

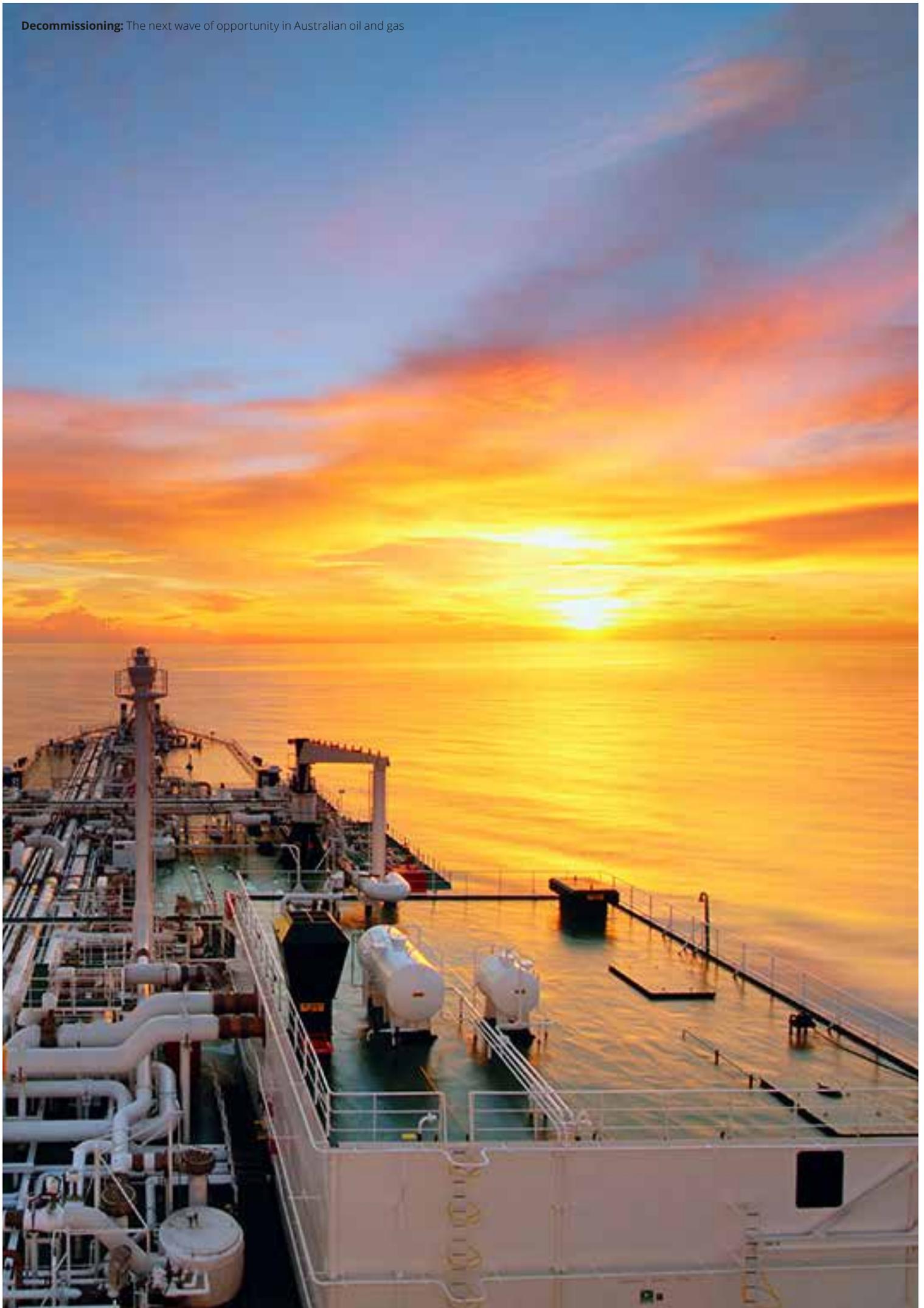
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**Decommissioning:**

The next wave of opportunity  
in Australian oil and gas

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There is a tide in the affairs of men.  
Which, taken at the flood, leads on to fortune;  
Omitted, all the voyage of their life  
Is bound in shallows and in miseries.  
On such a full sea are we now afloat,  
And we must take the current when it serves,  
Or lose our ventures.

**William Shakespeare, Julius Caesar.**

*This report has been based on the paper 'Decommissioning: The Next Australian Oil and Gas Boom?' which is published in the 2017 APPEA Journal and which will be presented by Bernadette Cullinane and Susan Gourvenec on Tuesday 16 May 2017, at the APPEA Conference, Perth.*



# The current landscape – A change in the wind

## Australia ranked at the bottom in the recently published Oil and Gas Competitiveness Assessment

In the Oil and Gas Competitiveness Assessment, recently published by National Energy Resources Australia (NERA), Australia ranked at the bottom of the group of 30 oil and gas producing nations in abandonment and decommissioning.<sup>1</sup>

With the recent focus on the massive investment in liquefied natural gas (LNG), it is easy to forget the Australian oil and gas industry is nearly 100 years old and many assets are reaching the end of their producing life. Liabilities are estimated at more than US\$21bn over the next 50 years.<sup>2</sup> With nearly 70% of producing assets located offshore, this problem is complex, challenging and costly.

The industry must develop strategies to address this looming challenge, however Australia has completed few large-scale decommissioning projects and currently lacks the required experience and capability to take on this challenge.

The upcoming decommissioning wave represents a perfect 'greenfield' to apply innovative thinking, new technologies and collaborative approaches, as well as an opportunity for Australia to demonstrate global leadership in this inevitable final stage of the asset lifecycle.



