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Oil in the Great Australian Bight

Comparative report on employment potential

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Table of Contents

Summary

Multinational oil company BP is planning exploratory drilling for oil and gas in the Great Australian Bight, in partnership with a second multinational, Norway's Statoil.

The economic benefits of oil and gas exploration are minimal. Such activities are highly capital intensive, so require relatively few workers. While eventual production would employ more people, in the context of the South Australian labour force, the impact would be minor.

Australia wide, the oil and gas industry employs 19,000 people out of a workforce of 11.9 million people. This represents less than 2 out of every thousand jobs in Australia, 0.16 percent. South Australia is similar, with 1,831 people working in oil and gas out of 739,000 people employed in total at the 2011 census.

The North West Shelf project saw employment peak at 1,660 employees and later declined somewhat to less than 1,500. A Bight oil project is likely to be smaller, with job numbers perhaps between 1,000 and 1,500 people. It is important to remember that the majority of any future employees would be fly-in-fly-out (FIFO) workers who would be flown from around Australia, not people from local regions.

Exploration drilling in the Great Australian Bight would be unlikely to pay any royalty income or tax to the state or federal governments. On the contrary, expenses on exploration would be likely used as deductions from future income from the Bight project or from other BP interests in Australia.

The entire extractive sector paid $242 million in royalties for the minerals, oil and gas extracted in South Australia in 2014-15. This represents just 1.5 percent of South Australia's total revenue of $16.5 billion in that year. South Australia's government received substantially more from car registration, $388 million, than it did from the mining, oil and gas sector.

Oil production in the Bight could generate more royalty revenue – the North West Shelf project is budgeted to contribute $762 million in 2015-16 to the WA government, almost 3 percent of the state's revenue of $26.3 billion. Before such revenues were collected, however, the Western Australian state had to incur substantial expenses, as is made clear by the WA Treasury:

> *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.

Decades of subsidy may be necessary before major oil and gas projects provide benefits to state governments. In contrast, the tourism, fishing and aquaculture industries on the SA coast already employ over 9,000 people and provide sustainable benefits through locally owned businesses.

Introduction

The Great Australian Bight makes up a large part of Australia's southern coast. Remote from Australia's main cities the area has significant environmental values and hosts a range of industries.

The waters of the Great Australian Bight Marine Park are home to a range of marine life, such as tuna, sea eagles and albatross. It is an important breeding ground for great white sharks, southern right whales and sea lions.

Geoscience Australia has examined the central area of the Bight, estimating that there could be 5 billion barrels (Bbbl) of oil, and 14 trillion cubic feet (Tcf) of gas.[1] To put this in context, Western Australia's Canarvon Basin, where the North West Shelf project is located, had approximately 4.5 Bbbl of economically extractible liquid hydrocarbons when extraction began,[2] and 33 Tcf of gas.[3] Note that the estimates are not directly comparable – the Bight estimate reflects total resources whereas the North West Shelf reflects what can be extracted economically. For the sake of comparison, it appears that any eventual Great Australian Bight oil project would be of somewhat smaller size than the North West Shelf.

Multinational oil company BP is planning exploratory drilling for oil and gas in the Great Australian Bight, in a project co-owned by Norway's Statoil. Four wells are proposed for the central part of the Ceduna basin. This is scheduled to begin in summer 2016-17.

Importantly, the Bight's waters are unusually deep water for oil drilling, with ocean depths of approximately 1,000-2,500 metres.[4] By comparison, the principle oil and gas fields in the North West Shelf area range between 125 and 131 metres.[5] Such deep water both increases costs for producers and increases environmental risks. Specialised ultra-deepwater equipment would be required to produce oil in the Bight and one of the world's worst oil disasters, the Deepwater Horizon oil spill in the Gulf of Mexico, occurred in water of similar depth.

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[1] J.M Totterdell et al (2008). Mid–Late Cretaceous organic-rich rocks from the eastern Bight Basin: implications for prospectivity

[2] Geoscience Australia (2014). Australian Energy Resource Assessment, Second Edition

[3] http://web.archive.org/web/20080615005619/http://www.woodside.com.au/Our+Business/Production/Australia/North+West+Shelf/

[4] http://www.bpgabproject.com.au/go/doc/5771/2243598/

[5] http://www.nwsssc.com/docs/default-source/default-document-library/120312_nwsv_corporate-brochure_v17.pdf?sfvrsn=4

A major oil spill in the Bight could impact other industries on the South Australian coast such as fishing, aquaculture and tourism, which are major industries for many coastal towns.

