses-to-ipc-questions-on-notice.pdf Q.5

Incidentally, the horizontal black line in Figure 1 shows the \$8.70 gas price assumed in the Santos EIS Benefit Cost Analysis. Gas prices have rarely reached this level, suggesting this assumption underlying their claim of net benefit is optimistic.

Figure 1: Comparison Brisbane v Sydney STTM gas prices 2011 to 2020



Source: Australian Energy Regulator, *SSTM- Quarterly Prices*, updated 9 July 2020, <https://www.aer.gov.au/wholesale-markets/wholesale-statistics/sttm-quarterly-prices>

THE NGP WILL NOT SUPPORT THE DEVELOPMENT OF GAS-FIRED POWER STATIONS IN NSW

The Assessment states the NGP is “critical for energy security and reliability in NSW” as it would:

Support the development of gas-fired power stations in NSW to provide dispatchable energy to the National Electricity Market (NEM) as it transitions away from a long-term reliance on coal fired power stations to a greater reliance on renewable energy³¹

This ignores the economic shift away from gas to renewable energy. Gas use in the ECGM is divided between gas-powered generation (GPG) residential/commercial use, and industrial use.

As shown in Table 3 below, gas powered generation made up only 4.6 per cent of east coast gas consumption in 2020.

³¹ Assesemnt P.iv

Table 3: Breakdown of gas consumption by sector in the east coast gas market, 2020

| | Gas Powered Generation | Residential/commercial | Industrial | LNG |
|---------------------------|------------------------|------------------------|------------|---------|
| Amount (PJ) | 19.9 | 192.2 | 262 | 1,414.8 |
| Percentage of ECGM demand | 4.6% | 9.8% | 13.4% | 72.2% |

Source: AEMO (2020) GSOO 2020

The Assessment asserts that

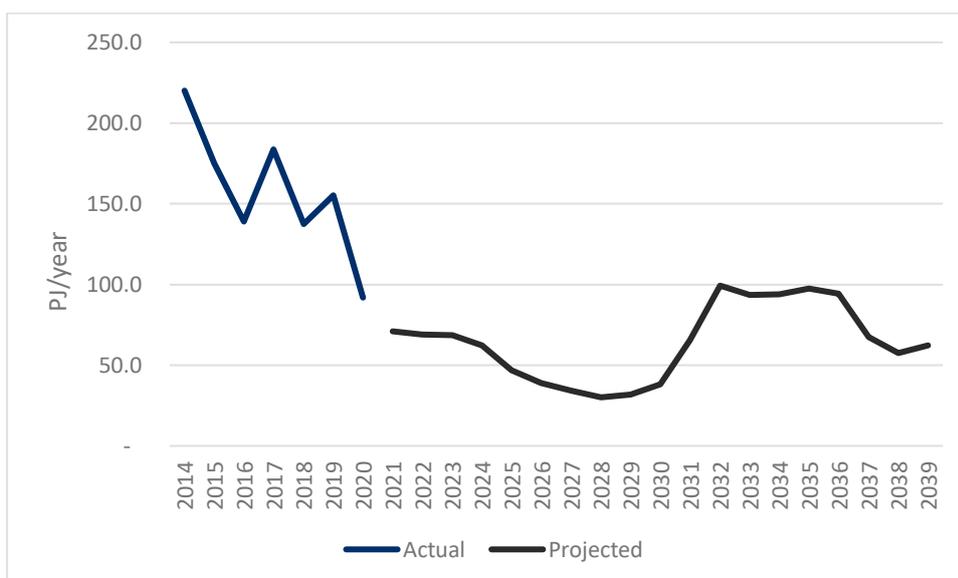
Current forecasts predict a small decline in demand over the next two decades as domestic users adjust to higher gas prices.³²

And then immediately asserts the opposite on the basis of forthcoming coal plant closures in NSW:

However, the closure of several coal-fired power stations in NSW (Liddell, Vales Point, Eraring and Bayswater) could increase the demand for gas in the electricity sector as new gas-peaking power stations are built to provide dispatchable energy to the NEM.³³

Rather than a “small decline in demand”, AEMO projections in Figure 2 below show a huge drop-off in gas demand. Since 2014, gas demand for power generation has fallen by almost 60 per cent and is projected to fall to one-third of that by 2028, before climbing back to current levels for a few years and declining again.³⁴

Figure 2: Gas powered generation, actual and projected, Central Scenario, GSOO 2020



