

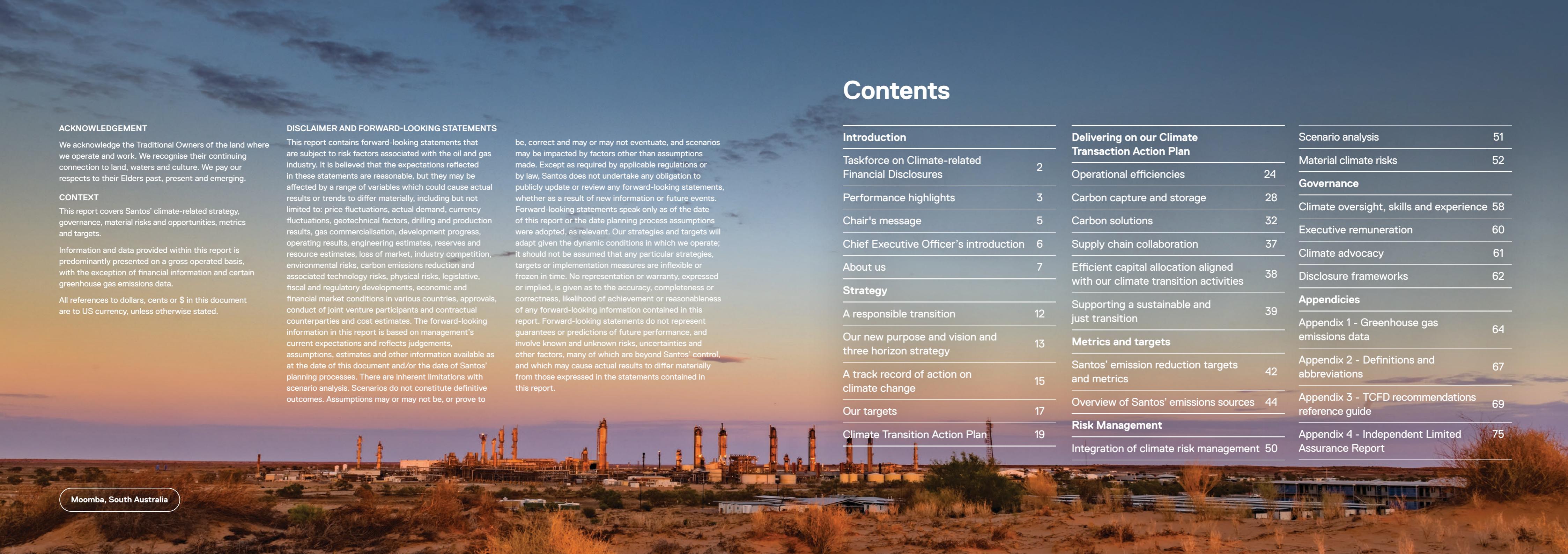
A responsible transition



Santos



Climate Change Report 2023



ACKNOWLEDGEMENT

We acknowledge the Traditional Owners of the land where we operate and work. We recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging.

CONTEXT

This report covers Santos' climate-related strategy, governance, material risks and opportunities, metrics and targets.

Information and data provided within this report is predominantly presented on a gross operated basis, with the exception of financial information and certain greenhouse gas emissions data.

All references to dollars, cents or \$ in this document are to US currency, unless otherwise stated.

DISCLAIMER AND FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements that are subject to risk factors associated with the oil and gas industry. It is believed that the expectations reflected in these statements are reasonable, but they may be affected by a range of variables which could cause actual results or trends to differ materially, including but not limited to: price fluctuations, actual demand, currency fluctuations, geotechnical factors, drilling and production results, gas commercialisation, development progress, operating results, engineering estimates, reserves and resource estimates, loss of market, industry competition, environmental risks, carbon emissions reduction and associated technology risks, physical risks, legislative, fiscal and regulatory developments, economic and financial market conditions in various countries, approvals, conduct of joint venture participants and contractual counterparties and cost estimates. The forward-looking information in this report is based on management's current expectations and reflects judgements, assumptions, estimates and other information available as at the date of this document and/or the date of Santos' planning processes. There are inherent limitations with scenario analysis. Scenarios do not constitute definitive outcomes. Assumptions may or may not be, or prove to be, correct and may or may not eventuate, and scenarios may be impacted by factors other than assumptions made. Except as required by applicable regulations or by law, Santos does not undertake any obligation to publicly update or review any forward-looking statements, whether as a result of new information or future events. Forward-looking statements speak only as of the date of this report or the date planning process assumptions were adopted, as relevant. Our strategies and targets will adapt given the dynamic conditions in which we operate; it should not be assumed that any particular strategies, targets or implementation measures are inflexible or frozen in time. No representation or warranty, expressed or implied, is given as to the accuracy, completeness or correctness, likelihood of achievement or reasonableness of any forward-looking information contained in this report. Forward-looking statements do not represent guarantees or predictions of future performance, and involve known and unknown risks, uncertainties and other factors, many of which are beyond Santos' control, and which may cause actual results to differ materially from those expressed in the statements contained in this report.

Moomba, South Australia

Contents

Introduction	
Taskforce on Climate-related Financial Disclosures	2
Operational efficiencies	24
Performance highlights	3
Chair's message	5
Chief Executive Officer's introduction	6
About us	7
Strategy	
A responsible transition	12
Our new purpose and vision and three horizon strategy	13
A track record of action on climate change	15
Our targets	17
Climate Transition Action Plan	19
Delivering on our Climate Transaction Action Plan	
Carbon capture and storage	28
Carbon solutions	32
Supply chain collaboration	37
Efficient capital allocation aligned with our climate transition activities	38
Supporting a sustainable and just transition	39
Metrics and targets	
Santos' emission reduction targets and metrics	42
Overview of Santos' emissions sources	44
Risk Management	
Integration of climate risk management	50
Scenario analysis	51
Material climate risks	52
Governance	
Climate oversight, skills and experience	58
Executive remuneration	60
Climate advocacy	61
Disclosure frameworks	62
Appendices	
Appendix 1 - Greenhouse gas emissions data	64
Appendix 2 - Definitions and abbreviations	67
Appendix 3 - TCFD recommendations reference guide	69
Appendix 4 - Independent Limited Assurance Report	75

Introduction



Taskforce on Climate-related Financial Disclosures

Performance highlights

Chair's message

Chief Executive Officer's introduction

About us



Taskforce on Climate-related Financial Disclosures

This is Santos' sixth Climate Change Report aligned with the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) recommendations.

The report addresses the four recommended TCFD disclosure topics; Strategy, Metrics and targets, Risk management, and Governance.

A guide to the detailed TCFD disclosure recommendations and where they are addressed in the report is provided on pages [69 to 74](#). Assurance has been undertaken by Ernst & Young and the assurance statement is provided on pages [75 to 76](#).

Previous climate change and sustainability reports are published on our website, [santos.com](#).



Strategy

The actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.



Metrics and targets

The metrics and targets used to assess and manage relevant climate-related risks and opportunities.



Risk Management

The processes used by the organisation to identify, assess, and manage climate-related risks.



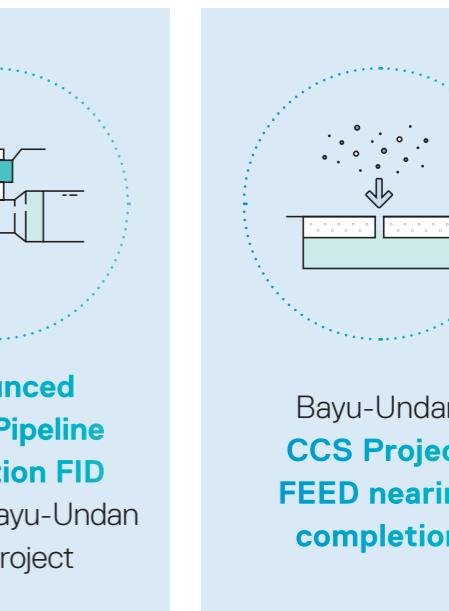
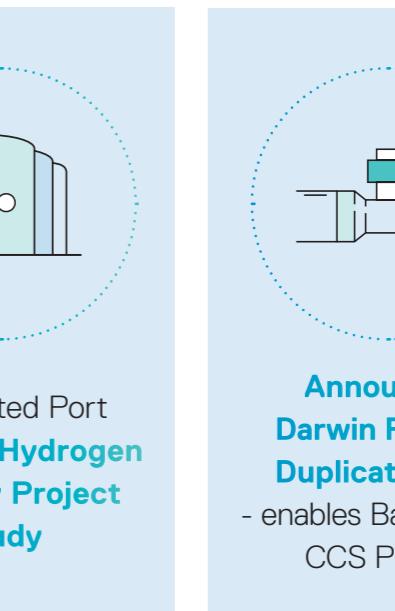
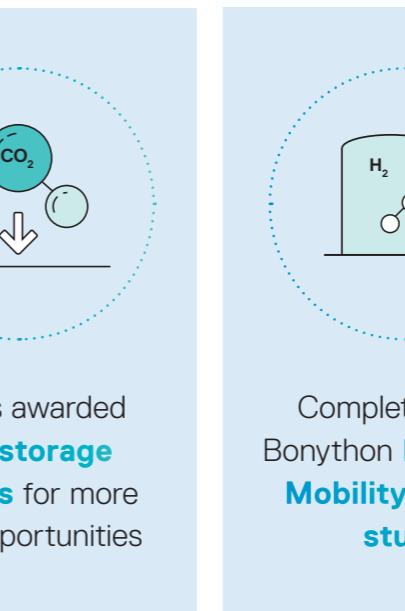
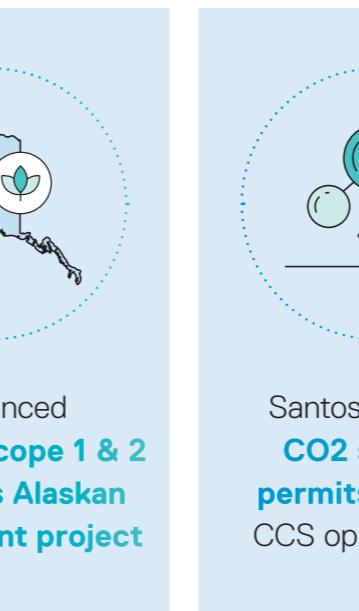
Governance

The organisation's governance around climate-related risks and opportunities.

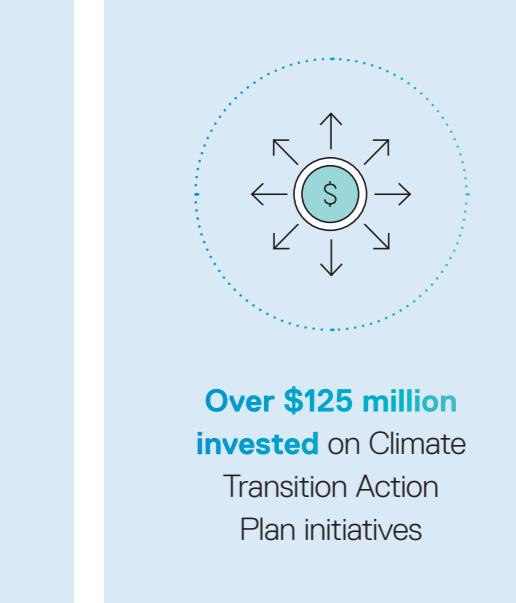
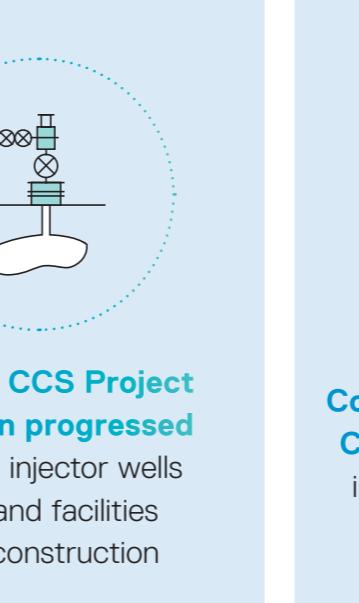
Performance highlights

These highlights reflect the steps Santos has achieved in 2022.

1 The 2025 targets are heritage Santos (non-Oil Search) targets set in 2018



Bayu-Undan CCS Project FEED nearing completion



Chair's message

At Santos, we aim to be a global leader in the transition to cleaner energy and clean fuels, by helping the world decarbonise to achieve Net Zero in an affordable and sustainable way.

We will strive to achieve this goal of reliable, affordable and lower emission energy without harming or damaging the world's most vulnerable communities. The transition must be responsible and it must be just.

Demonstrating our commitment to a responsible transition, in November 2022 we outlined our new purpose and vision – to provide cleaner energy that is both affordable and sustainable to help create a better world for everyone.

Our vision defines how we plan to seize the opportunities of the transition to cleaner energy and clean fuels. In this 2023 Climate Change Report, we provide an overview of our refreshed strategy and updates to our Climate Transition Action Plan (CTAP) that is central to Santos achieving our vision.

Our refreshed strategy will initially be delivered through two business divisions: Upstream Gas and Liquids, and Santos Energy Solutions.

Our new Santos Energy Solutions business includes midstream processing assets providing services to Santos and third-party gas and liquids producers and will not earn revenue from the sale of hydrocarbons. It will also generate revenues from decarbonisation and carbon management services

and will develop clean fuels as market and customer demand evolves.

The establishment of these two business divisions signals a step-change for Santos in our decarbonisation efforts and builds on the plan we set out in 2017 with our 2025 vision.

At the 2022 Annual General Meeting (AGM), we held our first shareholder advisory vote on our 2022 Climate Change Report and our Climate Transition Action Plan. While 63 per cent of shareholders that voted supported our climate strategy and plan, we acknowledge that close to 37 per cent of our shareholders voted against. Since the AGM, we have engaged extensively with our shareholders and have sought to address their concerns.

Our 2023 Climate Change Report states that we have achieved our 2025 emission reduction targets.² In this report, we have built on the CTAP we released in last year's Climate Change Report, which outlines how Santos aims to transform our business and generate value for our shareholders through the energy transition.

Over the past 12 months, we have made progress with developing our carbon capture and storage (CCS) hubs, supporting Santos to reduce our operated emissions as well as provide carbon management solutions to our customers. We are also leveraging these hubs to develop clean fuels.

We continue to progress with trials of direct air and post-combustion capture technology and have taken steps to develop nature-based carbon solutions that will offset residual emissions and generate carbon credits.

Our progress in these areas and ongoing discussions with potential customers of Santos Energy Solutions gives us

greater confidence in the opportunities to both generate value for our customers and shareholders and reduce Scope 3 emissions.

As we continue to evolve our business to lead through the energy transition, we are committed to providing shareholders with transparent information about our strategy, climate transition initiatives, emissions, and performance on an annual basis. We are also committed to engaging our shareholders and other stakeholders to understand their perspectives and ensure that we take them into consideration.

We invite your continued feedback on our annual Climate Change Report, and every three years we will provide shareholders with a non-binding advisory vote to express their views on whether our approach remains reasonable as technology, science, markets, policy and experience evolve.

We are confident that our approach will maximise value for shareholders and continue to serve the interests of our customers, employees, suppliers and the communities in which we operate. Thank you for your ongoing support.



Keith Spence

Keith Spence
Chair

² The 2025 targets are heritage Santos (non-Oil Search) targets set in 2018

Chief Executive Officer's introduction

The events of the past 12 months have highlighted the susceptibility of the global energy system to supply-side shocks and the ongoing need for reliable and affordable energy supply to maintain living standards and minimise inflation.

The accelerated closures of coal-fired power plants in Australia reinforce the need for gas to provide energy security through an energy transition that will require unprecedented investment in the build out of grid infrastructure and renewable energy power plants.

In 2022, the coal-fired power generation capacity of the European Union added or extended was more than 30 per cent of Australia's entire coal-fired power generation capacity.³

The additional coal-fired power generation emissions in the EU in 2022 was the equivalent of more than 20 per cent of Australia's total annual greenhouse gas emissions from the electricity sector.⁴

These events demonstrate the need for Santos to maintain our role as a secure and reliable supplier of gas and liquids through the transition.

At the same time, we recognise the imperative to invest in

our capacity to decarbonise our operations, generate lower emission fuels and develop carbon management solutions.

As we develop our CCS and clean fuels hubs as well as

implement our strategy, we expect Santos Energy Solutions to play an increasingly important role in the energy transition and become a driver of revenue and value creation for Santos. I look forward to regularly reporting on our progress in this business division.

This is an ambitious strategy. We are committed to ensuring a just transition for our customers, our employees and the communities where we operate and who benefit from our operations.

In Papua New Guinea, our PNG Biomass Carbon Abatement Project is providing decarbonisation, building habitat, and creating better social outcomes for local communities.

In 2022, we also took FID on our Pikka Phase 1 Project in Alaska, which we committed our equity share to being net-zero Scope 1 and 2 emissions from first production.

While we have seen a reduction in our Scope 1 and 3 emissions and no increase in our Scope 2 emissions from 2020/21 to 2021/22 we acknowledge our emission reduction journey will not be linear as new production comes online and our CCS projects begin to deliver large-scale emissions reduction through the course of this decade.

Going forward, we are committed to continuing to meet ongoing customer demand for our products through a strong, low-cost base business. We will also implement our decarbonisation initiatives and scale up clean fuels technologies in line with commercial viability.



K. T. Gallagher

Kevin Gallagher
Managing Director and Chief Executive Officer

³ IEA, How to Avoid Gas Shortages in the European Union in 2023, A practical set of actions to close a potential supply-demand gap (pp.11): <https://iea.blob.core.windows.net/assets/96ce64c5-1061-4e0c-998d-fd679990653b/HowtoAvoidGasShortagesintheEuropeanUnionin2023.pdf>

⁴ Based on the Greenhouse and energy information by designated generation facility 2020-21 as published by the Clean Energy Regulator: <https://www.cleanenergyregulator.gov.au/DocumentAssets/Pages/Greenhouse-and-energy-information-by-designated-generation-facility-2020-21.aspx>

⁵ Oil and Gas Climate Initiative, OGCI's 2025 methane intensity target: <https://www.ogci.com/action-and-engagement/reducing-methane-emissions/#methane-target>

About us

Santos is a global energy company committed to increasingly cleaner energy and fuels production, with operations across Australia, Papua New Guinea, Timor-Leste and North America.

At Santos, our commitment is to be a global leader in the transition to cleaner energy and clean fuels, by helping the world decarbonise to reach Net Zero in an affordable and sustainable way.

Santos is one of Australia's biggest domestic gas suppliers and a leading LNG supplier in the Asia Pacific region. We are committed to supplying critical fuels such as oil and gas in a more sustainable way through decarbonising projects, including the Moomba CCS Project, while we all transition to cleaner fuels.

For more than 65 years, Santos has been working in partnership with local communities, providing local jobs and business opportunities, safely and sustainably developing natural gas resources, and powering industries and households.

As customer demand evolves, Santos plans to grow and develop our cleaner energy and clean fuels, including hydrogen and synthetic methane, utilising carbon capture and storage technologies in addition to nature-based offsets, energy efficiency and use of renewables in our operations.

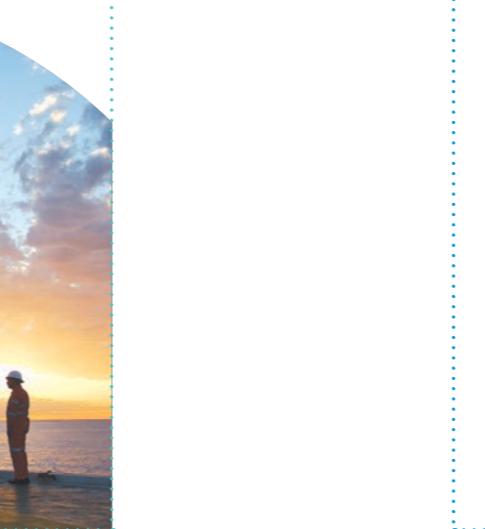
Underpinned by a diverse portfolio of high-quality, long-life, low-cost oil and gas assets, Santos seeks to deliver long-term value to shareholders.

With a strong, low-cost base business supplying oil and gas and a transition plan to decarbonise and develop cleaner energy and clean fuels, Santos remains resilient, value accretive and at the leading edge of the energy transition.

In 2022, to deliver the transition and our new purpose and vision, Santos announced a restructure of the business into two divisions, Upstream Gas and Liquids and Santos Energy Solutions. Santos Energy Solutions, a new business building on the Energy Solutions team set up in 2017, is the next step in our plans to build our transition business, including our decarbonisation and carbon management services business, on our path to a cleaner energy future.

Our new purpose and vision

Santos' purpose is to provide cleaner energy that is both affordable and sustainable to help create a better world for everyone



Our values

Our values inform the behaviours, leadership attributes and decision-making of our people. These values are:



Work as one team

- + Value diverse perspectives
- + Challenge respectfully then get behind the decision
- + Unite and share learnings.



Always safe

- + Plan work to protect all from harm
- + Be skilled and competent
- + Understand the risks, controls and barriers
- + Follow the rules and respond to change
- + Speak up
- + Step back, think and be ready.



Act with integrity

- + Act ethically and do the right thing
- + Value our customer relationships
- + Confront the facts
- + Treat people with respect.



Be accountable

- + Do what we say we are going to do
- + Take responsibility for our actions
- + Be disciplined about meeting requirements and standards
- + Learn from success and failure.



Pursue exceptional results

- + Deliver value for our stakeholders
- + Be decisive about what we can do better
- + Recognise and reward achievement
- + Strive for constant improvement
- + Enable innovation.



