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# Economics of unconventional gas development

***Briefing note for Northern Territory speaking tour***
***June 2017***

## Key points

- Development of unconventional gas in the NT risks connecting the NT to the chaos in wider Australian gas markets. As the nation becomes a major gas exporter with record production there have been no winners:
  - Household and industrial consumers are paying record prices.
  - Tax revenues are declining.
  - Shareholder value has crumbled.

- There are no benefits for NT gas consumers from unconventional gas as they already have access to abundant conventional gas.

- Claims that gas royalties are the Territory's "only hope" or could bring "independence from Canberra" are misguided.
  - Total mining and gas royalties contribute just 3% of NT government revenue. Even doubling the size of the industry would not significantly change the nature of the NT Budget.
  - If unconventional gas in the NT was as 'successful' as in Queensland, NT government revenue would expand by around 1%.
  - This is unlikely as NT unconventional gas is likely to be high cost and global markets look set for a period of abundant supply.

- Gas projects are "capital intensive", meaning they use a lot of machines and pipelines but employ few people, particularly once constructed. Latest ABS statistics estimate that gas and oil industries employ 1,023 people in the Northern Territory. Arts and recreational services employed twice this many, 2,243 people at the last census.

- Industry-funded research in Queensland shows that local stakeholders in agriculture, local business, local government and community advocacy consider unconventional gas development to have had a negative impact on their towns' financial, human, built, social and natural capital.

## 1. National gas policy shambles

The NT is facing major gas policy decisions at a time when the rest of Australia is dealing with the consequences of policies that have failed households, industrial consumers, taxpayers, shareholders and the environment:

- As Australia becomes a major gas exporter, our pro-business Prime Minister is threatening to intervene in gas markets to secure local supply.[1]
- Australian consumers are paying more for Australian gas than Japanese consumers in some circumstances.[2]
- Revenues from the main gas tax, the Petroleum Resource Rent Tax, are declining despite record production.[3]
- Huge destruction of shareholder wealth. Santos shares, for example, are worth just 25% of their 2008 peak and less than half of their average price over the last decade.[4]
- Environmental damage – rivers such as the Condamine River, Queensland, can now be set alight likely due to migratory emissions.[5]
- Many farming communities are opposed to unconventional gas development.

The factors behind these outcomes are complex, but none them are in dispute. It is clear that there have been few winners from recent gas developments in Australia. The NT has been relatively isolated from this chaos with its small market supplied by conventional sources and with exports projects supplied by offshore reserves. Decisions to expand unconventional gas development in the Territory and supply infrastructure to connect to wider markets should be taken with caution.

This note outlines some of the key economic issues around gas development in the Northern Territory.

## 2. The money

Industry advocates claim that fracking could bring "independence from Canberra" or that it is the Territory's "only hope".[6] Such claims are misleading at best.

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[1] Massola and Aston (2017) *Malcolm Turnbull intervenes in gas market to tackle surging domestic prices,* http://www.smh.com.au/federal-politics/political-news/malcolm-turnbull-intervenes-in-gas-market-to-tackle-surging-domestic-prices-20170426-gvsuyb.html

[2] Chambers and Baxendale (2017) *Domestic users pay more for Australian gas than Japanese,* http://www.theaustralian.com.au/business/mining-energy/domestic-users-pay-more-for-australian-gas-than-japanese/news-story/1f29dbab055737f7ab771a9c0efc0820

[3] Aston (2017) *Gas tax review confirms nation faces decade wait for revenue from global giants,* http://www.smh.com.au/federal-politics/political-news/gas-tax-review-confirms-decade-wait-for-revenue-from-global-giants-20170428-gvuvo2.html