³² Assessment p.35

³³ Assessment, p. 23

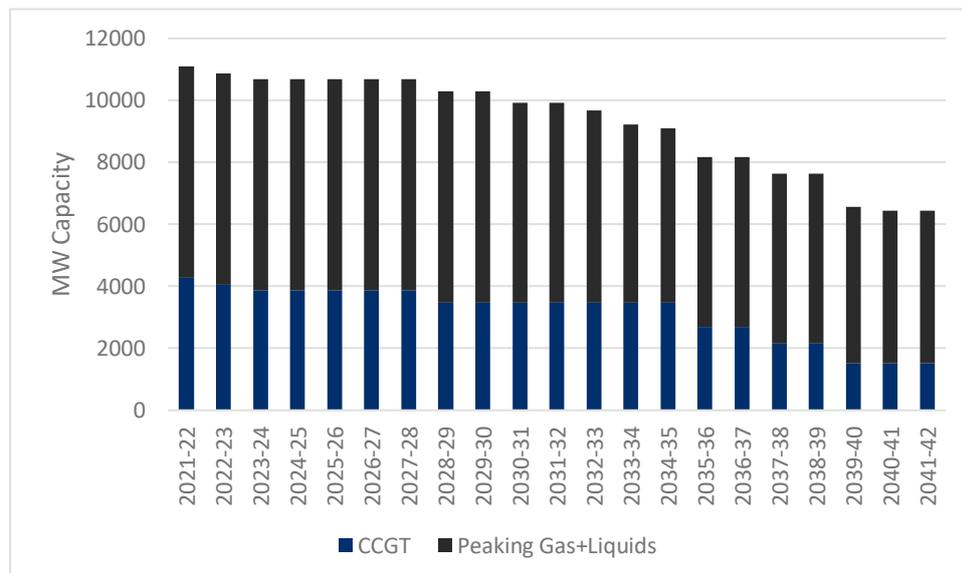
³⁴ AEMO (2020) GSOO 2010, <https://aemo.com.au/energy-systems/gas/gas-forecasting-and-planning/gas-statement-of-opportunities-gsoo/2019-gas-statement-of-opportunities>

The AEMO Integrated System Plan (ISP), which shows the market operator’s planning scenarios for the National Electricity Market (NEM).

The Central Scenario shows the market operator expects a 42 percent decline in the capacity provided to the NEM by gas power stations over the next two decades. This includes a decline in both combined cycle gas power stations (CCGT) and gas peaking plants as shown in Figure 3 below.

This modelling assumes the announced closures of NSW coal-fired power stations Liddell (2023), Vales Point (2030), Eraring (2033) and Bayswater (2036).³⁵

Figure 3: NEM 2020 ISP Generation Outlook Gas-powered Generation (GPG), Central Scenario



AEMO (2018), Integrated System Plan 2020

Renewable energy with storage a lower cost option than gas for firming power

The Assessment’s argument that gas power stations are required “as [the NEM] transitions away from a long-term reliance on coal fired power stations to a greater reliance on renewable energy”, ignores developments in storage technologies that now provide a lower cost alternative to gas for firming power.

³⁵ AEMO (2018) Integrated System Plan ISP, Figure 9 .36, <https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp>

The Assessment spells this out:

As outlined in Section 3.1 strategic energy planning by the AEMO indicates that natural gas will continue to be an important component of the dispatchable energy supply mix for the foreseeable future, particularly as it is 'flexible' (i.e. can be turned on and off quickly), and can complement variable renewable sources at times of low wind and solar availability (eg. at night).³⁶

However, with the development of storage technologies, gas is no longer necessary to firm renewable energy. Renewable energy with sufficient energy storage to provide firming power is already cheaper than gas and is getting cheaper.