Build a better future

- + Leave a positive legacy
- + Invest in our people
- + Have a positive impact in our communities
- + Protect the environment
- + Be health and safety champions.

Santos Energy Solutions

Santos Energy Solutions business includes midstream processing of Santos' and third-party gas and liquids. It aims to provide decarbonisation and carbon management services and develop clean fuels as the market and customer demand evolves. Santos Energy Solutions will earn revenue from the midstream processing, decarbonisation and carbon management services and the sale of clean fuels. It will not earn revenue from the sale of hydrocarbons.

Midstream infrastructure portfolio

Santos has a unique portfolio of strategic midstream infrastructure assets. The midstream division of our business involves gas processing, storage, transport and liquefaction assets.

CCS and clean fuels hubs

At Santos, we aspire to be a leading carbon capture storage (CCS) infrastructure provider and to be a leading provider of clean fuels and carbon reduction services. We are currently working on plans to develop a three hub CCS and clean fuels strategy that incorporates our Moomba, Darwin and Bayu-Undan and Western Australia projects.

Santos' Carbon Solutions

Santos Carbon Solutions is developing a portfolio of carbon abatement projects to address the residual emissions from our facilities.



Upstream Gas and Liquids

Our Upstream Gas and Liquids business includes three LNG projects in the Asian region (PNG LNG, Gladstone LNG, and Bayu-Undan and Barossa to Darwin LNG) and two Australian domestic gas businesses (west and east coast). The Upstream Gas and Liquids business earns revenue from the sale of hydrocarbons.

PNG LNG

Santos has been active in Papua New Guinea since the 1980s, with interests in PNG LNG and Papua New Guinea producing oil fields and potential development projects with Papua LNG and P'nyang Gas Project.

Bayu-Undan and Barossa to Darwin LNG

When Bayu-Undan ceases production, the Barossa gas field will be the source of gas to backfill Darwin LNG. Barossa is one of the lowest-cost, LNG supply projects in the world and will give Santos and Darwin LNG a competitive advantage in a tightening global LNG market.

Gladstone LNG

In Queensland, Gladstone LNG feed gas is sourced from the Surat and Bowen Basins, Santos portfolio gas and third-party supply.

1

Australian Domestic West Coast

2

3

4

5

3

4

5

Pikka Phase 1

Santos is the operator of the world class Pikka Phase 1 oil project located on the North Slope of Alaska. Our focus in Alaska is development of our Pikka Phase 1 project, which includes a single drill site, processing facility, and other infrastructure to support production of 80,000 barrels per day.

NORTH AMERICA



Strategy



A responsible transition

Our new purpose and vision and three horizon strategy

A track record of action on climate change

Our targets

Climate Transition Action Plan



A responsible transition

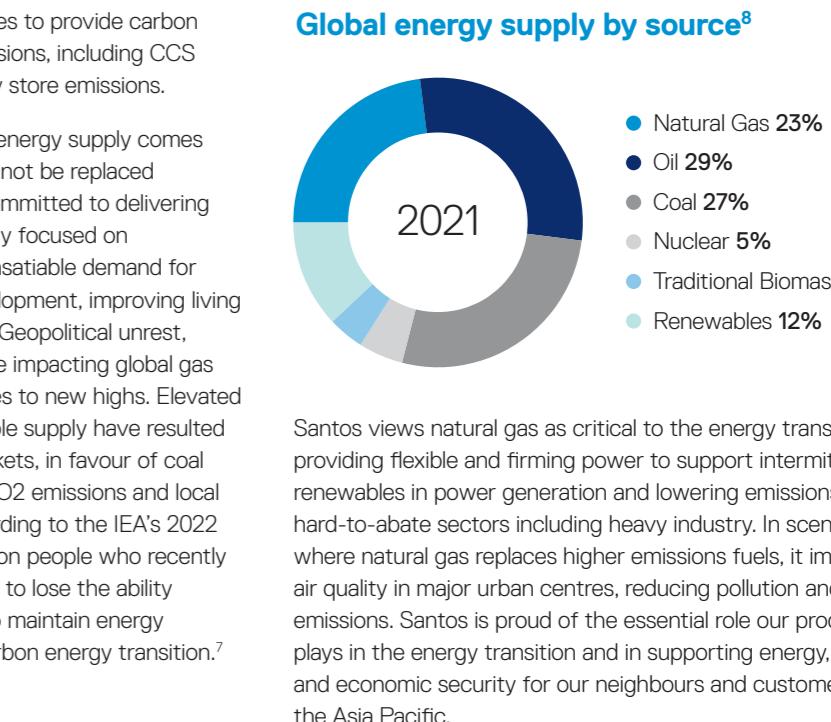
Santos is a global energy company committed to helping the world reach Net Zero emissions through investing in carbon reduction projects, decarbonising our business and producing clean fuels to decarbonise our customers' businesses.

Santos seeks to be a global leader in the transition to cleaner energy and clean fuels, by helping the world decarbonise to achieve Net Zero in an affordable and sustainable way. To ensure a responsible and just transition, especially for the world's most vulnerable communities, energy must be reliable and affordable as well as lower emissions.

Santos is committed to ensuring a sustainable and just transition for our workforce and the communities where we operate by producing fuels that are affordable, reliable and progressively cleaner to meet global climate goals. By leveraging our existing infrastructure and the skills and experience of our people built over decades of oil and gas production, we aim to make our assets more sustainable, provide ongoing jobs and business opportunities, and build new capability in decarbonisation, cleaner energy and clean fuels. Santos is working to decarbonise our gas and liquids business to provide lower emission, reliable and affordable fuels, and positioning to provide new fuels, such as hydrogen, as customer demand evolves and new technologies become available. Santos is also seeking to

work with customers and third parties to provide carbon management services for their emissions, including CCS services to capture and permanently store emissions.

Today, around 80 per cent of global energy supply comes from hydrocarbons.⁶ This supply cannot be replaced overnight, which is why Santos is committed to delivering a responsible energy transition initially focused on decarbonisation. The world has an insatiable demand for energy because it fuels human development, improving living standards and economic prosperity. Geopolitical unrest, government policies and activism are impacting global gas supply and sending commodity prices to new highs. Elevated natural gas prices and lack of available supply have resulted in fuel substitution in electricity markets, in favour of coal and oil products, leading to higher CO₂ emissions and local pollution, impacting air quality. According to the IEA's 2022 World Energy Outlook, some 70 million people who recently gained access to electricity are likely to lose the ability to pay for it, highlighting the need to maintain energy affordability while pursuing a low-carbon energy transition.⁷



⁶ IEA (2022), World Energy Outlook 2022 (pp.30): <https://www.iea.org/reports/world-energy-outlook-2022>

⁷ IEA (2022), World Energy Outlook 2022 (pp.3): <https://www.iea.org/reports/world-energy-outlook-2022>

⁸ IEA (2022), World Energy Outlook 2022, World Energy Outlook 2022 Extended Data: <https://www.iea.org/reports/world-energy-outlook-2022>

Our new purpose and vision and three horizon strategy

In 2022, Santos announced a new purpose and vision.

Santos' purpose is to provide cleaner energy that is both affordable and sustainable to help create a better world for everyone.

To deliver this purpose, in 2022 Santos announced a new three horizon strategy which underpins our decarbonisation pathway to target net-zero Scope 1 and 2 emissions by 2040 and for Santos Energy Solutions to facilitate the reduction, capture, removal, storage or offset of global CO₂ emissions.

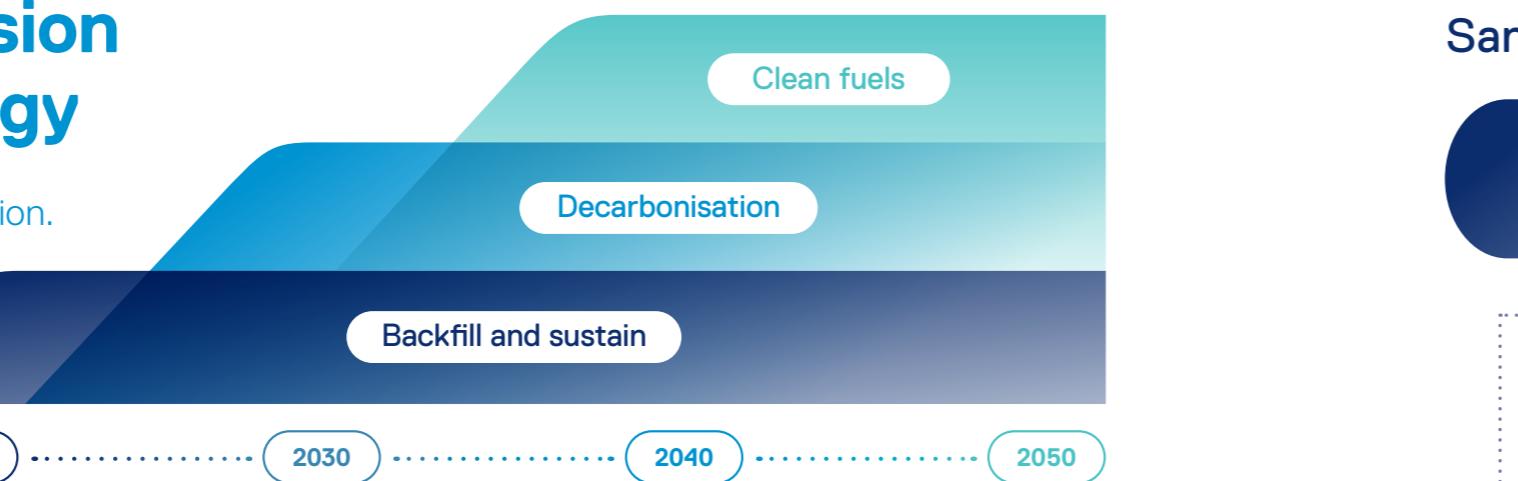
Santos' strategy is robust and resilient to external volatility and aims to deliver shareholder value across three horizons: namely backfill and sustain, decarbonisation and clean fuels.

Backfill and sustain

Our first horizon is to backfill and sustain upstream production in the range of 100 to 140 million barrels of oil equivalent per annum into the 2040s.

Decarbonisation

Secondly, we plan to decarbonise those fuels. Our new Santos Energy Solutions business will work to provide decarbonisation services to deliver our net-zero Scope 1 and 2 emissions target by 2040. Santos Energy Solutions' strategy focuses on re-purposing our existing infrastructure and depleted natural gas reservoirs to deliver low-cost, large-scale decarbonisation solutions.



Clean fuels

And thirdly, Santos Energy Solutions aims to produce clean fuels as customer demand evolves, such as synthetic methane and green hydrogen.

It's a simple but clear strategy that positions Santos to thrive in the energy transition.

Business divisions

Santos' three horizon strategy will initially be delivered through two business divisions, an Upstream Gas and Liquids business and the Santos Energy Solutions business.

The Upstream Gas and Liquids business includes an Asian market focused LNG business with LNG supply projects in Papua New Guinea and Australia (Gladstone and Darwin), and two Australian domestic gas businesses (west and east coast).

Our new Santos Energy Solutions business includes midstream processing assets providing services to Santos and third-party gas and liquids producers. It will also work to provide decarbonisation and carbon management services

to Santos and third parties and develop clean fuels as the market and customer demand evolves.

Santos as operator of the Pikka Unit joint venture is developing a net-zero Scope 1 and 2 emissions development project, from first production. The Pikka Phase 1 development project in Alaska is managed separately from our core LNG and domestic gas assets.

Climate Transition Action Plan

Our Climate Transition Action Plan (CTAP) outlines the decarbonisation initiatives that provide a pathway for Santos to achieve our emission reduction targets and progressively deliver cleaner energy and clean fuels in the future.

Since its introduction in 2022, the CTAP continues to focus on our key pillars to lower emissions of our existing production through operational efficiencies, decarbonise through building our CCS capacity and carbon solutions portfolio, such as nature-based offsets and direct air capture, and supply of new fuels as and when the market demands these products.

Santos' business

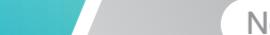
Upstream Gas and Liquids



Santos Energy Solutions



North America



Three LNG projects

PNG LNG

Gladstone LNG

Bayu-Undan and Barossa to Darwin LNG

Two Australian domestic gas businesses

West Coast

East Coast

Low-carbon processing of Santos' and third-party gas and liquids

Decarbonisation and carbon management services

Clean fuels production



A track record of action on climate change

Timeline to 2023

2004	2007	2008	2013	2015	2016	2017	2018	2019	2020	2021	2022
+ Set emissions intensity reduction target of 20 per cent by 2008 from 2002 levels.	+ Met emissions intensity target set in 2004 + Published Climate Change Policy.	+ Springwater Forest Carbon Project registered with the Emissions Reduction Fund to generate ACCUs.	+ Release of key climate policy positions in support of the objective of the Paris Agreement, commitment to ongoing sustainability disclosures, and reporting on impacts and management of climate change + Updated Climate Change Policy, including support for limiting global temperature rise to less than 2°C and commitment to transparent reporting on climate change governance, strategy, risk management, targets and metrics.	+ Santos and Oil Search are leaders in publishing TCFD aligned Climate Change Reports	+ Set 2025 climate targets including commitments to reduce emissions from Cooper Basin and Queensland operations by five per cent and invest in CCS as a step-change emissions reduction technology	+ Successfully injected approximately 100 tonnes of CO2 into depleted gas reservoirs to confirm technical feasibility of the Moomba CCS project + Implemented emissions reduction initiatives at Gladstone LNG, Fairview, Roma and Moomba + First award of ACCUs for Springwater Forest Carbon Project in Queensland.	+ Established a ten-year fugitive emissions assessment with CSIRO + Emissions targets included in performance-based executive remuneration + Implemented emissions reduction initiatives in Cooper/Eromanga basins and at Port Bonython.	+ Set new greenhouse gas emissions reduction targets: + Net-zero Scope 1 and 2 emissions by 2040 + 26-30 per cent reduction in absolute Scope 1 and 2 emissions and emissions intensity by 2030 ⁹	+ Final investment decision (FID) taken on Moomba CCS project	+ Updated Climate Change Policy to support the goals of the Paris Agreement, reduce flaring to as low as reasonably practical for safe operations, identify cost-effective opportunities to sequester carbon, integrate new technologies and offset our greenhouse gas emissions to pursue our emissions reduction targets	+ Adopted advisory 'say on climate' vote in 2022 for shareholders.

9 Targets based on 2019-20 equity Scope 1 and 2 emissions and emissions intensity, adjusted to include increased interest in the Bayu-Undan for the full financial year

10 Society of Petroleum Engineers CO2 Storage Resources Management System (SRMS): <https://p.widencdn.net/2ckusw/SRMS>

11 30 per cent absolute reduction is from the Santos and Oil Search combined 2019-20 equity Scope 1 and 2 emissions baseline of 5.9 MtCO2e, representing a reduction to 4.1 MtCO2e or lower by 2030

12 40 per cent intensity reduction is equity share of Santos Scope 1 and 2 emissions intensity from a 2019-20 baseline of 55 ktCO2e/mmbce, representing a reduction to 33 ktCO2e/mmbce or lower by 2030

- + Booked 100 million tonnes of CO2 storage resource in the Cooper Basin in South Australia in accordance with the international system for CO2 Storage Resource Management¹⁰
- + Front end engineering design (FEED) phase commenced for Bayu-Undan CCS project
- + New 2030 emissions reduction, emissions intensity and clean fuels targets set:
 - + 30 per cent reduction in absolute Scope 1 and 2 emissions by 2030¹¹
 - + 40 per cent reduction in Scope 1 and 2 emissions intensity by 2030¹²
 - + At least 1.5 MtCO2e per annum of customer Scope 1 and 2 emissions reduced by supply of clean fuels
- + Achieved FID on PNG Biomass Carbon Abatement Project
- + Announced new purpose and vision
- + Early delivery of our 2025 emission reduction targets.

Our targets¹³

2025

COMPLETED
Reduce emissions across the Cooper Basin and Queensland by more than **5 per cent**

COMPLETED
Grow liquefied natural gas exports to at least **4.5 Mtpa by 2025**

COMPLETED
Assess the feasibility and, if feasible, invest in technology and innovation which can deliver **a step-change in emissions by 2025**

2030

30 per cent
reduction in Scope 1 and 2 emissions by 2030¹⁴

40 per cent
reduction in Scope 1 and 2 emissions intensity by 2030¹⁵

Reduce customers' emissions (Santos Scope 3) by at least **1.5 Mtpa of CO2e**
from the supply of clean fuels

2040

Net-zero
Scope 1 and 2 emissions by 2040

Achieved 2025 emission reduction targets set in 2018

Santos has achieved its three short-term (2025) climate-related targets, set in 2018. These targets relate to Santos' pre Oil Search merger portfolio. Two were delivered in 2021 and the third delivered in 2022.



Target met in 2021

Grow liquefied natural gas exports to at least 4.5 million tonnes per annum by 2050



Target met in 2021

Assess the feasibility and, if feasible, invest in technology and innovation which can deliver a step-change in emissions



Target met in 2022

Economically reduce emissions by more than five per cent across operations in the Cooper Basin and Queensland from the 2016-17 baseline by 2025

Projects implemented by the Santos Energy Solutions business across Cooper Basin and Queensland operations have delivered a cumulative reduction of 300,000 tonnes CO2e since 2018 (an over five per cent reduction). Projects executed in 2022 alone delivered emission reductions of over 30,000 tonnes CO2e across these assets.

Projects executed in 2022 include:

- + Connection of Gladstone LNG upstream well-head equipment to the grid
- + Reducing vented methane during well workovers.

Please refer to our [2022 Climate Change Report](#) for further detail on achieving the delivery of the first two targets.

¹³ Please refer to the [Metrics and targets](#) section in this report for further detail

¹⁴ 30 per cent absolute reduction is from the Santos and Oil Search combined 2019-20 equity Scope 1 and 2 emissions baseline of 5.9 MtCO2e, representing a reduction to 4.1 MtCO2e or lower by 2030

¹⁵ 40 per cent intensity reduction is equity share of Santos Scope 1 and 2 emissions intensity from a 2019-20 baseline of 55 ktCO2e/mmboe, representing a reduction to 33 ktCO2e/mmboe or lower by 2030

Climate Transition Action Plan

Our CTAP outlines how we plan to materially reduce emissions and deliver value for shareholders through the energy transition by improving operational efficiency, offering carbon solutions and clean fuels, and by providing lower emission products across our supply chain.

The plan reflects Santos' carbon mitigation hierarchy which is avoidance first, followed by reduction and offsetting. Key projects leverage Santos' competitive and natural advantages, providing the foundation for Santos to sustainably deliver a lower carbon future underpinned by value generation and shareholder returns.

Santos' portfolio of decarbonisation and clean fuels projects continue to progress in line with Santos' climate change targets and aims to enable sustainable growth by supporting emissions reduction for our customers. We are working with our customers and other high-emitting industries to look to capture their emissions and those from industries from our supply chain, which includes our Scope 3 emissions.

The CTAP includes forecasts that are necessarily based on assumptions, contingencies and commercial judgement. The estimates included do not take into account any future sell-downs, partnering arrangements or infrastructure funding. It is also important to recognise that carbon and clean fuels markets are dynamic and evolving, with high levels of uncertainty. Estimates are therefore subject to customer demand which can have material impacts on project scopes, timing and spend.

Santos will continue to adapt the CTAP to take account of the evolving energy transition environment between now and 2040, and apply our disciplined economic and commercial criteria to inform investment decisions which create value for shareholders, as we progress through our decarbonisation and clean fuels journey.

2022 Climate Transition Action Plan progress

Santos continues to deliver on the CTAP, with a number of key activities completed in each category throughout 2022.

Categories	2022 Progress
Operational efficiency	<ul style="list-style-type: none"> ✓ Operational efficiencies projects reduced emissions from fuel flare and vent by over 50,000 tonnes of CO2e per annum ✓ Cooper Basin Electrification Phases 2 and 3 FEED entry ✓ Curtis Island Electrification Project concept select completed
Carbon capture and storage	<ul style="list-style-type: none"> ✓ Moomba CCS project 40 per cent complete with drilling of injector wells commenced and CO2 train tie-ins complete ✓ FEED entry on Bayu-Undan CCS achieved ✓ Negotiations underway to supply over one million tonnes per annum of third party CO2 sequestration in Western Australia ✓ Feasibility study underway with SK E&S for large scale Bayu-Undan CCS services ✓ Feasibility study underway with Asian LNG facility to provide additional sequestration services of over one million tonnes per annum ✓ Additional feasibility study underway with major mining emitters for further sequestration capacity to be added by 2028
Carbon solutions	<ul style="list-style-type: none"> ✓ Construction underway for 2023 Direct Air Capture trials using multiple technologies ✓ Achieved FID on PNG Biomass Carbon Abatement Project
Clean fuels hubs	<ul style="list-style-type: none"> ✓ Feasibility study completed with an international partner to evaluate the production of synthetic methane from green hydrogen ✓ Port Bonython hydrogen mobility concept study completed ✓ Progressing Moomba hydrogen concept studies
Supply chain collaboration	<ul style="list-style-type: none"> ✓ Working with customers and suppliers across our Hubs to reduce emissions across the value chain, leveraging our CCS and clean fuels projects

2023 updates to the Climate Transition Action Plan

Our CTAP is updated to reflect the progress of our initiatives and the further evolutions of our strategy, as well as changes in market conditions and evolution of technologies. Key changes included in the 2023 CTAP are:

+ Moomba Hydrogen Project scope and timing:

The concept select phase of the Moomba Hydrogen Project continued throughout 2022 with a focus on understanding the potential for a phased project approach as markets develop.

