

Senate Environment and Communications References Committee

Inquiry into the potential environmental, social and economic impacts of BP's planned exploratory oil drilling project, and any future oil or gas production in the Great Australian Bight



Santos Submission, April 2016

Executive Summary

Thank you for the opportunity to make a submission to the above Inquiry. Our key points are:

- Santos has a long and positive record in offshore oil and gas exploration, development and production activity, drilling more than 180 offshore wells since the early 1980s, in a variety of marine environments in Australia and South-East Asia. The company has successfully undertaken these activities in a safe and sustainable manner, operating alongside other users of the marine environment.
- Exploration activity along the Australian southern continental slope, which includes the Great Australian Bight, is not new. The region has hosted 48 offshore drill sites (hydrocarbon and scientific research) and hundreds of thousands of kilometres of seismic survey. The first well in the region was drilled in the early 1970s.
- Offshore petroleum activities in Commonwealth waters are well regulated through a regime that has developed over many decades, evolving in response to lessons learned from events here and abroad. The regulator, NOPSEMA, was established in 2012 with embedded industry expertise, and makes its decisions based on merit and free of political interference, whilst subject to oversight.
- Santos' onshore oil and gas activities in South Australia and Queensland have had a significant and positive impact on the local community, the region, the state and the nation. Exploration success in the Great Australian Bight has the potential to also have a significant and positive economic impact.

About Santos

An Australian energy pioneer since 1954, Santos is a leading oil and gas producer, supplying Australian and Asian customers. With its origins in the Cooper Basin, Santos is one of Australia's biggest producers of gas to the domestic market and has the largest exploration and production acreage position in Australia of any company. Santos has also developed major oil and liquids businesses in Australia and operates in all mainland Australian states and the Northern Territory.

Headquartered in Adelaide, Santos also has interests in Indonesia, Papua New Guinea, Vietnam, Malaysia and Bangladesh, ranging from exploration to production assets.

Santos' foundations are based on safe, sustainable operations and working in partnership with host communities, governments, business partners and shareholders.

For over 60 years, Santos has worked with landholders in South Australia, Queensland, the Northern Territory and New South Wales across diverse environments to safely and sustainably develop natural gas resources. We have worked closely with local communities like the Roma community in Queensland for over 30 years to develop and produce natural gas.

We have a strong track record of working respectfully with landholders and in coexistence with agriculture, as we have with the fishing industry in the offshore. We have worked hard to protect the diverse environments in which we operate, from the remote desert and the grazing and cropping areas of the eastern seaboard to the waters off Australia's north-west and south-east coasts.

Santos has a range of operated and non-operated interests in the Australian offshore Carnarvon, Browse, Bonaparte, Otway, Gippsland and Bight basins.

The company's first offshore discovery was in 1984 on Western Australia's north-west shelf, at Talisman, 135 kilometres north-east of Dampier. Since that time, Santos has drilled more than 180

offshore wells (including side-tracks) in a variety of offshore environments in Australian waters and overseas.

Economic contribution to the economy of South Australia, and elsewhere

The economic contribution of oil and gas activities, from the exploration phase through to appraisal, development and production, can be significant for the local community, the region, the state and the nation.

A 2014 PwC analysis identified the oil and gas industry as one of Australia's highest value-adding industries, with every dollar of production generating 70 cents of value-add compared to an average of 49 cents for all other industries.

The PwC report found that the oil and gas industry's annual contribution to Australia's economic output was expected to more than double from \$32 billion in 2012-13 to \$67 billion by 2029-30.

Santos has explored for oil and gas in the north-east of South Australia since 1954. Today the Cooper Basin development is Australia's largest onshore resource project, producing sales gas, ethane, crude oil and gas liquids from the basin.

A Deloitte Access Economics Report into the economic contribution of Santos' South Australian operations showed that in 2014, the company's activities were estimated to have contributed around \$1,445 million in value added to the state economy. Santos' contribution to the national economy was estimated at \$1,592 million in 2014. The demand generated by Santos' South Australian operations in 2014 was estimated to have added around 2,724 and 3,422 full-time jobs to the state and national workforces respectively.

As a share of Gross State Product (GSP), Santos alone represented 1.5% of the South Australian economy through both its direct and indirect contribution in 2014. Estimates suggested that Santos, as a single entity, made a larger direct contribution to gross output and GSP than the entire South Australian wine sector, which made an estimated direct contribution of approximately \$1 billion to output in the state and \$350 million in value added to GSP in 2013.