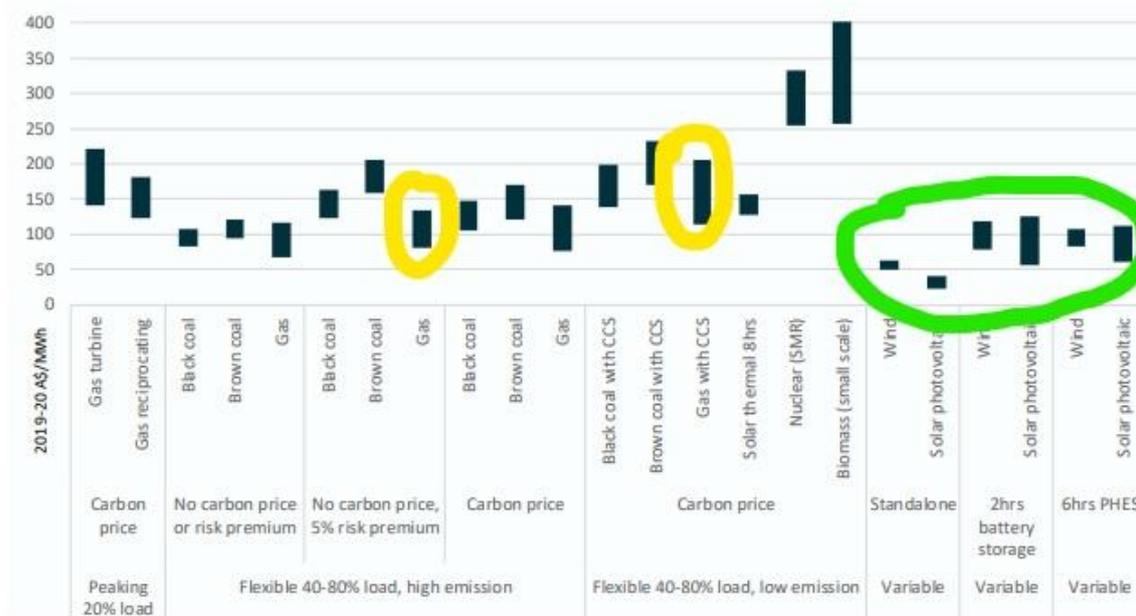
CSIRO and AEMO analysis of the levelised cost of electricity (LCOE) of different power technologies shows that renewable energy with storage is already cheaper for new build power generation than gas, making gas replacement of coal-fired power stations with gas increasingly unlikely.³⁷

Figure 4 below shows the AEMO/CSIRO projected technology costs for 2030, when the NGP would be operating if it goes ahead. The green circled areas show the projected LCOE of renewables under a range of options including standalone (no storage), 2 hours storage with batteries and 6 hours storage with pumped hydro. Even with 6 hours of energy storage, solar and wind are lower cost than gas, with a 5 per cent risk premium to account for future climate policies.

³⁶ Assessment, p. 107

³⁷ CSIRO (December 2019) GenCost 2019-20: preliminary results for stakeholder review, https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning_and_Forecasting/Inputs-Assumptions-Methodologies/2019/CSIRO-GenCost2019-20_DraftforReview.pdf There are a number of comparisons made between gas and renewables costs including whether or not a carbon price or risk premium is included, and the level and type of storage. However, renewables with storage are already competitive or cheaper under a Levelised Cost of Electricity (LCOE) analysis under all comparisons, and this trend is projected to increase over coming decades.

Figure 4: LCOE technology comparison, 2030



Source: AEMO/ CSIRO GenCosts 2019-20 preliminary results for stakeholder review

In his presentation to the IPC, Santos CEO Kevin Gallagher implied (vaguely) that in the future Santos would produce gas using carbon capture and storage.³⁸

The AEMO/CSIRO GenCost analysis demonstrates the absurdity of this idea. The cost of gas with CCS in the 2030 projection is around double the cost of renewable with energy storage. There is no rationale for building gas power stations, piping the CO2 hundreds of kilometres and burying it with all the risk and uncertainty that entails, when renewable energy with storage can achieve the same energy service for half the cost.

Efficient electrical systems are already cheaper than gas for space and waste heating in households and businesses³⁹, and there are many options for electrification of industrial uses that would save users considerable costs and have a fast return on investment.⁴⁰

The AEMO/ CSIRO GenCost projections assume gas prices that would be required to make the project viable (\$8.70 GJ) similar to those assumed by Santos in its EIS.⁴¹

³⁸ Santos (July 20, 2020) Narrabri Gas Project Speech to IPC, <https://www.santos.com/news/narrabri-gas-project-ceo-speech-to-the-ipc/>

³⁹ Lombard and Price (2018) Gas versus electricity: Your hip pocket guide, <https://renew.org.au/renew-magazine/efficient-homes/gas-versus-electricity/>

⁴⁰ Beyond Zero Emissions (2018) Electrifying Industry, <https://renew.org.au/renew-magazine/efficient-homes/gas-versus-electricity/>

⁴¹ GHD (2016) Santos EIS Appendix U1, Economic Assessment (cost benefit analysis), <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-6456%2120190228T035910.643%20GMT>

Negative local economic and social impacts

The Department's Assessment has accepted at face value Acil Allen modelling commissioned by Santos that found the project would benefit the local community.⁴² However, research and experience from Queensland's CSG regions tells a different story.