+ Clean fuels projects timing and scope:

We are focused on decarbonisation in the short term through development of a portfolio of decarbonisation technologies including CCS and direct air capture (DAC) in line with our three horizon strategy. These technologies

have the potential to become key inputs into clean fuels production, for example, CO2 from DAC can be used in the production of synthetic methane. Subsequently,

Santos has been working to accelerate development of these technologies, with DAC trials brought forward to commence in 2023.

In parallel, to ensure development of clean fuels supply chains in time for large scale demand, Santos' approach is to pilot clean fuels technologies at small scale to establish feasibility and prove concepts prior to scale up and commercialisation. This aims to enable Santos to meet the market when demand eventuates. We are already working with customers and partners to investigate and progress opportunities to integrate demand for clean fuels like hydrogen and ammonia into our value chain. Following completion of a study in 2022, Santos is progressing pre-FEED studies for the production of synthetic methane, a promising technology which, if economically feasible, would enable production of low emission natural gas and enable existing infrastructure to be re-used.

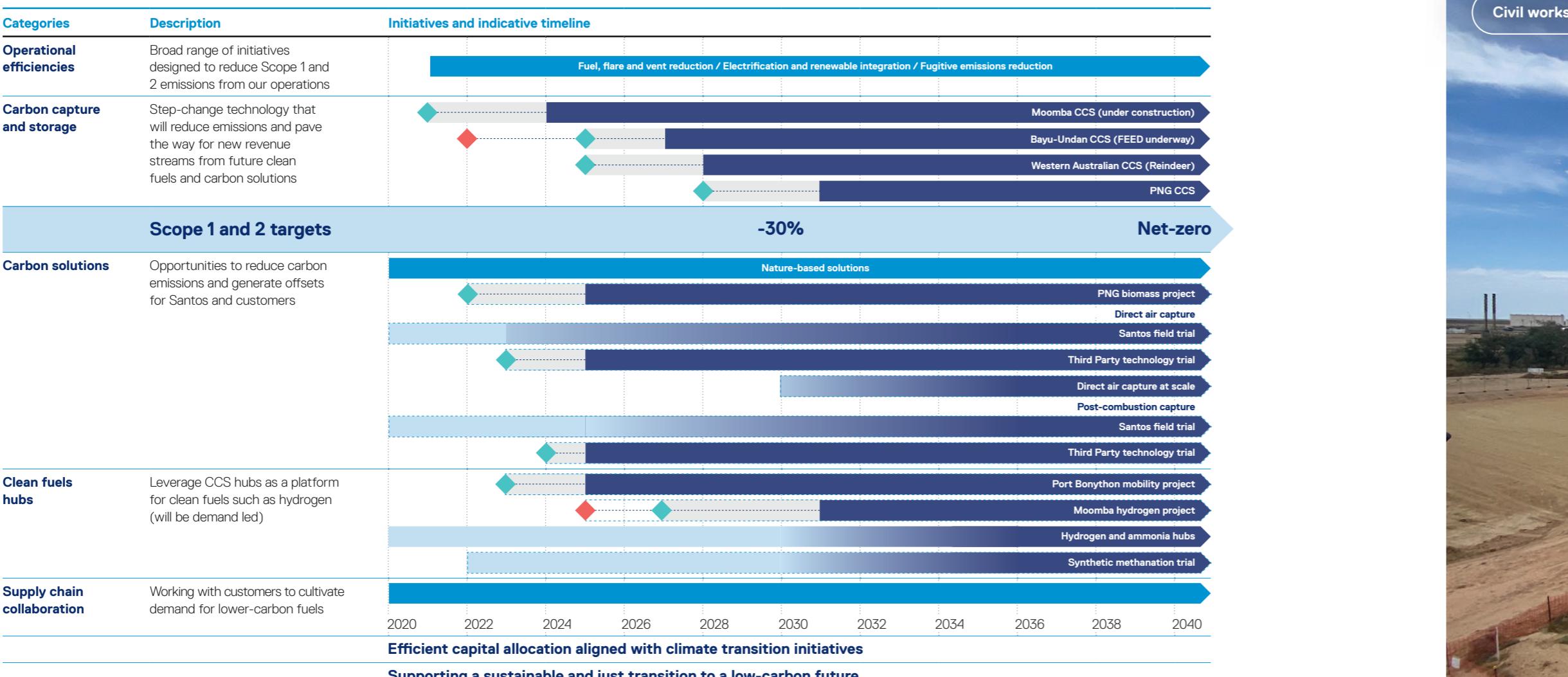


Project scope and timing will continue to be refined going forward in line with technology developments and market conditions to maximise value.

+ Port Bonython Hydrogen Mobility Project:

In 2022, Santos identified a new opportunity to deliver a hydrogen mobility project at Port Bonython with project partners, which has been added to the CTAP. This project has the potential to be one of the first clean hydrogen projects in Australia with significant potential for scale up.

2023 Climate Transition Action Plan¹⁶



¹⁶ The Climate Transition Action Plan includes current forecasts that are necessarily based on assumptions, contingencies and commercial judgment. The estimates included do not take into account customer demand or any future sell-downs, partnering arrangements and infrastructure funding. The Climate Transition Action Plan is over a forward-looking period of approximately 20 years. It is important to recognise that markets are dynamic, emerging and still evolving based on factors including developments in technology, science, markets, policy and experience over time. Please refer to page 19 for more detail in relation to the Climate Transition Action Plan.



Delivering on our Climate Transition Action Plan



Operational efficiencies

Carbon capture and storage

Carbon solutions

Supply chain collaboration

Efficient capital allocation aligned with our climate transition activities

Supporting a sustainable and just transition



Operational efficiencies

2022 performance highlights

Achieved Santos' 2025 target to reduce operational emissions by five per cent in the Cooper Basin and Queensland

New operational efficiency projects in 2022 reduced fuel flare and vent emissions by over 50,000 tonnes of CO₂e per annum

FEED taken for the Cooper Gas Electrification Project

Pre-FEED work commenced on Curtis Island Electrification Project

Santos' aim is to avoid and minimise emissions from our operations by improving operational efficiency.

In 2022 we met our 2025 target to reduce operational emissions by five per cent from 2016-17 levels in the Cooper Basin and Queensland. We will continue to implement efficiency projects across our entire portfolio to reduce the Scope 1 and Scope 2 emissions intensity of our operations.

Further energy efficiency projects currently underway:

- + Installation of solar power systems with battery storage to displace diesel use in operating and camp facilities

- + Using nitrogen to replace methane where possible, reducing emissions from flare purge gas and tank blanket gas

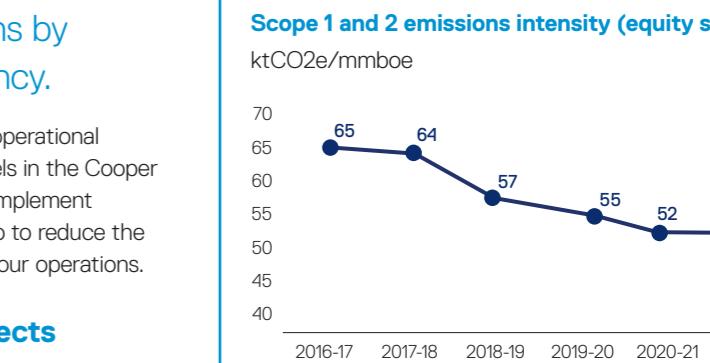
- + Deploying new technologies such as LoHeat™¹⁷

- + Implementing advanced process control techniques, such as automation, to increase fuel efficiency

- + Capturing and recovering gas that is currently flared or vented.

The LoHeat™ technology is being deployed at Moomba on one of the CO₂ processing trains and we are currently assessing the feasibility of utilising the technology on the remaining CO₂ processing trains at Moomba.

New operational efficiency projects implemented in 2022 reduced fuel, flare and vent volumes by approximately 2.5 terajoules per day and CO₂e emissions by over 50,000 tonnes per year.



In 2020-21 we achieved a 20 per cent reduction in Scope 1 and 2 emissions intensity from 2016-17 across our whole portfolio through implementing emissions reduction projects and investing in assets with lower emissions-intensity. The improvement in 2020-21 has been sustained in 2021-22.¹⁸

¹⁷ LoHeat™ Technology is a process technology licensed by Honeywell UOP which improves the energy efficiency of the CO₂ processing at Moomba

¹⁸ The merger between Santos Limited and Oil Search Limited took place on 10 December 2021. Emissions from the former Oil Search assets are included from this date

Fuel, flare and vent

In our Climate Change Policy we outline that we will avoid unnecessary flaring and reduce flaring required for the safe conduct of our operations to as low as reasonably practicable. We are continually seeking ways to reduce emissions as part of standard operations.

In 2022 we undertook a range of projects and initiatives across our operated assets. This included connecting well-head equipment to the grid in our Gladstone LNG upstream operations and reducing vented methane during well work-overs, delivering a reduction of 10,000 tonnes CO₂e per annum. In 2023 we are assessing projects to install advanced process control technologies to reduce fuel consumption at Moomba, Curtis Island and Varanus Island.

Delivering net-zero emissions

Reducing flared emissions

The Inline Flow-back Project is a Santos initiative to reduce flared emissions during drilling and completion activities.

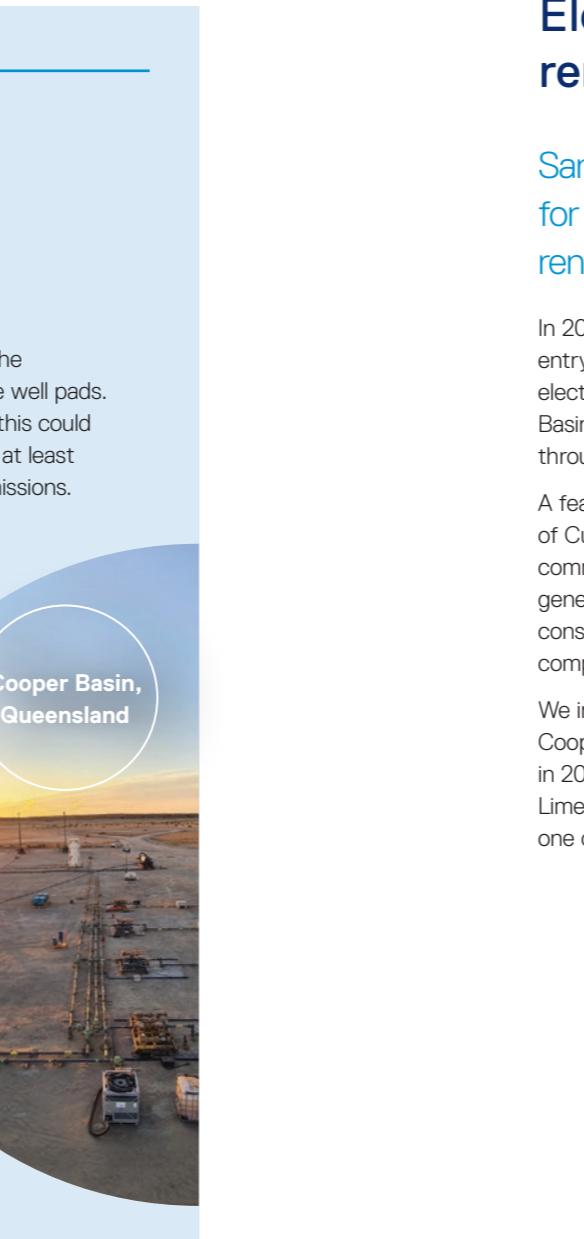
In 2022, the Inline Flowback Project:

- + Reduced onsite flaring during flow-back operations for the Cooper Development Program by 30 per cent
- + Reduced well-site emissions due to flaring by more than 5,000 tonnes CO₂e
- + Was executed without incident or injury.

Following fracture stimulation, a well is flowed-back to recover the injected stimulation fluid, initiate gas flow and “clean up” the well to a steady state. During this flow-back, gas has historically been flared via a temporary separator on the wellsite. The Inline Flow-back Project captures this gas to the production line and reduces well-site flaring.

This project required a multi-disciplinary engineering approach to identify and work up the opportunity, ensure and assure process safety, implement and safely execute.

The first phase of the project was implemented on multi-well pad locations where a single separator package can support multiple wells. The 2022 Cooper Development program represented a step-change in the number of multi-well pads which provided an opportunity to realise a high value from inline flow-back.



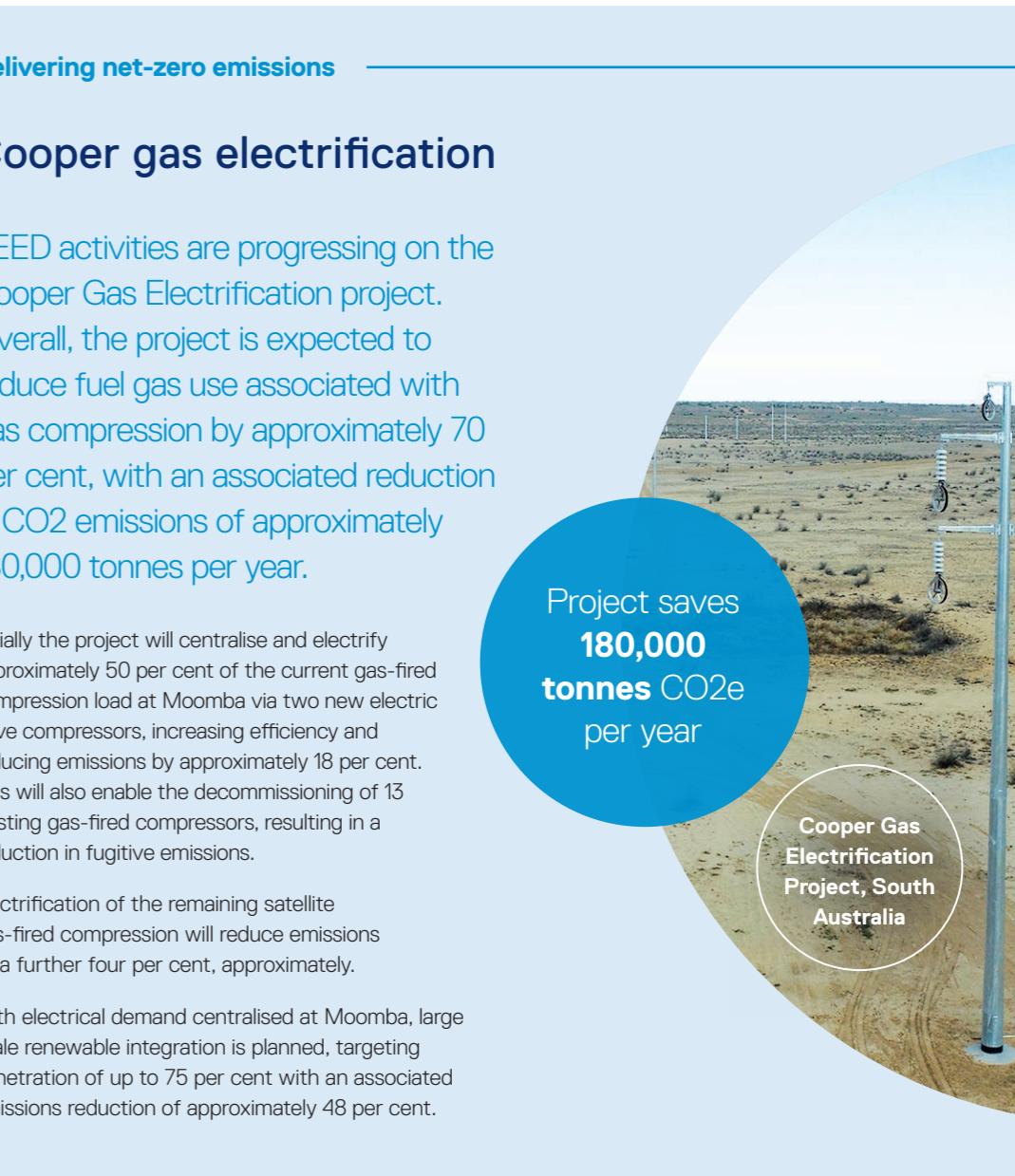
Electrification and renewables integration

Santos continues to progress options for electrification and integrating renewables into our facilities.

In 2022, we took front-end engineering design (FEED) entry for the Cooper Gas Electrification Project, which will electrify upstream gas satellite compression in the Cooper Basin and incorporate a high level of renewables solutions through a combination of solar, wind and batteries.

A feasibility study assessing the partial electrification of Curtis Island was completed and pre-FEED activities commenced. This project aims to replace gas-fired power generation units with grid-connected electricity and is also considering electrifying some of the gas-fired refrigerant compression at Gladstone LNG in Queensland.

We installed solar and battery power at Watson in the Cooper/Eromanga Basins in southwest Queensland in 2022. In 2023, we plan on similar installations at our Limestone Creek and Cook facilities and will also connect one of our Queensland camps to the grid.



Fugitive emissions and methane

Santos is committed to minimising the occurrence of fugitive emissions in our operations.

Fugitive emissions

Within the oil and gas industry, the term 'fugitive emissions' refers specifically to minor natural gas losses from operations, for example, from valves on pipelines, wells or gas plant equipment.

While fugitive emissions only comprise around three per cent of Santos' operated Scope 1 emissions, Santos is committed to minimising their occurrence in our operations. As a proportion of our overall production volume, methane emissions are less than 0.2 per cent. This is comparable with the Oil and Gas Climate Initiative 2025 methane intensity target. Increases in fugitive emissions in the reporting period 2021-22 are due to legislated updates to the NGER calculation methodology. The calculation methodology for fugitive emissions is outlined in the [Emissions calculation and reporting](#) section of this report. We continue to enhance our processes for leak detection and repair and have implemented projects to reduce fugitive emissions.

Establishing natural gas (methane) levels

Santos is conducting baseline methane assessments across our existing Australian onshore operations to detect potential fugitive sources, including natural seepage. We measure for other methane sources so we can differentiate between our and other possible sources of methane emissions. We also conduct baseline assessments for our new development areas before the commencement of activities. These assessments are being delivered through various research agreements with CSIRO that commenced in 2018.



In February 2022, CSIRO collected further baseline data for the Narrabri Project Area, NSW.

The regional mobile methane survey across the Narrabri Project Area measured median background methane concentrations of approximately 1.83 ppm. The background concentration at Narrabri was lower compared to the global monthly mean for February 2022 which was estimated to be 1.91 ppm.



In August 2022, CSIRO collected baseline data for the Curtis Island and Gladstone areas, Queensland.

The regional mobile methane survey across the Curtis Island and Gladstone areas measured median background methane concentrations of approximately 1.88 ppm. The background concentration at Curtis Island and Gladstone areas were lower compared to the global monthly mean for August 2022 which was estimated to be 1.91 ppm.¹⁹



In 2022, CSIRO completed a methane baseline background survey for the Cooper Basin (Queensland and South Australia) with the report expected from CSIRO in early 2023.

This program builds on previous research undertaken by CSIRO in New South Wales, Queensland and the Northern Territory. This research is important for understanding fugitive emissions from oil and gas operations, as well as to identify and understand emissions from natural biological and geological sources (e.g. from soils, wetlands, rivers and agriculture).

Santos' Scope 1 emissions by source (gross operated)



¹⁹ Global Monitoring Laboratory - Carbon Cycle Greenhouse Gases: https://gml.noaa.gov/ccgg/trends_ch4/

Carbon capture and storage

2022 performance highlights

Moomba CCS Project is 40 per cent complete, with injector wells drilled

Planned trials of DAC technologies in the Cooper Basin to commence first half 2023

FEED phase entered for Bayu-Undan CCS and FID taken on Darwin Pipeline Duplication – enabling Bayu-Undan CCS project²⁰

Bookings of 100 million tonnes of CO2 storage capacity in the Cooper Basin made

CCS is expected to play a critical role in global decarbonisation efforts by providing the opportunity to achieve low-cost and large-scale emissions reduction. Fatih Birol, Executive Director of the IEA has said that reaching net zero goals without CCS "will become virtually impossible".²¹

Today, there are 30 commercial CCS facilities operating around the world, with a storage capacity of over 42 million tonnes of CO2 per year.²² CCS is proven technology and the IEA's Net Zero by 2050 Roadmap envisages Carbon Capture, Utilisation and Storage growing to 7.6 billion tonnes of CO2 per year by 2050.²³

CCS is the process whereby CO2 is captured from a facility, dehydrated and compressed for transportation via pipeline to a storage site. The CO2 is then injected into a geological formation that provides safe and permanent storage deep underground. Santos plans to inject CO2 into depleted reservoirs that have previously held oil and gas safely in place for tens of millions of years.

Santos already operates natural gas storage facilities in Queensland and South Australia where gas is injected into reservoirs to meet seasonal demand periods such as on cold days in winter. This, together with decades of gas injection experience provides confidence that we can safely inject and permanently store CO2 to reduce our own emissions and potentially those of others, including customers.

We have developed a strategy with three CCS and clean

fuels hubs across our core asset areas with the potential to create more than 30 million tonnes per annum of CO2 storage capacity, and with line of sight to 10 million tonnes per annum of available carbon storage capacity by 2030.

In 2022, we announced bookings of 100 million tonnes of CO2 storage capacity in the Cooper Basin in South Australia in accordance with the Society of Petroleum Engineers CO2 Storage Resources Management System.²⁴

Synthetic methane (or synthetic natural gas) is a clean fuel produced by combining green hydrogen with carbon dioxide to produce natural gas.