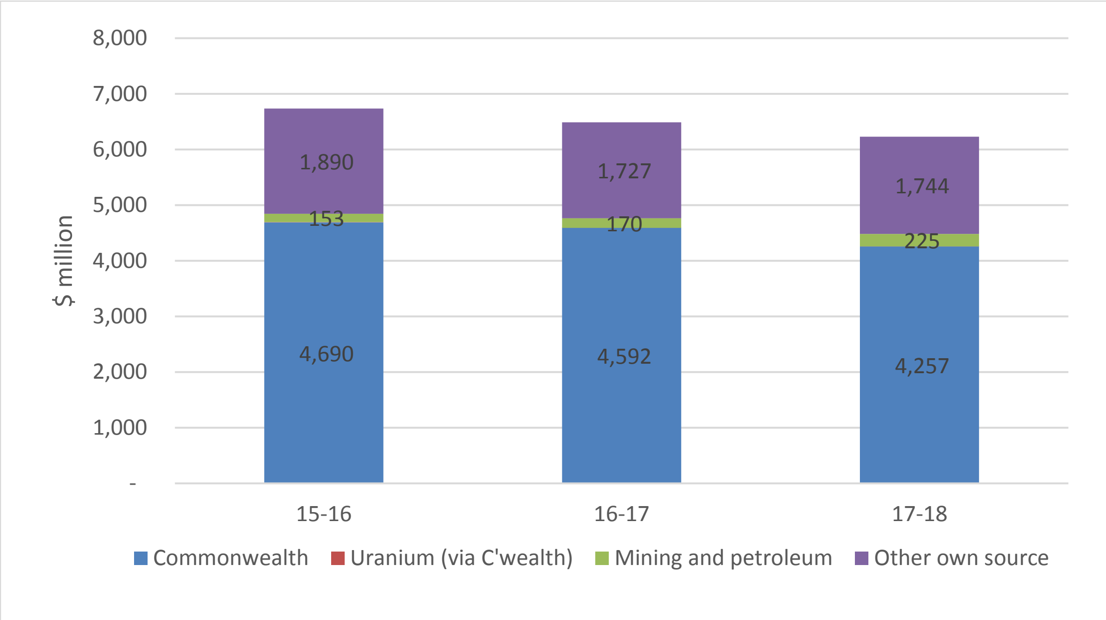
[4] Yahoo! Finance (2017) *Santos Limited,* https://au.finance.yahoo.com/quote/sto.ax?ltr=1

[5] Williams (2016) *Condamine River set on fire after Greens MP lights bubbling methane gas, blames fracking,* http://www.abc.net.au/news/2016-04-23/condamine-river-bubbling-methane-gas-set-alight-greens-mp/7352578

The main contribution of unconventional gas to the NT budget would be through royalties. If any PRRT was ever paid that would accrue to the Commonwealth.

All mining and petroleum royalties currently make up between 2% and 4% of the Territory's total revenue. The vast bulk of funding comes from the Commonwealth:

## Figure 1: Territory revenues by source




Source: NT Budget Papers

Figure 1 shows that in 2017-18 mining and petroleum royalties are expected to be $225 million, 4% of total revenue. The Budget Papers forecast this will decline to $175 million through the forward estimates as some commodity prices decline. Even if unconventional gas could double mining and petroleum royalties, this would still be a far cry from financial 'independence' from the Commonwealth.

Such a large increase is unlikely for several reasons. Most unconventional gas in the Territory is likely to be high-cost that would not compete in international or east coast markets without large government subsidy. Industry analysts such as Wood MacKenzie estimate NT wellhead costs at around AUD $7/gigajoule compared with $3 for some producers on the east coast and internationally US$3 delivered at the Henry Hub in the USA.[7]

[6] Chlanda (2017) *Fracked gas our only hope: Northern Institute professor,* http://www.alicespringsnews.com.au/2017/04/21/fracked-gas-our-only-hope-northern-institute-professor/; Herbert (2015) *Bidders for North East Gas Interconnector named,* http://www.abc.net.au/news/rural/2015-04-02/gas-pipeline-interconnector/6367606

[7] See extensive discussion in Robertson (2016) *Pipe Dream: A financial analysis of the Northern Gas Pipeline*, http://ieefa.org/wp-content/uploads/2016/05/Pipe-Dream-A-Financial-Analysis-of-the-NEGI-MAY-2016.pdf

Queensland has had unconventional gas development for many years and LNG exports since 2014. Despite this, latest budget papers show that gas royalties totalled just $97 million last year, $550 million less than originally anticipated for 2016-17. Gas royalties have averaged $61 million per year since LNG exports began.[8] Even if NT gas royalties are as 'successful' as Queensland's initial years, this would likely make a difference to Territory revenue of only around 1%.