The economic impacts of the proposed exploration program would be minimal. Such activities are highly capital intensive rather than labour intensive - they employ a lot of machinery and equipment, but relatively few people. The capital equipment, such as the specialised ultra-deepwater harsh environment rig, the Ocean GreatWhite, is almost entirely imported providing little stimulus to the Australian economy. [6] In the exploration phase, production would be minimal, paying no royalties or taxes.

This minimal economic impact of exploration is acknowledged by BP. BP's Environment Plan Summary states:

> *BP discussed potential opportunities that will arise in locations such as Ceduna. It was noted however, that at this early stage of exploration … employment opportunities are limited.* [7]

Greater emphasis is put on the potential economic benefits of future production:

> *the biggest potential for local input lies in a potential future development and production phase, which could only be considered if a commercially and technically developable discovery is made and proved by appraisal drilling.*[8]

The industry lobby group, Australian Petroleum Production and Exploration Association (APPEA) is far more optimistic:

> *The economic benefits are potentially enormous...While it is very early days, success in the Great Australian Bight would attract investment to South Australia and see significant local job creation.*[9]

In fact, the economic impacts of oil production in the Great Australian Bight would be modest, particularly when seen in the context of the South Australian economy or the wider national economy. Against these modest potential benefits, South Australia should be weighing potential costs through government subsidisation of the project and the environmental risks that deep water oil production imposes on the natural environment and the industries that depend upon it.

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[6] http://www.diamondoffshore.com/assets/Documents/15%20-%20GreatWhite.pdf

[7] BP Developments (2015). 'Great Australian Bight Exploration Drilling Program – Environment Plan Summary (EPPs 37, 38, 39, 40)

[8] https://gateway.icn.org.au/project/3552/bp-great-australian-bight-exploration?pl=1

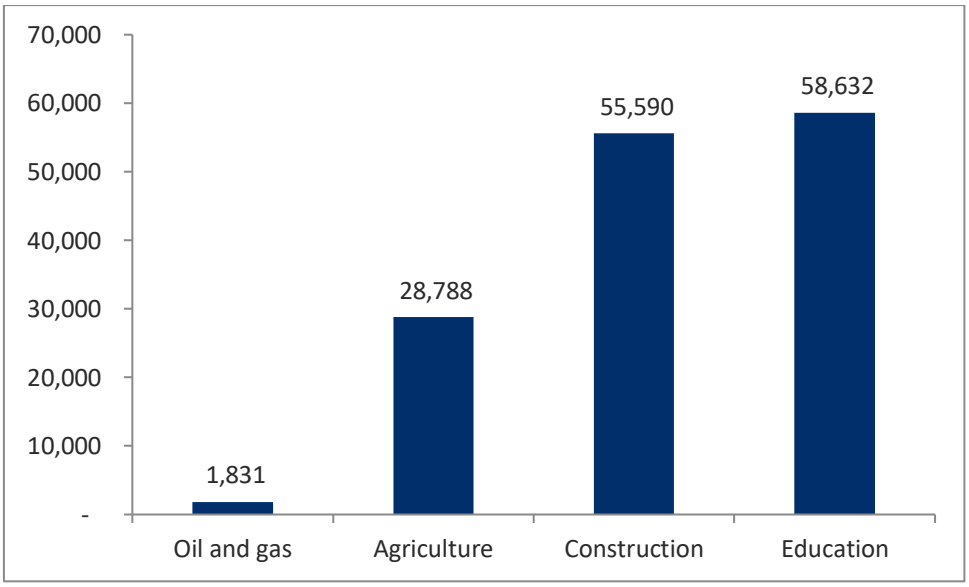
[9] http://indaily.com.au/business/2016/02/22/bps-plans-to-drill-in-the-bight-under-senate-spotlight/

Employment

Oil and gas production is capital intensive and does not employ many people. Australia wide, the oil and gas industry employs 19,000 people out of a workforce of 11.9 million people. This represents less than 2 out of every thousand jobs in Australia, 0.16 percent.[10]

