2018 Climate Change Report

Santos

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CEO Statement

I am pleased to release Santos' inaugural Climate Change Report.

Santos is an oil and gas producer that supplies domestic gas and LNG to our customers in Australia and Asia. We are proud of our track record and reputation as a responsible, safe and sustainable operator. Through 2017, Santos has now established itself as Australia's lowest-cost onshore operator.

Natural gas is part of the solution to meet future energy demand growth. Gas can provide reliable, affordable energy, reduce greenhouse gas emissions and improve air quality across Australia and Asia.

Natural gas extracted from our reservoirs across Australia and PNG is the natural partner for renewable energy for power generation as the world moves away from higher-emission fuels such as diesel and coal.

Santos has robust governance systems in place to manage the risks and opportunities that are created as a result of climate change and we have recently updated our Climate Change Policy. Please refer to the sustainability section of our website for futher details.

Our natural gas portfolio is economically resilient under different scenarios consistent with global efforts to reduce greenhouse gas emissions. We are always looking for ways to reduce energy consumption and our carbon footprint. Saving energy is a win-win – it lowers our emissions and provides more natural gas for our customers.

In 2017 we set up an Energy Solutions team that is actively looking for opportunities to reduce Santos' carbon footprint and prepare our business for a lower-carbon future.

Santos continues to be well placed to supply reliable, affordable and cleaner energy to our customers.

KEVIN GALLAGHER
Managing Director & CEO
February 2018

Executive Summary

Santos' strategy, which focuses on long-life natural gas assets in Australia and PNG, recognises the transition to a lower-carbon future. We are well positioned to take advantage of the critical role of gas in the future energy mix.

This report outlines Santos' approach to climate change, including risks, opportunities and targets. It is aligned with the recommendations of the G20's Task Force on Climate-Related Financial Disclosures (TCFD).

Strategy

Climate-related risks and opportunities are embedded in the Company's corporate strategy and portfolio planning process, including emissions forecasting and carbon pricing.

Our scenario analysis shows that Santos' value and earnings are resilient under scenarios representing:

+ policy commitments under the Paris Agreement,
+ limiting average global temperature rise to 2 degrees Celsius (2°C), and
+ limiting average global temperature rise to below 2°C.

Governance

The Board and Executive Management oversee management of climate change risks and opportunities. They receive regular updates on our emissions, regulatory changes and the potential impacts to our portfolio.

Risk Management

Climate change is incorporated into the Company's enterprise risk management processes and oversight to ensure associated strategic, financial, operational and commercial risks are effectively identified and managed.

Metrics and Targets

We transparently report on Santos' greenhouse gas emissions and sustainability performance data and recognise the need to reduce emissions.

+ We have an aspirational target to achieve net-zero emissions from our operations by 2050.
+ We are currently developing a set of initiatives, which will allow us to set medium-term targets by the end of 2018.

1.

The role of natural gas in a lower-carbon future

Key messages:

+ As an abundant, flexible and less emissions-intensive energy source, natural gas has a key role to play in a lower-carbon future.
+ Natural gas can displace higher-emission fuels and supports the further integration of renewable energy.
+ We model three energy mix scenarios from the International Energy Agency and natural gas continues to play an important role in all of these scenarios.

Lowering emissions and improving air quality

Santos understands the need to limit emissions. As global energy demand grows, the world must support the twin objectives of limiting climate change and providing affordable energy to a growing and urbanised population.

Santos' purpose is to provide sustainable returns for our shareholders by supplying reliable, affordable and cleaner energy to improve the lives of people in Australia and Asia. We believe that natural gas has a critical role to play in providing energy in a lower-carbon future.

Natural gas is abundant, less emissions-intensive than other fossil fuels and can significantly improve air quality in urban centres due to its negligible particulate and Sulphur Oxides (SO_x) emissions, and low Nitrogen Oxides (NO_x) emissions.

Natural gas provides the flexible, scalable dispatchable energy required to support the integration of renewable power generation.

In addition, natural gas is used as a feedstock for critical industries such as chemicals, fertilisers and plastics, and common household items such as food packaging and plastic bottles. Natural gas can displace higher-emission fuels such as diesel and marine fuels in road and rail transport and shipping.

Meeting growing energy demand

As population grows and urbanisation provides more people with access to electricity, demand for energy will continue to grow. The IEA estimates that there are still 1.1 billion people in the world who do not have access to electricity and 2.8 billion currently without access to clean cooking facilities[1]. Around half of these people are in developing Asia, where LNG (liquefied natural gas) imports from countries including Australia and PNG, will help to increase the supply of reliable, affordable and cleaner energy.

Cleaner supply to meet demand

Today, around half of the world's 50 billion tonnes of greenhouse gas emissions come from Asia. When used in power generation, natural gas is 50% less carbon intensive than coal.[2]

Australia is one of the world's largest exporters of natural gas via LNG. Assuming all of Australia's forecast 85 million tonnes of LNG exports in 2020 have replaced legacy coal-fired power generation in Asia, then Australian LNG reduces 300 million tonnes of global greenhouse gas emissions every year. To put this in context, this emission reduction is three times the size of Australia's 2030 annual emissions reduction target under the Paris Agreement.

When considering local air pollutants, such as particulates, NO_x and SO_x, burning of natural gas is significantly cleaner than coal and diesel. Improving air quality is a priority for governments around the world as approximately 6.5 million premature deaths each year can be attributed to air pollution.[3]

Santos' scale of natural gas operations in Australia, low-cost onshore business model and proximity to Asian markets makes Santos well placed to help meet Asian energy demand while lowering emissions and improving air quality.

1. IEA, Energy Access Outlook 2017.
2. APPEA, How natural gas can minimise greenhouse emissions.
3. IEA, World Energy Outlook Special Report 2016: Energy and Air Pollution.