In addition to the above, Santos also made significant direct capital expenditure. In 2013 alone, expenditure on exploration and development in South Australia was estimated to amount to \$586 million, growing to \$779 million in 2014.

When the activity from Santos' Cooper Basin joint venture partners is incorporated into the modelling, the economic contribution to the state economy rises to \$2,104 million in value added and 3,886 full-time employees in 2014. This is equivalent to a share contribution of 2% to GSP and 0.6% to the state full time equivalent workforce.

In recent times, the petroleum sector has faced challenging market conditions, with oil prices having fallen from above \$US 100 a barrel to less than \$US 40 a barrel. Cuts to employee headcounts and operating and capital expenditure have occurred in response, along with asset sales and write-downs. But the industry is cyclical, and the Deloitte Access Economics Report highlights the significant economic contribution oil and gas activities can generate. Even in the less buoyant times, operating and capital expenditure continues.

Whilst not offshore, the Santos-operated GLNG project in Queensland is another good example of the positive economic impact flowing from oil and gas investment.

Between January 2011 and December 2014, GLNG purchased materials and services totalling \$15.4 billion. Of this, \$7.9 billion was spent in Queensland, with about \$1 billion in regional areas. Community investment, particularly in infrastructure such as roads, airports and medical services, has been significant. GLNG has invested \$140 million in road upgrades and maintenance across regional Queensland roads, and a further \$63 million will be spent over the next five years on local government roads.

In Gladstone, the LNG industry made a joint investment of \$10.5 million to fund an instrument landing system at Gladstone airport to improve safety, particularly for landings in difficult weather. In Roma, GLNG contributed \$2.5 million in 2011 for an upgrade and expansion of the local airport. These upgrades benefit not just the industry but the broader community.

Other investments include:

- \$20 million over the life of GLNG to the CareFlight aeromedical service.
- \$1 million to Roma Allied Health.
- \$5.5 million to affordable housing and rent assistance initiatives in the Maranoa.
- \$1 million for significant upgrades to Roma's underground sewerage infrastructure.
- Over \$1 million for weed and pest management programs, including a significant upgrade to the Roma saleyards vehicle wash-down.

In NSW, detailed economic modelling of Santos' proposed Narrabri gas project indicates it would generate a range of benefits including \$3.1 billion of capital investment, direct creation of approximately 1,300 jobs during peak construction, about 200 ongoing jobs during operations, average direct and indirect employment over 25 years of 750 full-time equivalent jobs, an increase in real income in the Narrabri region of \$641 million, and the establishment of a Gas Community Benefit Fund that would receive an estimated \$100 million through the life of the project.

These are examples of the positive economic impact Santos' oil and gas activities, existing and proposed, have had or could have on the areas in which we operate, and beyond. There is no reason to believe that development of an industry in the Great Australian Bight would not deliver similar significant economic returns to the region and broader community.

Santos Offshore

Since its first offshore discovery off the north-west of Western Australia in the 1980s, Santos has developed extensive offshore exploration and appraisal drilling experience in most offshore basins of Australia, including the Carnarvon, Browse, Bonaparte, Otway, Gippsland and Sorell basins. Activities have ranged from complex drilling in the Browse Basin 300km off the far north-west coast of Western Australia to the extremely remote and harsh conditions in the Sorell Basin, offshore Tasmania. Santos has also developed several offshore, subsea oil and gas fields in Western Australia and Victoria. In addition, Santos has been active overseas, undertaking offshore exploration drilling in several Indonesian basins since the early 2000s, including in the deepwater of offshore Kalimantan to shallow and deepwater exploration in the Madura Straits. This has resulted in Santos completing four offshore developments in Indonesia over the past decade. More recently, the company has successfully executed exploration drilling in three offshore basins of Vietnam, and exploration and development drilling in offshore Bangladesh.

Santos has a mature drilling and completions management system and risk management and assurance processes that have been successfully used on all recent Australian and international exploration and development drilling projects.

The systems are complemented by an experienced drilling management and engineering team with extensive well design and operational experience in deep and shallow waters from across the globe, including Australia, Europe, the former Soviet Union, Trinidad, North Africa, North and South America and South, South East and Central Asia.