This process is called methanation and it can utilise CO2 from direct air capture in conjunction with renewables to enable delivery of a clean fuel. Synthetic methane enables utilisation of the billions of dollars of existing gas infrastructure globally as it can be blended, liquefied and transported in the same way as natural gas.

²⁰ Subject to regulatory approvals

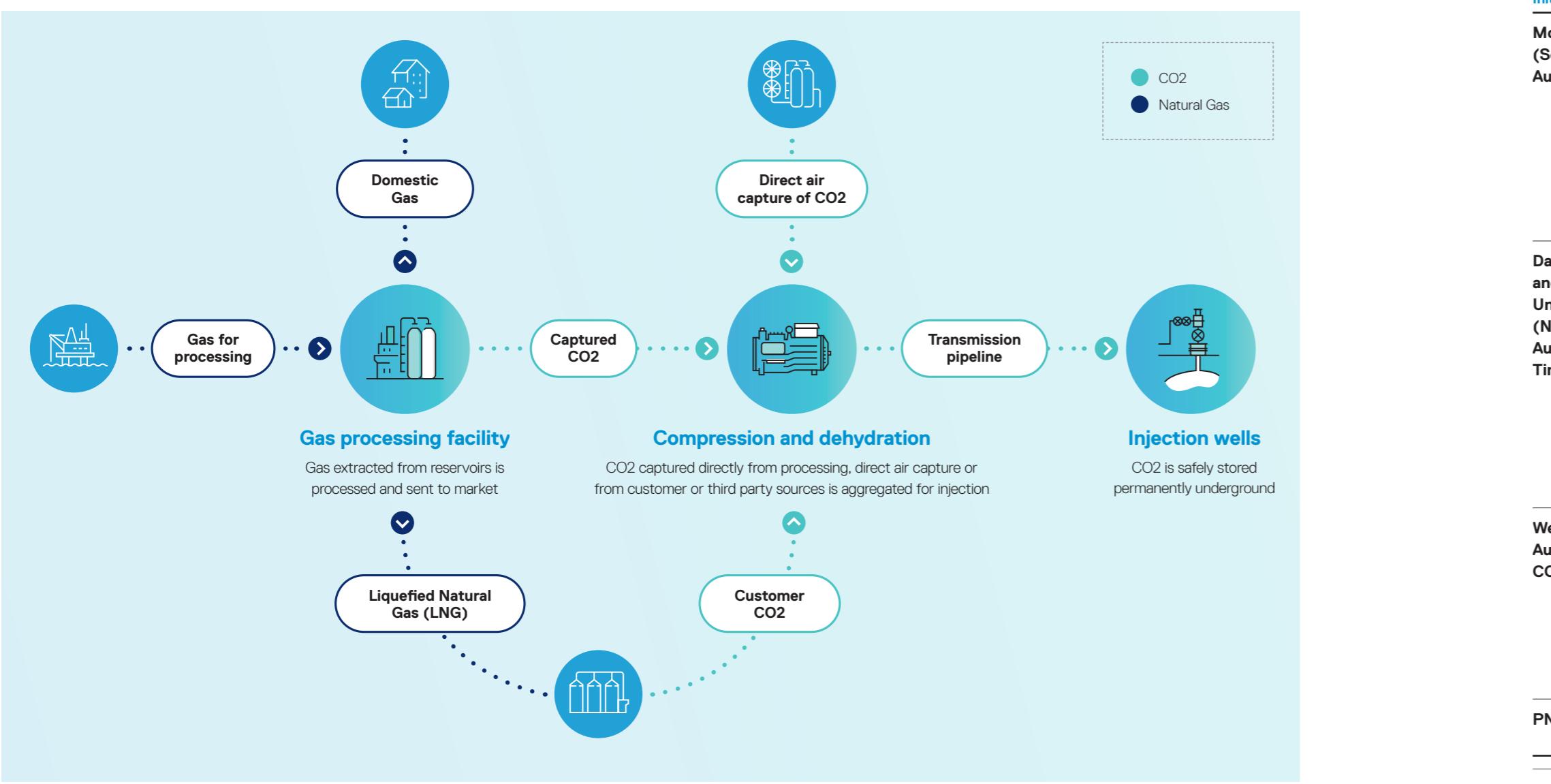
²¹ IEA (2020), IEA Energy Technology Perspectives 2020, Special Report on Carbon Capture Utilisation and Storage – CCUS in clean energy transitions (pp. 3): https://iea.blob.core.windows.net/assets/181b48b4-323f-454d-96fb-0bb1889d96a9/CCUS_in_clean_energy_transitions.pdf

²² Global CCS Institute (2022), The Global Status of CCS 2022 Report: https://status22.globalccsinstitute.com/wp-content/uploads/2022/11/Global_Status-of-CCS-2022_Download.pdf

²³ IEA, Net Zero by 2050 - A Roadmap for the Global Energy Sector: <https://www.iea.org/reports/net-zero-by-2050>

²⁴ Society of Petroleum Engineers CO2 Storage Resources Management System (SRMS): <https://p.widencdn.net/2ckusw/SRMS>

Conceptual schematic: How CCS can enable CO₂ to be safely and permanently stored underground with the potential to create a circular economy



Santos' planned CCS hubs with indicative status (project phase) and timelines²⁵

Initiatives	Description	Project phase	Indicative timeline
Moomba CCS (South Australia)	<p>Santos is currently executing phase 1 of our Moomba CCS project, a commercial-scale project which will capture CO₂ at the Moomba Gas Plant. If new sources of CO₂ are made available, the potential exists to store approximately 20 million tonnes per annum across the Cooper and Eromanga Basins for up to 50 years.</p> <p>Phase 1 of the project will capture reservoir emissions from Benfield Trains in the Moomba Plant which will be transported and stored in depleted reservoirs in the Cooper Basin.</p> <p>As the Moomba CCS project is designed to utilise existing processing capability at Moomba and existing infrastructure associated with depleted reservoirs in the Cooper Basin, Santos expects that it will be one of the lowest-cost CCS projects globally with full lifecycle cost of less than \$24 per tonne of CO₂.</p> <p>It is also expected that Phase 1 will also store CO₂ from some of the planned direct air capture trials.</p>	Under construction	Current and ongoing 2021 FID 2024 online
Darwin and Bayu-Undan CCS (Northern Australia / Timor-Leste)	<p>In March 2022 front-end engineering design (FEED) commenced for the Bayu-Undan CCS project. Santos is working with both the Australian and Timor-Leste Governments with a view to progressing the development of this project, with initial injection and storage of approximately 2.3 million tonnes of CO₂e per annum once natural gas production from the field ceases. The project, subject to regulatory approvals, has capacity of around 10 million tonnes of CO₂e per annum and will look to capture CO₂ from nearby projects to maximise throughput.</p> <p>In August 2022 Santos announced a final investment decision for the Darwin Pipeline Duplication Project. The Bayu-Undan CCS project will utilise the existing Bayu-Undan to Darwin pipeline and the offshore Bayu-Undan facilities to minimise the cost of the project. Potential CO₂ sources include natural gas developments and industrial sources in northern Australia with customers and investors in Korea and Japan also interested in the project for emissions reduction from their activities. Santos is participating in studies that are evaluating the feasibility and development of carbon dioxide aggregation in Korea and Singapore to capture CO₂ for storage within CCS reservoirs.</p>	FEED underway	2025 FID 2027 online
Western Australia CCS	The Reindeer CCS project has the capacity to store five million tonnes of CO ₂ e per annum. This capacity would utilise the existing pipeline, installation and wells, hence is a low cost emission reduction option. This hub offers capacity for third party CO ₂ sources including industrial sources and natural gas developments in the Pilbara region of Western Australia. The recent award of Greenhouse Gas storage permit G-9-AP adds large scale regional aquifer storage to the available storage volume in the vicinity of Reindeer. Santos is leading a feasibility study, together with other domestic and international companies, exploring a potential end-to-end solution to capture up to 4 million tonnes per annum of CO ₂ emissions from fixed power plants in the Pilbara for injection into Santos' CCS reservoirs. In 2023, Santos is seeking to commence studies to evaluate the potential for CCS from around Varanus Island.	Under assessment	2025 FID 2028 online
PNG CCS	PNG CCS has potential storage of approximately 0.3 million tonnes of CO ₂ e per annum.	Under assessment	2028 FID 2031 online

²⁵ With the exception of Moomba CCS, which has already received a final investment decision to proceed, the timeline and details relating to other CCS projects are preliminary only and subject to change

Delivering net-zero emissions

Bayu-Undan Carbon Capture and Storage Project

The Bayu-Undan CCS Project targets the capture of up to 10 million tonnes per annum of CO₂e at a Darwin hub, initially from the Darwin LNG facility, with future expansion to third parties. Captured CO₂ or possibly imported CO₂ will be transported to, and stored in, the offshore Bayu-Undan reservoir in Timor-Leste waters.

In March 2022, front-end engineering design (FEED) commenced for the Project. Santos is working with both the Australian and Timor-Leste Governments with a view to progressing the development of this project. Initial injection and storage of approximately 2.3 million tonnes of CO₂e per annum from the Barossa field, subject to obtaining approvals, is planned.

The Project technical scope includes:

- + Installation of a new onshore CO₂ removal train at Darwin LNG
- + Installation of new CO₂ dehydration and compression facilities
- + Repurposed gas export pipeline from Bayu-Undan to Darwin LNG for CO₂ service
- + Repurposed Bayu-Undan offshore platform and facilities for access to CO₂ injection wells
- + Repurposed wells for CO₂ injection.

The Project leverages established pipeline, wells and platforms:

- + Opportunity to re-purpose existing facilities with modifications
- + Provides significant cost advantage versus greenfield projects
- + Offers the opportunity to import CO₂ from Asian customers.

Targeting the capture of **10Mtpa of CO₂e**

Bayu-Undan facility, Timor-Leste offshore waters

Carbon solutions

2022 performance highlights

- 1 Achieved FID on repurposing the PNG Biomass project to a biodiverse conservation forest carbon project
- 2 Commenced construction of DAC units
- 3 Preparation underway to commence trials of DAC at Moomba in 2023

Our emissions reduction targets are supported by carbon abatement.

In implementing our Climate Transition Action Plan, our emissions reduction activities are based on the hierarchy of:

and realising its significant potential to contribute to the achievement of net-zero emissions.²⁷

We recognise that the technology required to achieve the necessary scale of emissions reductions will take time to mature.

Santos Carbon Solutions is developing a portfolio of projects to reduce our net emissions and support the transition toward our 2030 and 2040 emissions reduction targets.

Direct air capture and post-combustion capture

Santos is continuing to invest in and develop DAC and post-combustion capture technology in order to generate carbon credits for Santos' Scope 1 and 2 emissions reduction targets, and develop low-cost carbon solutions for customers.

Both technologies have the potential to create new revenue streams as market demand evolves by enabling clean fuels including synthetic fuels, as well as customer emissions solutions.

Santos is well positioned to develop DAC and post-combustion capture due to the low-cost CCS resources and capability across our three clean fuels hubs. If commercially viable, DAC has the potential to remove the need to transport CO₂ from industrial sources to a CCS site. Instead, CO₂ can be removed from the atmosphere, close to the CCS site.

The IEA makes clear, "carbon removal technologies will almost certainly be required due to the practical and technical difficulties in eliminating emissions in certain sectors, including some types of industry (notably steel, chemicals and cement), aviation, road freight and maritime shipping".²⁶

Santos is actively working with a number of third parties to test DAC and post-combustion carbon capture technologies at Moomba. Technology trials are on track for commencement in 2023, with a range of technologies being evaluated over the next two years. The first 0.25 tonnes per day unit is currently in construction and due to arrive at Moomba in March 2023.

²⁶ IEA (2020), CCUS in Clean Energy Transitions (pp.18): <https://www.iea.org/reports/ccus-in-clean-energy-transitions/a-new-era-for-ccus>

²⁷ IEA (2020), CCUS in Clean Energy Transitions (pp.18): <https://www.iea.org/reports/ccus-in-clean-energy-transitions/a-new-era-for-ccus>

Delivering net-zero emissions

Pikka FID and net-zero Scope 1 and 2 emissions project plans

In 2022 Santos, as operator of the Pikka Unit joint venture, announced a final investment decision had been taken to proceed with Pikka Phase 1 project located on the North Slope of Alaska. First oil is anticipated in 2026.

Pikka will be one of the first oil projects sanctioned in Alaska, and one of the first in the world to target net-zero Scope 1 and 2 emissions from first oil. Projects like Pikka Phase 1 come at a critical time for global and United States energy security and respond to new demand for Organization for Economic Co-operation and Development supply following the Russian invasion of Ukraine. The project was designed to high environmental, social, and corporate governance standards from technology selection, to environmental reporting, and to stakeholder engagement. The effort to achieve this net-zero commitment was multi-disciplinary, incorporating project design optimisations, innovative operational strategies, engagement with key Indigenous stakeholders, and the development of market-leading partnerships.

In adherence with our emissions reduction activity hierarchy, the team prioritised opportunities to avoid and reduce emissions first, including:

- + Flaring only to be permitted during process upset conditions, well-testing and emergencies. Routine flaring will not occur
- + Vapor recovery included on all permanent process equipment
- + Leak detection and repair program
- + Power produced centrally and distributed across the field.

“Global oil and gas markets are seeing increased volatility and countries are looking to diversify their supply sources away from Russia. Santos has emission reduction plans to achieve net-zero Scope 1 and 2 emissions by 2040 and in line with that commitment, Pikka will be a net-zero project.”

Kevin Gallagher, Santos Managing Director and Chief Executive Officer

Our nature-based solutions approach

Nature-based projects will play an important role in the transition to a Net Zero economy.

Our approach to nature-based solutions is to identify and develop projects that deliver environmental benefits while also providing economic and social benefits to communities across our areas of operation. Integrity is core to our nature-based business. We are committed to generating abatement that is real, measurable, and verifiable, and will leverage relevant Australian and international standards to ensure all projects are verified as delivering the committed outcomes.

Abatement from our nature-based project portfolio will be used to address emissions from our operations and the products we sell.

We will prioritise project activity on land and in the coastal regions in which we operate, making the most of our capabilities to support opportunities for local communities.

In Australia, Santos has access to over 70,000 hectares of land across our operations and we are actively working towards project development in these areas.

Through our PNG Biomass Carbon Abatement Project, Santos has an established presence as a developer of large scale nature projects in Papua New Guinea. We are actively working with local communities to expand into new nature projects.

The Pikka project in Alaska is Santos' first North American project and represents an important milestone in meeting our climate goals delivering net-zero Scope 1 and 2 emissions from the delivery of the first product to market. Santos is working with its Alaskan Native Corporations partners to deliver emissions reduction projects that will achieve this outcome.



Delivering net-zero emissions

PNG Carbon Abatement Project

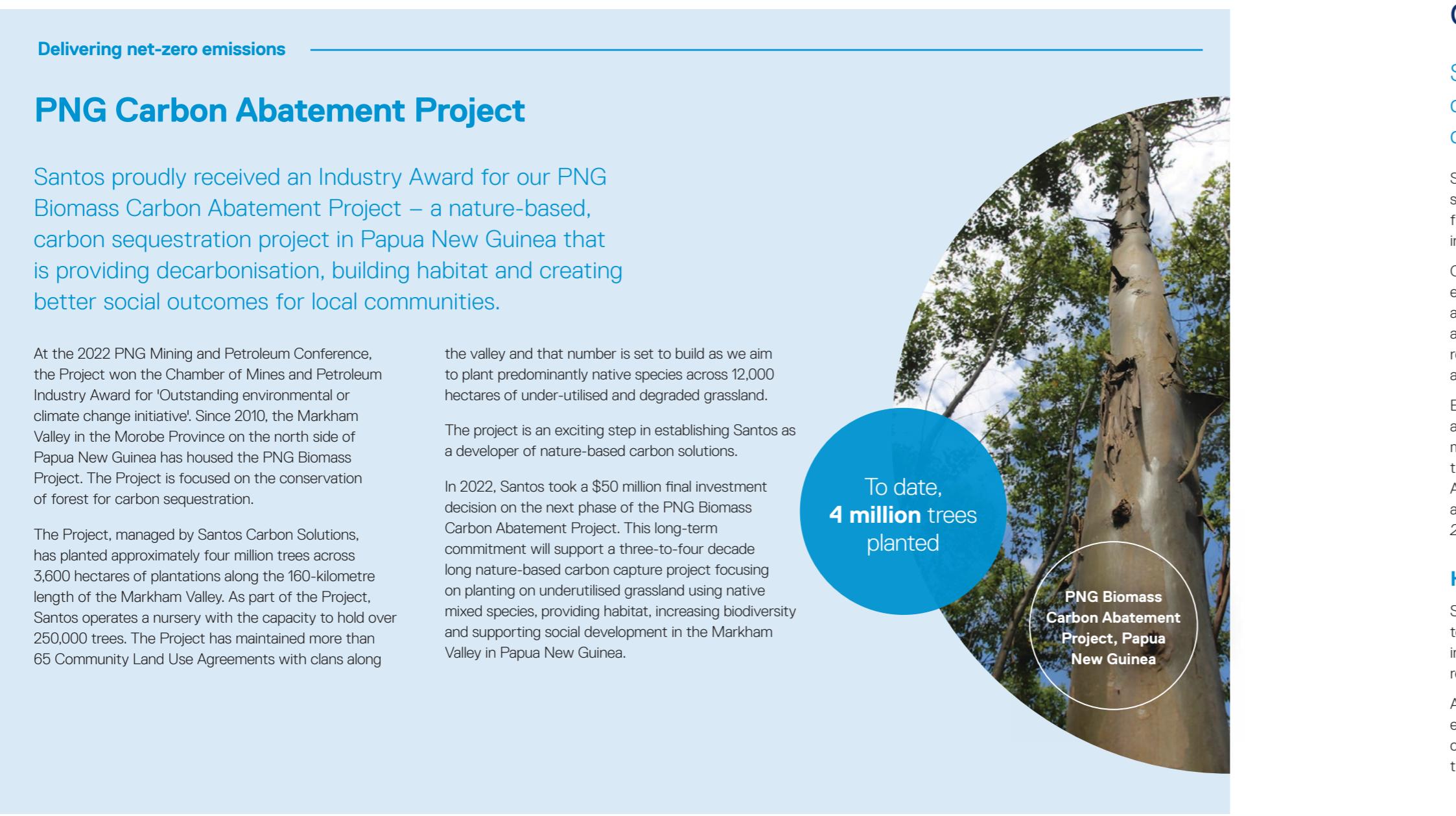
Santos proudly received an Industry Award for our PNG Biomass Carbon Abatement Project – a nature-based, carbon sequestration project in Papua New Guinea that is providing decarbonisation, building habitat and creating better social outcomes for local communities.

At the 2022 PNG Mining and Petroleum Conference, the Project won the Chamber of Mines and Petroleum Industry Award for 'Outstanding environmental or climate change initiative'. Since 2010, the Markham Valley in the Morobe Province on the north side of Papua New Guinea has housed the PNG Biomass Project. The Project is focused on the conservation of forest for carbon sequestration.

The Project, managed by Santos Carbon Solutions, has planted approximately four million trees across 3,600 hectares of plantations along the 160-kilometre length of the Markham Valley. As part of the Project, Santos operates a nursery with the capacity to hold over 250,000 trees. The Project has maintained more than 65 Community Land Use Agreements with clans along the valley and that number is set to build as we aim to plant predominantly native species across 12,000 hectares of under-utilised and degraded grassland.

The project is an exciting step in establishing Santos as a developer of nature-based carbon solutions.

In 2022, Santos took a \$50 million final investment decision on the next phase of the PNG Biomass Carbon Abatement Project. This long-term commitment will support a three-to-four decade long nature-based carbon capture project focusing on planting on underutilised grassland using native mixed species, providing habitat, increasing biodiversity and supporting social development in the Markham Valley in Papua New Guinea.



To date,
4 million trees
planted

PNG Biomass
Carbon Abatement
Project, Papua
New Guinea

Clean fuels hubs

Santos aims to deliver lowest-cost, clean fuels to the market from its three clean fuels hubs, agnostic of technology.

Santos is working to pilot a range of technologies to support growth of hydrogen, ammonia and synthetic fuels markets and supply chains in Australia and Asia, in line with this objective.

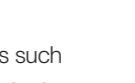
Our approach is to pilot technologies at small scale to establish feasibility and prove concepts prior to scale up and commercialisation. Santos' plan is to leverage natural advantages at each hub such as geographic locations, renewables potential, existing reservoirs and infrastructure and market nuances, to deliver low-cost clean fuels.

Each hub is supported by Santos' investment in CCS to accelerate the development of affordable, clean fuels as markets evolve. For example, Santos is collaborating with third parties to develop CCS and DAC opportunities in Alaska, leveraging the supportive regulatory environment and funding provided by the *Inflation Reduction Act of 2022* in the United States.

Hydrogen and ammonia production

Santos has partnered with leading technology providers to undertake studies to identify potential for clean fuels including hydrogen and synthetic methane. These products represent low-emissions alternatives to existing fuels.

As global energy markets have shifted, demand for both existing and new products has changed, and Santos has continued to screen opportunities for value across the three clean fuels hubs.



Synthetic methane

In 2022, Santos led a joint feasibility study, together with an international partner, to evaluate the production of synthetic methane from green hydrogen.



Hydrogen mobility

Throughout 2022, in conjunction with a range of potential third party partners across the value chain, Santos completed a concept study evaluating the potential for a hydrogen mobility solution in the Moomba CCS Hub.

The selected concept intends to produce green hydrogen from a hydrogen production unit and associated storage at Port Bonython. The hydrogen can then be utilised for transportation (including prime movers), direct supply to customers, feedstock for power plants or process heat.