Future energy mix

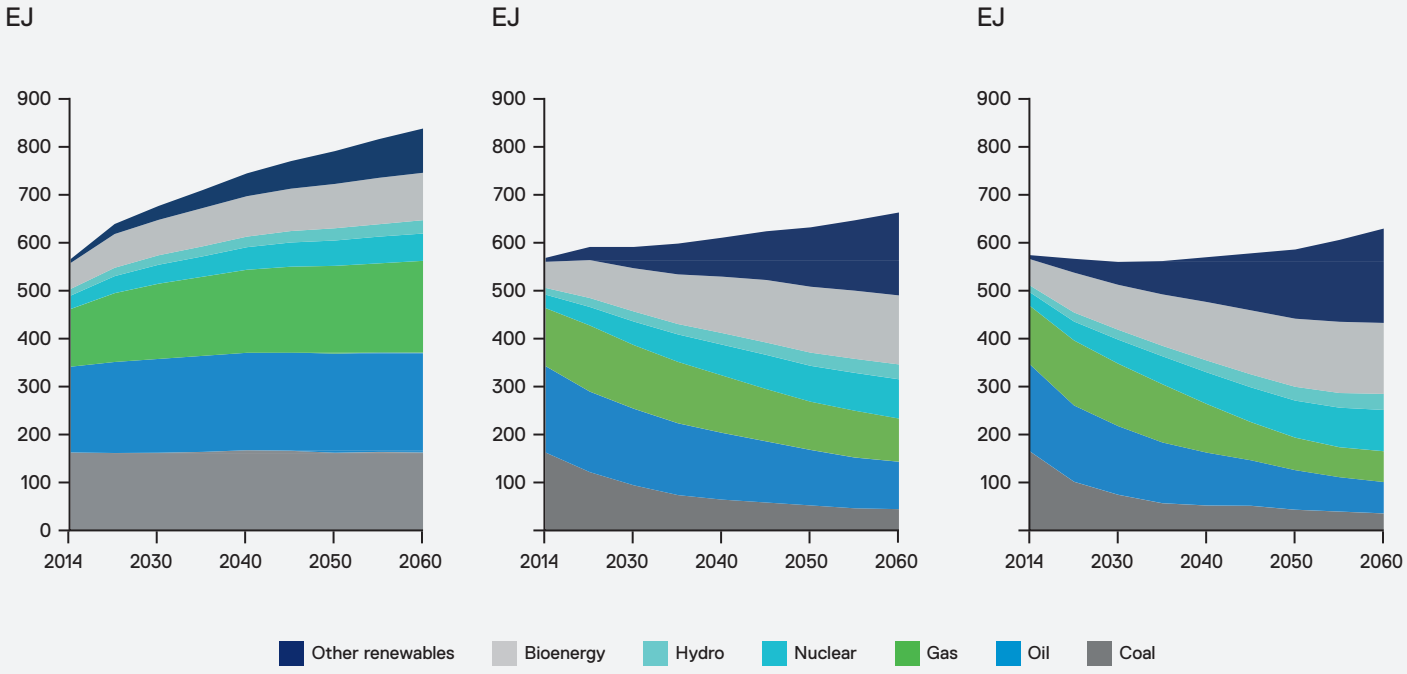
In June 2017, the International Energy Agency (IEA) released its Energy Technology Perspectives 2017 (ETP 2017) report, which explores three pathways for energy sector development to 2060.

The IEA is an autonomous intergovernmental organisation that works to ensure reliable, affordable and clean energy for its 29 member countries and beyond. The IEA acts as a policy adviser to its members and non-members as well as providing transparent data to the public.

These pathways represent three energy mix scenarios that reflect different global climate change outcomes:

+ The **Reference Technology Scenario (RTS)** takes into account the commitment governments have made to limit emissions and improve energy efficiency, including the Nationally Determined Contributions pledged under the Paris Agreement. Under this scenario, the world does not achieve global climate mitigation objectives, resulting in an average temperature increase of 2.7°C by 2100. Under this scenario, total energy demand is projected to grow by 20% by 2030 and almost 50% by 2060.
+ The **2°C Scenario (2DS)** provides a pathway to a 50% chance of limiting average global temperature increase to 2°C by 2100. Annual energy-related CO_2 emissions are reduced by 70% from today's levels by 2060 and will reach carbon neutral by 2100. Under this scenario, total energy demand is projected to grow by 4% by 2030 and 17% by 2060, underpinned by widespread deployment of energy efficiency initiatives.
+ The **Beyond 2°C Scenario (B2DS)** explores how far deployment of technologies can take us beyond the 2DS and is consistent with the globally agreed goal of limiting temperature rise to "well below" 2°C. Delivery of this scenario is supported by significant negative emissions through deployment of bioenergy with carbon capture and storage (CCS). Under this scenario, energy demand is projected to remain flat in the near to medium-term, and grow by 10% by 2060.

Figure 1. Global energy demand under the RTS, 2DS and B2DS from the IEA[4].



1 EJ = 1 Exajoule = 1,000 Petajoules

The importance of natural gas in the global energy mix to 2060 is recognised in all three scenarios. Gas demand is forecast to grow under all three of the IEA's energy mix scenarios to 2030, as gas is required to displace coal and oil in the energy mix to reduce greenhouse gas emissions and improve air quality. This is shown in Figure 2.

Under the RTS, global gas demand is projected to grow by 30% by 2030, faster than overall energy demand growth and gas' market share increases from 21% to 23%. By 2060, gas demand is projected to grow by almost 60%. Under the 2DS and B2DS, gas demand grows by 9% and 6% respectively by 2030.