South Australia is similar, with 1,831 people working in oil and gas out of 739,000 people employed in total at the 2011 census. Most South Australian oil and gas workers work in the Cooper Basin in the North of the state. Oil and gas extraction is an extremely minor employer of South Australians compared to some of the main industries outlined below:

Employment in South Australia, selected industries



Source: ABS census 2011

A potential future gas project in the Great Australian Bight would see a significant increase in oil and gas workers, but a very small increase in employment overall in South Australia. The North West Shelf project saw employment peak at 1,660

10 http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6291.0.55.003Feb%202016?OpenDocument, Table 06. Employed persons by Industry sub-division of main job (ANZSIC) and Sex

employees and later declined somewhat to less than 1,500.[11] Assuming a Bight oil project to be of slightly smaller size, between 1,000 and 1,500 people could be employed.

It is important to remember that the majority of any future employees would be fly-in-fly-out (FIFO) workers who would be flown from around Australia to Adelaide and Ceduna and then to production rigs by helicopter. Many of these employees would not be from South Australia and would not reside in South Australia during their employment on the project.[12]

[11] ACIL Tasman 2009 *Nation Builder: How the North West Shelf Project has driven economic transformation in Australia,* http://www.woodside.com.au/Our-Business/Producing/Documents/NWSVACILTasmanreportOct2009.pdf

[12] https://gateway.icn.org.au/project/3552/bp-great-australian-bight-exploration?pl=1

Royalty income and state subsidies

Exploration drilling in the Great Australian Bight would be unlikely to pay any royalty income or tax to the state or federal governments. On the contrary, expenses on exploration would be likely used as deductions from future income from the Bight project or from other BP interests in Australia.

If oil and gas production were to proceed, the impact on the state budget would be small. The South Australian state budget does not disaggregate oil and gas royalties from other mineral royalties. Regardless, the entire extractive sector paid $242 million in royalties for the minerals, oil and gas extracted in South Australia in 2014-15. This represents just 1.5 percent of South Australia's total revenue of $16.5 billion in that year. South Australia's government received substantially more from car registration, $388 million, than it did from the mining, oil and gas sector. Clearly, South Australia's budget is not heavily influenced by changes in royalty revenue.

The North West Shelf project now makes a considerable contribution to the Western Australian government, with grants via the Commonwealth of $762 million budgeted in 2015-16. This is almost 3 percent of the WA state budget revenue of $26.3 billion.

Before such revenues were collected, however, the Western Australian state had to incur substantial expenses through infrastructure provision and other forms of subsidy. This is made clear by the Western Australian Treasury:

> *In the 1970s and 1980s the State played a pivotal role in securing the development of the North West Shelf gas project through agreements, financial assistance and infrastructure provision. … 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.*[13]

Based on the Western Australian experience, if South Australia expects to develop an offshore gas industry, it must be ready for potentially decades of subsidy before revenues are realised.

[13] Government of Western Australia 2011 *GST Distribution Review WA Submission October 2011*, p13. Available at: http://www.gstdistributionreview.gov.au/content/submissions/downloads/issues_paper/wa_gov.pdf

South Australia already subsidises its extractive sector. $316 million was spent by the state government on measures that wholly or largely assisted the minerals and fossil fuel industries, including $40 million on gas extraction, between 2008-09 and 2013-14.[14]

Such expenditure comes at the expense of funding other government priorities, such as health and education. This is made clear by the Queensland government:

> *Some costs may also be recovered by the government over time if they are directly industry related. However, there is a real opportunity cost for governments in undertaking the initial capital expenditure. Governments face budget constraints and spending on mining related infrastructure means less infrastructure spending in other areas, including social infrastructure such as hospitals and schools. For many projects directly related to assisting mining industry development, such as land acquisitions for state development areas, the expected timeframes for cost recovery are extremely long (sometimes decades). The opportunity cost of this use of limited funds is a real cost to government and the community.*[15]

Gas and oil developments are likely to cost the South Australian government significant amounts before revenue is realised. This may be even more likely given the current government's enthusiasm for royalty holidays to hasten development.[16]

[14] Peel, Denniss and Campbell 2014 Mining the age of entitlement: State government assistance to the minerals & fossil fuel sector, The Australia Institute, available at: http://www.tai.org.au/content/mining-age-entitlement

[15] Queensland Treasury, 2013. Queensland Treasury Response to Commonwealth Grants Commission: Response to Terms of Reference for Commonwealth Grants Commission 2015 Methodology Review, Available at: https://www.cgc.gov.au/index.php?option=com_attachments&task=download&id=1728.