IMPACTS OF CSG DEVELOPMENT ON LOCAL CAPITAL

The most detailed survey of local stakeholders in Queensland CSG regions to date was undertaken by the resource industry-funded Sustainable Minerals Institute (SMI) at the University of Queensland at the height of the CSG construction boom in 2013.⁴³

The study surveyed stakeholders from different sectors of the local community in CSG regions, including the local business, agriculture, local government, advocacy groups and environmental consultants, as well as the mining and unconventional gas industries. Stakeholders were asked to compare changes in key measures of community assets between 2008 before CSG development began in the region, and 2013 at the height of CSG development.

All stakeholder groups, other than those representing the mining, CSG and government, believed that the development of mining and CSG had had a negative impact on all or most of these measures. Even stakeholders from the mining and unconventional gas industries thought that local infrastructure (built capital) had deteriorated as a result of their activities. Government stakeholders thought it had led to a deterioration in infrastructure and financial capital. Table 4 below summarises the survey results.

⁴² The modelling was updated at the request of BAEconomics for the expert review to adjust for larger local impact area.

⁴³ Source: Everingham et al (2013) Energy resources from the food bowl: an uneasy co-existence. Identifying and managing cumulative impacts of mining and agriculture, https://www.csrn.uq.edu.au/media/docs/487/Energy_from_Foodbowl_FINAL_16Sep2013.pdf

Table 4: Stakeholder responses assessing the change in different types of capital as a result of CSG and coal development

| Stakeholder group | Financial capital | Human capital | Built capital | Social capital | Natural Capital |
|-------------------|-------------------|---------------|---------------|----------------|-----------------|
| CSG | Better | Better | Worse | Better | Better |
| Mining | Better | Better | Worse | Better | Better |
| Agriculture | Worse | Worse | Worse | Worse | Worse |
| Business | Worse | Worse | Worse | Worse | Worse |
| Environment | Better | Worse | Worse | Better | Worse |
| Advocacy | Worse | Worse | Worse | Worse | Worse |
| Community | Worse | Better | Worse | Worse | Worse |
| Government | Worse | Better | Worse | Same | Same |

Source: Everingham et al (2013)

Of particular note is that the business community, who might be expected to benefit most from CSG development found it had led to a deterioration in all measures of local assets, including financial capital.

Miles—a CSG ghost town

The town of Miles in the Darling Downs was devastated. Local businesses invested heavily in the expected boom they were led to believe would occur with the coming of CSG, in much the same way as has been promised for Narrabri. This led to widespread business closures and bankruptcies when the benefits failed to eventuate or proved fleeting.⁴⁴

⁴⁴ Clarke (March 2018) Miles: The Coal Seam Ghost Town, <https://www.news.com.au/finance/business/mining/miles-the-coal-seam-ghost-town/news-story/3923c38654f0ab9e3e4ed703d1de2d52>

Figure 5: Media coverage of impacts of CSG development on the town of Miles, Queensland

Miles: The Coal Seam Ghost Town

NOT long ago this town was booming. Workers were pouring into town and rents were up to \$1000 a week. Now, it's been left for dead.

Gemma Clarke 11 comments

news.com.au MARCH 26, 2018 12:10PM



Not only have houses been abandoned, but businesses as well. Picture: Gemma Clarke Source: Supplied