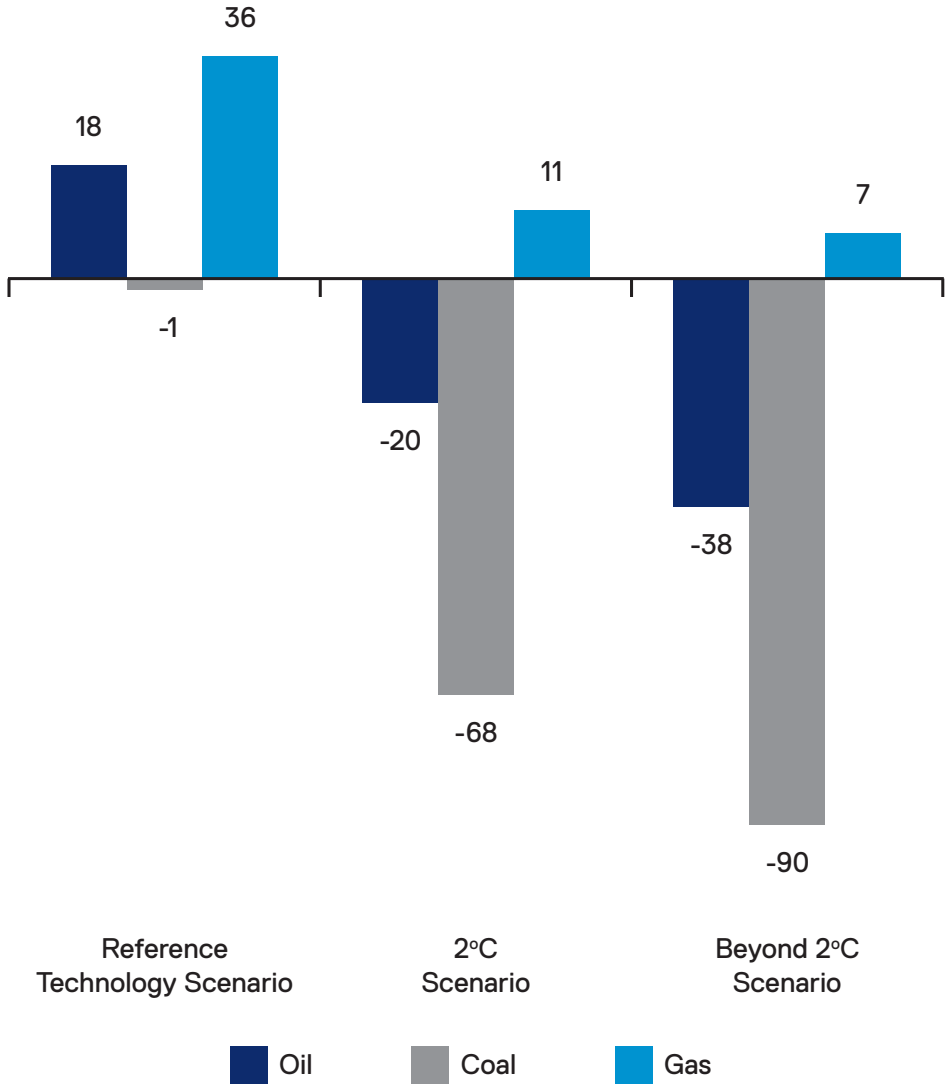
Natural Gas continues to play an important role in the energy mix under all scenarios

4. Source: IEA, Energy Technology Perspectives, June 2017. Notes: source data has values for 2014, 2025, 2030, 2035, 2040, 2045, 2050, 2055, 2060

Figure 2. Fossil fuel demand growth to 2030 under the RTS, 2DS and B2DS from the IEA.

Gas demand is forecast to grow under all IEA scenarios

Demand growth 2014 to 2030, EJ (1 EJ = 1 Exajoule = 1,000 Petajoules)



Natural gas and carbon capture and storage

Longer-term, developments in technology such as carbon capture and storage (CCS) will be required to meet both emission reduction targets and growing energy demand. Globally there are currently 17 large-scale CCS facilities in operation and 13 of these are used for enhanced oil recovery[5]. Under the RTS, captured volumes of carbon dioxide (CO_2) are projected to grow from approximately 30 $MtCO_2e$[6] today to 330 $MtCO_2e$ by 2030 and over 1,200 $MtCO_2e$ by 2060.

For a sense of scale, the majority of operating CCS projects today capture approximately 1.0 $MtCO_2e$ per year. Under the 2DS, the requirement for CCS increases dramatically to over 1,100 $MtCO_2e$ by 2030 and over 6,700 $MtCO_2e$ by 2060. This requirement is doubled again under the B2DS.

As a natural gas exploration and production company with subsurface technical expertise, Santos is well placed to develop and manage carbon capture and storage facilities

5. Global CCS Institute, Projects Database: Large-scale CCS facilities.
6. Global CCS Institute, Projects Database: Large-scale CCS facilities.

2.
Santos' strategy and climate change

Key messages:

+ Climate change considerations, reducing global greenhouse gas emissions and improving air quality are all significant inputs into our strategy and have been for the last 10 years.
+ We are continually looking at opportunities to reduce emissions.
+ Santos' natural gas focused portfolio is economically resilient under all of the International Energy Agency's Energy Technology Perspectives 2017 scenarios.

Our Vision and Portfolio

Santos' existing natural gas portfolio puts the Company in a strong position to supply Australia and Asia's growing energy needs. Our Vision is to be Australia's leading energy company by 2025 by growing our natural gas portfolio and ensuring that our operations benefit the communities we work in. We aspire to reduce emissions and improve air quality across Asia and Australia by displacing coal with natural gas and supporting the economic development of combined gas and renewable energy solutions.

Our strategy, published in 2016 under the Company's new management team, is focused on five core, long-life natural gas assets based in Australia and Papua New Guinea. These include: Cooper Basin, Western Australia, Northern Australia, Papua New Guinea and Queensland as shown in Figure 3.

Figure 3. Santos' five core, long-life natural gas assets.

A strategic focus on resilience in a lower-carbon future

Santos has had a dedicated carbon team since the early 2000s. To support integration of greenhouse gas emissions management and climate change within our strategy, this team is part of the Strategy and Planning group.

We have incorporated greenhouse gas emissions and carbon pricing into our economic planning process and decision making for the last 10 years.

Santos supports a level playing field through a global carbon price across all sectors of the economy to efficiently and effectively meet greenhouse gas reduction targets. Broad coverage of emitting sectors and a price signal for consumers is important to achieve lowest cost of abatement.

Santos tests existing and new projects against low, base and high carbon price assumptions. Our base price is consistent with Australia's carbon policy, which is currently the Safeguard Mechanism. These carbon price assumptions are refreshed on an annual basis along with other corporate economic assumptions. Santos' investment screening process and decision making take into account the greenhouse gas emissions from a particular project and the economic impact a carbon price would have on our business. Sensitivities are performed using a range of carbon policy regimes including the Safeguard Mechanism and Emissions Trading Scheme.

Santos' corporate strategy team uses scenario analysis to consider a range of energy mix futures. These scenarios are used to understand the demand for Santos' products and how this changes under different climate change policies.

Our greenhouse gas emission sources include vehicle and equipment fuel combustion, venting, flaring and fugitive emissions. We have been publically reporting our greenhouse gas emissions for over 12 years and have set long-term emission reduction aspirations. We are constantly looking at ways to reduce emissions as part of standard operations. Every molecule of gas that is not consumed through fuel, flaring or venting can potentially be supplied to the market.

Consistent with this approach, Santos has established an Energy Solutions team. This team is focused on delivering three key outcomes:

1. Reduction of waste and costs

+ Reduce the emissions intensity of our oil and gas operations by reducing fuel usage, venting and flaring and incorporating new technologies.
+ Target zero-waste and reduce the costs of our by-products, including produced water and salt.

