



Exploring the regional economic value of locally produced conventional gas

Lavinia Poruschi | Tom Measham | Raymundo Marcos Martinez
12 November 2019

LAND AND WATER
www.csiro.au



GISERA
Gas Industry Social and
Environmental Research Alliance



National context: Australia is now the largest gas exporter worldwide

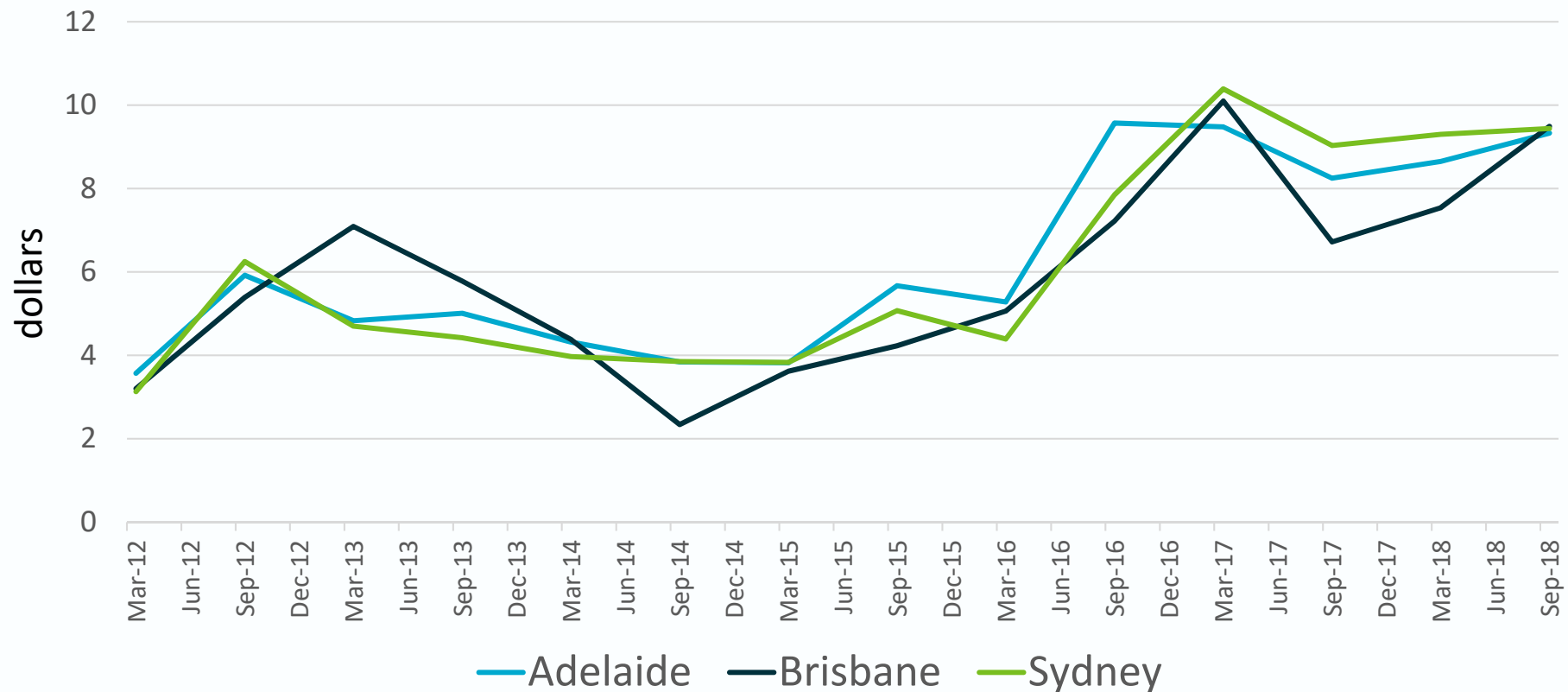
- Overtook Qatar in November last year (Jaganathan, 2018)
- 69% of Australian gas production is exported
- Concerns raised over potential gas shortages for domestic markets (Longbottom, 2019)