# Approaches to offshore decommissioning – Understanding the swell

Globally, the base case for decommissioning offshore infrastructure is complete removal

However, precedence exists for removal and relocation of platform substructures to another offshore site with other decommissioned rigs, most well-known through the US 'rigs to reefs' approach administered through the US Bureau of Safety and Environmental Enforcement.<sup>3</sup>

A raft of technical challenges, risk to personnel and the environment, and costs are associated with removing aged infrastructure from harsh offshore environments, in addition to the challenge of either relocation offshore or disposal when brought to shore.

Given marine ecosystems establish on and around offshore infrastructure during the

decades of the operational life, there is a motivation to leave infrastructure in situ following decommissioning to retain the established ecosystem, reduce risk to personnel and the environment and reduce cost derived from removal (and in cases relocation).

The optimal decommissioning solution will depend on what is technically feasible and also what is desirable from an environmental, economic and societal perspective. Consideration of decommissioning options in an Australian context has been explored by co-author Susan Gourvenec and others across a number of publications and conferences.<sup>4</sup>

# Collaborative solutions – Spotting the breaks

Any decommissioning decision must be founded on a scientific evidence base, which is currently insufficient for the Australian context

Relevant knowledge is needed to guide and optimise the decommissioning strategy for upcoming projects. This evidence base must address cross-industry and multi-disciplinary issues and deliver holistic outcomes to facilitate the appropriate approach to oil and gas decommissioning.

Decommissioning in Australian waters will require a balance of learning from best practice, but also acknowledgement of the unique challenges of our local situation and playing to our national strengths.

For Australia, challenges include our geographical remoteness with offshore hubs across three coasts (Bass Strait, North West and Northern Australia), the overall sparsity of offshore projects resulting in low vessel, personnel and tool utilisation, and our notoriously variable carbonate shallow-water seabeds in contrast to the soft muds encountered in the Gulf of Mexico. These factors drive up complexity and costs and will require the development and application of new techniques, equipment, skills and workforce capability to support decommissioning activity.



## Workforce capability – Catching the next wave

Australia has the potential to become a leader in asset management, construction, operations and maintenance

A challenge facing Australia is that the Australian supply chain currently has neither the vessels, tooling, disposal facilities nor the trained workforce for offshore decommissioning, particularly for the current base case of complete removal and disposal onshore. Importing specialist vessels, tools and an experienced workforce from other regions will be costly.

As for construction work, this may well result in much of the investment being spent outside Australia.

There is an opportunity to export the skills and experience gained in managing local decommissioning to the broader Asia-Pacific region. With so many projects on the near to medium-term horizon, Australia has the potential to become a leader in end of life-cycle asset management, further building on the experience in the construction, operations and maintenance of major capital projects. Developing regional-specific techniques and technologies for decommissioning presents a great opportunity for the asset services sector.

## Policy and regulation – Swimming between the flags

Australia needs clear policy and regulation to enable optimal decommissioning solutions to be realised

Policy and regulation plays an important role in shaping decommissioning solutions. Globally, offshore decommissioning is guided by international law. The earliest relevant international law, the *Geneva Convention on the Continental Shelf (1958)* requires complete removal of abandoned and disused infrastructure. The later *United Nations Convention on the Law of the Sea (1982)* provides opportunity for derogations on a case by case basis. Australia is signatory to both of these international conventions. Furthermore, the regulatory landscape in Asia-Pacific is emerging.

In its decommissioning presentation last year, Wood Mackenzie highlighted a lack of clear regulatory guidance in the Asia-Pacific, a problem compounded by excessive red tape in some countries.<sup>5</sup>

It is evident Australia needs clear policy and regulation, relevant to our location and environment, to enable optimal decommissioning solutions to be realised. A one-size-fits-all complete removal policy may turn out to be impractical for existing developments in Australia and deter future investment in new developments.

# Golden opportunities ahead – It's a big ocean to explore

Australia's oil and gas sector makes a significant contribution to the country's economy in terms of investment, jobs, royalties and taxation, export revenue and regional development

Since the start of production in the mid-1960s, it's estimated that Australia's offshore oil and gas industry has made direct taxation payments to the Federal Government of over A\$250 billion, averaging around A\$8 billion per year over the last five years.<sup>6</sup> The oil and gas sector contributed almost A\$31 billion in Gross Value Add and nearly 29,000 jobs in 2016.<sup>7</sup>

Can offshore oil and gas decommissioning be the next oil and gas boom? The value of the decommissioning industry to the Australian economy and jobs is material and could be a source of significant global competitive advantage.

**The decommissioning wave is growing and we must be ready to ride it!**

## End notes

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- 1 NERA (2016). Oil & Gas Industry Competitiveness Assessment, Report on the Framework, Baseline Score, Insights and Opportunities, September 2016. National Energy Resources Australia, Australian Government Growth Centre
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- 3 US Bureau of Safety and Environmental Enforcement, <http://www.bsee.gov>
- 4 Gourvenec, S. & White, D.J. (2017). In situ decommissioning of subsea infrastructure, *Proc. Conference of Offshore and Maritime Engineering; Decommissioning of Offshore Geotechnical Structures, Hamburg, Germany*. Keynote address; Gourvenec, S. & Techera, E.J. (2016). Rigs to reefs: is it better to leave disused oil platforms where they stand? *The Conversation*; Chandler, J., White, D.J., Techera, E.J., Gourvenec, S. & Draper, S. (2016). Engineering and legal considerations for decommissioning of offshore oil and gas infrastructure in Australia, *Ocean Engineering*
- 5 Wood Mackenzie (2016). Upstream oil and gas decommissioning in the Asia-Pacific, 600 fields on the front line
- 6 APPEA (2016). *APPEA Financial Survey 2015 - 2016*
- 7 Australian Bureau of Standards (2017), 5206.0 Australian National Accounts, Table 37, Industry Gross.

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