2. Development of gas demand

+ Develop new gas demand and markets to displace higher-emission fuels and support the integration of intermittent energy sources.
+ Deliver lower-cost energy to regions we operate in.

3. Creation of a low-carbon business

+ Create new opportunities for Santos' products and services to ensure our business is sustainable in a lower-carbon future.

Scenario modelling under different climate scenarios

Scenario analysis is a standard part of Santos' strategic planning process and takes into account changes in the future energy mix, market conditions, technology, consumer behaviour and policy settings. Santos has modelled the impact of changing climate policy on its portfolio of assets, consistent with the requirements of the TCFD. Santos has used the IEA's scenarios from the ETP 2017, as described in Chapter 1, to understand the economic resilience of its portfolio under different climate change policies.

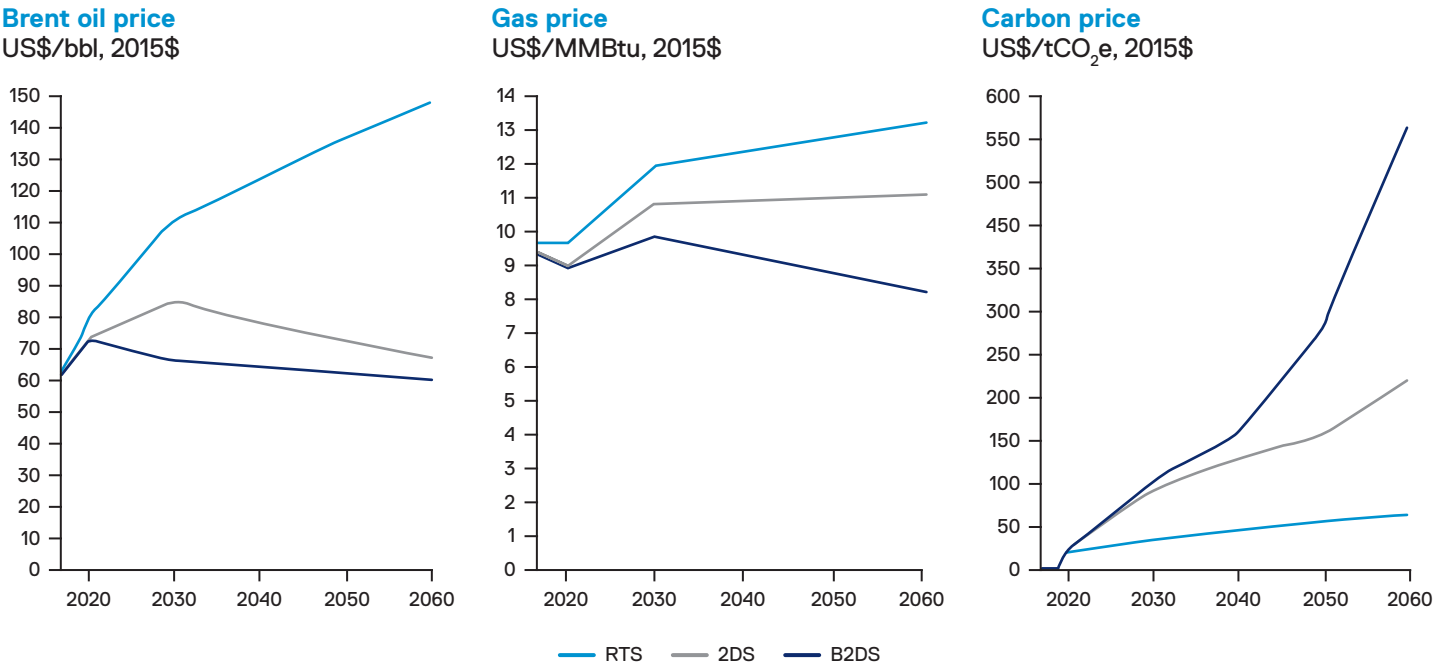
How the future plays out will no doubt differ from forecast scenarios. However, modelling discrete scenarios provides us with relevant insights and understanding of potential trends and opportunities that enable Santos to create value for our communities, stakeholders and shareholders.

Santos' base oil and gas price assumptions take into account the impact of a changing energy mix over the longer-term and are more conservative than the IEA's oil and gas price assumptions under the RTS and 2DS scenarios. The IEA scenarios use higher carbon price assumptions to reflect the more stringent climate change policies required to limit global temperature rise.

Under the IEA scenarios, all emissions incur a carbon price, whereas Santos' base case reflects Australia's current carbon policy, the Safeguard Mechanism. Under the Safeguard Mechanism, only emissions above the agreed baseline for each facility incur a carbon offset cost. Santos' base case models the baselines for our facilities declining over time in line with Australia's emission reduction targets.

Figure 4 shows the oil, gas and carbon price assumptions under each of the IEA's scenario.

Figure 4. Brent oil, gas and carbon price assumptions under the RTS, 2DS and B2DS from the IEA[7].



As oil and gas demand continues to grow under the RTS, oil and gas prices are projected to increase in real terms from today's levels to incentivise the development of new supply. Oil price is projected to return to above US$100/bbl in real terms by the middle of next decade. The price for gas delivered into Japan is projected to rise above US$12/MMBtu in real terms by 2030. The carbon price gradually increases in this scenario.

Under the 2DS, oil price declines after 2030 as energy efficiency and alternative fuels such as gas, drive down demand. Although gas price decreases in the near-term to 2020, gas markets are projected to tighten early next decade. The 2DS limits cumulative emissions to around 1,170 $GtCO_2$ between 2015 and 2100, with the world reaching net-zero emissions by 2100. Even under this carbon-constrained scenario, gas prices are projected to increase in real terms to greater than US$11/MMBtu delivered into Japan through to 2060. Carbon prices under the 2DS rise to over US$100/$tCO_2e$ beyond 2030.

The B2DS limits cumulative emissions from the energy sector to around 750 $GtCO_2$ between 2015 and 2100, with the world reaching net-zero emissions by 2060. This future is consistent with a 50% chance of limiting average future temperature increases to 1.75°C, in line with the Paris Agreement ambition of limiting global temperature rise to "well below 2°C".

Delivering this future requires rapid improvement and deployment of technology in the innovation pipeline, including significant growth in bioenergy and the implementation of large-scale carbon capture and storage (CCS).