Synthetic methane represents an attractive clean fuel as it enables the use of existing gas infrastructure, avoiding costly capital outlay for transmission and distribution networks.

It is produced through a process called methanation, the focus of the study, which utilises renewable energy, hydrogen and CO₂ to produce a cleaner fuel.

The study included technical analysis of identified Santos' sites with CO₂ and hydrogen availability, process, cost and schedule evaluations, and assessments of risks, opportunities and commercialisation prospects.

CO₂ sources being investigated include single point sources (using post-combustion capture) and absorbed from the atmosphere (through direct air capture). Capture of CO₂ can be enabled by third party direct air capture technology, which Santos is trialling at our Moomba site.

Supply chain collaboration

Scope 3 emissions relate to Santos' indirect emissions from our value chain, including both suppliers and customers.

Working with our customers

The vast majority of these emissions (approximately 99 per cent) relate to the supply of our product to customers, including transportation, processing and customers use of the products we generate.

For this reason, our Scope 3 focus is on working with our customers to reduce the emissions generated from the downstream use of our products.

Santos has committed to work with our customers to seek to reduce their emissions through the supply of clean fuels (including CCS services), enabling them to reduce their Scope 1 and 2 emissions, compared with alternative options.

Over the past 12 months, we have made progress with the development of carbon capture and storage hubs, supporting Santos to reduce our operated emissions, as well as provide carbon management solutions to our customers. We have continued to evaluate direct-air and post-combustion capture technology, with DAC trials to begin in the Cooper Basin in 2023.

Our progress in these areas and ongoing discussions with potential customers of Santos Energy Solutions, gives us greater confidence in the opportunities to both generate value for our customers and shareholders, and reduce Scope 3 emissions. This includes working with customers and partners to investigate and progress opportunities to integrate demand for clean fuels, like hydrogen and ammonia, into our value chain.

The products we generate meet customer demand for critical feedstocks for a wide range of manufactured goods including polymers and fertilisers, and direct heating for households and industries such as steel and aluminium.

Polymers are the building blocks for a myriad everyday products including packaging, and make up more than 60 per cent of the world's clothing fibres.²⁸ In fact, more than half the world's natural gas supply is used in sectors other than power generation.²⁹ These are products that are relied upon heavily in our everyday lives and are necessary to continue to advance living standards in developing countries.

As outlined in our Climate Change Policy, in doing this, Santos is committed to working with our customers to reduce their emissions and to only sell the products we generate to customers from countries that have a Net Zero commitment or are signatories to the Paris Agreement.

²⁸ European Environment Agency (2021), Plastic in textiles: towards a circular economy for synthetic textiles in Europe: <https://www.eea.europa.eu/themes/waste/resource-efficiency/plastic-in-textiles-towards-a>

²⁹ IEA, Global natural gas demand per sector, 2007-2025: <https://www.iea.org/data-and-statistics/charts/global-natural-gas-demand-per-sector-2007-2025>

Efficient capital allocation aligned with our climate transition activities

2022 performance highlights



\$125 million of capital invested in the Climate Transition Action Plan

Santos has a strong balance sheet supportive of disciplined growth and a business model to generate strong shareholder returns through the transition.

Capital will continue to be allocated to fund delivery of climate transition initiatives. In 2022, over \$125 million of capital was spent on CTAP initiatives and including 2022, there is the potential to spend to 2030:

- + \$110 million for the sanctioned Moomba CCS project
- + A cumulative \$460 million for energy efficiency projects
- + Potentially \$2.8 billion to \$4.6 billion for other CCS and clean fuels hubs (depending on final equity interest, customer demand and value accretion) and nature-based offset projects.

In looking to deploy capital to our CTAP activities, Santos will also have regard for our broader prudential obligations, which require us to balance shareholder returns, debt repayment and balance sheet strength, with sustaining our natural gas business to meet ongoing customer demand and safely manage our assets, as well as investing in climate transition activities. It is expected that capital investment in sustaining low emissions-intensity natural gas activities will predominate in the earlier part of the current decade.

Investment in our transition activities will initially focus

on decarbonisation projects, including CCS, laying the foundation to support increased investment in clean fuels projects towards the latter part of this decade.

All material investment decisions, including those within the Climate Transition Action Plan, are required to meet a stringent set of investment hurdles, including economic and commercial criteria commensurate with sector benchmarking, to ensure that Santos' capital allocation provides a return on investment in line with our low-cost, disciplined operating model and our corporate strategy. Carbon market, public policy and regulatory trends inform our carbon and clean fuels pricing assumptions and assumptions relating to generation, procurement and trading of carbon credit units. In addition, investments will be demand and customer driven, with offtake or other commercial marketing arrangements a key factor in investment screening.

Our investment screening and decision-making processes consider the greenhouse gas emissions from all projects and the economic impact that a carbon price would have on our business. Santos has been incorporating greenhouse gas emissions and carbon pricing into our annual and longer-term strategic and financial planning processes for over 10 years. Our current carbon planning price assumption projects a carbon price of \$50 per tonne of CO₂e (nominal) in 2030. The carbon price assumptions are refreshed annually along with other corporate economic assumptions.

Supporting a sustainable and just transition

Over the next 30 years, the energy transition demands a structural shift in the way that the world generates energy, but a just transition also requires attention to energy security and affordability.

Further, the Paris Agreement acknowledges the need to balance the reduction in emissions with “the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities.”³⁰

As we transition to the delivery of lower-carbon energy, Santos recognises that new technologies and alternate approaches will change the way we currently conduct our business. We are committed to ensuring a just transition for our customers, our employees and the communities where we operate and who benefit from our operations.

We believe that our focus on decarbonisation and carbon management services, including CCS have a positive role to play in supporting a pivot from transitional roles in, and community benefits from, our sector to play an ongoing and sustainable part in enabling a just transition.

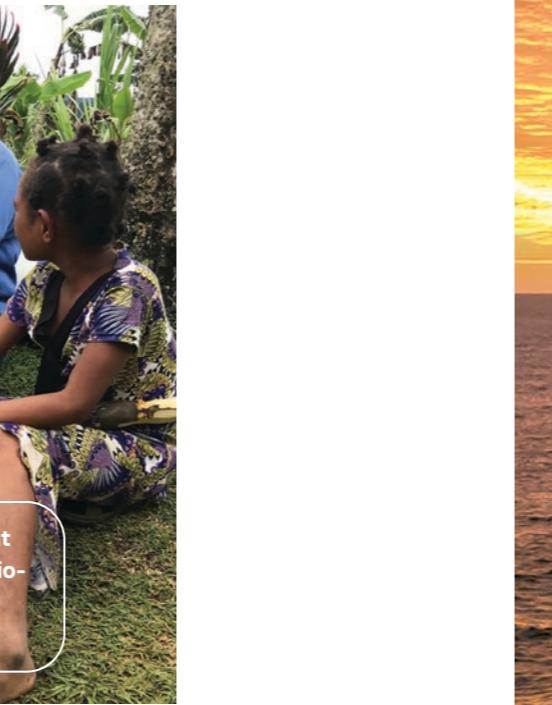
As our business evolves and adapts to change, the effects on assets, people and contribution to local community are key considerations in our strategy and approach. Throughout the energy transition, we are seeking to repurpose infrastructure and facilities wherever possible to support decarbonisation through carbon capture and storage, which will also provide the platform for our clean fuels hubs. In this way Santos is not only extending the potential life of existing infrastructure, but also extending the life of existing jobs and creating new jobs with similar and adjacent skills. This also applies to local business opportunities and our presence in, and contribution to the communities where we operate.

Santos seeks to attract and retain the brightest and best personnel and aims to facilitate the movement and retraining of our employees in circumstances where our business undergoes change. This philosophy provides a solid foundation for ensuring continued opportunity and growth. Our efforts to ensure diversity and equal opportunity in recruitment, ongoing career development, training and a wide range of role opportunities, include consideration of the energy transition.

We continue to engage with employees, employee representative bodies and relevant government bodies at a local level, keeping them informed about our plans and listening to feedback. Working with our employees to build their interest and develop the skills needed to meet the needs of our changing business is a priority. We also engage with the many, and often remote, communities that have

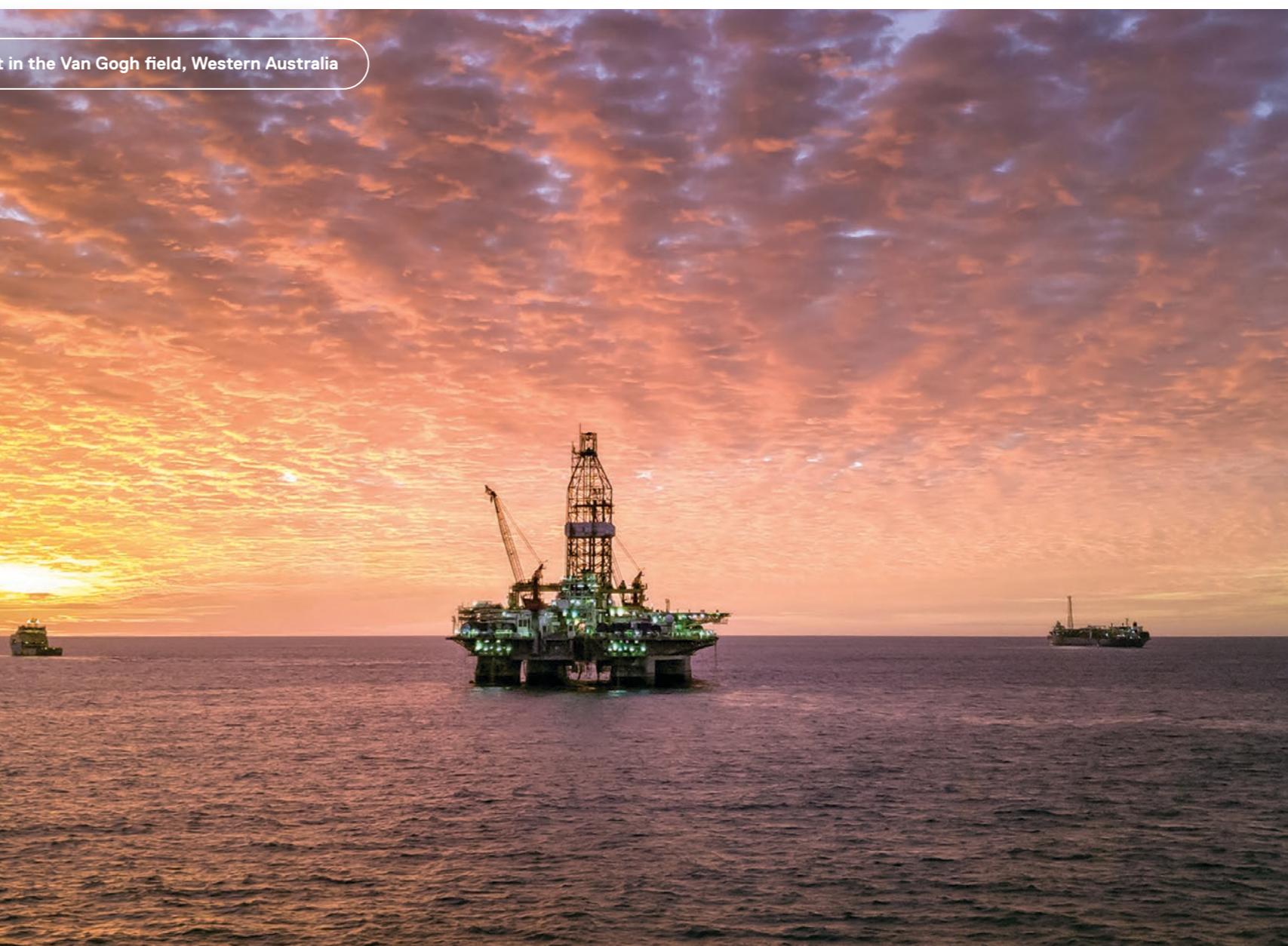
supported our business for more than 65 years and consider their views in our transition planning processes.

We acknowledge that there are situations where we must eventually retire infrastructure. By means of sustainable development plans, we work to ensure communities transition successfully to a post-project environment and that our employees are offered alternative job options or assisted through retraining or other programs, to support their future employability.



Santos Community Development Officer, Molina, conducting a socio-economic survey in Samberigi, Southern Highlands Province

³⁰ Paris Agreement: https://unfccc.int/sites/default/files/english_paris_agreement.pdf



Sunset in the Van Gogh field, Western Australia

Metrics and targets



Santos' emission reduction targets and metrics

Overview of Santos' emissions sources

Santos' emission reduction targets and metrics

Santos recognises the scientific consensus of climate change assessed by the Intergovernmental Panel on Climate Change (IPCC). We support the objective of the Paris Agreement to limit global temperature rise to less than 2 degrees Celsius and pursue efforts to limit the temperature rise to 1.5 degrees Celsius.

In support of this objective, Santos has set a target to achieve net-zero Scope 1 and 2 emissions by 2040, as well as interim milestones. This target is more ambitious than many industry peers and is underpinned by planned projects and associated investment. Our Climate Transition Action Plan sets out the actions that we are taking, and the projected capital investment required, to achieve our 2040 target.

Santos conducts scenario analysis in order to evaluate the resiliency of our strategic plans. Please refer to the [Scenario analysis section](#) of this report for details of the analysis conducted ahead of the 2022 Climate Change Report. There are a range of pathways to achieve global Net Zero goals. For example, the IEA's NZE scenario, a 1.5 degree Celsius scenario, is one of three IEA scenarios outlined in the 2022 World Energy Outlook. The IPCC has developed 90 scenarios with mitigation pathways that are consistent with limiting the temperature rise to 1.5 degrees Celsius.³¹ Santos plans to carry out updated scenario analysis for its 2024 Climate Change Report.



³¹ IPCC (2022), Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. In Global Warming of 1.5°C: IPCC Special Report on Impacts of Global Warming of 1.5°C above Pre-industrial Levels in Context of Strengthening Response to Climate Change, Sustainable Development, and Efforts to Eradicate Poverty (pp. 93-174): <https://doi.org/10.1017/9781009157940.004>

Metrics for Santos' emission reduction targets

Target	Detail	Metric	Status
2025	Target to reduce emissions across the Cooper Basin and Queensland by more than 5%	Target set in 2018. Applies to gross operated emissions from all Cooper Basin and Queensland assets from the delivery of a suite of operational efficiency projects Economically reduce emissions by more than five per cent across operations in the Cooper Basin and Queensland from the 2016-17 fixed baseline of 5,875 kilotonnes of gross operated CO2e by 2025	At least 295,000 tonnes of emissions reduction delivered through Energy Solutions projects by year-end 2024 Completed in 2022. Performance to the end of 2022 saw projects implemented by the Santos Energy Solutions business deliver approximately 300,000 tonnes of CO2e per annum of reduction since 2018 (an over five per cent reduction), with over 30,000 tonnes of CO2e reduction delivered in 2022. Projects executed in 2022 include: + Connection of Gladstone LNG upstream well-head equipment to the grid + Reducing vented methane during well work-overs
	Target to grow liquefied natural gas exports to at least 4.5 million tonnes per annum	Target set in 2018. Applies to the equity share of liquefied natural gas exports from our entire portfolio Grow liquefied natural gas exports to at least 4.5 million tonnes per annum by 2025	Over 4.5 million tonnes per annum of liquefied natural gas exports by year-end 2024 Completed in 2021. Please refer to our 2022 Climate Change Report for further detail on achieving the delivery of this target
	Target to assess/invest in CCS	Target set in 2018. Assess the feasibility and, if feasible, invest in technology and innovation which can deliver a step-change in emissions by 2025	Final investment decisions on Moomba CCS project by year-end 2024 Completed in 2021. Please refer to our 2022 Climate Change Report for further detail on achieving the delivery of this target
2030	Target to reduce Scope 1 and 2 emissions by 30%	Target set in February 2022. Applies to Santos' entire post-Oil Search merger portfolio on an absolute and equity share basis 30 per cent Scope 1 and 2 emissions reduction by 2030 from the combined Santos and Oil Search 2019-20 financial year baseline of 5.9 million tonnes CO2e, adjusted for inclusion of the Bayu-Undan and Darwin LNG assets for the full 2019-20 financial year at 68.4 per cent equity	Portfolio-wide emissions reduction to 4.1 million tonnes of CO2e or less by year-end 2029 With emissions reduction forecast from our Climate Transition Action Plan, Santos is making strong progress towards our 2030 target
	Target to reduce Scope 1 and 2 emissions intensity by 40%	Target set in February 2022. Applies to Santos' entire post-Oil Search merger portfolio on an absolute and equity share basis. Intensity is calculated by dividing Scope 1 and 2 equity share emissions by equity share of production over the same period 40 per cent emissions intensity reduction by 2030 from Santos' 2019-20 financial year baseline of 55,000 tonnes of CO2e/mmboe adjusted for inclusion of the Bayu Undan and Darwin LNG assets for the full 2019-20 financial year at 68.4 per cent equity	Portfolio-wide emissions intensity of 33,000 tonnes of CO2e/mmboe by year-end 2029 With emissions reduction forecast from our Climate Transition Action Plan, Santos is making strong progress towards our 2030 target. Like our emissions, the pathway to our intensity reduction will not be linear, with the natural fluctuations associated with production changes and the reduction impacts of Climate Transition Action Plan emissions reduction activities
2040	Reduce customer Scope 1 and 2 by at least 1.5 MtCO2e pa	Target set in 2022. Santos will actively work with new and existing customers' to reduce their Scope 1 and 2 emissions by at least 1.5 million tonnes per annum by 2030 through the supply of clean fuels	Demonstrable sustained customer displacement of Scope 1 and 2 emissions by at least 1.5 million tonnes per annum by year-end 2029 through the supply of clean fuels to customers Santos is working with third parties to develop clean fuel supply chains to reduce customer Scope 1 and 2 emissions. Opportunities have been identified at each of Santos' three CCS and clean fuels hubs
	Target of net-zero Scope 1 and 2 emissions	Target set in 2021. Net-zero Scope 1 and 2 emissions by 2040	Scope 1 and 2 equity emissions at net-zero (including direct abatement and off-setting) by year-end 2039 With emissions reduction forecast from our Climate Transition Action Plan, Santos is progressing toward our 2040 net-zero emissions target

Overview of Santos' emissions sources

Santos' material categories

Santos operates 48 facilities, 41 of which are in Australia. Santos' operations are conducted under a range of joint venture arrangements and include full value chain activities from exploration to production, processing and transport of products to customers. We report our greenhouse gas emissions in accordance with the global standards established in the Greenhouse Gas Protocol.³² There are three categories of emissions recognised in the Greenhouse Gas Protocol:

Scope 1

How we produce our products and services

Direct emissions from sources that Santos owns or controls, due to fuel combustion, flaring, venting, CO2 removal and fugitive emissions



Company facilities



Purchased electricity



Company vehicles



Purchased goods and services



Leased assets



Waste generated in operations



Transportation and distribution



Fuel and energy related activities

Scope 2

How we power our operations

Indirect emissions from the generation of energy that Santos purchases for our operations including electricity purchased for ancillary activities such as our office buildings

Capital goods

Purchased electricity

Employee commuting

Business travel

Franchises

Scope 3

Everything else upstream/downstream in Santos' value chain, all indirect emissions not included in Scope 2

The vast majority of Scope 3 emissions from Santos' activities are emissions from the Use of Sold Products

Upstream

Inputs that go into Santos' product/service

Use of sold products

Processing of sold products

Transportation and distribution

End-of-life treatment of sold products

Franchises

32 Greenhouse Gas Protocol (2004), A Corporate Accounting and Reporting Standard (Revised Edition): <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

Emissions calculation and reporting

Santos' principal reporting framework for emissions is Australia's comprehensive greenhouse gas reporting scheme, established under the National Greenhouse and Energy Reporting Act 2007 (NGER).

NGER is supported by the National Greenhouse and Energy Reporting (Measurement) Determination 2008 (NGER Determination) which specifies methods for calculating greenhouse gas emissions and energy data. Santos applies NGER methodologies to emissions calculation and disclosure for all operated assets.

Scope 1 and 2 emissions

Under the NGER framework, emissions are reported by Australian entities that have operational control over an emitting asset or facility. The NGER reporting framework covers:

- + Scope 1 and 2 emissions, and energy produced and consumed
- + Greenhouse gases including carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O)
- + Emissions sources including the combustion of fuels for energy and fugitive emissions from the extraction of natural gas.

Santos has been transparently reporting under the NGER framework since its inception in 2008. In addition, our operated Australian Scope 1 and 2 greenhouse gas emissions are independently audited each year.

Santos primarily adopts the default emissions factors prescribed in the NGER Determination to calculate greenhouse gas emissions:

- + Fuel emissions – quantity of fuel is measured, then multiplied by the prescribed emissions factor from the NGER Determination
- + Flare, vent, carbon dioxide removal emissions – quantity of gas flared or vented is measured, then multiplied by the prescribed emissions factor or relevant composition as appropriate under the NGER Determination
- + Fugitive emissions – prescribed emission source (wells, produced water, pipelines, gathering and boosting stations, storage, natural gas processing facilities, offshore platforms, and LNG facilities) multiplied by the prescribed emissions factor under the NGER Determination.

Australia's Safeguard Mechanism

Our Australian assets are subject to the emissions reduction policy under NGER, known as the Safeguard Mechanism, which places a cap (baseline) on emissions from facilities emitting greater than 100,000 tonnes of CO₂ equivalent annually. Under this policy, annual emissions for each facility are compared against the facility's baseline, and responsible entities must purchase and surrender Australian Carbon Credit Units (ACCUs) for any emissions above the baseline for the year. The Safeguard Mechanism does not apply to our international assets.