Curtis Island LNG Export terminal, photo credit: APLNG

Domestic prices have been increasing

Wholesale gas price per gigajoule



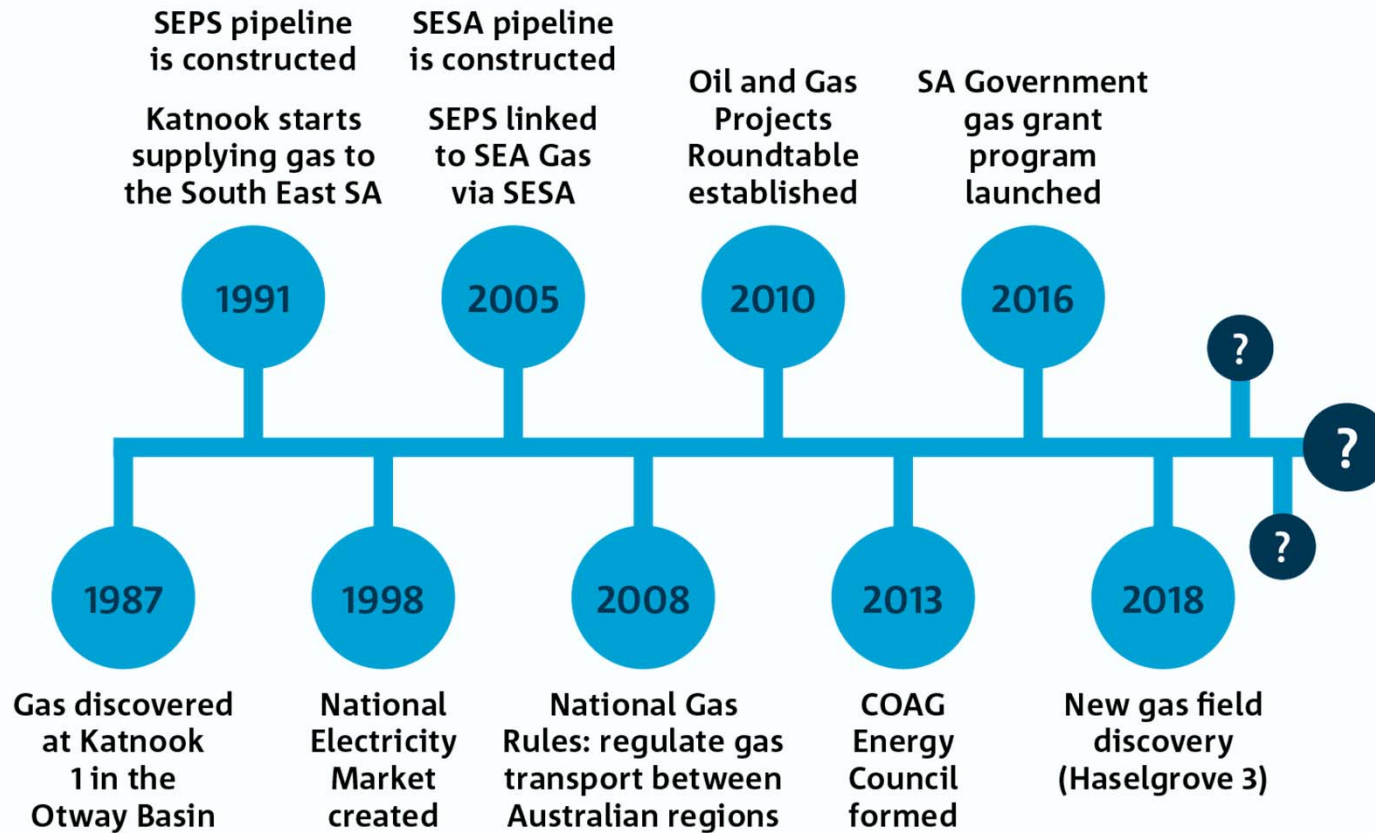
Authors' chart based on AER data: <https://www.aer.gov.au/wholesale-markets/wholesale-statistics/sttm-quarterly-prices>

Seeking to make gas available for local industries

- The south-east region of South Australia seeks to make gas available e.g. for
 - Paper products processing
 - Food manufacturing
 - Powdered milk
 - Timber products
- PACE exploration incentives encourage local supply agreements
 - Focus on conventional gas
 - Not unconventional gas
 - Gas has role in complementing renewables
- Nb also an important wine producing region