This is modelled through very high carbon price assumptions reaching greater than US$500/$tCO_2e$ by 2060. Under this scenario, oil prices decline in real terms from 2020 but continue to average around US$60/bbl through to 2060. Gas prices rise through to 2030 before slowly decreasing in real terms to around US$8/MMBtu delivered into Japan by 2060.

Scenario analysis demonstrates strong NPV and EBITDAX outcomes

Value of our pre-growth portfolio

Santos' pre-growth portfolio represents the portfolio of assets that are currently in production, largely represented by our published reserves position. Our pre-growth portfolio also includes ongoing development in our existing acreage in the Cooper Basin and Queensland.

Our pre-growth portfolio NPV remains economically resilient under all three IEA scenarios, maintaining value in excess of, or close to Santos' current portfolio valuations. The Santos scenario shown for reference in this section of the report is consistent with the assumptions published in our Half-year Financial Report as of 30 June 2017.

7. IEA, Energy Technology Perspectives, June 2017. Gas price assumptions represent the delivered price of gas into Japan, including regasification costs.

Although value is impacted by significant carbon costs under the 2DS and B2DS, this can potentially be offset by investment in emissions reduction across our portfolio and incorporating zero-emission products and services into our portfolio. The Company's portfolio value under each scenario is shown in Figure 5 below.

Santos is already pursuing activities that both lower our emissions and add value to our portfolio through the Energy Solutions team. These activities include:

+ Conversion of existing operations to run partially or fully on renewable power to reduce our fuel gas usage. This not only reduces the emissions from our operations, it also helps to improve reliability, as there is less equipment to maintain. Any gas or liquids not consumed is then available to the market.
+ Carbon capture and storage (CCS) with enhanced oil recovery (EOR) takes advantage of our core competencies and will be critical in meeting greenhouse gas emission targets in the longer-term.
+ Selling the CO_2 extracted from our product stream to convert a waste product into a new source of revenue.

Earnings of our growth portfolio

Santos' growth portfolio includes the existing pre-growth portfolio plus LNG backfill and expansion opportunities, backfill opportunities to our existing Australian infrastructure position and new onshore gas developments. These opportunities take advantage of Santos' position as Australia's lowest-cost onshore operator. These opportunities are largely consistent with the development of our contingent resource position.

Santos' growth portfolio continues to be economically resilient under all three IEA scenarios, maintaining earnings in 2030 in excess of Santos' current 2018 EBITDAX forecast. Figure 6 below shows the earnings under each scenario.

Similar to the valuation impact, the earnings impact from high carbon costs under the 2DS and B2DS can potentially be offset by investment in emissions reduction across our portfolio and incorporating zero-emission products and services into our portfolio.

The value and earnings across our portfolio are economically resilient under the scenarios consistent with global efforts to reduce greenhouse gas emissions.

Figure 5. Value of pre-growth portfolio under Santos and IEA assumptions[8].

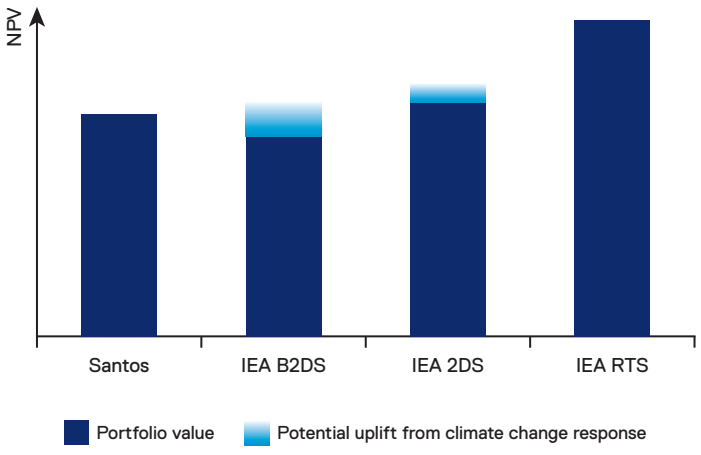
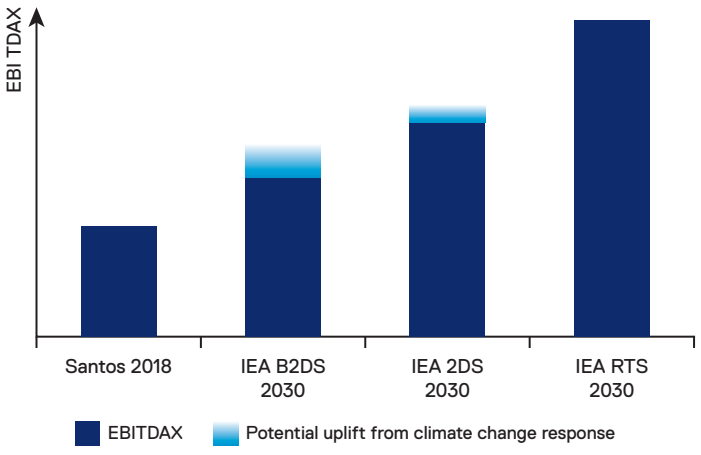


Figure 6. Earnings of growth portfolio (including existing pre-growth portfolio) under Santos and IEA assumptions.



8. No change in portfolio assumed between scenarios.

3. Governance

Key messages:

+ The Santos Board has a dedicated Environment, Health, Safety and Sustainability committee, which is responsible for monitoring and reviewing climate change risks.
+ Climate change policy positions have been in place since 2008, and support the Company's ongoing management of emissions and climate change risks and opportunities.

Board oversight

The Santos Board has had a dedicated committee in place to support it with specific oversight of environment, health, safety and sustainability strategy, practices and risk management since 2005. The current Environment, Health, Safety and Sustainability (EHSS) Committee, comprises three independent Non-Executive Directors and the Managing Director. The Committee includes one member who is a member of the Audit and Risk Committee and one member who is a member of the People and Remuneration Committee.

The remit of the EHSS Committee includes specific responsibility for the oversight of climate change policy, management, risks, major initiatives, developments and long-term strategies.