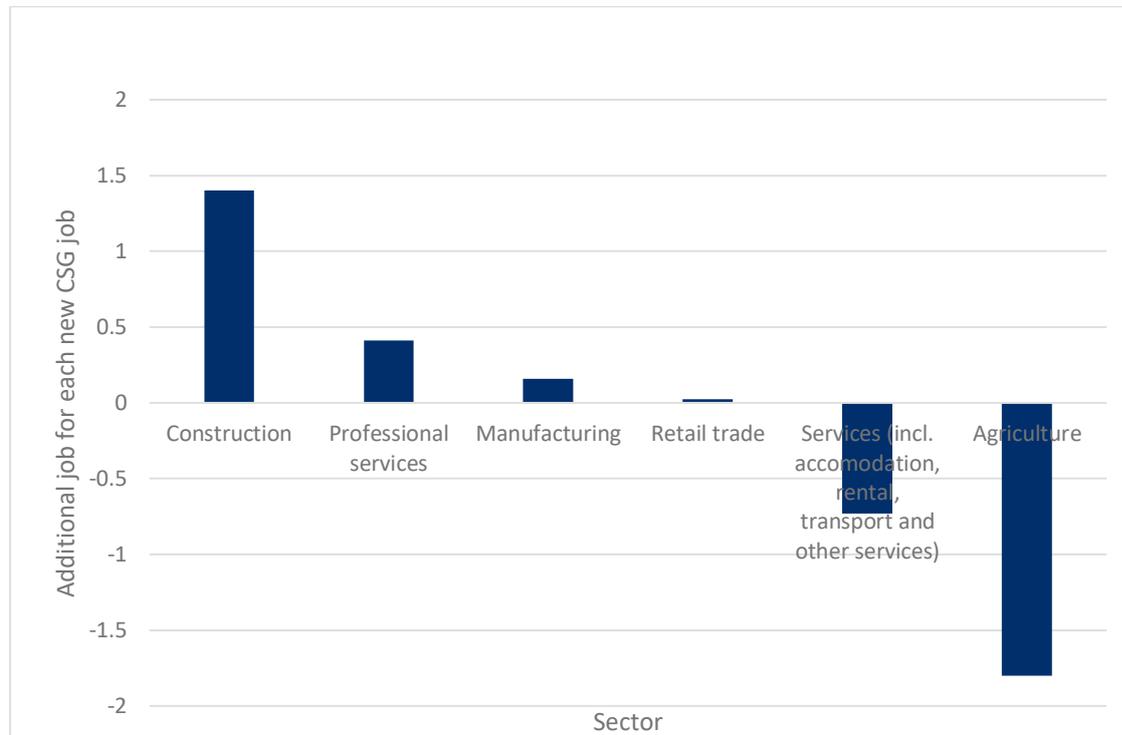
Source: Clarke (March 2018), Miles: the Coal Seam Ghost Town, news.com.au, <https://www.news.com.au/finance/business/mining/miles-the-coal-seam-ghost-town/news-story/3923c38654f0ab9e3e4ed703d1de2d52>

Few spillover jobs

Research by the CSIRO has found that there were virtually no flow-on jobs from CSG development in Queensland outside of the CSG industry itself. While CSG development initially employed an additional 1.4 construction workers and 0.7 professional services workers for each new CSG job, it found virtually no additional jobs in the manufacturing and

retail services sectors.⁴⁵ A further study found that for every new CSG job there was a loss of 1.8 farming jobs.⁴⁶

Table 5: Spillover job impacts per CSG job



Source: Fleming and Measham (2013), OCE (2015)

Negative impacts on employment in non-CSG industries

The 200 ongoing jobs of the NGP referred to in the Assessment are a model output, not an actual commitment to employ that many people.

This economic modelling commissioned by Santos also found that the NGP will have a negative impact on employment in farming, mining and manufacturing for both the local region and NSW as a whole as shown in Figure 6 below. The modelling outputs show the percentage deviation from the baseline, meaning, for instance, that if the NGP goes ahead,

⁴⁵ Fleming and Measham (2013), Local economic impacts of an unconventional energy boom: the coal seam gas industry in Australia, <https://gisera.csiro.au/wp-content/uploads/2018/03/Social-1-Working-Paper-1.pdf> Table 4.2 P.12. Correspondence with GISERA Director Damian Barret indicated the findings on services jobs are statistically insignificant.

⁴⁶ OCE (2015) Review of the socioeconomic impacts of coal seam gas in Queensland, https://www.industry.gov.au/sites/default/files/June%202018/document/pdf/review_of_the_socioeconomic_impacts_of_coal_seam_gas_in_queensland.pdf?acsf_files_redirect P.29

there would be 0.56 per cent fewer mining jobs in the region than there would have been if the project had not gone ahead.