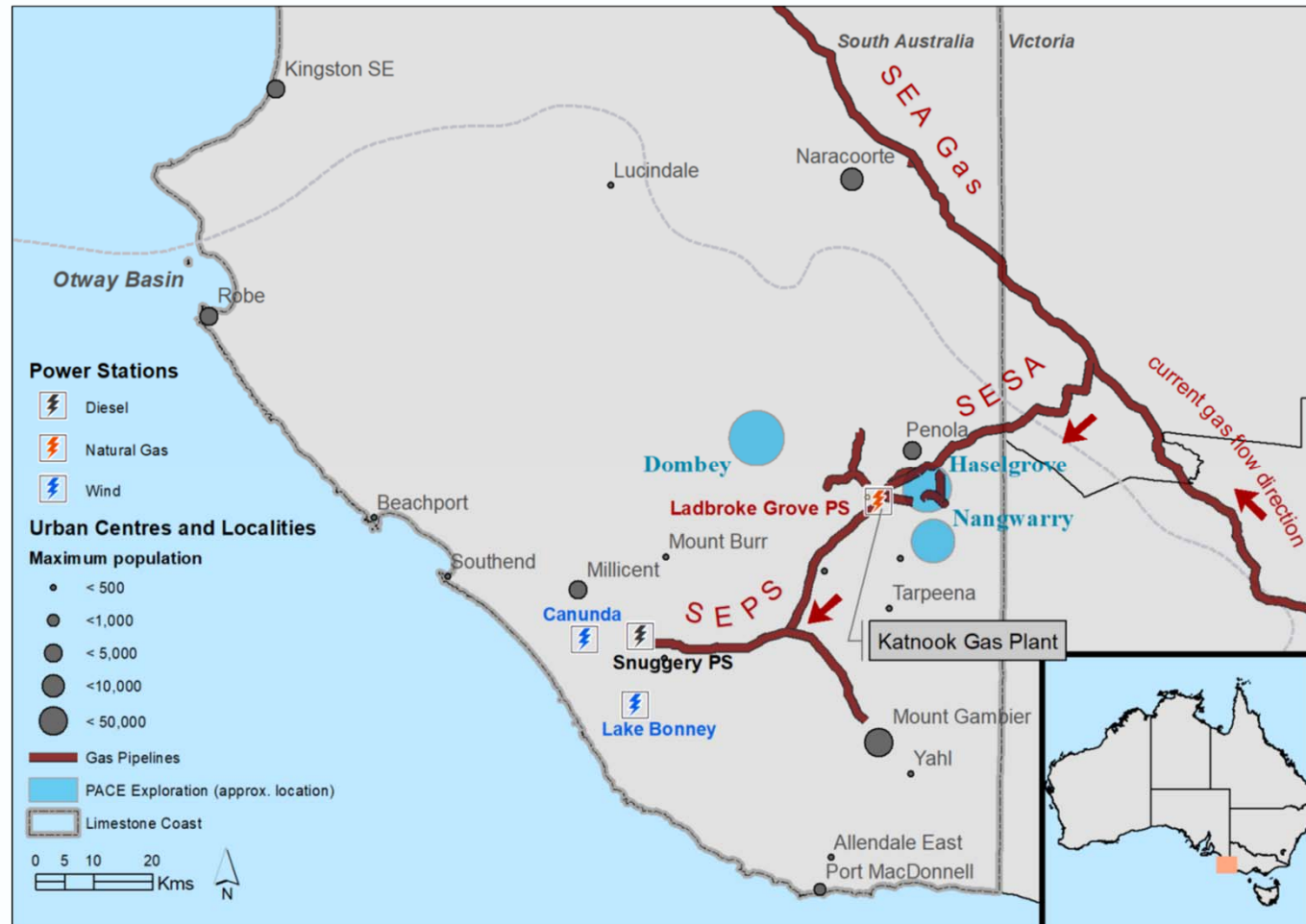


Formerly a gas producing region

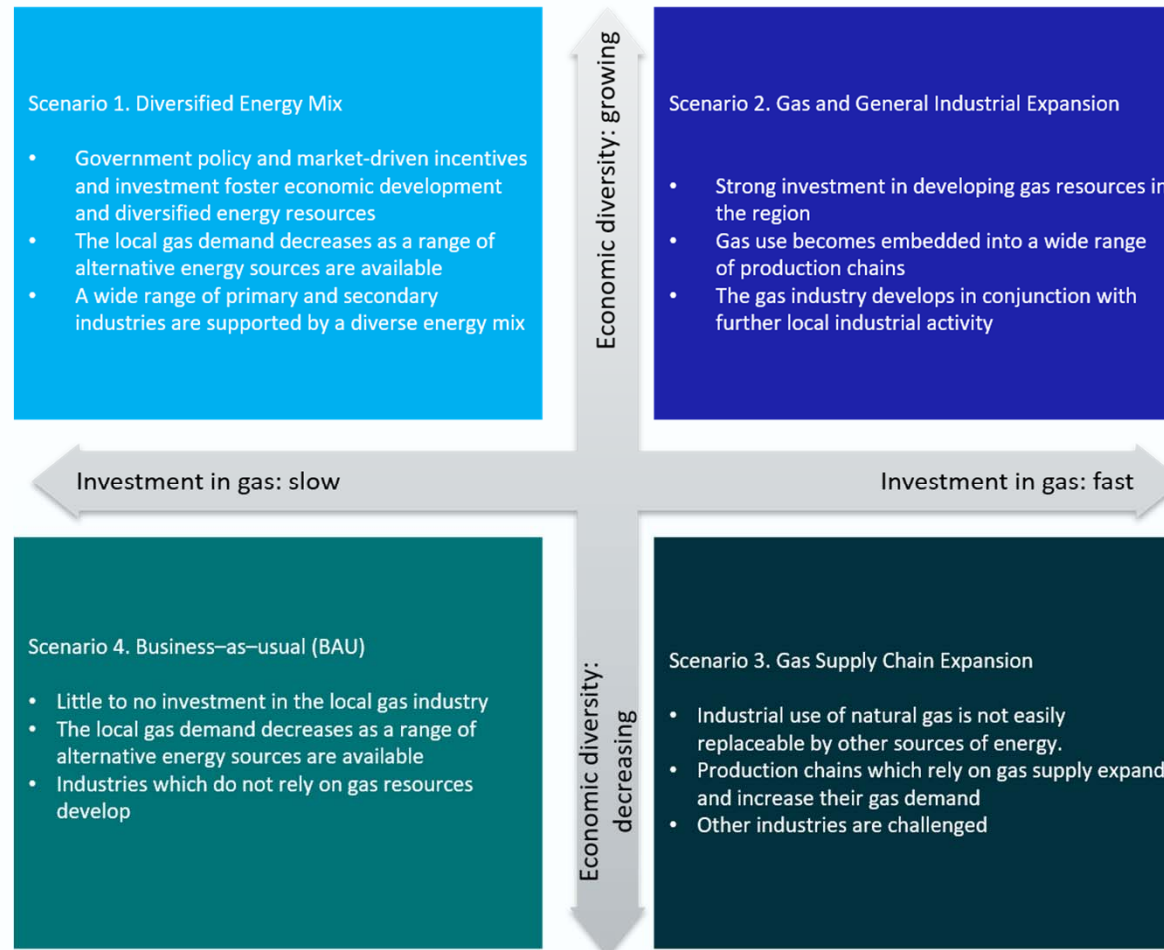


Katnook gas plant official closed in 2013

South East South Australia



Scenarios for the role of gas in the local economy

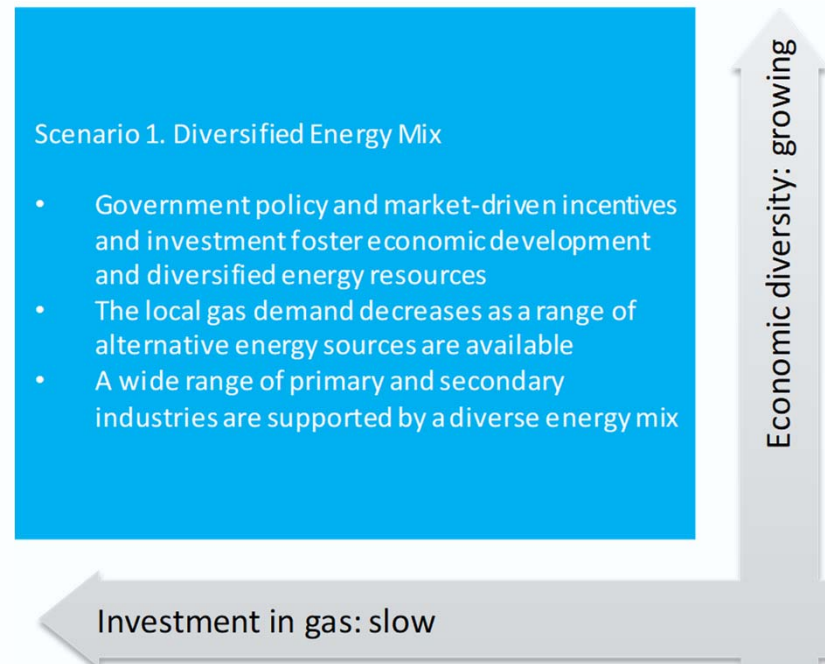


Developed and discussed in stakeholder workshop

- Stakeholders invited from:
 - Food manufacturing
 - Paper products manufacturing
 - Agriculture
 - Wine industry
 - Gas companies
 - Local government
 - State government
 - Regional development professionals
- Total 13 participants attended

Scenario 1: Diversified energy mix

- Investment in gas: SLOW
- Economic diversity: GROWING
- Fostering diversified energy sources
- Strong focus on government and industry incentives / investment
- Local gas demand would decrease as a range of alternative energy sources are available