With respect to climate change, the role of the Committee is to:

+ Periodically review the appropriateness of the terms of the Company's Climate Change Policy having regard to changing circumstances.
+ Monitor the effectiveness of the Company's management system with respect to climate change to achieve the requirements of the Company's Climate Change Policy and all applicable climate change legislation.
+ Monitor and review all aspects of climate change risk which are relevant to the Company's operations.
+ Review major initiatives, developments and long-term strategies in relation to climate change areas.
+ Receive and consider reports on all major changes to the Company's climate change responsibilities.
+ Monitor and review the Company's approach to climate change and associated public reporting.
+ Maintain an appropriate level of knowledge of climate change research, developments, risks and legislation.
+ Monitor and review the appropriateness and implementation of the Company's climate change governance arrangements.
+ Report and make recommendations to the Board on any and all such matters to which the Board has referred the Committee.

The Committee has the authority to appoint duly qualified independent experts to provide advice and/or audit and review the effectiveness of the Company's approach to carbon management and climate change. In addition, the Committee is provided updates throughout the year from the Company's Strategy and Planning division which include:

1. An overview of the Company's external environment, including trends and changes in the global and domestic energy markets with a range of energy mix scenarios with different policy and technology drivers.
2. A review of the Company's portfolio of assets, including key risks to Company value such as changing climate policy, commodity prices and the introduction of different carbon prices.
3. A full review of the Company's corporate strategy, taking into account the changing external environment and key risks and opportunities for the portfolio. This includes the review and approval of how climate change is managed within the corporate strategy.

The Santos EHSS Committee Charter can be accessed via the Company's website www.santos.com.

Climate Change Policy

Santos has had a Climate Change Policy in place since 2008. This has been updated in 2017 and is available on the Company's website at www.santos.com.

Through the Policy the Company commits to supporting the twin objectives of limiting greenhouse gas emissions while providing access to reliable and affordable energy to domestic and global markets.

To do this, the Policy outlines the following actions the Company is taking in relation to climate change:

+ Work with governments and stakeholders in the design of climate change regulation and policies.
+ Factor carbon pricing and greenhouse gas emissions into all business decision-making.
+ Set greenhouse gas emission targets consistent with the objective of limiting global temperature rise to less than 2 degrees Celsius.
+ Identify and pursue opportunities to reduce greenhouse gas emissions within our operations and through the supply chain.
+ Identify and pursue opportunities to offset greenhouse gas emissions where relevant in further support of achievement of emissions targets.
+ Identify, manage and mitigate climate change risks for our activities.
+ Report on the Company's climate change governance, strategy, risk management and targets and metrics in a transparent manner.

The Policy forms part of the Company's integrated management system, comprising a consolidated suite of policies, charters, standards, procedures, processes and tools underpinning the Company's governance and key control frameworks.

4.
Managing climate change risks

Key messages:

+ Climate change is incorporated into Santos' enterprise risk management processes and practices.
+ The Company actively monitors current and potential areas of climate change risk and takes action to mitigate the impacts on its objectives and activities.

An enterprise-wide risk management approach, aligned with the relevant International Standard (AS/NZS ISO 31000) and consistent with the ASX Corporate Governance Principles and Recommendations form the basis of the Company's risk management framework. The framework incorporates a Risk Management Policy, Risk Management Standard, Risk Matrix and Risk assessment and management tools.

The Policy and Standard establish requirements for the consistent identification, assessment, escalation, management and monitoring of risks across the Company. These risks include strategic, external, financial, operational, commercial, regulatory and technical risks across all corporate, strategic, operational and commercial activities. Risk reporting and assurance planning and outcomes are integrated in the Company's management system and reporting processes.

Risks and opportunities relating to climate change are assessed and managed as part of the enterprise risk management framework, strategy and decision-making processes. Climate change risk has been, and continues to be, a matter of particular interest and oversight by the Audit and Risk and EHSS Committees of the Board.

Key areas of climate change risk to the Company's activities and the associated mitigations and opportunities are set out in Table 1 on page 13. On the basis of the Company's scenario analysis, risk monitoring and mitigation options, Santos is well positioned to effectively manage potential climate change impacts to its activities and strategic objectives.

Table 1. Santos climate-related risks, estimated financial implications, mitigations and opportunities.

Risk driver	Risks	Estimated financial implications	Mitigations and opportunities
Policy and Legal	+ Carbon pricing policies, including carbon tax, emissions trading scheme, or any other regulatory carbon pricing mechanism may increase operating costs.	+ In 2016-17, Santos equity share Scope 1 emissions were 3.8 $MtCO_2e$. At a carbon price of $20/t CO_2e (broadly consistent with the previous carbon price in Australia), this could equate to an annual carbon cost of approximately $76m. A high carbon price could also impact the Company's earnings and impact the carrying value of assets.	+ Santos models the impact of carbon price scenarios, integrates a cost of carbon into business planning and decision making, and considers the potential impacts of current and future climate change policies in its commercial and strategic activities.
	+ The lack of an international price on carbon has the potential to give rise to a difference in the cost of LNG production for Santos compared to its international competitors.	+ Australian LNG is not cost competitive with LNG from other nations without a carbon impost, reducing margins and limiting growth opportunities.	+ A global carbon price may increase the demand for gas, as it has lower emissions than coal and is an ideal partner for intermittent renewables. + Santos continues to monitor carbon policy and energy policy in export markets, including Japan, Korea and China. Key Asian markets are highly supportive of natural gas due to both lower greenhouse gas emissions and air quality benefits.
	+ Project approvals may not be granted due to associated greenhouse gas emissions, or that the conditions of approval (or operation) may be too onerous to proceed.	+ Project delays, future lost profitability.	+ Santos directly engages with policy makers and industry associations to advocate for environmentally effective and economically efficient carbon policy. + The Company's strategic, commercial, and project risk management and governance requirements and practices address both regulatory and climate change risks associated with proposed activities. Santos also tests existing and new projects against low, base and high carbon price assumptions.
	+ Litigation against governments and companies, either seeking compensation for damages caused to them because of climate change impacts or to force greater action on climate change.	+ Additional resource allocation to address legal and regulatory challenges.	+ Litigation in relation to natural gas activities is likely to be of lower risk than other higher emitting fuels or larger companies. Santos' Scope 1 emissions represent around 1% of Australia's emissions and 0.01% of global emissions. + Consistent with its Policy position, the Company seeks to both work with governments and stakeholders in the design of climate change regulation and policy and pursues opportunities to reduce, and where relevant, offset greenhouse gas emissions to meet targets.