By way of example, in 2012, Santos made a significant gas discovery at the Crown exploration well in the Browse Basin. This high pressure high temperature (HPHT) well was safely and successfully drilled to a total depth of 5,301 metres. In 2014, Santos made a significant gas-condensate discovery at Lasseter, another HPHT well, 35 kilometres east-southeast of Crown and drilled to similar depths. HPHT wells are known throughout the industry as the most challenging well-types due to the extreme forces that are experienced downhole while drilling towards the target. As such, wells like this are only attempted by highly experienced and competent companies which have well developed engineering and subsurface teams and mature assurance and governance processes. The high cost of these wells coupled with the significant possibility of not being able to reach the exploration target drives the company to attain the highest level of personnel competency and experience. The success of Crown and Lasseter, both challenging wells, speaks to the quality of the company's planning and skilled execution.

Detail on Santos' previous activity in the Bight and Otway basins is provided later in this submission.

Offshore regulatory framework in Australia

Petroleum activities in Commonwealth waters are well regulated by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), a Commonwealth statutory authority established on 1 January 2012.

NOPSEMA was established after recommendations arising from the Final Government Response to the Report of the Montara Commission of Inquiry (2011) and the Productivity Commission Report into the Upstream Petroleum (Oil and Gas) Sector (2009).

State/Northern Territory governments remain responsible for regulating petroleum activities in coastal waters (generally those areas less than three nautical miles from the territorial sea baseline) except where powers and functions have been conferred by the state/NT on NOPSEMA.

The Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGGS Act) provides the regulatory framework for all offshore petroleum activities in Commonwealth waters. The OPGGS Act is supported by regulations and directions - separate sets of regulations address environmental risks, safety risks and well integrity risks and, in addition, NOPSEMA and the responsible Commonwealth Minister each have broad powers to give enforceable directions to petroleum titleholders on a wide range of matters.

Process - Acreage Release

The Australian Government encourages investment in oil and gas exploration through the annual release of offshore petroleum acreage. Decisions as to the areas for release for exploration and the granting of titles in Commonwealth waters are jointly made by the Commonwealth and the state/NT governments through a Joint Authority arrangement (comprising the responsible Commonwealth Minister and the relevant state or NT Minister or their delegates). The key body responsible for providing advice to the Joint Authority (as well as the day-to-day administration of petroleum titles in Commonwealth waters) is the National Offshore Petroleum Titles Administrator (NOPTA).

Before acreage is released, the Australian Government reviews environmental and socio-economic sensitivities (such as commercial fishing and areas of high recreational value) of the proposed release area.

Bids for released acreage must be submitted to the Joint Authority and must contain information about the proposed work program and the technical capacity of, and financial resources available to, the applicant. The Joint Authority then determines whether it will award an exploration permit to an applicant. The Joint Authority makes its decision based on a range of criteria, including whether the applicant proposes an exploration strategy and work program that will significantly advance the assessment and understanding of the petroleum potential of the area, has a satisfactory record of past performance and has demonstrated its technical and financial capacity to deliver the proposed work program.

Past performance may refer to any health, safety and/or environmental incidents within Australia or internationally.

The grant of title provides exclusive rights to the titleholder to carry out particular activities within the title area. But a successful applicant still has to gain further approvals, as described under the next heading, before it may carry out any material “on site” activity.

Process – Undertaking a Petroleum Activity

Before a titleholder can undertake a petroleum activity in Commonwealth waters, such as drilling, it must first ensure its plans for managing safety, the environment and well operations are accepted by the NOPSEMA in accordance with the requirements of the OPGGS Act and supporting regulations.

Since the establishment of NOPSEMA, there has been increased rigour in assessment and compliance processes.

Titleholders are required to submit detailed information in respect of a proposed petroleum activity to NOPSEMA which, as an independent regulator, assesses the activity to determine whether or not to grant approval for that activity. For a drilling activity, the following documents must be submitted to NOPSEMA to assess whether risks from the activity can be managed to as low as reasonably practicable (ALARP):

- Safety Case – which details the potential safety risks specific to the activity and the controls to manage these risks.
- Environment Plan – which details the potential environment risks specific to the activity and the controls to manage these risks (and which must include, among other things, a detailed oil pollution emergency plan or oil spill contingency plan).
- Well Operations Management Plan (WOMP) – which details the steps taken to ensure hydrocarbons are contained throughout all stages of the life of the specific well.