Ten Santos-operated facilities, comprising approximately 90 per cent of Santos' Australian gross operated emissions, are covered by the Safeguard Mechanism. These facilities are the Darwin LNG Plant, Gladstone LNG Plant, Moomba Gas Plant, Port Bonython Processing Plant, Ningaloo

Vision Floating Production Storage and Offtake Facility, the Fairview, Roma, Ballera and Arcadia Gas Plants, and the Varanus Island Gas Processing Facility. During the 2021-22 year, each of these facilities operated below their designated facility baseline.

Santos operates another 31 Australian facilities that emit only 10 per cent of Santos' Australian gross operated emissions and these facilities each operate below the 100,000 tonnes CO₂e per annum Safeguard Mechanism threshold.

The Australian Government is currently finalising changes to the Safeguard Mechanism. A position paper was released on proposed changes to the Safeguard Mechanism in early January, with the new policy expected to come into place by the middle of this year.

Fugitive emissions

Within the oil and gas industry, the term fugitive emissions refers specifically to minor natural gas losses that occur in operational environments, for example from valves on pipelines, wells or gas plant equipment.

Santos uses the Australian NGER methodology to calculate fugitive emissions across its operated assets. The NGER legislated calculation methodology for fugitive emissions was updated, effective from 1 July 2021, introducing greater delineation of emissions sources. The fugitive calculation methodology broadly moved from higher-level, facility-based emission factors, to component activity based emission factors, with separate emission factors for wells, produced water, pipelines, gathering and boosting stations, storage, natural gas processing facilities, offshore platforms, and LNG facilities.

There are a range of categories by which Scope 3 emissions can be classified under the Greenhouse Gas Protocol.³⁵ These categories cover activities upstream and downstream of Santos' emissions reporting boundaries. As outlined in the [Supply chain collaboration](#) section of this report, approximately 99 per cent of Santos' Scope 3 emissions are from downstream of our value chain, being the transportation, processing and use of the products that we generate.

As a result of these methodology changes fugitive emissions, in the 2021-22 period accounted for around three per cent of gross Scope 1 greenhouse gas emissions, an increase from approximately 1 per cent under prior methodology.

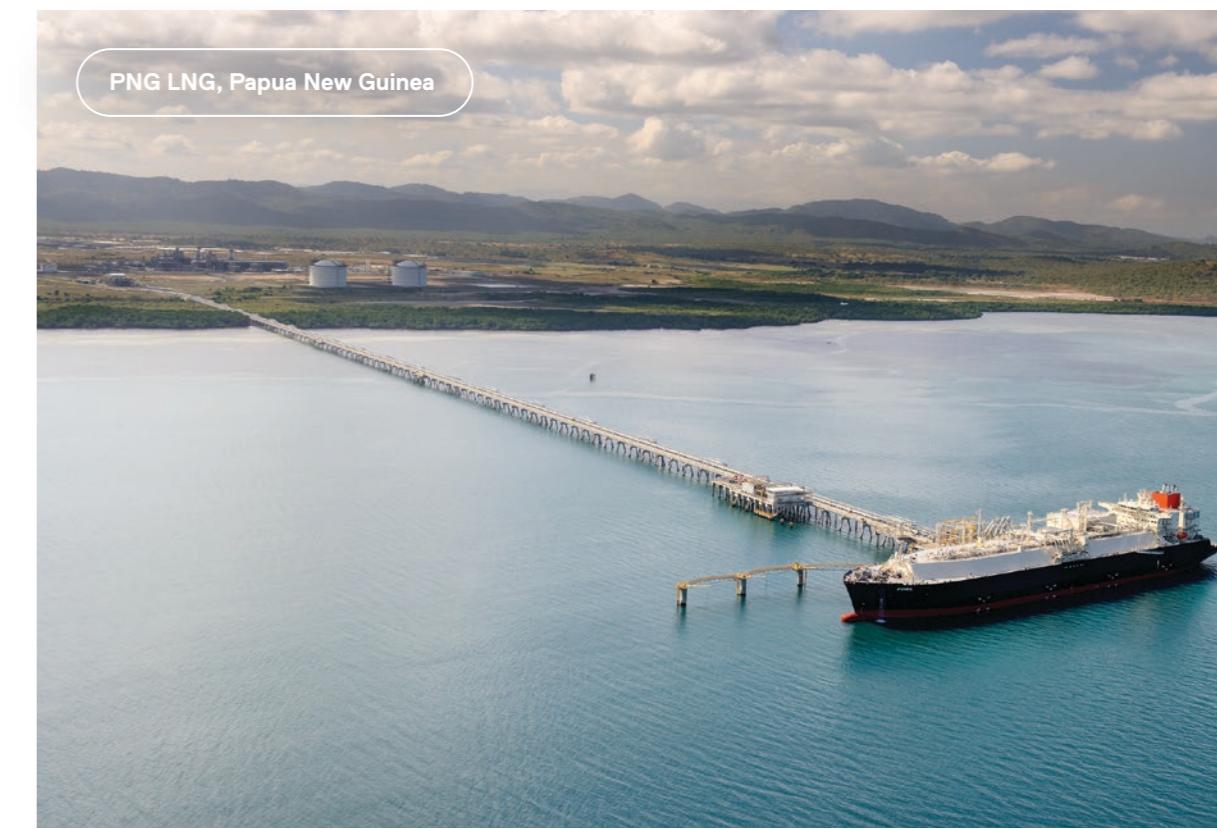
As a proportion of our overall production volume, methane emissions are less than 0.2 per cent. This is comparable with the Oil and Gas Climate Initiative 2025 methane intensity target.³³

More information in relation to our approach to managing fugitive emissions is provided in the [Operational efficiencies](#) section of this report.

Scope 3 emissions

Scope 3 emissions are indirect emissions in Santos' value chain. The Australian NGER emissions measurement and reporting framework does not encompass Scope 3 emissions because they are the Scope 1 and 2 emissions of other entities. However, Santos calculates and discloses our material Scope 3 emissions in observance of the Greenhouse Gas Protocol, Technical Guidance for Calculating Scope 3 Emissions.³⁴

The vast majority of these Scope 3 emissions are from the use of sold products. Therefore, this is the category of Scope 3 emissions that Santos focuses on in our emissions reduction efforts and our Scope 3 emissions reporting. It is assumed that all products sold are used in combustion applications, which results in the most conservative estimate of emissions from the use of these products. We plan to carry out more detailed analysis of our Scope 3 emissions in 2023.



³³ Oil and Gas Climate Initiative, OGCI's 2025 methane intensity target: <https://www.ogci.com/action-and-engagement/reducing-methane-emissions/#methane-target>

³⁴ Greenhouse Gas Protocol (2013), Technical Guidance for Calculating Scope 3 Emissions v1.0 – Supplement to the Corporate Value Chain (Scope 3) Accounting and Reporting Standard: <https://ghgprotocol.org/scope-3-technical-calculation-guidance>

³⁵ Greenhouse Gas Protocol (2004), A Corporate Accounting and Reporting Standard (Revised Edition): <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

Delivering net-zero emissions

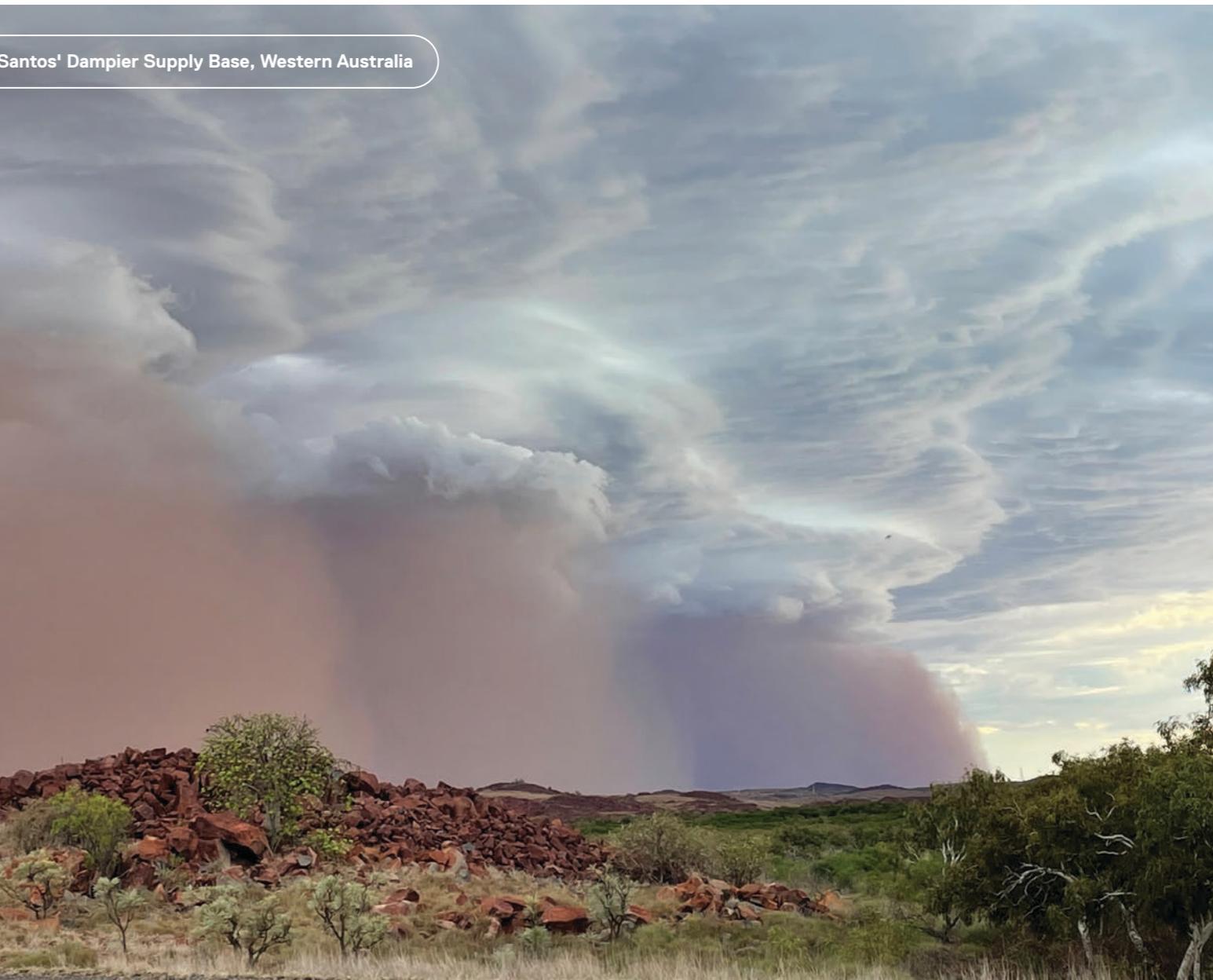
Scope 3 upstream emissions

Santos' commitment to reducing our emissions includes working with our suppliers and reducing our Scope 3 emissions.

Santos is exploring practical, measurable and meaningful tracking of its operated upstream Scope 3 emissions. In 2022 we conducted an analysis of our upstream Scope 3 emissions across all eight upstream categories. The study estimated one per cent of Santos total Scope 3 emissions are from our upstream value chain, predominately from Category 1, Purchased Goods and Services and Category 2, Capital Goods.

Our Scope 3 emissions fall outside of our direct management or ownership, making them difficult to control. They are also hard to assess, due to the complexity in collecting high-quality data on type or volume of emissions.

The outcome of the analysis will help guide corporate procurement decisions including purchasing goods and services with lower greenhouse gas emissions, and because our Scope 3 emissions are often accounted for in our suppliers' emissions too, it presents an opportunity for us to collaborate with them to identify mutually beneficial emissions reduction strategies.



Risk management



Integration of climate risk management

Scenario analysis

Material climate risks



Integration of climate risk management

At Santos, risks are considered and managed with priority across the business while maintaining a focus on the resilience of Santos within the changing climate.

Santos' Risk Management Policy forms part of our Risk Management Framework and sets out the requirements for managing risks at Santos. It is operationalised via a Risk Management Operating Standard, along with procedures and processes that enable the identification, assessment, and treatment of risks relevant to Santos' business activities.

Climate change risk is a specific focus for both the Environment, Health, Safety and Sustainability (EHSS) and Audit and Risk Committees of the Santos Board. Management of climate risk, incorporating both transition and physical risk, is included in our enterprise material risk register, reviewed twice annually by the full Santos Board and more frequently by the Executive Committee.

Materiality of risks is determined in accordance with the Santos Risk Matrix, which is part of our Risk Management Framework. The Risk Matrix supports determination of the level of risk by considering the probability or likelihood of an identified risk against the consequence severity of the risk. Risks are considered across short-term (to 2030), medium-term (2030-2040) and long-term (2050 and beyond) time horizons. Materiality is considered both on an uncontrolled and controlled basis to ensure that extreme risks are visible, even when considered to be effectively controlled.

Santos maintains a Risk Appetite Statement which makes sure that climate change developments and risk is considered in decision making processes and within the approved limits. This ensures that risks are considered in our activities and strategy.



Scenario analysis

Santos' scenario analysis supporting the 2022 Climate Change Report indicates that our combination of high-quality, long-life, low-cost natural gas assets, carbon capture and storage capacity and capability, and prospective clean fuels opportunities, position us well to deliver ongoing value for shareholders across a wide range of potential macro-economic environments.

In Santos' 2022 Climate Change Report we detailed scenario analysis which modelled our portfolio of assets in a range of macro-economic circumstances, including our benchmark portfolio case, the IEA 2021 World Energy Outlook Stated Policies scenario (STEPS) and three scenarios demonstrating possible paths towards an accelerated transition, including two scenarios aimed at limiting temperature rise to 1.5 degrees Celsius and achieving Net Zero by 2050:

- + The IEA 2021 World Energy Outlook Sustainable Development scenario (SDS)
- + The IEA Net Zero by 2050 scenario (NZE)
- + The IHS Markit 2021 Accelerated CCS scenario (ACCS).

In all scenarios modelled, Santos achieves our 2030 emissions reduction targets and net-zero 2040 target.

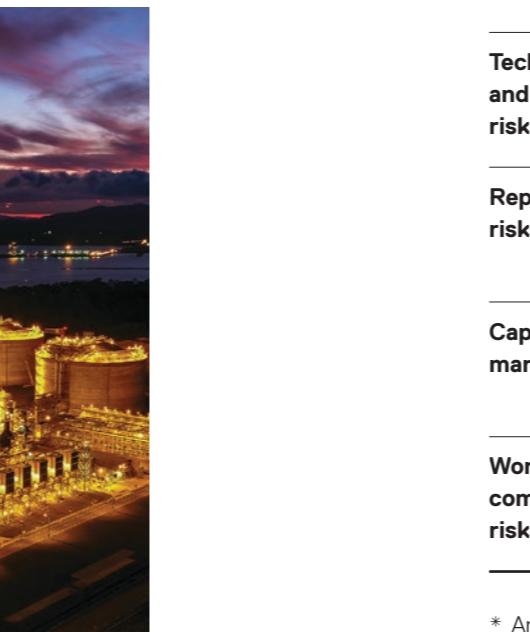
This scenario analysis demonstrated that Santos is likely to be resilient through the energy transition with potential for significantly higher value outcomes compared, to the benchmark portfolio case:

- + In a scenario like the IEA STEPS which is based on 2021 climate change policy setting and announcements, where Brent oil and LNG prices remain strong, Santos could continue to maximise value from our base business and build around existing infrastructure by developing natural gas projects for backfill. Oil and gas would continue to be in demand after 2050 and have the potential to deliver significant value, being more than 35 per cent value-accretive relative to the benchmark portfolio case
- + In accelerated energy transition scenarios, Santos' CCS and clean fuels portfolio opportunities have the potential to unlock new value. The value of the benchmark portfolio remains cash generative in these scenarios, supporting the funding of CCS and clean fuels projects:
 - + In the IEA SDS, Santos would balance both delivery of the current portfolio with CCS and clean fuels opportunities, leveraging higher carbon prices to offset lower assumed Brent oil and LNG prices. In such macro-economic conditions, Santos' strength is in the combination of natural gas, CCS, and clean fuels development
 - + In both 1.5 degrees Celsius scenarios (NZE and ACCS), carbon becomes the commodity of focus, with nominal prices above \$300/t by 2040, underpinning an expansion of the benchmark portfolio to pursuing value-accretive CCS and clean fuels opportunities. Santos will continue to monitor and participate in the development of emissions reduction technologies and commodity markets, including demand for hydrogen

both domestically and in our export markets. In the 1.5 degrees scenarios the Santos valuation remains strong, ranging from 10 per cent below to value-neutral with the benchmark portfolio case.

Please refer to our [2022 Climate Change Report](#) for full detail of the scenario analysis, including limitations on analysis and risks and opportunities identified in the analysis.

Due to the carbon policy uncertainty in Australia described in the 'Australia's Safeguard Mechanism' section, Santos has not updated our scenario analysis this year. Santos plans to carry out updated scenario analysis for our 2024 Climate Change Report.



Material climate risks

Climate transition risks

Santos believes that we are well placed to tackle the challenges and identify and leverage the opportunities arising from the transition to a lower-carbon economy. We are positioned for resilience as a strong and agile business because of our robust strategy, governance and commitment to the delivery of our targets.

Risk type	Climate-related risks and potential impacts	Key time horizon	Control category*
Policy risks	Carbon pricing policies, including a carbon tax, emissions trading scheme or any other regulatory carbon pricing mechanism may increase operating costs or impact the international competitiveness of Santos projects, where carbon pricing is not policy in competitor countries.	Short	<ul style="list-style-type: none"> + Strategic and commercial + Low-cost base indirect + Advocacy
Legal risks	Litigation against governments and companies for compensation for climate change impacts may adversely affect Santos' reputation, development or operating costs.	Short-medium	<ul style="list-style-type: none"> + Strategic and commercial + Advocacy + Legal risk framework to capture current litigation trends and regulatory updates
Technology and market risks	Innovation in oil and gas could occur at a slower pace than coal, while technological breakthroughs could allow coal to significantly decrease emissions or manage intermittency issues of renewables. Natural gas and/or hydrogen could be displaced by more rapid advances in other low-emissions energy technologies.	Short-medium	<ul style="list-style-type: none"> + Technology + Low-cost base + Access to domestic and export markets
Reputational risks	Increased public and consumer activism on climate change and alternate views about the role of natural gas in supporting a lower-carbon future present a risk to Santos' reputation, with the potential to impact project approvals and license to operate.	Short	<ul style="list-style-type: none"> + Strategic and commercial + Advocacy
Capital market risks	Reduced access to capital markets potentially limiting the ability to fund future growth projects and increase the cost of capital. Increased cost and reduced access to risk transfer via insurance markets.	Short-medium	<ul style="list-style-type: none"> + Financial
Workforce and community risks	Projects not advancing and workforce reduction, reduction of decent work and quality jobs, and no community renewal.	Short-medium	<ul style="list-style-type: none"> + Strategic and commercial + Advocacy

* An overview of the key controls is provided in the [Managing material climate risks](#) section of this report.

Physical climate risks

In Santos' 2022 Climate Change Report we outlined the assessment of physical climate scenarios for the short to medium-term (2030 and beyond) and long-term (2050 and beyond) horizons undertaken for our 2021 portfolio of assets.

This remains current and is outlined on pages 45 - 48 of our [2022 Climate Change Report](#).

In 2022 Santos partnered with Deloitte to undertake a supplementary physical climate risk assessment of the offshore Papua New Guinea and Alaskan operated assets brought into our portfolio through the late 2021 merger with Oil Search. This assessment used current global climate models with a range of climate scenarios across the three future time horizons. As a result of this assessment, the projected physical climate exposure has been determined for Santos' onshore and offshore operated areas in two future states:

- + All current emissions targets and pledges and/or the Paris Agreement are met in 2030
- + 'No climate action' by 2050. The 'no climate action' case was included to understand how detrimental ramifications could be if no mitigation action occurs.



Managing material climate risks

Santos has a range of controls in place to prevent and mitigate identified climate risks. An overview of the key controls relevant for the management of our identified climate transition and physical climate risks is provided in the following table.

Prevention and mitigation of climate risks overview

Control category	Outline of controls employed to prevent and mitigate identified risks
Strategic and commercial	Modelling of scenarios and inclusion of carbon prices in key planning and decision-making processes. Carbon prices are included in planning assessments of all assets and projects.
Access to domestic and export markets	Santos continues to monitor carbon and energy policies in Australia and export markets including Japan, Korea and China. These markets are highly supportive of natural gas, due to both lower greenhouse gas emissions than coal and air quality benefits.
Operational and project risk management	Robust risk management practices are embedded across Santos' operations under our portfolio-wide Risk Management Framework and controls are tested through our assurance activities at all levels.
Advocacy	Through direct engagement with policy makers and industry associations, Santos advocates for environmentally, socially and economically effective and responsible energy and carbon policies. Santos is proactive in supporting awareness of the availability, responsible extraction, demand for and advantages of natural gas, CCS and clean fuels such as hydrogen to achieve a lower-carbon future in Australia and our region.
Technology	Investment in CCS, new low-emissions technology trials such as for direct air capture, energy efficiency and increased use of renewables in our operations are key examples of how we apply, leverage and identify technologies to manage our risks and support the implementation of our strategy, plans and targets.
Low-cost base	In recent years, Santos has been able to significantly reduce costs of development and production of natural gas under our disciplined, low-cost operating model.
Access to infrastructure and storage	Santos has access to significant storage facilities due to our acreage and infrastructure position, enabling us to minimise disruption to customers in the event of physical events which may impact operations.
Crisis and incident planning and training	Santos includes climate-related physical risks, such as flooding and other extreme weather events in our crisis and incident framework, planning and training.