[16] http://www.adelaidenow.com.au/business/sa-gas-producers-will-get-a-five-year-royalty-holiday-under-labors-plan-for-the-resources-sector/story-fni6uma6-1226844007426

Risks to other industries

Any potential benefits of oil and gas production in the Great Australian Bight need to be weighed against the risks to other industries from a potential oil spill. Industries that could be impacted by a spill during exploratory drilling or later production include tourism on the regional coastal areas, aquaculture and wild fisheries.

Figure 1 and 2 respectively depict the probability of socioeconomic impact at sea after four months of a modelled spill scenario during summer and winter with an oiling threshold corresponding to a level that would likely trigger the closure of fisheries.[17] The socioeconomic impact analysis is overlaid with state marine parks and Commonwealth marine reserve areas.

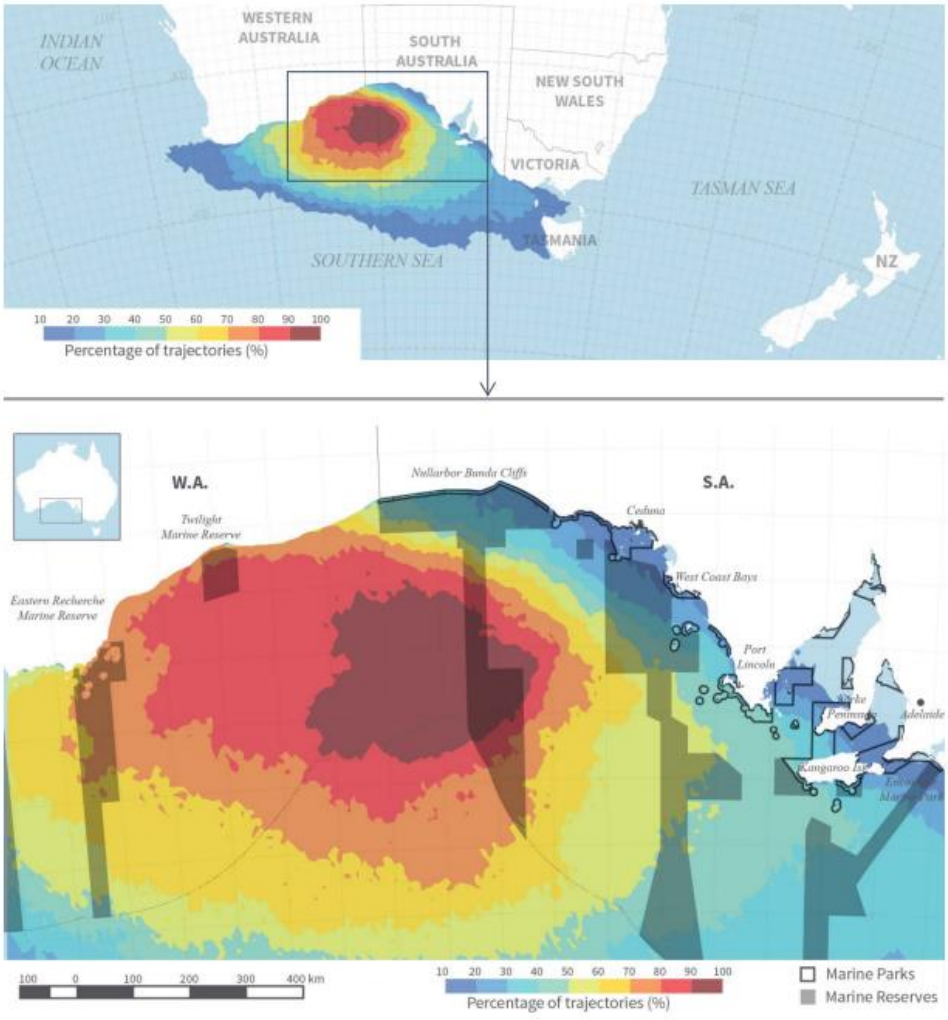


Figure 1: Socioeconomic impact analysis for summer after 4 months

[17] Lebreton L (2015). 'Stochastic analysis of deep sea oil spill trajectories in the Great Australian Bight'