Royalty revenue does not come without costs. The Northern Territory Government spent $360 million on gas processing-related expenses in the years from 2008-09 to 2013-14.[9] Western Australia's Treasury has long complained about the costs gas development has imposed on it:

> *In 2010 net present value terms, the cost of Western Australia's assistance to the North West Shelf project (e.g. payment of subsidies to the State's power utility to help cover the losses it initially incurred under crucial 'take or pay' gas contracts) is estimated to be around $8 billion.*[10]

The gas industry has a record of paying little in the way of taxes and royalties while claiming substantial assistance from the taxpayer. Unless the NT government can succeed where so many others have failed, serious fiscal benefit from unconventional gas development in the Territory is unlikely.

## 3. Jobs

If large unconventional gas projects go ahead in the Territory, some jobs will be created. However, gas projects are "capital intensive", meaning they use a lot of machines and pipelines but employ few people.

The entire oil and gas industry in Australia employs 19,200 Australian workers, or around a tenth of 1% of the Australian workforce,[11] considerably less than the retail hardware store Bunning's, which employs 33,000.[12]

Latest ABS statistics estimate that gas and oil industries employ 1,023 people in the Northern Territory. Arts and recreational services employed twice this many, 2,243 people at the last census. Figure 2 below shows employment by industry at the last census:

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[8] See Queensland Budget Papers, https://s3.budget.qld.gov.au/budget/papers/2/4-Revenue.pdf

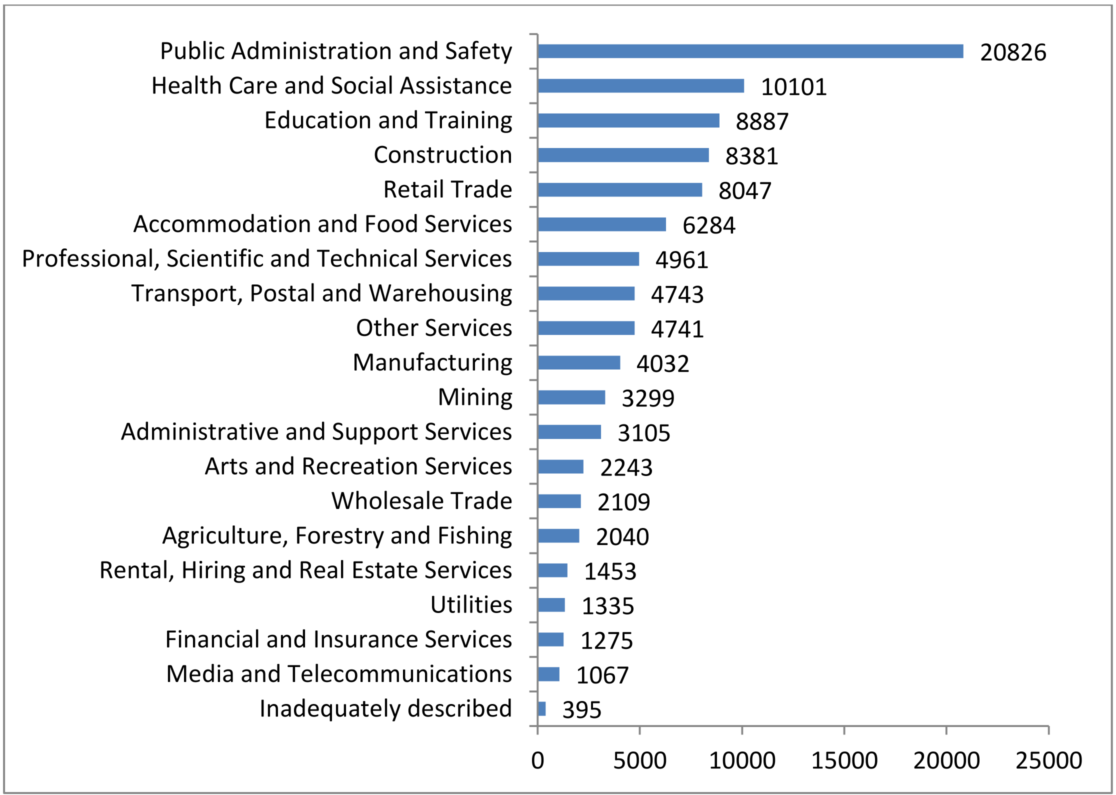
[9] Peel, Denniss and Campbell (2014) *Mining the Age of Entitlement: State government assistance to the mining and fossil fuel industries*, http://www.tai.org.au/sites/defualt/files/Mining%20the%20age%20of%20entitlement.pdf