Case Study

Papua New Guinea and Alaska physical risk assessment

In 2022 Santos partnered with Deloitte to conduct a physical climate risk assessment across our new assets in Papua New Guinea and Alaska following the merger with Oil Search. The purpose was to supplement previous risk assessment based on global climate models from the Intergovernmental Panel on Climate Change (IPCC).

This assessment referenced three IPCC future climate scenarios with global warming impacts by 2100:

- + Limited climate action (over 4 degrees Celsius increase)
- + Current policies and targets (2 – 3 degrees Celsius increase)
- + Aggressive climate action (~1.7 degrees Celsius increase).

The climate risk assessment focused on four physical risk themes:

- + Extreme heat
- + Extreme wet
- + Extreme dry
- + Sea level rise.

The assessment provided a description of potential impacts to both people and operating assets over a range of time horizons. The Alaska and Papua New Guinea assessment is set out in the following diagrams.

Alaska

The assessment demonstrated gradual and sustained increases in temperature in the Arctic region.

Rising temperatures will cause degradation and retreat of the permafrost and sea ice, potentially damaging transport and other critical infrastructure through surface sink.



There was limited change in extreme wet events and the impact is considered low, as expected, as the North Slope currently only experience relative low rainfall.

Region	Current Exposure	RCP2.6 projected change in temperature (°C)			RCP4.5 projected change in temperature (°C)			RCP8.5 projected change in temperature (°C)		
		2030	2050	2070	2030	2050	2070	2030	2050	2070
Pikka Phase 1	22°C	0.9	1.4	1.4	1.0	1.4	2.2	0.9	2.3	3.5

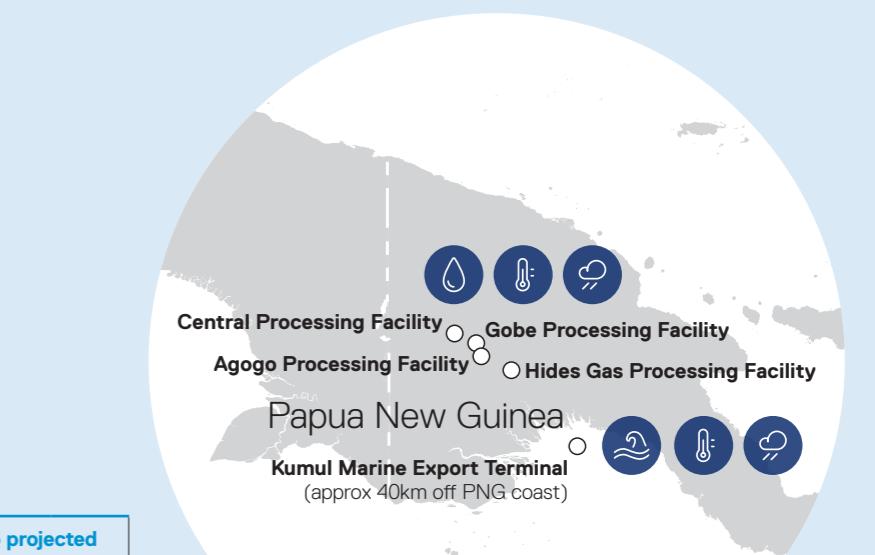


Papua New Guinea

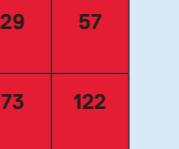
The assessment demonstrated the most significant potential impact to Santos' physical assets was extreme heat, considering the existing high level of humidity across Papua New Guinea.

Results are presented as additional exposure duration from current exposure levels, as shown in the Extreme heat matrix. The key consideration from this assessment is worker health and safety from exposure to higher heat loads.

The assessment also showed some increase levels of extreme wet, in both frequency and intensity, however the impact is not expected to be as material as temperature.



Asset	Current exposure	RCP2.6 projected additional days over 30°C per year			RCP4.5 projected additional days over 30°C per year			RCP8.5 projected additional days over 30°C per year		
		2030	2050	2070	2030	2050	2070	2030	2050	2070
Agogo Processing Facility	37 days over 30°C	15	24	27	16	34	49	18	50	90
Central Processing Facility	37 days over 30°C	15	24	27	16	34	49	18	50	90
Gobe Processing Facility	37 days over 30°C	15	24	27	16	34	49	18	50	90
Hides Gas Processing Facility	24 days over 30°C	8	13	15	9	19	28	10	29	57
Kumul Marine Export Terminal	56 days over 30°C	23	37	43	24	49	72	26	73	122



Most significant impact to assets is extreme heat

Governance



Climate oversight,
skills and experience

Executive remuneration

Climate advocacy

Disclosure frameworks



Climate oversight, skills and experience

The Board has established the Environment, Health, Safety and Sustainability Committee (EHSS Committee) to support the Board in overseeing [Santos' Climate Change Policy](#), climate-related targets and performance.

The EHSS Committee Charter is available on Santos' website at [Santos.com](#) and further details about the Board and its Committees are outlined in Santos' 2022 Corporate Governance Statement.

Climate change, management of emissions and performance toward targets are standing agenda items for the EHSS Committee which met four times in 2022.

The EHSS Committee is chaired by Peter Hearl, with other members being Chief Executive Officer Kevin Gallagher and non-executive Directors Vanessa Guthrie, Janine McArdle and Eileen Doyle. Janine McArdle is also a member of the Audit and Risk Committee. Peter Hearl and Vanessa Guthrie are also members of the People, Remuneration and Culture Committee. Committee cross memberships support sound consideration and communication of climate issues with all three Committees having specific climate-related responsibilities.

In 2022 a new tool was introduced for assessing Board competencies which included an assessment of Board experience in climate change and emissions oversight, emerging climate trends, decarbonisation, carbon credits and carbon trading, and clean energy. The current Board

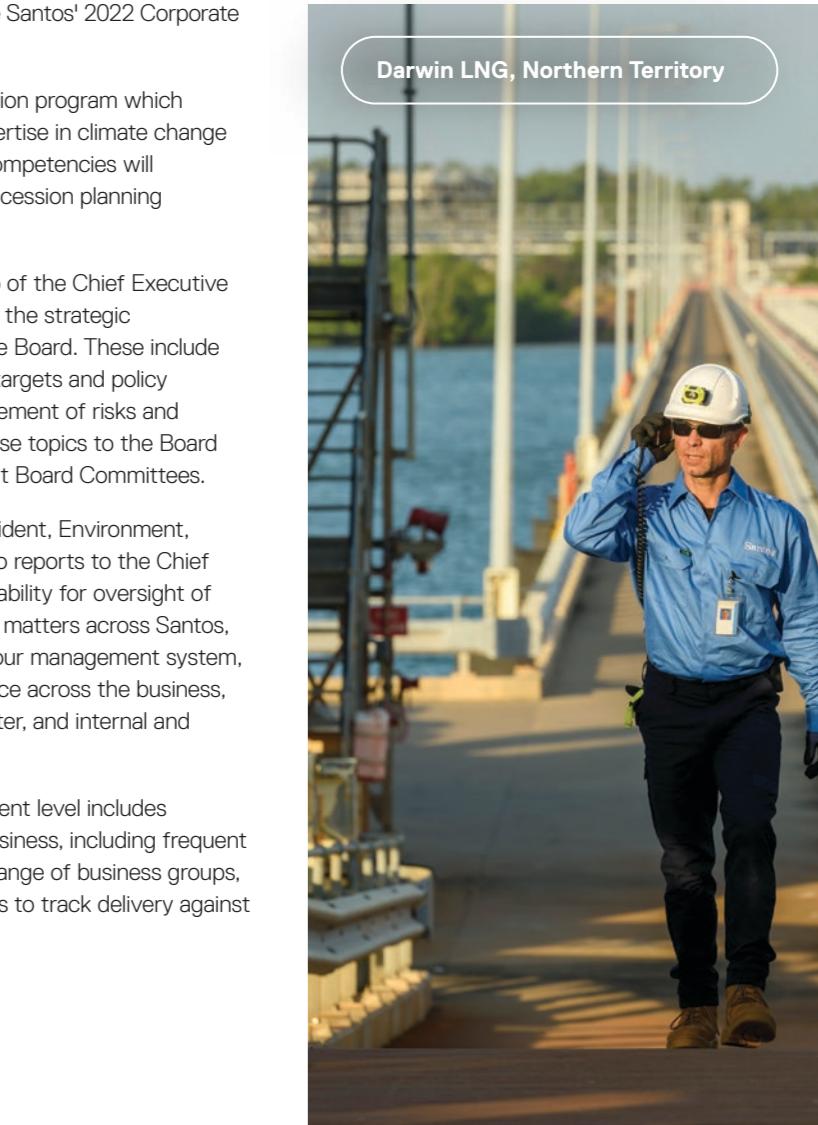
competency matrix is set out in the Santos' 2022 Corporate Governance Statement.

The Board has a continuing education program which includes a focus on enhancing expertise in climate change and energy transition, and these competencies will be considered as part of Board succession planning going forwards.

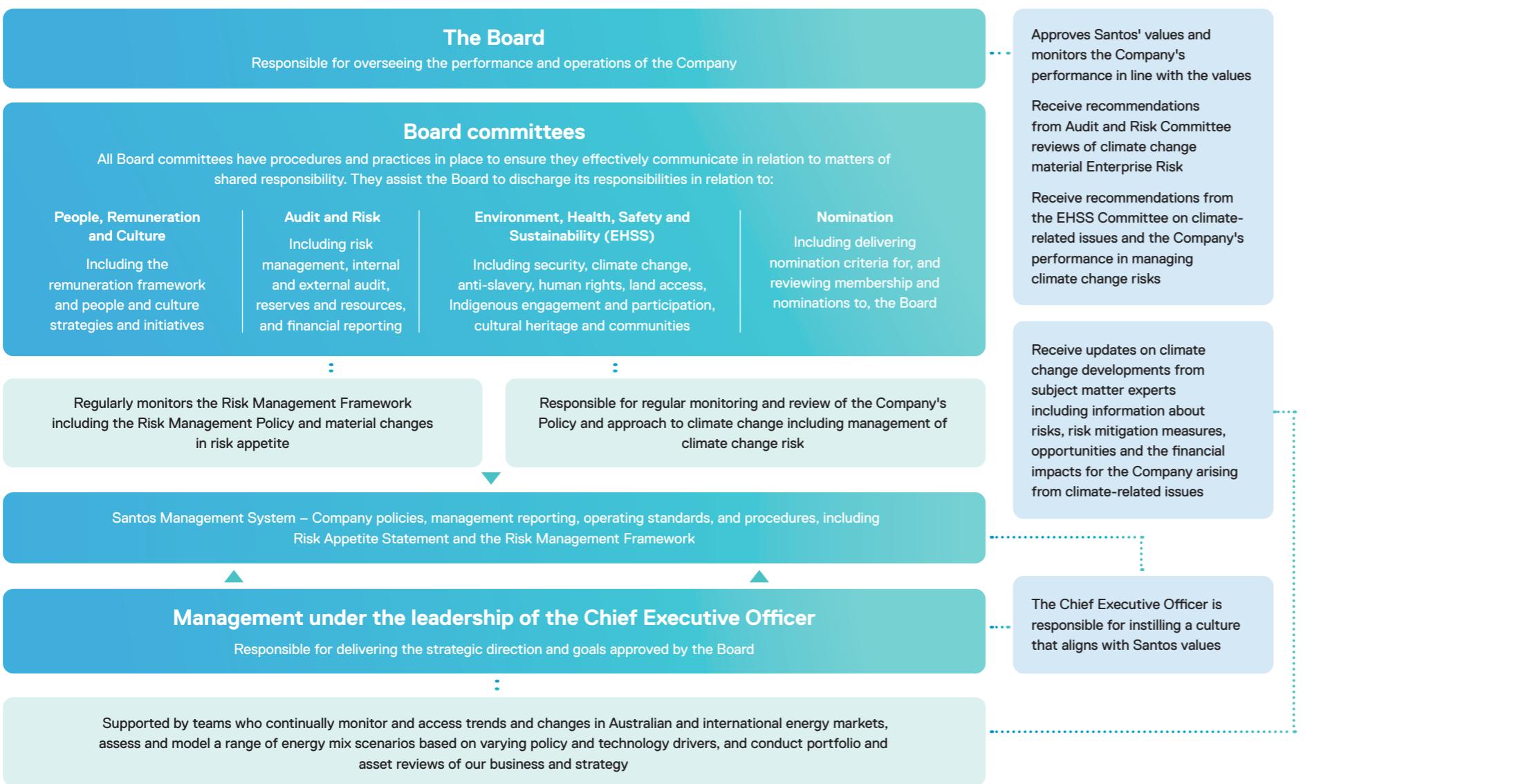
Management, under the leadership of the Chief Executive Officer, is responsible for delivering the strategic direction and goals approved by the Board. These include implementation of climate-related targets and policy positions, identification and management of risks and opportunities, and reporting on these topics to the Board directly and/or through the relevant Board Committees.

Santos has an Executive Vice President, Environment, Sustainability and Governance, who reports to the Chief Executive Officer and has accountability for oversight of climate targets and climate-related matters across Santos, including setting standards within our management system, monitoring and auditing performance across the business, maintaining an enterprise risk register, and internal and external reporting.

Santos' governance at a management level includes formalised processes within the business, including frequent steering group meetings across a range of business groups, and Executive Committee meetings to track delivery against plans and targets.



Santos' governance of climate-related risks and opportunities



Executive remuneration

The People, Remuneration and Culture Committee oversees and formulates recommendations to the Board on remuneration policies and practices of the Company including determining and approving remuneration packages for the senior leadership team and key management personnel.³⁶

Santos' remuneration policy is to develop and maintain an effective remuneration framework which supports and reinforces the ongoing successful execution of our business strategy and the delivery of our vision and purpose. These policy objectives include:

- + Attracting, motivating and retaining talented and qualified executives
- + Focusing executives to deliver superior performance
- + Align executive and shareholder interests.

Since 2019 the Board has included measures in the executives' short term incentives for emissions reductions as well as the advancement of carbon capture and storage projects. This inclusion strengthens the link between outcomes of pay for performance and the effective implementation of our [Climate Change Policy](#).

In 2020, the Board agreed to a weighting of five per cent for climate measures in the sustainability key performance indicator (KPI), related to reducing the Company's emissions from operated assets. Later that year Santos also announced revised targets in pursuit of accelerated emissions reduction over a shortened time, releasing detailed 2030 and 2040 targets, including achieving net-zero Scope 1 and 2 emissions by 2040.

In 2021, a low carbon growth projects KPI was added to the scorecard for 7.5 per cent. In 2022, the Board further strengthened the link between executive remuneration and climate by allocating an additional weighting of 2.5 per cent of the short-term incentive in the growth KPI. A total of 15 per cent of an executive's STI are weighted directly to climate measures. These key performance indicators relate to the achievement of Santos' target of net-zero emissions by 2040. Reward of these measures required

a reduction in emissions intensity from operated assets

and the delivery of initiatives critical to our ambition to drive sustainable shareholder returns in a lower carbon future.

- + CCS operational targets
- + Progress towards net-zero Scope 1 and 2 operational emissions
- + New energy business development which supports energy transition
- + Achieve significant progress on a commercial scale hydrogen or downstream clean fuels project.

Delivery of these KPIs will reinforce the link between climate change and executive remuneration. The award consists of milestones and initiatives that are required to be achieved over the period of the award, the five years to 31 December 2025.

Senior executive outcomes

The 2022 Company Scorecard for each of the four measures (KPIs) can be found in the 2022 Remuneration Report on pages 44-47 of the [2022 Annual Report](#). The sustainability and growth KPIs both feature climate change aligned targets.

The Chief Executive Officer's realised remuneration can be found in Table 6, and statutory remuneration can be found in Table 9 of Santos' [2022 Annual Report](#). Santos has committed to hold our senior executives to account through a direct linkage to our climate based KPIs and their variable remuneration.

³⁶ Key management personnel are the personnel who have authority and responsibility for planning, directing and controlling the activities of the Company's major financial, commercial and operating divisions. Key management personnel are defined as per AASB 124

Climate advocacy

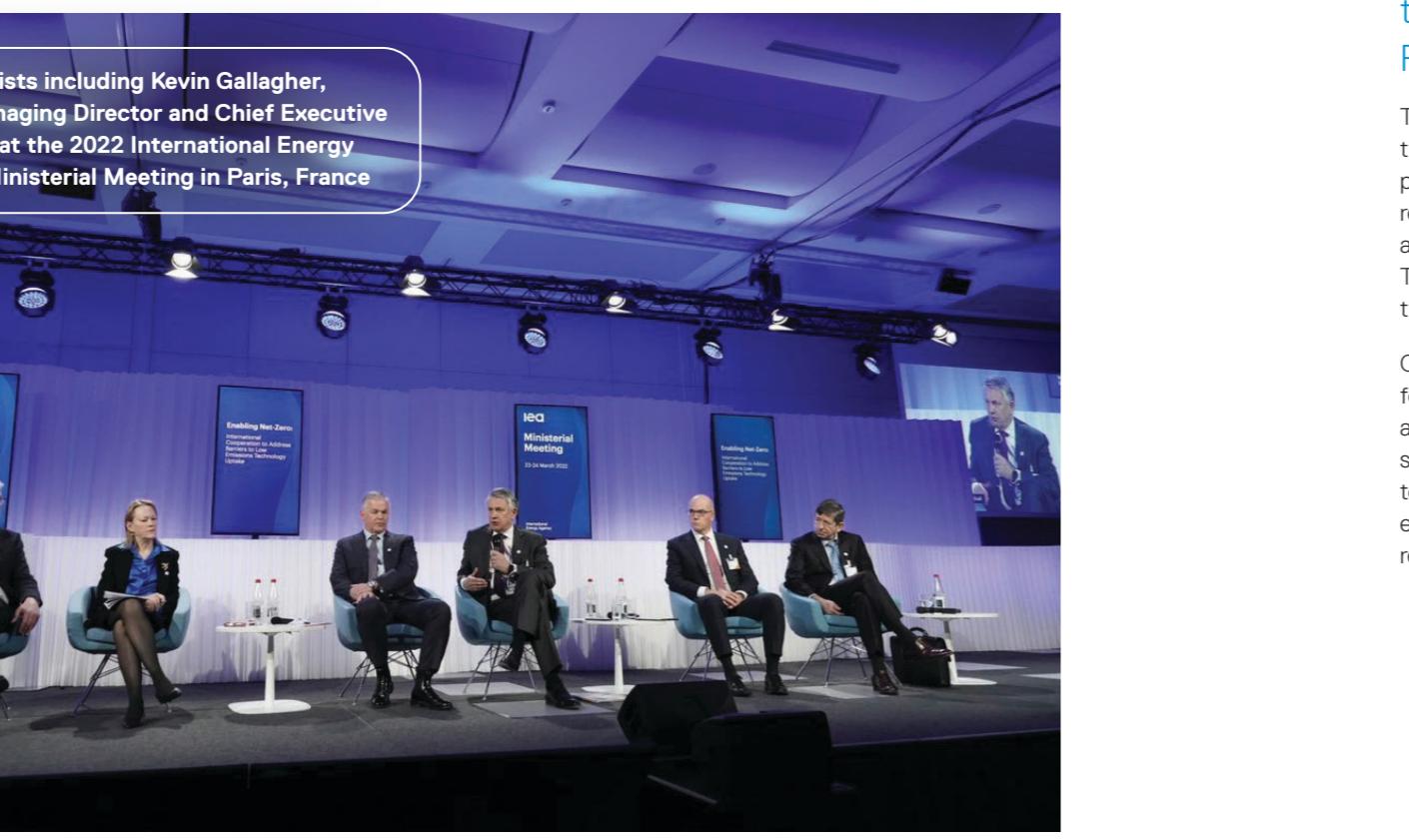
Through direct engagement with policy makers and also through our industry association memberships, Santos advocates for environmentally, socially and economically effective and responsible energy and carbon policies.

Santos is proactive in supporting awareness of the availability, responsible extraction, demand for, and advantages of natural gas, carbon capture and storage, and clean fuels such as hydrogen to achieve a lower-carbon future.

Pursuant to our [Climate Change Policy](#), Santos actively works with governments and stakeholders in the design of climate change regulation. We do this in pursuit of decarbonisation goals consistent with the Paris Agreement, striving for a policy and regulatory framework that supports lowest-cost abatement, innovation and investment in low-emissions technologies, while continuing to ensure access to reliable and affordable energy in Australia and Asia.

Santos has continual discussions with State and Federal Governments regarding emissions policy, and proactively advocates for emissions reduction solutions. Santos has a strong presence on climate policy and consultation with government and has made submissions; Safeguard Mechanism, Chubb Review and Climate Change Authority's Review of International Offsets.

In addition to direct engagement with governments, customers and other stakeholders, Santos is an active participant in a range of industry associations. Santos' membership of these associations enables valuable participation in industry forums to share best practice, develop standards and influence policy development. Santos may not always agree with the positions taken by associations of which it is a member.



Since 2020, Santos has undertaken yearly reviews of the climate policy positions of the industry associations of which we are a member, focused on alignment of our climate-related policy positions with those associations. These reviews and additional information in relation to climate advocacy are available on our website at [Santos.com](#).

Disclosure frameworks

Santos has a policy position to report annually on our climate change governance, strategy, risk management, and metrics and targets in a transparent manner, aligned with recommendations of the Task Force on Climate-related Financial Disclosures.