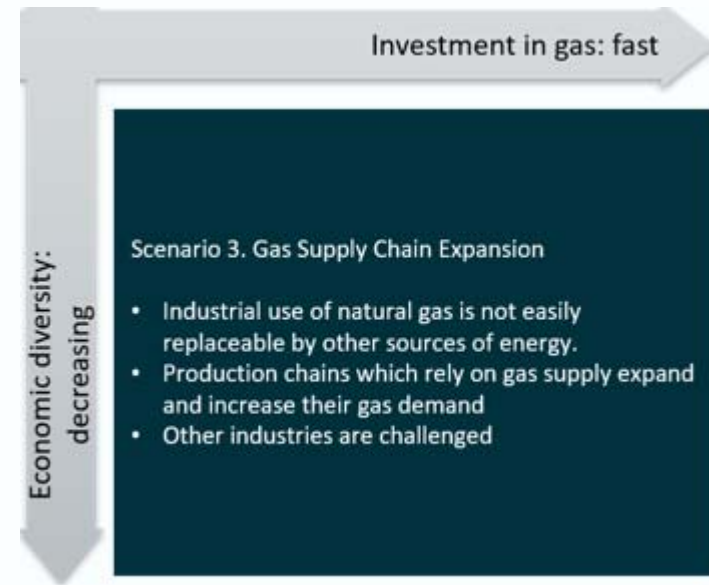
Scenario 2: Gas and general industrial expansion

- Investment in gas: FAST
- Economic diversity: GROWING
- Strong investment in developing gas resources in the region.
- Local gas available to diverse local industries
- Gas grows quicker than other energy resources
- Local gas prices could be lowered as commercial and industrial gas users increase their local activity



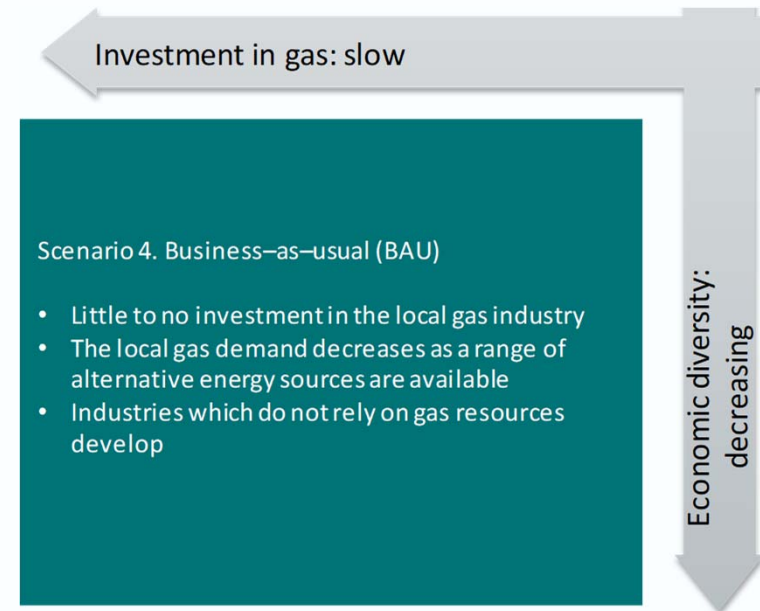
Scenario 3: Gas supply chain expansion

- Investment in gas: FAST
- Economic diversity: DECREASING
- Assumes that heavy gas users struggle to substitute for other energy types.
- Other industries seek to diversify into other energy sources (e.g. renewables)
- However policy and/or market conditions mean that other energy sources put strain on businesses