Risk driver	Risks	Estimated financial implications	Mitigations and opportunities
Technology	+ Innovation in oil and gas occurs at a slower pace than coal and renewables. + There is a breakthrough technology that allows coal to decrease emissions to lower than natural gas, or for renewables to manage the intermittency. + Development of hydrogen using renewable energy could displace gas as a feedstock.	+ Decreased demand for natural gas, resulting in lower commodity prices, potential for "stranded resources" and limitations to growth opportunities.	+ Santos continues to monitor advances in carbon capture and storage technologies and identify and pursue opportunities to reduce, and where relevant, offset greenhouse gas emissions associated with its natural gas activities. In addition, the Company is developing a range of innovative initiatives including optimisation and efficiencies detailed on page 18. + While renewable energy may compete with natural gas for power generation, natural gas is used as feedstock in other applications such as plastics and other petrochemicals, which currently have no viable alternative. + As renewables become cheaper and achieve greater market share, the demand for Santos' products may decrease in the longer-term. Many published scenarios show natural gas consumption increasing until at least 2030 as it displaces higher-emission fuels such as coal and oil. Natural gas also has an important role to play in supporting the integration of more renewables. An absolute decrease in gas use in the foreseeable future is unlikely.
Market	+ Changing consumer behaviour that primarily focuses on renewable energy at the expense of reliability and affordability.	+ Decreased demand for natural gas, resulting in lower commodity prices, potential for "stranded resources" and limitations to growth opportunities.	+ Santos is responding by identifying opportunities to reduce, and where relevant, offset greenhouse gas emissions. + If the market is oversupplied with natural gas, high cost producers will find it difficult to compete. Santos is focused on reducing its cost base and is currently the lowest-cost onshore operator in Australia. + With over 1.1 billion people with little or no access to electricity, it will be important to balance all 3 aspects of affordability, reliability and reducing emissions. Natural gas has an important role to play in delivering this.

Risk driver	Risks	Estimated financial implications	Mitigations and opportunities
Reputation	+ As an emitter of greenhouse gases, increased public focus on climate change and misunderstanding in relation to the role of natural gas in supporting a lower-carbon future presents a risk to Santos' reputation impacting project approvals and licence to operate.	+ Project delays, future lost profitability from a project if it was not permitted to proceed, and sunk costs at project approval stage. + Access to capital and increased cost of capital. + "Stranded resources" that are unable to be developed due to project delays and/or lack of access to low-cost capital.	+ Santos has a long history of safe and sustainable operations and is a strong public advocate for the important role of gas as a source of energy for Australia and Asia. + The Company has committed in its Board-approved Climate Change Policy to being part of the solution in a lower-carbon future by supporting the twin objectives of limiting emissions while providing access to reliable and affordable energy. + Santos publicly discloses its greenhouse gas emissions profile and continues to engage with and provide stakeholders with relevant information on its approach to climate change management.
Physical (acute and chronic)	+ Onshore oil & gas production and processing facilities may be susceptible to flooding and high temperatures of increasing severity from extreme weather events. + Assets located in coastal regions may be affected by rising sea levels. + Tropical depressions (cyclones) can affect offshore production and drilling, potentially resulting in disruption of activities, damage to facilities, and/or injury to personnel.	+ Reduced revenue whilst production is disrupted, and capital cost of facility repairs.	+ Climate change impacts are included in Santos' risk assessment requirements and processes. The Company includes climate-related risks, such as extreme weather events in its crisis and business continuity planning and training. An example of Santos' response in an extreme weather event is provided on page 16. + When operations are disrupted due to physical events, Santos is able to utilise its significant gas storage facilities to minimise any disruption to customers.

Figure 7. Santos' experience in managing potential impacts associated with climate change.

Flooding in the Cooper Basin

Historically, major floods in the Cooper floodplain have occurred approximately once every 10-15 years. In between major floods, the floodplain is dry and comparable to the landscape surrounding it. Floods in the Cooper move slowly meaning water flows can be accurately predicted and monitored weeks before they actually reach petroleum activities in the region.

With these factors in mind Santos collates flood data and is able to assess future floods. This provides early warning of flood impacts and enables Santos to modify activities to minimise impacts to operation.

In response to the flooding and rain events in 2010/2011, Santos established a flood recovery taskforce. This was the second largest flooding event since Santos started working in the Cooper Basin in 1954.

The team focused on tasks including road maintenance, well site access and improved logistics through new helicopters to move equipment. Santos responded by utilising helicopters, boats, quad bikes, the ARGO amphibious vehicle and hovercraft instead of traditional 4WD to move people and parts around. The "mattracks" vehicle upgrades were the most successful of the options, allowing modification of some of our conventional 4WD fleet to cope with the flooded terrain.

We also utilised satellite technology to track flood paths and predict flooding activity.

Heat stress across our operations

Santos operates in harsh environments where temperatures often exceed 40°C. Santos has existing systems and processes to manage risks associated with extreme conditions.

Heat stress is a known and managed health risk across our operations, which require our people to work outside for extended periods of time.

Santos' heat stress management program has helped maintain very low instances of heat stress recordable injuries.

We also monitor weather conditions and notify all relevant personnel of Red Alert Days, when the apparent temperature is above 40°C. This allows the field teams to reassess work plans and manage their exposure accordingly.

The Company will continue to assess, and where relevant, implement changes to support effective management of operations in peak heat situations, such as focus of outside work early in the morning or late in evenings, personal protective equipment to support maintenance of body temperatures and technological advances supporting remote operations.

Guidance for Santos workforce on managing heat stress

Apparent Temperature	Work/Rest Cycle	Hydration (1 cup = 250mL)
27°-31°C	50 work: 10 rest	1 cup every 20 mins
32°-39°C	40 work: 10 rest Minimum Heart Exposure Controls	1 cup every 20 mins
40°-49°C	30 work: 10 rest Red Alert Day Controls	1 cup every 15 mins
50°-53°C	20 work: 10 rest Red Alert Day Controls	1 cup every 10 mins
≥54°C	10 work: 40 rest Red Alert Day Controls Critical/emergency work only	1 cup every 10 mins

5.
Key metrics and targets

Key messages:

+ Santos transparently reports its greenhouse gas emissions and sustainability performance data.
+ Santos has a long-term aspiration of achieving net-zero emissions from our operations by 2050 and is working to develop medium-term targets in 2018.

Our greenhouse gas emission sources consist of vehicle and equipment fuel combustion, venting, flaring and fugitive emissions.