Once accepted, the Safety Case, Environment Plan and WOMP remain subject to a requirement that they be revised at least once every 5 years and on additional occasions in certain circumstances, including if there is any significant change in risks or if required to do so by NOPSEMA.

These regulatory checks are formulated using an “objectives-based” process. This means that instead of having a “tick the box” approach to a set of minimum requirements set by the regulator, the titleholder must develop a Safety Case, Environment Plan and WOMP that is, in each case,

specific to the activity, and then must convince the regulator that they are appropriate responses to the risks posed in the specific circumstances.

This process puts the onus on the titleholder to prove to the regulator that they have sufficient controls in place to manage an activity. Inspections are then undertaken by NOPSEMA to ensure that the controls the titleholder has committed to are being implemented.

For many companies, including Santos, this increased rigour has resulted in a stronger risk-based assessment process with a heightened focus on the implementation of controls.

In addition, with respect to an Environment Plan, the regulations specifically require consultation with certain affected persons/organisations, and a summary of the plan must be published.

So, in summary, before undertaking drilling activities in Commonwealth waters, the titleholder must show that the risks relating to those activities will be ALARP on at least three separate occasions (Safety Case, Environment Plan and WOMP) before those activities can commence.

Prior to February 2014, the environmental impacts of offshore activities were regulated under both the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) [which addresses matters of national environmental significance] *and* the OPGGS Act, with both NOPSEMA and the Commonwealth Environment Minister required to assess and approve activities. In February 2014, NOPSEMA became the sole assessor for petroleum activities in Commonwealth waters when the Commonwealth Environment Minister endorsed NOPSEMA's environmental authorisation process under the EPBC Act (known as "streamlining").

Santos is of the view that this streamlining has removed unnecessary duplication between two sets of legislation without compromising environmental outcomes. Streamlining does not mean the requirements of the EPBC Act are disregarded, but rather that the Environment Minister has determined that NOPSEMA processes, through the Environment Plan assessment procedure, satisfies the rigorous EPBC Act requirements. The titleholder is still required to demonstrate, within its Environment Plan, how it will address (among other things) the potential impacts and risks to matters of national environmental significance, just as it was obliged to do before streamlining.

Santos notes that a 2015 independent review of NOPSEMA's compliance with the environmental management authorisation process under the EPBC Act determined that NOPSEMA had met all of its commitments, and no formal recommendations or modification of management arrangements were required.

