

Briefing paper: The economic impacts of unconventional gas development in Western Australia

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WA's moratorium on fracking has been overturned without consideration of economic impacts. The decision was made in response to the Independent Scientific Panel Inquiry into Hydraulic Fracture Stimulation in Western Australia, where consideration of the socio-economic impacts was expressly absent from the Terms of Reference.

In response to the lack of economic consideration through the inquiry process and WA Government deliberation, The Australia Institute undertook analysis to determine the economic impacts of the unconventional gas or fracking industry in Western Australia. Because extracting depletable natural resources is a one-shot exercise, questions about the economic value that the community can derive from them are crucial.

The Institute considered:

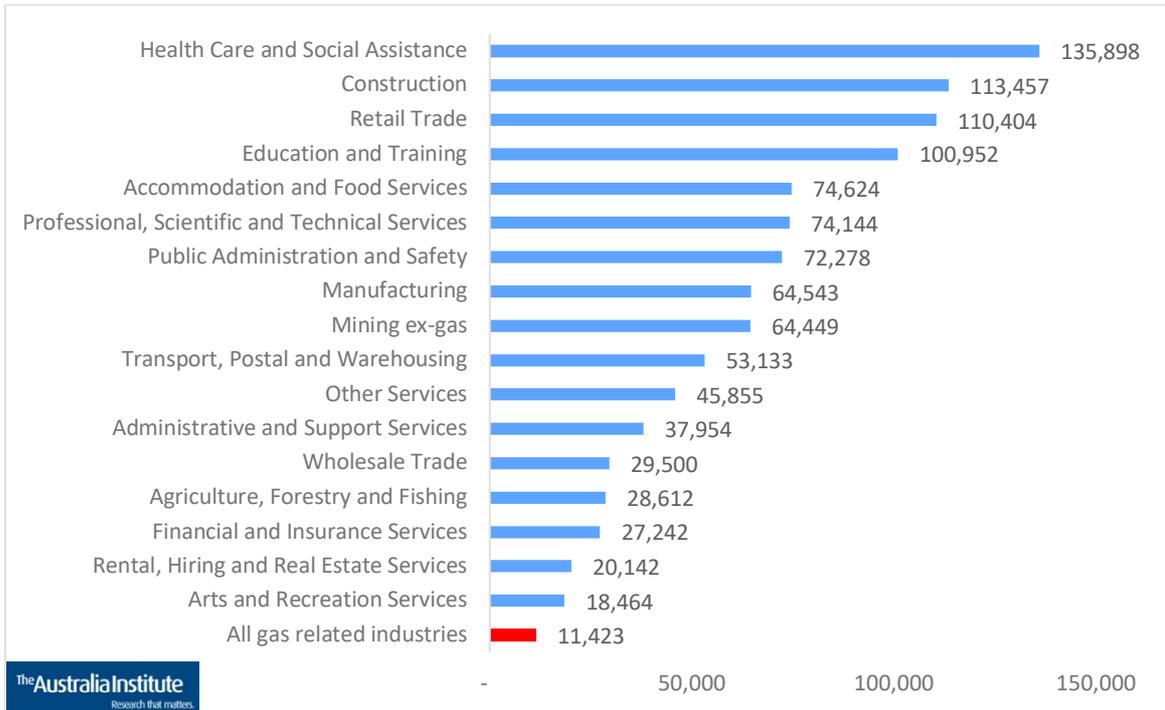
- Employment impacts
- Revenue impacts
- Price impacts for WA businesses and households
- Likely scale of unconventional gas in WA

The research shows that fracking for unconventional gas is likely to have a negative economic impact on regional communities, provides few jobs, little revenue and could push up WA domestic gas prices. The WA economy is already heavily exposed to resource industries and the volatility that this brings.

Key findings

The gas industry is a small employer. Gas production is capital intensive but jobs poor. The petroleum (oil and gas) industry is one of the smallest employers in Western Australia's resources sector with all gas related industries employing just over 11,400 people in 2016, just 1 percent of the state's employment.