We have consistently reported our greenhouse gas emissions and sustainability data since 2004. Our Scope 1 greenhouse gas emissions are audited annually by our financial auditor, Ernst and Young. Table 2 below shows our latest 2016-17 emissions data.

In 2018, we will set medium-term emissions reduction targets. We are currently evaluating an inventory of emissions reduction projects through the Energy Solutions team as detailed on page 10.

In the meantime we are achieving our emissions intensity target of 70 ktCO2e/mmboe set in 2011.

From 2018, greenhouse gas emission reduction targets have been incorporated into executive scorecards.

Our long-term aspiration is to achieve net-zero emissions from our operations by 2050, in line with global ambitions to limit temperature rise to well below 2°C. This represents a significant shift from business-as-usual and will require considerable effort to achieve.

Table 2. Greenhouse gas emissions data[9].

Greenhouse gas (GHG) emissions and energy consumption (Santos gross operated, unless otherwise stated, financial years)

	Units	2012-13	2013-14	2014-15	2015-16	2016-17
Direct energy consumption	PJ	29	32	34	48	65
Indirect energy consumption[10]	PJ	0.2	0.18	0.19	0.19	1.47
Scope 1 (direct GHG emissions)	$MtCO_2e$	3.68	3.94	4.35	5.04	5.82
Scope 2 (purchased electricity)[10]	$MtCO_2e$	0.04	0.03	0.03	0.03	0.31
Scope 3 (product use)	$MtCO_2e$	17.0	18.0	15.5	18.8	20.4
Scope 1 (Santos equity share)	$MtCO_2e$	2.97	3.36	3.63	3.79	3.79
Intensity (Santos equity share)	$MtCO_2e$/mmboe	58	65	63	63	63
Scope 2 (Santos equity share)	$MtCO_2e$					0.09
Scope 3 (Santos equity share)	$MtCO_2e$					22.0
Further details of Scope 1 emissions and flared and vented hydrocarbon (Santos gross operated)						
Emissions of CO_2	$MtCO_2e$	3.17	3.49	3.86	4.51	5.09
Emissions of CH_4	$MtCO_2e$	0.50	0.45	0.48	0.53	0.72
Emissions of N_2O	$MtCO_2e$	0.00	0.00	0.01	0.01	0.01
Emissions from Fuel	$MtCO_2e$	1.55	1.70	1.67	2.38	3.19
Emissions from Flare	$MtCO_2e$	0.21	0.30	0.54	0.38	0.25
Emissions from Vent	$MtCO_2e$	0.38	0.30	0.30	0.30	0.31
Emissions from CO_2 Removal	$MtCO_2e$	1.52	1.62	1.81	1.94	2.03
Emissions from Fugitives	$MtCO_2e$	0.02	0.02	0.02	0.03	0.04
Volume of flared hydrocarbon	Million m^3	61.3	94.1	212.2	134.8	90.5
Volume of vented hydrocarbon	Million m^3	38.1	35.4	38.0	45.0	38.7

9: Emissions and energy are reported on an Australian financial year basis in accordance with the National Greenhouse and Energy Report Act, 2007. Scope 1 emissions occur from sources controlled by the Company, for example emissions from fuel, flare and vent; Scope 2 emissions are indirect, mainly electricity consumption; Scope 3 emissions represent indirect emissions when our products are combusted by our customers to produce energy.

10: Increase in 2016-17 is primarily due to the purchase of electricity at Fairview and Roma Hub in Queensland.

These targets will be met through reducing emissions in Santos' activities to as low as practical and offsetting remaining emissions through primary projects or purchase of permits.

An overview of a number of activities and measures that are already underway in pursuit of emissions reductions are detailed below:

All operated assets:

+ Daily processes to optimise fuel use, flaring and venting at facilities
+ Processes to minimise flaring during shutdown and maintenance operations

GLNG plant:

+ Advanced process control to optimise running of refrigeration compressor combinations ('strings') to minimise fuel use

Fairview and Roma:

+ Installation of more fuel-efficient gas compression equipment at Fairview and Roma hubs as well as field operation protocols designed to minimise flaring, venting and other emission sources

Moomba plant:

+ Enhanced waste-heat utilisation on largest boiler (installation of economiser on Boiler 10)
+ Smart automation and controller to optimise fuel use and power generation (installation of Multi Variable Predictive Controllers (MPC) for the Liquids Recovery Plant (LRP) and Utilities)
+ Recently announced project to deploy a heat-energy recovery system

6.

Resilience and opportunity in a lower-carbon future

Santos' analysis shows that the value and earnings across our portfolio are economically resilient under scenarios consistent with global efforts to reduce greenhouse gas emissions (refer to figures 5 and 6 on page 10). Natural gas has a critical role to play in providing energy in a lower-carbon future. This is because natural gas is a reliable and affordable source of energy that produces 50% less greenhouse gas emissions than coal when used to generate electricity and is much cleaner with regards to local air pollutants. Even under the most carbon-constrained scenario, the IEA projects that gas will be an important part of the energy mix well into the future, and even after the world reaches carbon neutrality.

Santos recognises the risks that climate change poses on our business, from policy changes to the physical risks associated with more extreme weather events. These risks are managed through our enterprise-wide risk management process, and are overseen and monitored by Executive Management and the Board.

Santos is playing its part in meeting global climate targets, and is actively pursuing initiatives to reduce the emissions across our operations and invest in opportunities that the lower-carbon future presents. We are incorporating new but proven technology, such as renewable energy, into our existing operations to reduce our fuel usage and reduce our emissions.

We are also taking advantage of our core capabilities as one of Australia's leading onshore gas developers to incorporate CCS into our business. Longer-term, CCS will be critical to meeting climate targets and achieving net-zero emissions.

Santos aspires to achieving net-zero emissions from our operations by 2050 and will set medium-term targets during 2018.

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STO

SANTOS WEBSITE

To view Annual Reports, shareholder and Company information, news announcements and presentations, quarterly activities reports and historical information, please visit our website at www.santos.com

ANNUAL REPORTS

You can view our Annual Report online at www.santos.com or request a printed copy from the Share Registrar either by email at santos@boardroomlimited.com.au or by telephone on 1300 096 259 (within Australia) or +61 2 8016 2832.

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UPDATE YOUR DETAILS ONLINE

To update your address, payment instructions, dividend reinvestment plan options, Tax File Number, e-communications preferences, email address and more, please visit www.investorserve.com.au

Santos