Figure 6: Updated Acil Allen modelling of NGP for Santos. Industry employment and output impacts over project life, percent of deviation from baseline

TABLE 2.2 INDUSTRY EMPLOYMENT AND OUTPUT IMPACTS OVER THE PROJECT LIFE – PER CENT DEVIATION FROM THE BASELINE

| | Employment | | Output | |
|--------------------------|---------------------------|-------------|---------------------------|--------------|
| | Moree-Narrabri SA3 region | NSW | Moree-Narrabri SA3 region | NSW |
| Agriculture and forestry | -0.15 | -0.03 | -0.08 | -0.02 |
| Mining | -0.56 | -0.04 | -0.74 | -0.04 |
| Manufacturing | -0.19 | -0.04 | -0.40 | -0.05 |
| Utilities | 0.69 | 0.01 | 0.16 | 0.00 |
| Construction | 0.93 | 0.02 | 0.74 | 0.02 |
| Trade | 0.64 | 0.02 | 0.38 | 0.01 |
| Transport | 0.49 | 0.01 | 0.48 | 0.00 |
| Services | 0.45 | 0.01 | 0.18 | 0.00 |
| TOTAL | 0.28 | 0.01 | 0.09 | -0.01 |

SOURCE: ACIL ALLEN

Source: DPIE (2020) NGP Assessment, Appendix H2-B

Census data for 2016 show that 2,678 of the 11,494 strong workforce in the Moree-Narrabri SA3 regions are employed in agriculture.⁴⁷ If Santos’s modelled 0.15 per cent fall in employment in agricultural jobs is accurate, it would result in the loss of around four jobs.

However, modelled results are always based on many assumptions that may or may not turn out to be accurate. As noted above, research into the actual impact of CSG on jobs in Queensland shows different outcomes to those modelled by Santos.

As noted above, CSIRO research found that 1.8 agriculture jobs were lost for each new CSG job in Queensland’s CSG gas fields. If there were 200 ongoing jobs provided by the NGP, as claimed by Santos and accepted in the Department’s Assessment, the CSIRO research would suggest a loss of around 360 agriculture jobs as a result of the NGP.

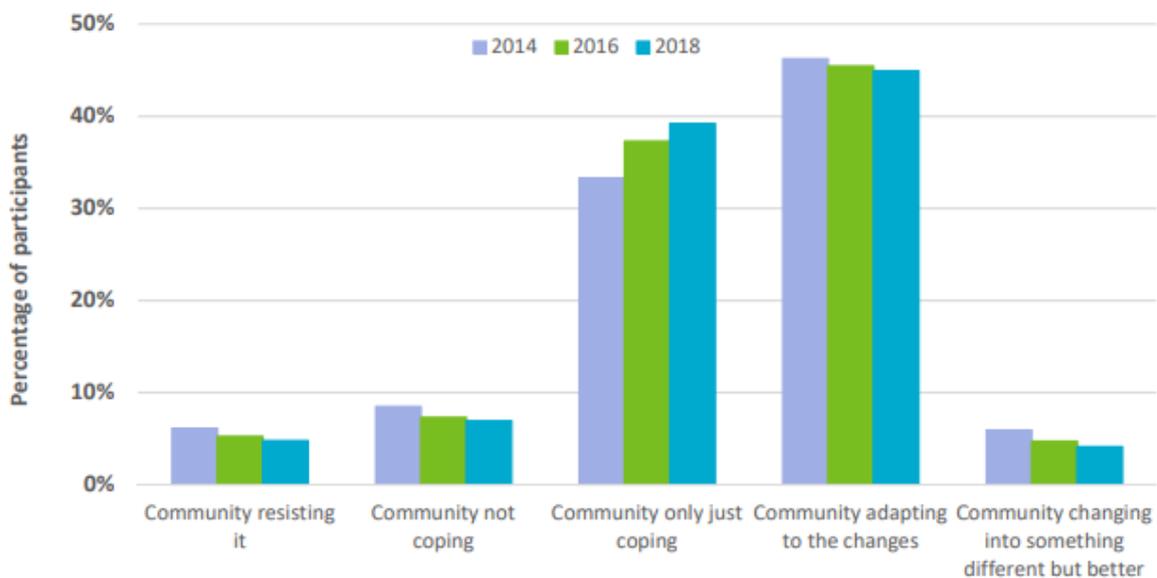
⁴⁷ ABS (2016) Census data Moree-Narrabri (SA3) region, employment by industry, https://itt.abs.gov.au/itt/r.jsp?RegionSummary®ion=11003&dataset=ABS_REGIONAL_ASGS2016&geoconcept=ASGS_2016&measure=MEASURE&datasetASGS=ABS_REGIONAL_ASGS2016&datasetLGA=ABS_REGIONAL_LGA2018®ionLGA=LGA_2018®ionASGS=ASGS_2016

Rejected by communities

GISERA, a gas industry alliance embedded in the CSIRO, surveyed community perceptions of “adapting to CSG over time” in Queensland’s Western Downs region.⁴⁸

As shown in Figure 7 below, GISERA found that only around 6 per cent of those surveyed thought CSG development would result in “changing the community into something better”. The remainder of respondents believed the community was at best “adapting to the changes,” with over half believing the community was “only just coping,” “not coping,” or “resisting”.