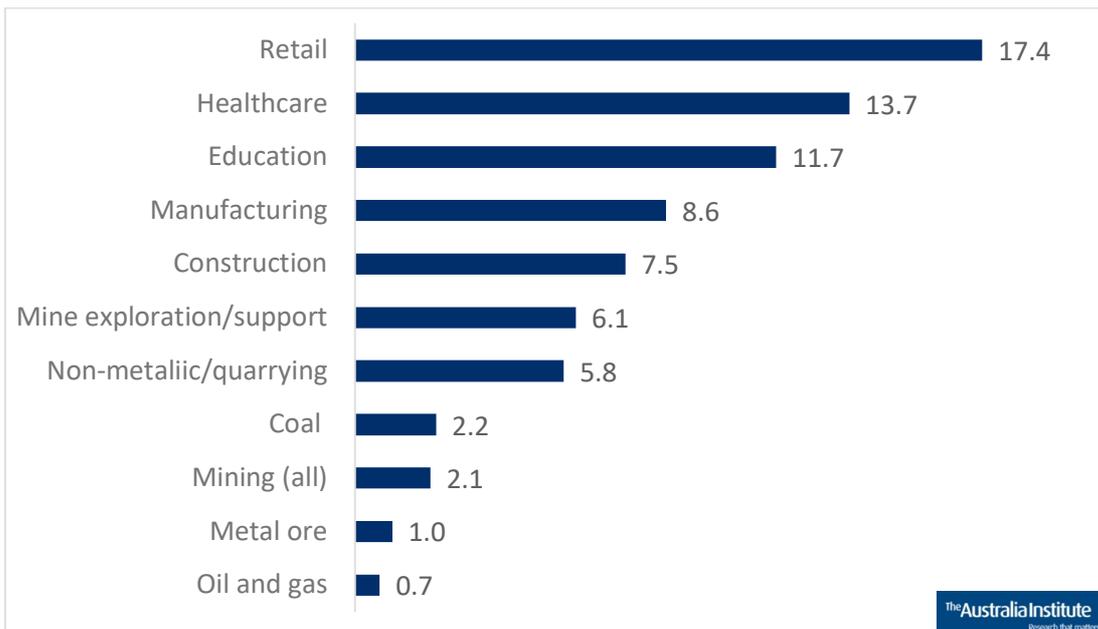
Figure 1: WA employment by industry



Source: ABS (2016) Census

Oil and gas extraction employs less people per dollar of value added than any other industry, including other parts of the resource sector. If employment growth is the policy goal, then investment in virtually any other industry is will deliver better results.

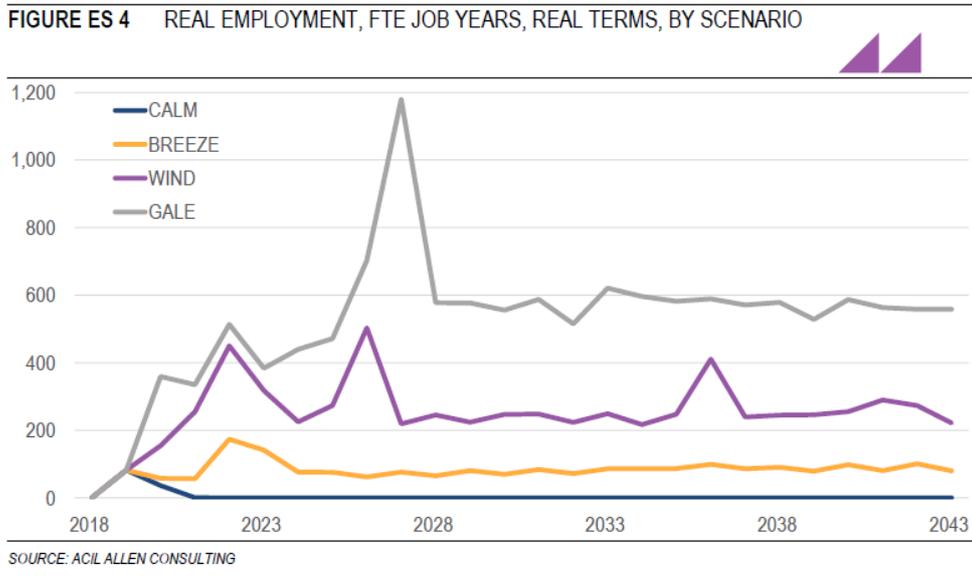
Figure 2: Total jobs (full and part-time) per million dollars of value add – Australia



Sources: Various ABS catalogues. See full Australia Institute report for details

Based on an analysis of job creation in the resource sector, unconventional gas development would increase employment in Western Australia just one twentieth of one percent of the total workforce at the most. An ACIL Allen study of the jobs likely to flow from similar reserves of unconventional gas in the Northern Territory showed long term job creation of just 80 to 524 jobs. This is 0.05% or just 1/20th of one percent of the total Western Australian workforce of 1.1 million people.

Figure 3: Employment by year, NT unconventional gas development scenarios



Source: NT Fracking Inquiry

Indigenous employment in the fracking gas industry is likely to be extremely low. Indigenous people account for 3.7% of resource jobs, industry wide. Based on the same ACIL Allen study, unconventional gas in WA could be expected to create only between three and 19 new long-term jobs for Indigenous people.