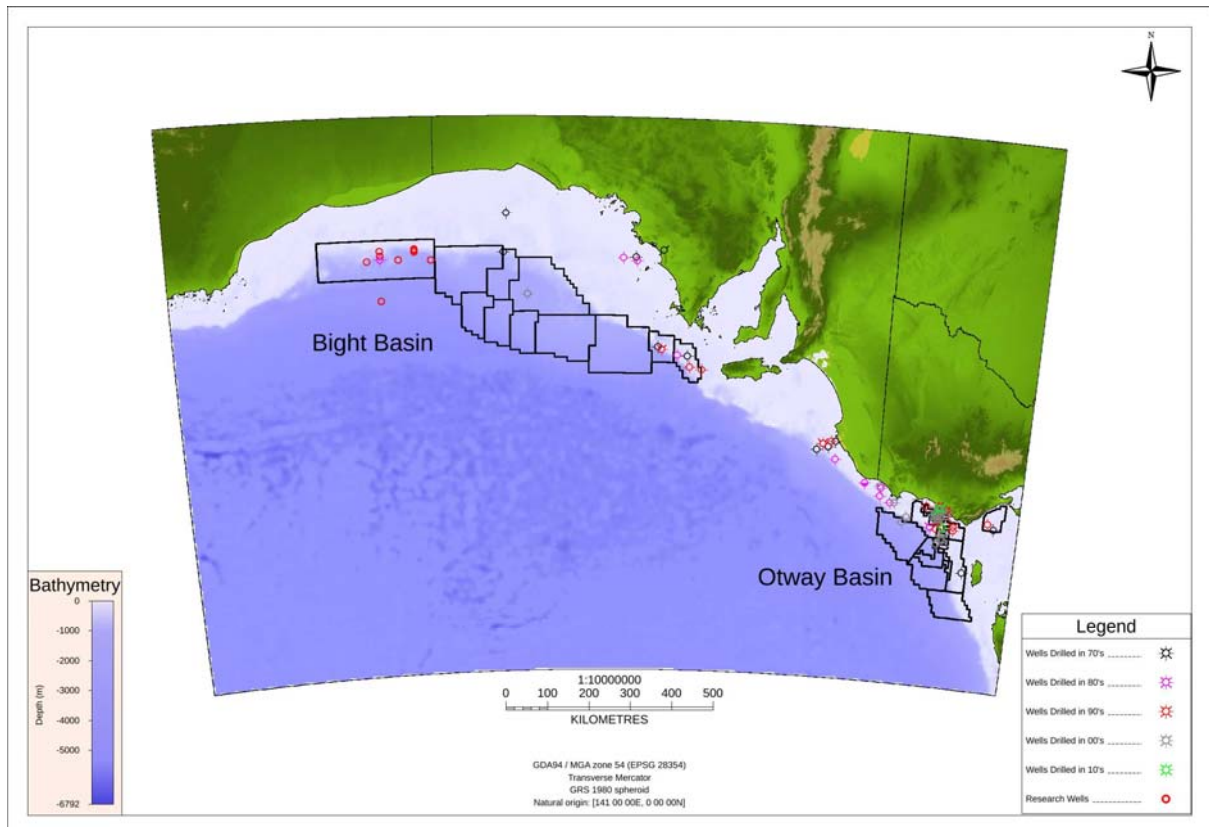
It is also important to note that NOPSEMA must not accept an Environment Plan or a revision to an Environment Plan unless NOPSEMA is reasonably satisfied that the titleholder is in compliance with the financial assurance requirements under the OPGGS Act and that such compliance is in a form acceptable to NOPSEMA. Such compliance requires the titleholder to demonstrate that it maintains sufficient "financial assurance", in an appropriate form, to meet the titleholder's costs, expenses and liabilities arising in connection with its petroleum activities (for example, to address the event of an oil spill).

Santos is of the view that NOPSEMA is an effective, robust and independent regulator with embedded industry expertise. It makes its decisions based on merit and free of political interference. At the same time, it is subject to oversight through statutory reviews (one has recently been completed), parliamentary estimates hearings, national audit office scrutiny, and it takes advice and direction from the NOPSEMA Board, which is appointed by the Commonwealth Resources Minister.

Petroleum activity along the southern continental slope (including the Great Australian Bight)

More than 3000 wells have been drilled in offshore Australia since the first, Barracouta-1 in the Bass Strait, in 1964. Since the late 1980s, the industry has drilled an average of about 80 wells a year, though in recent times there has been a major drop in exploration activity, with just nine wells drilled last year.

Offshore exploration activity along the Australian southern continental slope, which includes in the Great Australian Bight, is not new. The region has hosted 48 offshore drill sites (hydrocarbon and scientific research), 256,955km of 2D seismic and 60,675km² of 3D seismic surveys.



Map: Wells along the southern continental slope (including the Bight). *Source: Santos Corporate Database*

Of the 48 drill sites on Australia's southern continental slope, 21 have been oil and gas wells, the first, Echidna 1, drilled in 1972. Woodside's Gnarlyknots-1 well is the most recent, in 2003, drilled in a water depth of 1316m and reaching a total depth of 4,736m. The deepest water drill site in the Great Australian Bight was undertaken as part of the Ocean Drilling Program (ODP), an internationally funded scientific seafloor drilling project conducted across 27 drill sites in the basin in 1998. ODP 1128D, the deepest, was drilled over 450m of rock at a water depth of 3874m. To date, none of the wells have made a commercial discovery of hydrocarbons.

Santos along the southern continental slope

Santos has explored and on success developed over 20 wells in the Bass Strait which comprises in part the Otway, Gippsland and Sorell geological basins. These wells are located offshore Victoria in an arc from Portland to Lakes Entrance and off the remote north-west coast of Tasmania in water depths of up to 1395m. Santos drilling operations in these frontier locations have been performed to total drilled depths in excess of 3600m requiring the drilling rig to be on location for up to 40 days.