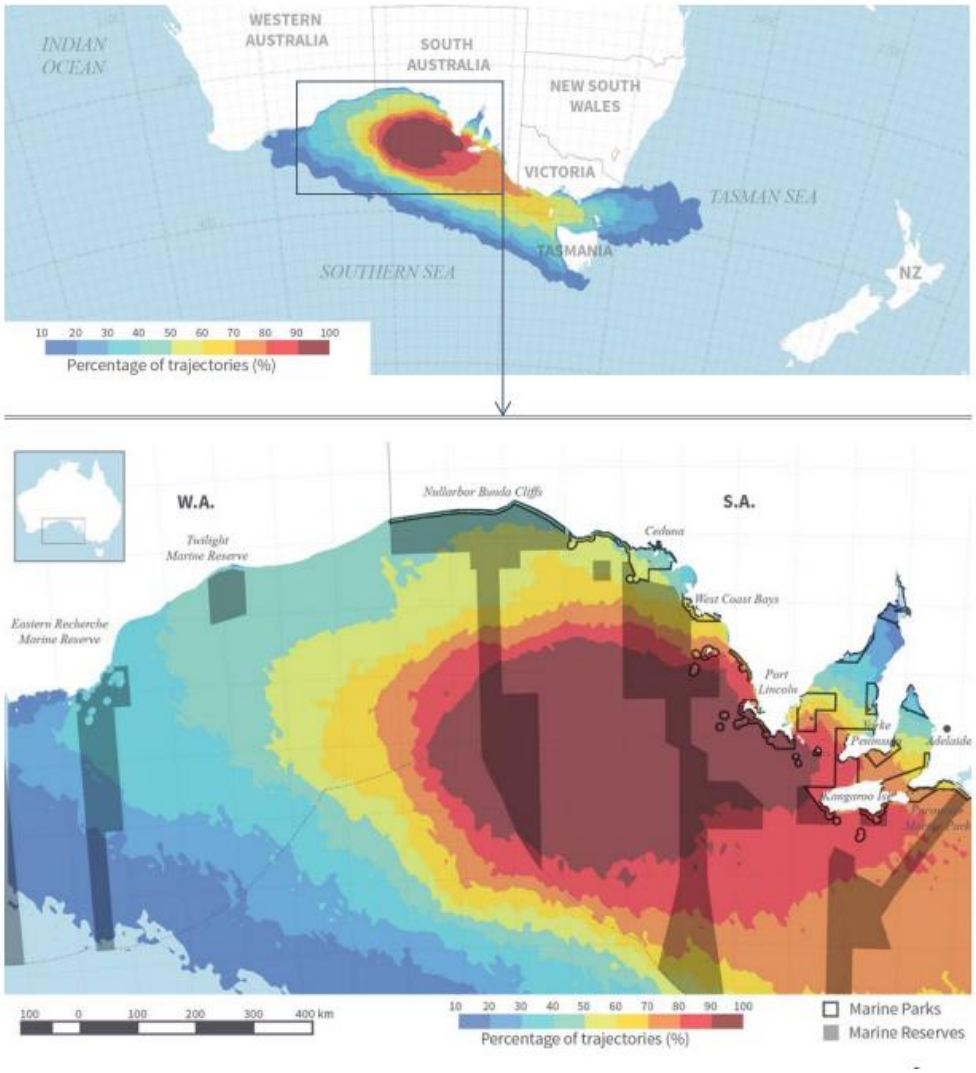


Figure 2: Socioeconomic impact analysis for winter after 4 months

The yellow marked areas show where there would be a 50% chance to have an oil thickness level above the threshold at the surface.

During summer (Figure 1) the prevailing currents would take the oil towards the Western Australian coastline. In winter (figure 2) the oil could impact the Victorian west coast, King Island, and fisheries to the north west of Tasmania.