Experience from Queensland shows unconventional gas creates very few jobs in other industries. Queensland has the only large unconventional gas industry operating in Australia. While there are geological differences between coal seam gas that is being extracted in Queensland and shale and tight gas in Western Australia, the infrastructure and employment requirements are similar. In Queensland, while construction and professional services industries did increase employment in response to gas development, this was offset by reduced employment in agriculture. The figure below is an extract from a peer-reviewed study by CSIRO researchers.

Figure 4: Coal seam gas employment spillover over different sectors

	Elasticity	Additional job for each new CSG job
Local goods sector		
Construction	0.832 (0.426) *	1.414
Professional services	0.704 (0.259) **	0.422
Retail trade	0.011 (0.140)	0.024
Accommodation and food services	0.375 (0.263)	0.471
Other services	-0.385 (0.247)	-0.890
Tradable goods sector		
Manufacturing	0.068 (0.199)	0.160
Agriculture	-0.314 (0.182) *	-1.790

Notes

* $P < 0.10$; ** $P < 0.05$. Elasticity values are two-stage least square estimations for coefficient β in equation (2). The number of CSG wells in an statistical local area is used as instrument for the log change of mining employment. Values are estimated using sample 3 ($n = 48$). F -stat first-stage = 10.74. Robust clustered standard errors at Local Government Area levels are in parentheses. Other services sector includes employment in the Australian Bureau of Statistics categories of rental agencies, transport and 'other services'.

Source: Australian Journal of Agricultural and Resource Economics.

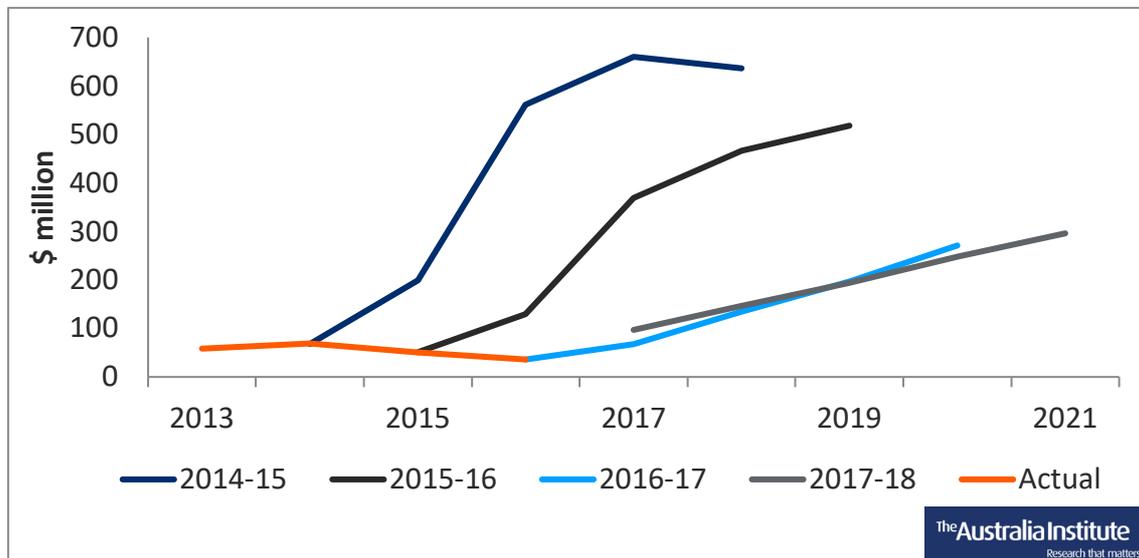
Unconventional gas extraction brings down the productivity of other industries in the impacted region. For example, the direct effect of unconventional gas fields on agricultural output in Queensland’s Surat Basin shows that agricultural revenues fell by 7% on average. Surveys have also shown that there is a general view that the boom and bust cycle has a negative impact on social cohesion and “neighbourliness” due to absentee investors of property, vacant and dilapidated housing during the bust, and rapid change in the population.

Even with an increased percentage for royalty payments, the fracking industry is likely to contribute only tiny royalty payments for WA’s gas, far less than mineral resources. The relatively high cost of unconventional gas means that profit-based royalty regimes and fixed-rate royalty regimes that apply to wellhead value-added measures will generate little revenue for governments.

Despite being a large producer and exporter of gas currently, petroleum royalties are a small part of WA State Government revenue. Petroleum royalties and related North West Shelf Grants make up just 2 percent of the \$29.5 billion state budget. Royalties from other mineral resources were \$5.2 billion, or 19% of total revenues, with 90% of that royalty revenue coming from iron ore.