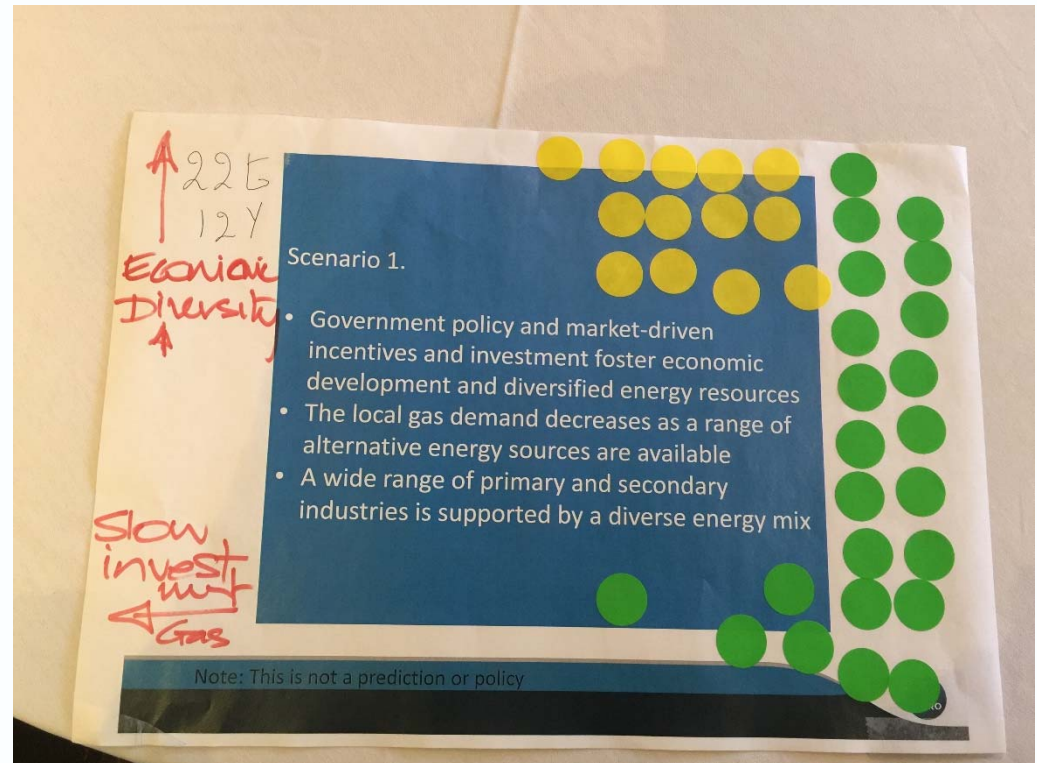
Scenario 4: Business-as-usual

- Investment in gas: SLOW
- Economic diversity: DECREASING
- Policy and market settings uncondusive to gas development
- High energy prices across all sources stymie economic development
- Manufacturers relocate elsewhere
- Flow on effects for supply chains and broader business closures

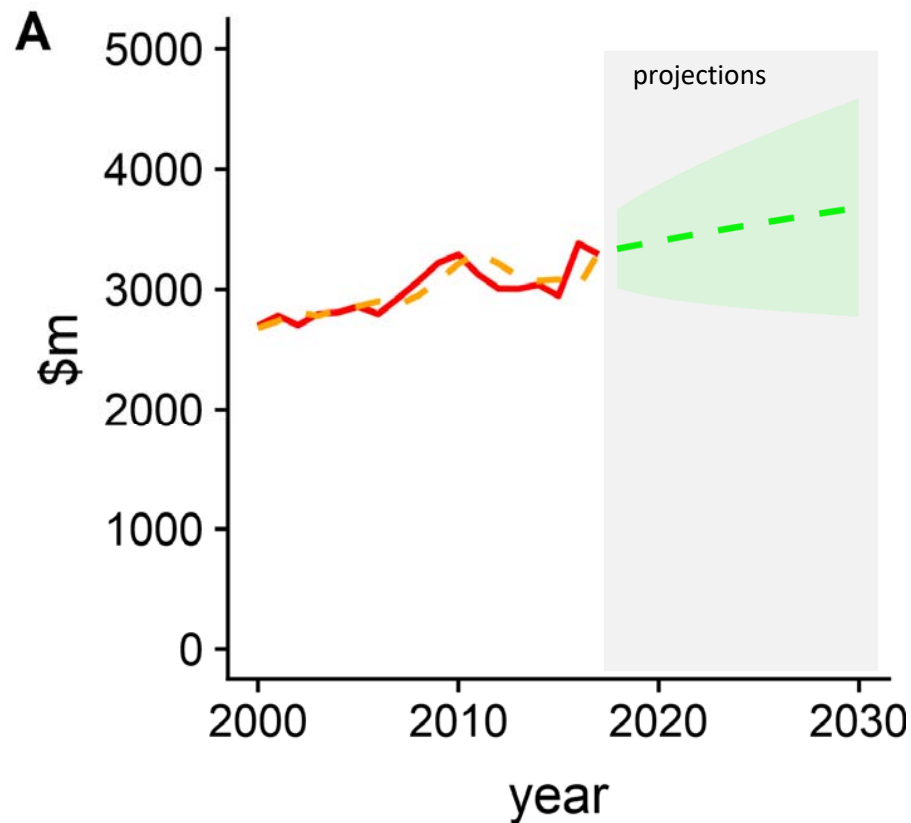


Eliciting preferences

- Participants expressed their views on:
 - The desirability of scenarios
 - The likelihood of scenarios
- Conducted by applying coloured stickers
- Also measured interactions between different sectors