Figure 7: Perceptions of community adapting to CSG development over time: Western Downs 2014, 2016, 2018



Note: The red arrow indicates a line between less and more favourable perceptions of community adapting

Source: Walton and McCrea (2018)

⁴⁸ Walton and McCrae (2018) Trends in community wellbeing and local attitudes to coal seam gas development, 2014 -2016 -2018 Western Downs and eastern Maranoa regions, Queensland Survey report, <https://gisera.csiro.au/wp-content/uploads/2018/12/GISERA-Social-10-Final-Report.pdf>

Squandering our recovery spending

The Assessment argues that the NGP should be approved as a form of Covid-19 recovery spending:

[The NGP will] deliver significant economic benefits to NSW and the Narrabri region and stimulate the economic recovery from the effects of the COVID-19 pandemic."⁴⁹

As Figure 8 below shows, oil and gas mining specifically is one of the least labour-intensive industries in Australia. For every million dollars of sales income, only around 0.4 jobs are created in mining gas. The average for all Australian industries is 3.4 jobs.

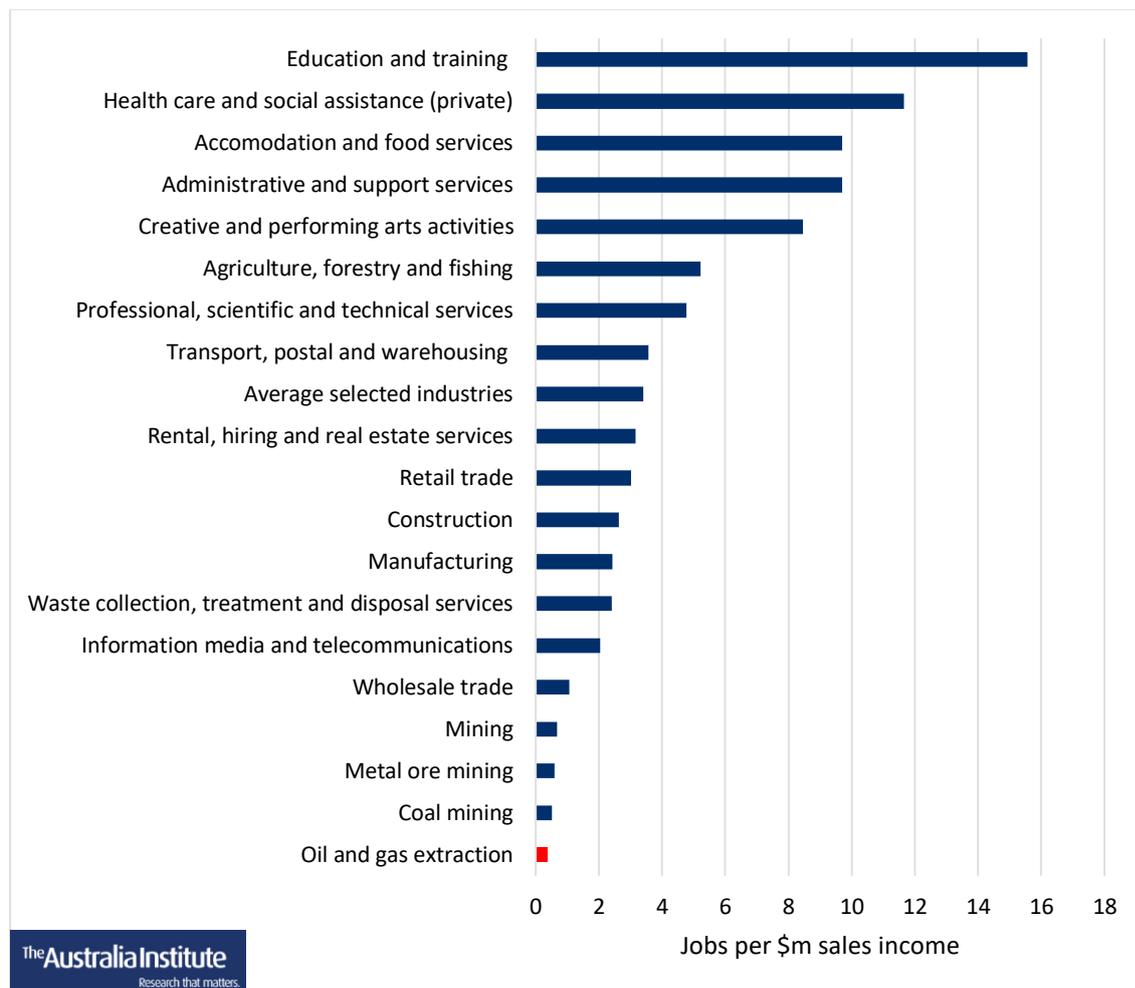
The story is the same when approached via other metrics for labour intensity. For example, industries can be assessed in terms of jobs per gross value added. On this metric, oil and gas mining is again the single most job-poor industry subcategory, behind the rest of the mining sector and even gas supply.