Royalties to the state from CSG in Queensland have been far less than forecast by officials and promised by the gas industry. In 2016, for example, royalties were only 6% of the forecast \$561 million

Figure 10: Queensland's forecast and actual budget royalties



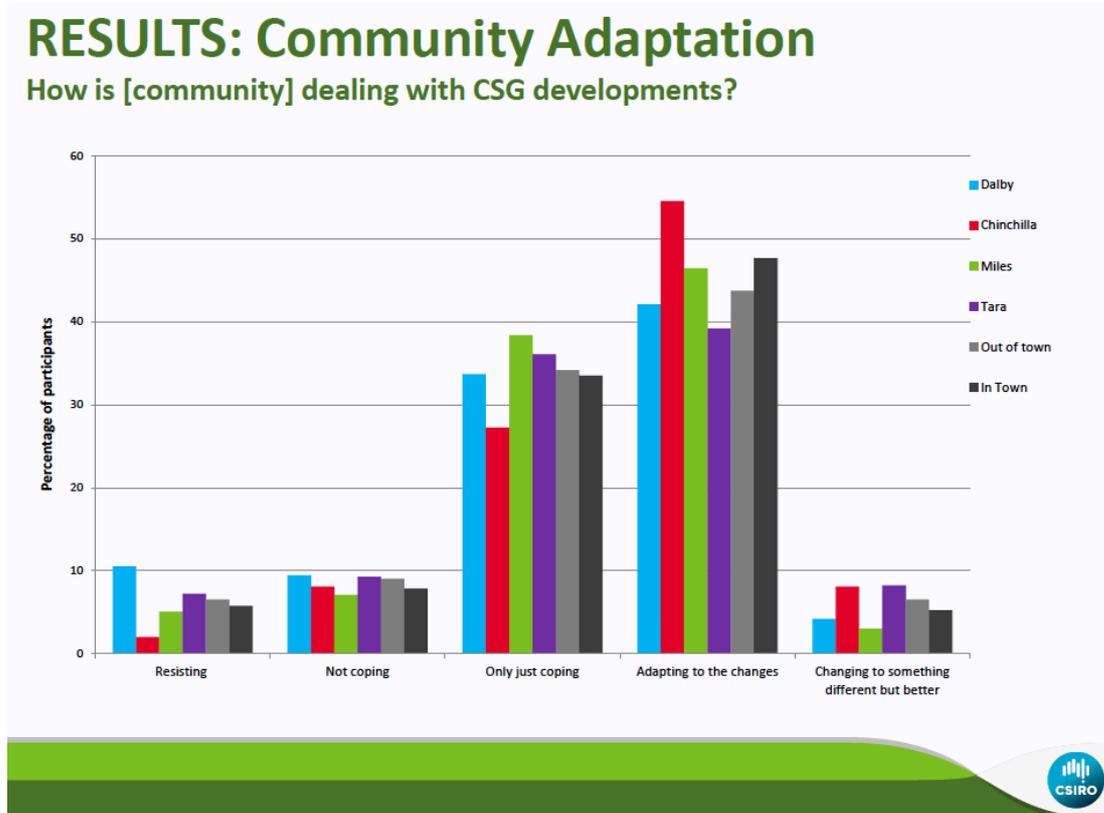
Queensland Government. (2018). Budget Papers (and historical). <https://budget.qld.gov.au>

The scale of the unconventional gas industry could spread quickly and have far reaching negative impacts on the economy and the climate. Despite industry claims that it is looking to develop “small regional gas projects”, proponents are boasting to investors of “world-scale” resources. With similar unconventional gas resources, United States shale gas production is ten times higher than WA’s current offshore gas production. With much smaller gas reserves, Queensland’s gas production has grown to be nearly as high as WA’s offshore gas production rate. With enormous possible unconventional gas resources, the likely scale of development of these resources in WA, if driven by economic considerations, could be a similar order of magnitude to WA’s current offshore gas production and will supply export markets. This is contrary to all the assumptions made to underpin the conclusions of the WA Fracking Inquiry report, particularly with regard to emissions.

Unconventional gas negatively impacts regional communities. A survey funded by gas companies in 2014 showed that communities in Queensland’s Darling Downs had predominantly negative views about the effect of the CSG boom on their region. As shown in Figure 4 below, only around 6% thought that the community was “Changing to something different, but better”, while the majority of respondents said they were “Resisting”, “Not coping”, or “Only just coping”. Other results showed that most

respondents said their attitude to coal seam gas was to “Tolerate” or “Accept” it, or with only 7% saying they “Embrace” it.

Figure 4: Results of GISERA community survey gasfield region of Darling Downs QLD



Source: Walton, A.et. al. (2014). CSIRO survey of community wellbeing and responding to change: Western Downs region in Queensland. CSIRO Technical report: CSIRO, Australia.