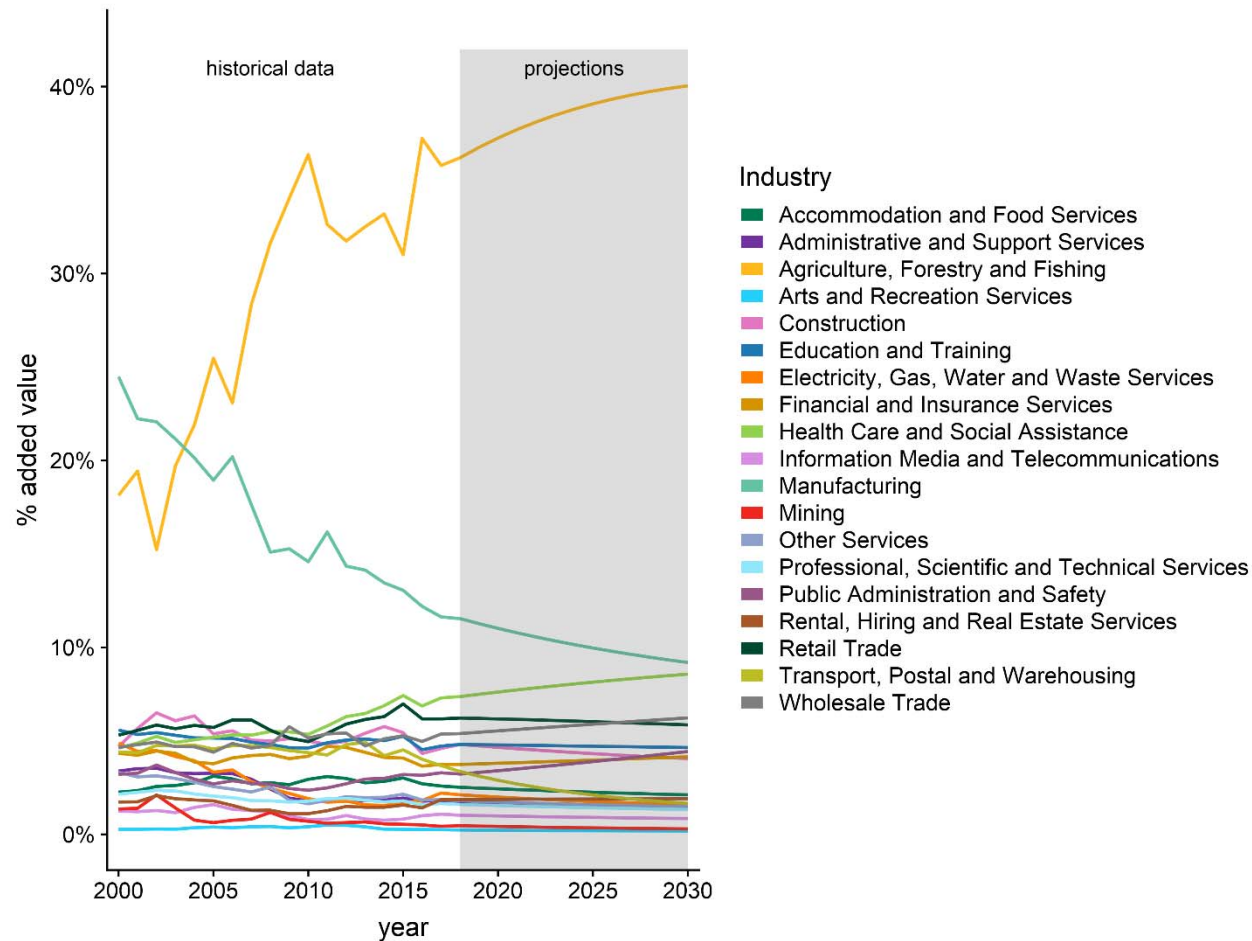


Long-term trends in regional Limestone Coast added value



- Regional economic model: mechanism to link the scenarios to potential quantitative outcomes
- Trend analysis
- Historical data from 2000 to 2017 were used to project long-term trends and 95% confidence interval (green area) from 2018 to 2030
- Added value = how much output is generated in addition to input expenditure

Added value shares by industry



- Percent composition of added value by industry
- Trends in historical data from 2000 to 2017 were used to project the percent composition from 2018 to 2030

Alternative futures: Parametrisation of the scenarios

Scenario	Data input and assumptions
Scenario 1. Diversified Energy Mix	Gas industry – lower boundary trend Gas users – lower boundary trend Other industries – upper boundary trend
Scenario 2. General Industrial Expansion	Gas industry – upper boundary trend Gas users – upper boundary trend Other industries – upper boundary trend
Scenario 3. Specialising on Gas	Gas industry – upper boundary trend Gas users – upper boundary trend Other industries – average trend
Scenario 4. Business-as-usual (BAU) scenario	Gas industry – average trend Gas users – average trend Other industries – average trend

- RISE model for the Limestone Coast
- Outcomes: regional changes in GRP and employment
- Used the trend and upper and lower boundary of the 95% confidence interval projection figures