We examine job numbers in these potentially impacted areas, to contrast these industries with the potential size of an oil extraction industry in the bight.

South Australia

In South Australia, the state most directly affected, employment from aquaculture in 2013-14 was 830, largely in the Eyre Peninsula.[18] Employment in aquaculture has grown since the 2011 census which counted 668 directly employed.

Commercial fisheries generated 1,576 direct full time jobs in 2012-13, the majority in regional areas.[19]

Tourism directly produces 6,800 full time jobs, excluding Adelaide and the West Coast. Although it is difficult to determine what impact these industries might suffer from a spill, the approximately 9200 direct jobs in regional "Bight" industries could be put at risk by the development of oil and gas extraction.[20]

Table 1: Direct employment selected industries, South Australia, 2013-14

Region	Direct full time jobs
Tourism (regional)	
Fleurieu Peninsula	2,100
Limestone Coast	1,800
Eyre Peninsula	1,500
Yorke Peninsula	900
Kangaroo Island	500
Other	
Aquaculture	830
Commercial Fisheries	1576
Total	**9,206**

194,000 people went whale and dolphin watching in South Australia in 2008, generating turnover of over $1 million in largely local-owned businesses.[21]

[18] Econsearch (5 June 2015). 'The Economic Impact of Aquaculture on the South Australian State and Regional Economies', 2013/14

[19] Government of South Australia, Primary Industries and Regions SA (2015). 'Status of South Australian Fisheries Report: Fisheries Snapshot for 2012-13'

[20] Government of South Australia, Tourism Commission. 'Regional Tourism Reports' http://tourism.sa.gov.au/regional-tourism-profiles.aspx

[21] O'Connor, S., Campbell, R., Cortez, H., & Knowles, T., 2009, Whale Watching Worldwide: tourism numbers, expenditures and expanding economic benefits, a special report from the International Fund forAnimal Welfare, Yarmouth MA, USA, prepared by Economists at Large.

Victoria

Tourism along the Great Ocean Road on Victoria's western coast employs 20,000 people.[22] This represents 12 percent of regional employment, and contributes $1.9 billion to the regional economy.[23] 47 percent of visitors to the region reported that they intended to visit the beach as part of their trip.[24]

The Victorian fishing and aquaculture sectors employed 1700 people in 2011.[25]

Tasmania

Modelled oil distribution in the 50 percent range does not meet the shoreline of Tasmania anywhere but King Island. The west coast of King Island is in the 60-70 percent range – that is, for a spill of the type modelled, there would be a 60-70 percent chance of oil reaching the island is quantities sufficient to cause socioeconomic impact, including the likely closure of fisheries.

While Bass Strait is the area most likely to be impacted, the modelled oil spill could potentially bracket Tasmania, leaving only the east coast unaffected.

The Tasmanian fishing and aquaculture sectors employed 2,265 in 2011.[26]

[22] Government of Victoria (2013). 'Victoria's Regional Tourism Strategy 2013-2016'

[23] Government of Victoria, Tourism Victoria. 'Great Ocean Road market profile'

[24] Ibid

[25] Australia Bureau of Agricultural and Resource Economics and Sciences (2015). 'Australian fisheries and aquaculture statistics 2014'

[26] Ibid

Conclusion

At a time when the world is working to address the damage that fossil fuels are causing the global climate, and when the memory of the disastrous Deepwater Horizon oil spill is still fresh, it seems an incongruous time to be considering expanding oil and gas production into environmentally sensitive areas.

Nevertheless, the costs, benefits and risks of such proposals should all be considered. While proponents and parts of government are anxious to promote the "enormous" economic benefits of oil production, when viewed in the context of the state or national economy, such benefits are marginal. Oil and gas are capital intensive industries that employ few people. Those who would be employed are likely to be FIFO workers, rather than people who live in regional areas.

While oil and gas royalties can be important for state government budgets, decades of subsidy may be necessary before they can be enjoyed. Given the modest contribution of mining and gas royalties to the current South Australian budget, caution should be placed on such subsidies.

In contrast, locally owned, sustainable industries would be placed at risk by oil production in the Great Australian Bight. Tourism, fishing and aquaculture employ over 30,000 people in coastal areas that could be affected by an oil spill.