Subsidising gas would squander our recovery spending. Gas is among the very worst options for stimulus, which should focus on jobs-rich industries. Investment in almost any other industry will provide more jobs than in the gas industry.

Moreover, facing unprecedented low prices and volatility, the gas industry itself is delaying major projects. In a context of low prices it makes *even less* sense to subsidise new supply.

⁴⁹ Assessment P.iv

Figure 8: Job intensity of selected Australian industries (jobs per \$m sales income)



Source: ABS (2020) 81550DO002_201718 Australian Industry, 2017-18,
<https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8155.02017-18?OpenDocument>

A BAKING SODA LED RECOVERY?

The belief that the NGP can create local manufacturing jobs with fertiliser and baking soda factories appears far-fetched.

As discussed above, the NGP will almost certainly increase gas prices in NSW by displacing lower cost Cooper Basin gas with higher cost gas from the Gunnedah Basin.

The Perdaman fertiliser factory is highly speculative at this stage, consisting of a non-binding agreement for the supply of gas and an agreement to undertake a study into its viability.

The project would have to establish that there is a sufficient market in the region, and that it could compete with other manufacturers and imports. The only other manufacturer of Ammonia Nitrate (AN) in NSW, Orica Energy at Kooragang Island in Newcastle, only

produces AN for explosives. If manufacturing fertiliser was not viable at current gas prices in other parts of NSW, it will not be viable with even more expensive gas in Narrabri.

The idea of a baking soda factory using (toxic) waste salt from coal seams is little more than a thought bubble. If such a venture was viable there should already be baking soda factories attached to coal seam gas fields all over Queensland.

Conclusion

The Department's Assessment of the NGP uncritically repeats many of Santos's misleading claims about the need for the project and its economic benefits. Its presentation of the greenhouse gas emissions, which are equivalent to almost a full year of NSW's emissions, as "small" and "consistent with NSW's and Australia's commitments to a low carbon future" shows a lack of understanding of the seriousness of climate change.

Uncritically accepting Santos's non-binding promise that gas from the NGP would be used in NSW misses the fundamental point that the ECGM is an interconnected system, unrelated to state boundaries, which is in turn connected to global markets. As such it is irrelevant where gas molecules from a particular project go, when it will simply displace gas currently being supplied from elsewhere for export.

The gas the NGP is most likely to displace is from the Cooper Basin which is currently supplying NSW customers. The Cooper Basin reserves are very large, with 2C reserves three times those of the Gunnedah Basin which would feed the NGP, and prospective reserves 40 times greater. Independent evaluation by AEMO shows Cooper Basin gas is significantly cheaper than Gunnedah Basin gas, meaning that NSW's reliance on NGP could well increase gas prices in NSW.

The Assessment also accepts Acil Allen modelling for Santos of the economic impacts of the NGP. It does not take into account the actual experience of local communities in the failed Queensland CSG experiment. In Queensland there were few flow-on jobs to industries, a significant loss of agricultural jobs, and a deterioration of community assets. Only 6 per cent of respondents from a CSIRO survey in gas regions thought CSG has improved, or would improve, their region.

The Australia Institute believes the NGP is not in the public interest. It will do nothing to improve energy security and reliability for NSW, will have few economic benefits for the region, and will result in unnecessary and unacceptable greenhouse gas emissions, inconsistent with Australia's commitments under the Paris Agreement..

As such we recommend the IPC reject the NGP.