Weather conditions are challenging in these regions and whilst the drilling is planned to not coincide with the worst of it, on occasion sea states of up to 8m and winds of 20m/sec have been experienced and are considered in the planning phase. Extensive independent meteorological and oceanographic surveys and analysis are undertaken and used to assist in the planning. These weather conditions are consistent with those experienced through the whole of the Southern Ocean region from the Bass Strait to the Great Australian Bight.

A robust and comprehensive technical rig selection process, mooring analysis and engineered well design ensure that these conditions do not impact the integrity or safety of the drilling operations. This thorough planning and risk mitigation process, which forms a mandated part of the Santos drilling and completions management system, makes certain that the risk of any environmental impact is kept to as ALARP.

Future plans

Santos has a 50% non-operated interest in EPP43 in the Great Australian Bight (Ceduna Sub-basin), located 315km south-west of Ceduna. It was awarded the acreage in October 2013 along with its joint venture partner and operator, Murphy Oil Australia. EPP43 covers an area of approximately 17,000km². PGS undertook a multi-client 3D seismic program commencing in 2014-15 which included the acquisition of data over the EPP43 permit. The seismic program was conducted safely and without incident in accordance with the Environment Plan approved by NOPSEMA. After the 3D seismic data has been analysed, the joint venture will decide on what further activity to undertake in the EPP43 permit. A decision to drill will not be made by the joint venture until late 2018.

Santos also has a 50% operated interest in WA-517-P in the Great Australian Bight (Eyre Sub-basin), located 390km east of Esperance. It was awarded the acreage in August 2015 along with its joint venture partner, JX Nippon. WA-517-P covers an area of approximately 25,700 km². The joint venture has committed to reprocess seismic data and undertake geological and geophysical studies in the primary term of the permit.

Conclusion

Santos has been undertaking offshore petroleum activities for more than 30 years and, in that time, has developed an expertise in, and track-record of, safe and effective operation. The company's internal processes ensure that proposed activities in even the most challenging of offshore settings are well planned and carefully managed and, in the context of the Commonwealth waters of Australia, accepted by NOPSEMA as demonstrating that impacts and risks are reduced to ALARP.

Santos and its joint venture partner in EPP43, Murphy Oil Australia, will not make a decision on whether to drill in the Great Australian Bight until late 2018 and so have yet to begin formulating a Safety Case, Environment Plan and WOMP specific to that activity in the basin. To that end, Santos is not yet in a position to respond to the Inquiry's terms of reference specific to oil spill management in the Bight. However, there are general oil spill management arrangements applicable to the offshore oil industry (including the National Plan and the AMOSPlan) as well as a comprehensive legislative regime which requires the preparation and assessment of a number of detailed plans to reduce impacts and risks of petroleum activities to ALARP, before any particular oil and gas drilling or production activity can be undertaken in Commonwealth waters. These plans are scrutinised by NOPSEMA, a specialised regulatory agency, and subject to regular reassessment. Please refer to the Australian Petroleum Production & Exploration Association (APPEA) submission for more detail on industry arrangements regarding oil spill response.

Australia's current regime of legislative oversight has been developed over many decades, evolving in response to lessons learned from incidents both in Australia and internationally (including recent changes made to enhance scrutiny, preparedness and accountability) and is appropriate and adapted to oil and gas activity in all areas of offshore Australia. Further, when Santos begins its well planning in the Great Australian Bight, it will be able to draw on its own and other companies' previous experience in the Bight region, an area which has hosted numerous wells and wide-reaching seismic scrutiny since the early 1970s.

The significant and positive economic impact that oil and gas activity brings to local, regional and state communities, and the nation more broadly, is obvious. Santos' economic contribution to South Australia from decades of activity in the Cooper Basin has been significant, whilst the communities associated with the recently commissioned Santos-operated GLNG project have already been the beneficiaries of multi-million dollar investment. There is no reason why exploration success in the Great Australian Bight cannot deliver similar returns. As a guide, please refer to the independent assessment of the potential economic contribution of oil and gas activities in the Great Australian Bight commissioned by APPEA.

Of course, positive economic impact should not come at the expense of the environment - through NOPSEMA's robust, informed and independent regulation since 2012, together with Santos' proven experience and mature, rigorous risk management and assurance processes, Santos' oil and gas activities in the Commonwealth waters of Australia will continue to be undertaken in a safe and sustainable manner.