The most desirable scenario was seen as the least likely

Scenario	Desirability	Perceived likelihood	GRP (\$m), 10 years	Employment FTE, 10 years
1 Diversified energy mix	2nd	2nd	132	429
2 Gas and general industrial expansion	1st (highest)	4th (lowest)	150	497
3 Gas supply chain expansion	3rd	1st (highest)	35	32
4 Business as usual	4th (lowest)	3rd	24	-13

Key findings

- The most desirable scenario (2) was also seen as least likely
 - This was due to current constraints on accessing gas locally.
- The second most desirable scenario (1)
 - What scenario 1 and 2 have in common is increased economic diversification
 - Both had higher growth and employment outcomes
- The scenario regarded as most likely (3) showed a potential for few local benefits beyond the least desired
- Business as usual (4) had projected negative employment growth

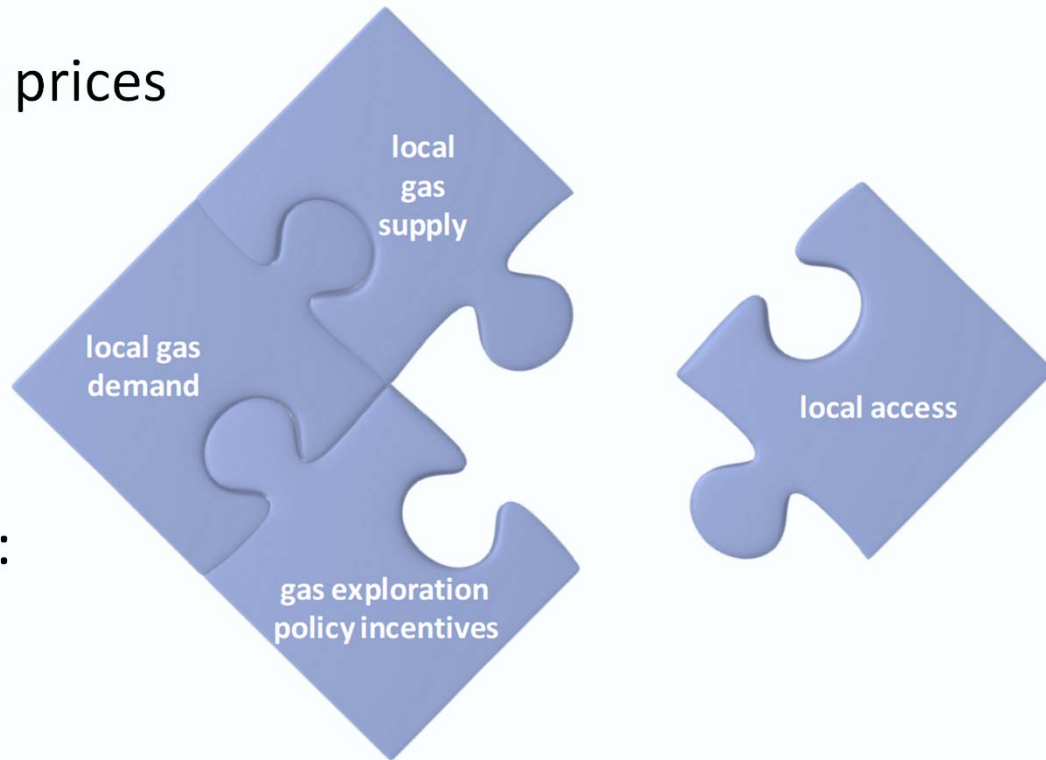
Discussion

- Demand for locally-produced gas was strong
 - Investment in local gas supply was seen as a positive step
 - Demand for other energy sources was also strong
 - Focus on diversification rather than focus on gas alone
- Energy prices were hurting everyone
- Also a sense of caution
 - The local gas plant had previously closed



Discussion

- Local gas will not affect prices without changes to infrastructure
- Current pipeline configuration results in:
 - Prices set by distant gas users/export
 - Lack of competition



Additional Materials

- Murphy, D. (2019) Qatar may be losing the top spot as world's biggest LNG exporter. CNBC news.
<https://www.cnbc.com/2019/08/23/lng-australia-nears-qatar-as-worlds-biggest-gas-exporter.html>
- Longbottom, J. (2019) Australia is the biggest exporter of liquid natural gas so why is Victoria facing a future shortage? ABC news
<https://www.abc.net.au/news/2019-02-24/why-victoria-is-facing-gas-shortage/10798554>
- Jaganathan, J.(2018) Australia grabs world's biggest LNG exporter crown from Qatar in Nov *Commodities* DECEMBER 10, 2018
<https://www.reuters.com/article/us-australia-qatar-lng/australia-grabs-worlds-biggest-lng-exporter-crown-from-qatar-in-nov-idUSKBN1O907N>