[10] WA Treasury (2011) *GST Distribution Review: WA Submission*, http://www.gstdistributionreview.gov.au/content/submissions/downloads/issues_paper/wa_gov.pdf

[11] ABS (2017) *6291.0.55.003 - EQ06 - Employed persons by Industry group of main job (ANZSIC), Sex, State and Territory*

[12] Bunnings (2013) *About Us: Who we are*, http://www.bunnings.com.au/about-us

### Figure 2: Employment in Northern Territory by industry




Source: 2011 census

Worse still, gas industry jobs largely come at the expense of jobs in other industries. The gas industry prefers to employ skilled workers rather than train unskilled workers. It competes with existing industries for skilled workers, particularly manufacturing, agriculture and service industries.

Economic modelling looking at the economic impact of the Queensland unconventional gas project Arrow LNG undertaken by the company itself found that that project alone would displace:[13]

- $441 million dollars in manufacturing output in QLD,
- over 1,000 manufacturing jobs
- around 500 jobs in other non-mining industries.

An economic modelling study by Deloitte Access Economics, commissioned by gas lobby group APPEA in 2015, estimated that unconventional gas development could increase employment in the NT by up to 6,300 jobs.[14] This estimate relies on:

- The Australian Energy Market Operator's most unrealistic 'high consumption' scenarios.

[13] AEC (2011) *Economic Impact Assessment for Arrow LNG*

[14] Deloitte Access Economics (2015) *Economic impact of shale and tight gas development in the NT,* https://www.appea.com.au/wp-content/uploads/2015/08/APPEA_Deloitte-NT_Unconv_gas_FINAL-140715.pdf

- An assumption that NT gas extraction costs are among the cheapest in Australia at AUD$3 to the wellhead.

Neither of these assumptions are realistic. Furthermore, the 6,300 increase does not refer to workers in the gas industry, but to workers elsewhere in the economy, assuming industry spending associated with gas development and optimistic estimates of NT government revenue increases. The estimates in that paper should be treated as unrealistic.

## 4. Impacts on local businesses and communities

The most detailed examination of the economic impacts of unconventional gas development in the Darling Downs is a study carried out between 2008 and 2013 by the industry-funded Sustainable Minerals Institute SMI at the University of Queensland.[15]

Local business stakeholders surveyed reported deterioration in financial capital, built capital, human capital, social capital and the local environment as a result of unconventional gas and mining development.

**Figure 3: Stakeholder perceptions of the impact of unconventional gas and mining development in Queensland's Darling Downs.**

| Stakeholders groups | Financial capital | Human capital | Built capital | Social capital | Natural capital |
|---|---|---|---|---|---|
| Gas | Better | Better | Worse | Better | Better |
| Mining | Better | Better | Worse | Better | Better |
| Agriculture | Worse | Worse | Worse | Worse | Worse |
| Local business | Worse | Worse | Worse | Worse | Worse |
| Local government | Worse | Better | Worse | Same | Same |
| Community | Worse | Better | Worse | Worse | Worse |
| Advocacy | Worse | Worse | Worse | Worse | Worse |

Source: Everingham et al (2013)

[15] Everingham, Collins, Rodriguez, Cavaye, Vink, Rifkin and Baumgartl (2013) *Energy resources from the food bowl: an uneasy co-existence;* CSRM, The University of Queensland, *Identifying and managing cumulative impacts of mining and agriculture. Project report*

## Conclusion

Gas industry claims of major economic benefits to the Northern Territory from unconventional gas development should be treated with scepticism. Unconventional gas and increased exports have caused policy chaos in the rest of Australia, with poor results for consumers, taxpayers, shareholders and the environment. Gas development rarely brings major revenue streams to government, large employment numbers or positive benefits to communities and other industries.