Australia's National Science Agency

SOCIAL AND ECONOMIC IMPACTS AND OPPORTUNITIES

GISERA | Gas Industry Social and Environmental Research Alliance

Assessing and projecting on-shore gas effects on regional economic activity in New South Wales

This project investigated the potential economic effects that on-shore gas development could have in the Narrabri shire and surrounding regions in northern New South Wales.

Narrabri: a focus for on-shore gas industry

The Narrabri region has substantial volumes of economically recoverable on-shore gas that have been the focus of a development proposal by Santos.

This research sought to develop a robust analysis of the effects of potential gas industry development in the region.

This study's findings have important implications for local and regional economies in NSW.

Australia's on-shore gas industry boom

In 2019, Australia became the world's largest exporter of natural gas following technological developments which have significantly improved the efficiency of on-shore gas extraction over the past decade.

The industry has expanded substantially in Australia in the last couple of decades.

This extraction boom has brought local economic effects to communities and regions hosting on-shore gas extraction activity, mainly in Queensland where most of the on-shore gas development has occurred.

NSW regions with on-shore gas exploration activity also experienced effects by way of increases to average household income.

Historically, the industry in NSW has been relatively short-lived and small scale with limited experience that could be used to base projections of possible future effects.

To overcome this, we used different methods, including statistical analysis drawing on Queensland's experience, as a basis to understand potential flow-on effects of on-shore gas extraction activity into other sectors over time.

Key points

- This research estimated that indirect jobs related to the sector could range between 60 and 130 at the peak of operation (2024).
- Indirect jobs are estimated to reduce to between zero and 40 by 2046.
- These calculations are based on an estimate of 170 direct jobs in the gas sector.
- Reliable, affordable energy could help the establishment of local manufacturing, potentially bringing additional employment opportunities to the region.
- If locally available gas facilitated the establishment of a fertiliser plant employing around 100 people, a further 180 additional jobs in the region could be generated.
- If all gas supply is channelled to other regions, local economic effects may be marginal.

How we approached the study

This research builds in part on previous GISERA research focusing on regional NSW – notably around the Narrabri Shire – to appraise early economic effects from exploration and also public perceptions of the on-shore gas industry.

It presents findings of a diverse set of economic and social analyses used to understand the economic impacts that on-shore gas development could produce in the shire and surrounding regions.

As well as considering previous studies of on-shore gas effects in Queensland and NSW, the analyses use data estimates provided by Santos (2020) for the Narrabri regions to better understand the potential impacts on different socioeconomic indicators across this area. Santos data was used as there are no other relevant estimates available relating to the proposed Narrabri development.

Drawing on Queensland's experience

More than 12,000 on-shore gas wells have been drilled in Queensland, starting slowly from the 1980s then accelerating during the early 2000s.

On-shore gas activity has been quite different in NSW, where it has occurred since the early 2000s. By 2020, 386 wells were operating in the 'Sydney – Outer West and Blue Mountains' region though most are expected to be decommissioned in coming years.

Following government approval of the Narrabri Gas Project in 2020, future drilling is expected to occur in the largest on-shore gas reservoir located in the surrounding New England and North West region.

In drawing on the analytical processes developed for measuring effects in Queensland, we adjusted for the relatively smaller scale of possible expansion of on-shore gas activity around Narrabri.

Narrabri's shifting job trends

Overall, historical employment trends suggest a gradual reconfiguration of the local economy with an increasing role played by the mining sector.

The agriculture, forestry, and fishing sector, which accounted for one in four jobs in Narrabri in 2001, showed a decline of 6% between 2006 and 2016 while employment in the manufacturing and wholesale trade sectors reduced by 4% and 3% respectively.

In contrast, the mining sector increased from 0.2% of the total employment in Narrabri in 2001 to 5.5% by 2016, with most change occurring after 2006. Jobs in the health care and social assistance sector increased from 7% to 10%.

Santos (2020) estimated agriculture, forestry, and fishing would be negatively affected by on-shore gas development with a decrease of 0.15% in the number of jobs in the 'Moree-Narrabri' area in contrast to an economy with no on-shore gas activity.

Mining has contributed to economic growth

We estimated that in real terms, gross regional product (GRP) – which measures the net wealth generated in a region – was 123% higher per capita in Narrabri in 2019 than it was in 2009.

The Northern Inland region of NSW around it grew 33% while the State grew 19%.

Investments directly or indirectly related to the mining sector appear to have driven increases in GRP per capita in Narrabri in 2013 and the growing trend post-2016.

Fertiliser plant to generate jobs

On-shore gas development is expected to trigger investments in manufacturing activities.

In addition to evaluating the impact of on-shore gas expansion across NSW regions, we also assessed the flow-on impacts of a potential fertiliser plant in the Narrabri region.

The company seeking to develop the plant, Perdaman, has indicated it would use on-shore gas extracted in the region and generate around 200 direct and indirect local jobs.

We estimate that every ten new jobs in the fertiliser industry could generate as many as eighteen additional jobs in other sectors.

Projected economic benefits

The Narrabri Gas Project is likely to continue increasing the gas sector's economic relevance in the Narrabri region and nearby areas.

This research calculated the flow-on effects from the employment numbers provided by Santos. Of the 220 jobs claimed by Santos, we estimated that 170 would be direct jobs in the gas sector.

Assuming this average, we applied scenarios to estimate potential job spillovers across Narrabri regions. Different scenarios show spillovers could range between 130 and 60 jobs in the peak of project activity (2024), dropping to between 40 and close to zero additional jobs in 2046.

Following Queensland's experience, we project that the main gains from job spillovers will occur in services related to the on-shore gas industry (e.g. construction services) and some local services such as accommodation and administration.

However, if gas supply is exclusively channelled to other regions, local economic effects may be marginal.

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GISERA is a collaboration between CSIRO, Commonwealth and state governments and industry established to undertake publicly-reported independent research. The purpose of GISERA is to provide quality assured scientific research and information to communities living in gas development regions focusing on social and environmental topics including: groundwater and surface water, greenhouse gas emissions, biodiversity, land management, the marine environment, and socio-economic impacts. The governance structure for GISERA is designed to provide for and protect research independence and transparency of research.

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