This is Santos' sixth Climate Change Report referencing these disclosure recommendations. Ernst & Young has provided assurance of disclosures in relation to the TCFD recommendations presented in this report, including the assumptions and approach supporting the scenario analysis. The Assurance Statement can be found on page 75 of this report.

Climate Action 100+ includes Santos as a focus company for its annual Benchmark assessment. In 2022 Santos' assessment demonstrated leading performance in our sector, with full alignment on Indicators 5, 7 and 10 relating to our decarbonisation strategy, climate-related policy engagement and reporting, in alignment with the TCFD recommendation. Santos engages proactively with Climate

Action 100+ representatives, including the Transition Pathway Initiative. We strive for continuous improvement in our climate-related disclosures and aim to work constructively with Climate Action 100+ to also continuously improve the transparency and insight provided by the Benchmark.

Santos has also sought to engage with the Science Based Targets Initiative on the development of reporting, accounting and target-setting frameworks for the oil and gas sector. The Science Based Targets Initiative has not published sector guidance for the oil and gas sector, meaning it is unable to validate targets for companies in our sector at the current time.

Santos undertakes sustainability reporting which addresses our approach to broader sustainability and ESG matters including health and safety, environmental management, Indigenous partnerships, community and supply chain, and diversity and inclusion. The [2022 Sustainability Report](#) was prepared in accordance with the Global Reporting Initiative 2016 (Core) option and includes reference to relevant UN Sustainable Development Goals.



Appendices



[Appendix 1 - Greenhouse gas emissions data](#)

[Appendix 2 - Definitions and abbreviations](#)

[Appendix 3 - TCFD recommendations reference guide](#)

[Appendix 4 - Independent Limited Assurance Report](#)



Appendix 1 - Greenhouse gas emissions data

Scope 1, 2 and 3 emissions

	Units	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Scope 1 emissions							
Gross operated emissions	MtCO2e	5.82	5.49	5.83	7.74	7.97	7.98
Equity share emissions	MtCO2e	3.79	3.57	3.65	3.85	4.86	4.75
Equity share intensity	ktCO2e/mmboe	63	62	54	50	50	49
Scope 2 emissions (Purchased electricity)							
Gross operated emissions	MtCO2e	0.31	0.39	0.53	0.57	0.61	0.61
Equity share emissions	MtCO2e	0.13	0.16	0.20	0.22	0.22	0.22
Scope 1 and 2 emissions							
Equity share emissions	MtCO2e	3.92	3.73	3.85	5.04	5.08	4.97
Equity share intensity	ktCO2e/mmboe	65	64	57	55	52	52
Scope 3 emissions (Use of sold products)							
Equity share emissions	MtCO2e	19.2	18.4	21.6	24.3	30.3	30.0

Equity share emissions by operated and non-operated status and location

	Units	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Operated and non-operated emissions (equity share)							
Scope 1							
Total operated	MtCO2e				4.46	3.99	
Total non-operated	MtCO2e				0.40	0.76	
Scope 2							
Australia operated	MtCO2e				0.17	0.17	
Australia non-operated	MtCO2e				0.05	0.06	
Scope 3							
Australia operated	MtCO2e				22.7	18.0	
Australia non-operated	MtCO2e				2.6	2.6	
Emissions by location (equity share)							
Scope 1							
Australia	MtCO2e				4.26	3.79	
Timor-Leste	MtCO2e				0.31	0.19	
PNG	MtCO2e				0.29	0.77	
Scope 2							
Australia	MtCO2e				0.22	0.22	
Scope 3							
Australia	MtCO2e				25.4	20.6	
Timor-Leste	MtCO2e				1.0	0.4	
PNG	MtCO2e				3.9	9.0	

Scope 1 gross operated emissions in detail

	Units	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Further details of Scope 1 emissions (gross operated)							
Scope 1 emissions by greenhouse gas component							
Emissions of CO2	MtCO2e	5.09	4.99	5.35	7.29	7.53	7.31
Emissions of CH4	MtCO2e	0.72	0.49	0.47	0.44	0.44	0.67
Emissions of N2O	MtCO2e	0.01	0.01	0.01	0.01	0.01	0.01
Scope 1 emissions by source							
Emissions from Fuel	MtCO2e	3.19	3.18	3.37	4.64	4.80	4.76
Emissions from Flare	MtCO2e	0.25	0.18	0.29	0.45	0.38	0.58
Emissions from Vent	MtCO2e	0.31	0.24	0.15	0.13	0.07	0.11
Emissions from CO2 Removal	MtCO2e	2.03	1.85	1.98	2.45	2.66	2.29
Emissions from Fugitives	MtCO2e	0.04	0.04	0.04	0.06	0.08	0.24

Notes:

- Greenhouse gas emissions are reported on an Australian financial year basis in accordance with the National Greenhouse and Energy Reporting Act 2007.
- Scope 1 and 2 emissions for Australian operated assets are independently audited each year.
- Scope 1 emissions occur from sources controlled by Santos, for example emissions from fuel, flare and vent.
- Scope 2 emissions are indirect, mainly electricity consumption. Assets in PNG and Timor-Leste generate their own electricity and heat and therefore produce Scope 2 emissions of less than 0.01 MtCO2e and are not included in the data tables.
- Scope 3 emissions represent indirect emissions when our products are combusted by our customers to produce energy.
- Scope 1 and 2 emissions are rounded to two decimal places, Scope 3 emissions are rounded to one decimal place, and intensity is rounded to the nearest whole number. The sum of individual rows in the table may not equal the aggregated totals due to rounding.
- The merger between Santos Limited and Oil Search Limited took place on 10 December 2021. Emissions from the former Oil Search assets are included from that date.
- The 2019-20 combined Scope 1 and 2 emissions and intensity of 5.04 MtCO2e and 55 ktCO2e/mmbce respectively are grossed up for post ConocoPhillips acquisition equity in acquired assets for that full year, as per representation in the 2021 Climate Change Report.
- Non-operated emissions data is based on information provided by the respective operator.

Appendix 2 - Definitions and abbreviations

absolute	When used in reference to emissions reduction targets, means reduction against the total emissions at the relevant point in time, rather than a relative or comparative amount	CO2e	Carbon dioxide equivalent, being a measure of greenhouse gases (e.g. carbon dioxide, methane, nitrous oxide) with equivalent potential impact on global warming as carbon dioxide	liquid hydrocarbons (liquids)	A sales product in liquid form; for example, condensate and LPG	sustainable / sustainably	At Santos, sustainability is about striving to ensure safe operations, minimising environmental harm and greenhouse gas emissions, and creating long term value for our stakeholders including our customers, community, employees, partners and shareholders; balancing the needs of today without undermining the ability to meet the demands of tomorrow
ACCS	The IHS Markit Accelerated Carbon Capture and Storage scenario	critical fuels	Oil and natural gas, being hydrocarbon fuels that supply around 80 per cent of the world's primary energy supply. Hydrocarbon fuels are critical to meet current and forecast energy demand and to the manufacturing of everyday products	LNG	Liquefied natural gas. Natural gas that has been liquefied by refrigeration to store or transport it. Generally, LNG comprises mainly methane	t	Tonne
ACCU	Australian Carbon Credit Unit. Each ACCU issued represents one tonne of carbon dioxide equivalent (tCO2e)	CSIRO	Commonwealth Scientific and Industrial Research Organisation	mmboe	Million barrels of oil equivalent	target	When referenced in the context of Santos, an outcome sought that Santos has identified a pathway, or pathways, toward delivery, subject to conditions and assumptions
AGM	Annual General Meeting	CTAP	Climate Transition Action Plan	MtCO2e	Million tonnes of carbon dioxide equivalent	TCFD	Task Force on Climate-related Financial Disclosures
barrel (bbl)	The standard unit of measurement for all oil and condensate production: one barrel equals 159 litres or 35 imperial gallons	DAC	Direct air capture	Mtpa	Million tonnes per annum	the Company	Santos Limited and all its subsidiaries
biodiversity	The measure of diversity of plants, animals and micro-organisms on earth; it refers to genetic variations between members of the same species, which are essential to their ongoing survival, as well as the assemblage of ecosystems	decarbonise	The process of avoiding, reducing or offsetting anthropogenic greenhouse gas emissions through operational activities or efficiencies, technology deployment, use of generated or acquired carbon credit units, and/or other means	Net Zero	In relation to greenhouse gas emissions, is achieved when anthropogenic emissions of greenhouse gases are balanced by anthropogenic removal of greenhouse gases through means such as operational activities or efficiencies, technology (e.g. CCS), offset through the use of carbon credit units, or other means	TJ	Terajoule (1 trillion joules)
boe	Barrels of oil equivalent	EHSS	Environment, Health, Safety and Sustainability	net-zero emissions	Net Zero Scope 1 and Scope 2 greenhouse gas emissions; when referring to Santos, meaning net-zero equity share of these emissions		
carbon capture and storage (CCS)	A process in which greenhouse gases, including carbon dioxide, methane and nitrous oxide, from industrial and energy-related sources, are separated (captured), conditioned, compressed, transported and injected into a geological formation, that provides safe and permanent storage deep underground	emissions	Greenhouse gas emissions, unless otherwise specified	net-zero Scope 1 and 2 emissions	Santos' equity share of Net Zero Scope 1 and 2 greenhouse gas emissions		
clean fuels	Fuels which have the potential to materially reduce Scope 1, 2 and/or 3 greenhouse gas emissions. Clean hydrogen is an example of a clean fuel	FEED	Front-end engineering design	NZE	IEA Net Zero by 2050 scenario		
clean hydrogen	Hydrogen with lower Scope 1 and 2 emissions when produced from natural gas combined with CCS or when produced from other lower emissions production technologies, including renewable sources, and / or using offsets as required	FID	Final investment decision	oil	A mixture of liquid hydrocarbons of different molecular weights		
cleaner energy / cleaner fuels	Energy sources that are used for power generation, transport, industrial processes or heating which have lower emissions of greenhouse gases or air pollutants (NOx, SOx and particulates) than other fuel sources. Natural gas is an example of a cleaner fuel and energy source, as it has lower greenhouse gas emissions than coal when used in power generation	gas	Natural gas	Oil Search	Oil Search Limited		
CO2	Carbon dioxide	hydrocarbon	Compounds containing only the elements hydrogen and carbon, which may exist as solids, liquids or gases	PNG	Papua New Guinea		
		IEA	International Energy Agency	residual emissions	Any greenhouse gas emissions which remain after an organisation has implemented all technically and economically feasible emissions reduction opportunities		
		IPCC	Intergovernmental Panel on Climate Change	RCP	Representative Concentration Pathway		
		Joules	Joules are the metric measurement unit for energy	Santos	Santos Limited and its subsidiaries		
		KPI	Key performance indicator	SDS	The Sustainable Development Scenario from the IEA 2021 World Energy Outlook		
		kt	Thousand tonnes	STEPS	The Stated Policies Scenario from the IEA 2021 World Energy Outlook		

Appendix 3 - TCFD recommendations reference guide

TCFD Reference Guide

	Recommended disclosure	Guidance for energy group	Section disclosed in climate change report	Page
Governance Disclose the organisation's governance around climate related risks and opportunities	a) Describe the board's oversight of climate-related risks and opportunities.	(i) Processes and frequency by which the board and/or board committees (e.g. audit, risk, or other committees) are informed about climate-related issues.	+ Risk management + Governance	49 57
		(ii) Whether the board and/or board committees consider climate-related issues when reviewing and guiding strategy, major plans of action, risk management policies, annual budgets, and business plans as well as setting the organisation's performance objectives, monitoring implementation and performance, and overseeing major capital expenditures, acquisitions, and divestitures.	+ Delivering on our Climate Transition Action Plan + Risk management + Governance	23 49 57
		(iii) How the board monitors and oversees progress against goals and targets for addressing climate-related issues.	+ Risk management + Governance	49 57
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	(i) Whether the organisation has assigned climate-related responsibilities to management-level positions or committees; and, if so, whether such management positions or committees report to the board or a committee of the board and whether those responsibilities include assessing and/or managing climate-related issues.	+ Governance + Risk management	57 49
		(ii) A description of the associated organisational structure(s).	+ Governance	57
		(iii) Processes by which management is informed about climate related issues.	+ Governance	57
		(iv) How management (through specific positions and/or management committees) monitors climate-related issues.	+ Governance + Risk management	57 49
Strategy Disclose the actual and potential impacts of climate related risks and opportunities on the organisations businesses, strategy, and financial planning where such information is material	a) Describe the climate-related risks and opportunities the organisation has identified over the short-, medium-, and long-term.	(i) A description of what they consider to be the relevant short-, medium-and long-term horizons, taking into consideration the useful life of the organisation's assets or infrastructure and the fact that climate-related issues often manifest themselves over the medium and longer terms.	+ Risk management + Strategy	49 11
		(ii) Specific climate-related issues for each time horizon (short-, medium-and long-term) that could have a material financial impact on the organisation and distinguish whether the climate-related risks are physical or transition risks.	+ Risk management	49
		(iii) A description of the process(es) used to determine which risks and opportunities could have a material financial impact on the organisation.	+ Risk management	49

TCFD Reference Guide				
	Recommended disclosure	Guidance for energy group	Section disclosed in climate change report	Page
Strategy Disclose the actual and potential impacts of climate related risks and opportunities on the organisations businesses, strategy, and financial planning where such information is material		(iv) Organisations should consider providing a description of their risks and opportunities by sector and/or geography, as appropriate. In describing climate-related issues, organisations should refer to Tables 1 and 2.	+ Risk management	49
		(i) Organisations should disclose how identified climate-related issues have affected their businesses, strategy, and financial planning. Organisations should consider including the impact on their businesses and strategy in the following areas:	+ Strategy + Risk management + Delivering on our Climate Transition Action Plan	11 49 23
		+ Products and services, + Supply chain and/or value chain, + Adaptation and mitigation activities, + Investment in research and development, + Operations (including types of operations and location of facilities).		
		(ii) Organisations should describe how climate-related issues serve as an input to their financial planning process, the time period(s) used, and how these risks and opportunities are prioritised. Organisations' disclosures should reflect a holistic picture of the interdependencies among the factors that affect their ability to create value over time. Organisations should also consider including in their disclosures the impact on financial planning in the following areas:	+ Risk management + Strategy + Delivering on our Climate Transition Action Plan	49 11 23
		+ Operating costs and revenues, + Capital expenditures and capital allocation, + Acquisitions or divestments, + Access to capital. If climate-related scenarios were used to inform the organisation's strategy and financial planning, such scenarios should be described.		

TCFD Reference Guide cont.

	Recommended disclosure	Guidance for energy group	Section disclosed in climate change report	Page
Strategy Disclose the actual and potential impacts of climate related risks and opportunities on the organisations businesses, strategy, and financial planning where such information is material	b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning	(iii) Supplemental Guidance for Non-Financial Groups Consider discussing how climate-related risks and opportunities are integrated into their (1) current decision-making and (2) strategy formulation, including planning assumptions and objectives around climate change mitigation, adaptation, or opportunities such as: + R&D and adoption of new technology. Existing and committed future activities such as investments, restructuring, write-downs, or impairment of assets. + Critical planning assumptions around legacy assets, for example, strategies to lower-carbon, energy, and/or water intensive operations. + How GHG emissions, energy, and water issues, if applicable, are considered in capital planning and allocation; this could include a discussion of major acquisitions and divestments, joint-ventures, and investments in technology, innovation, and new business areas in light of changing climate-related risks and opportunities. + The organisation's flexibility in positioning/repositioning capital to address emerging climate-related risks and opportunities.	+ Risk management + Strategy + Delivering on our Climate Transition Action Plan + Santos 2022 Sustainability Report	49 11 23
	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including 2°C scenario	Organisations should describe how resilient their strategies are to climate-related risks and opportunities, taking into consideration a transition to a lower-carbon economy consistent with increased physical climate-related risks. Organisations should consider discussing: + Where they believe their strategies may be affected by climate related risks and opportunities; + How their strategies might change to address such potential risks and opportunities; and + The climate-related scenarios associated time horizon(s) considered.	+ Risk management + Delivering on our Climate Transition Action Plan	49 23

	Recommended disclosure	Guidance for energy group	Section disclosed in climate change report	Page	
	Strategy Disclose the actual and potential impacts of climate related risks and opportunities on the organisations businesses, strategy, and financial planning where such information is material	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including 2°C scenario	+ Critical input parameters, assumptions, and analytical choices for the climate-related scenarios used, particularly as they relate to key areas such as policy assumptions, energy deployment pathways, technology pathways, and related timing assumptions, + Potential qualitative or quantitative financial implications of the climate-related scenarios, if any.	+ Risk management	49
	Risk Management	a) Describe the organisation's processes for identifying and assessing climate-related risks.	(i) Organisations should describe their risk management processes for identifying and assessing climate-related risks. An important aspect of this description is how organisations determine the relative significance of climate-related risks in relation to other risks. - Climate Risk Management.	+ Risk management	49
		(ii) Organisations should describe whether they consider existing and emerging regulatory requirements related to climate change (eg limits on emissions) as well as other relevant factors considered. - Climate Risk Management.	+ Risk management	49	
		(iii) Organisations should also consider disclosing the following: processes for assessing the potential size and Scope of identified climate-related risks and, definitions of risk terminology used or references to existing risk classification frameworks used. - Climate Risk Management.	+ Risk management	49	
		b) Describe the organisation's processes for managing climate-related risks.	Organisations should describe their processes for managing climate-related risks, including how they make decisions to mitigate, transfer, accept, or control those risks. In addition, organisations should describe their processes for prioritizing climate-related risks, including how materiality determinations are made within their organisations.	+ Risk management	49
		c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	Organisations should describe how their processes for identifying, assessing, and managing climate-related risks are integrated into their overall risk management.	+ Risk management	49

TCFD Reference Guide cont.

Recommended disclosure	Guidance for energy group	Section disclosed in climate change report	Page
Metrics and Targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material	a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	Organisations should provide the key metrics used to measure and manage climate-related risks and opportunities. Organisations should consider including metrics on climate-related risks associated with water, energy, land-use, and waste management where relevant and applicable. Where climate-related issues are material, organisations should consider describing whether and how related performance metrics are incorporated into remuneration policies. Where relevant, organisations should provide their internal carbon prices as well as climate-related opportunity metrics such as revenue from products and services designed for a low-carbon economy. Metrics should be provided for historical periods to allow for trend analysis. In addition, where not apparent, organisations should provide a description of the methodologies used to calculate or estimate climate-related metrics.	+ Risk management + Governance + Santos 2022 Sustainability Report 49 57
	Supplemental Guidance for Non-Financial Groups	+ Risk management	49
	(ii) For all relevant metrics, Energy Group organisations should consider providing historical trends and forward-looking projections (by relevant country and/or jurisdiction, business line, or asset type).	+ Metrics and targets	41
	(iii) Organisations should also consider disclosing metrics that support their scenario analysis and strategic planning process and that are used to monitor the organisation's business environment from a strategic and risk management perspective.	+ Metrics and targets	41
	(iv) Energy Group organisations should consider providing key metrics related to GHG emissions, energy, water, land use and, if relevant, low-carbon alternatives that address potential financial aspects of shifting demand, cost of supply, reserves, and capital allocation.	+ Metrics and targets + Santos 2022 Sustainability Report	41
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	+ Metrics and targets + Risk management + Delivering on our Climate Transition Action Plan + Appendices 41 49 23 63	41 49 23 63

Recommended disclosure	Guidance for energy group	Section disclosed in climate change report	Page
Metrics and Targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material	c) Describe the targets used by the organisation to manage climate-related risks and opportunities where such information is material	Organisations should describe their key climate-related targets such as those related to GHG emissions, water usage, energy usage, etc., in line with anticipated regulatory requirements or market constraints or other goals. Other goals may include efficiency or financial goals, financial loss tolerances, avoided GHG emissions through the entire product life cycle, or net revenue goals for products and services designed for a low-carbon economy. In describing their targets, organisations should consider including the following: whether the target is absolute, or intensity based; time frames over which the target applies; base year from which progress is measured and key performance indicators used to assess progress against targets. Where not apparent, organisations should provide a description of the methodologies used to calculate targets and measures.	+ Metrics and targets + Santos 2022 Sustainability Report + Delivering on our Climate Transition Action Plan 41 23

Appendix 4 - Independent Limited Assurance Report

to the Directors and Management of Santos Limited

Report on the review of the 2023 Climate Change Report

Our Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that suggests that the Select Disclosures detailed in Table 1 and as presented in Santos' 2023 Climate Change Report ('the Report'), have not been prepared and presented fairly, in all material respects, in accordance with the criteria set out below.

What our review covered

Ernst & Young (EY) was engaged by Santos Limited ('Santos') to provide limited assurance over the Select Disclosures in Table 1 against the Recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD), including the reasonableness of disclosures made in 2023 regarding Santos' scenario analysis.

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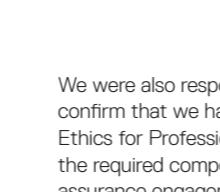
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Table 1

Selected disclosures	Page no
Our new purpose and vision and three horizon strategy	13
Our targets	17
Climate Transition Action Plan	19 - 21
Operational efficiencies	24 - 27
Carbon capture and storage	28
Carbon solutions	32
Supply chain collaboration	37
Efficient capital allocation aligned with our climate transition activities	38
Metrics and targets	41 - 46
Risk management	49 - 54
Governance	57 - 62
Greenhouse gas emissions data:	64
Scope 1 emissions:	
► Total gross operated emissions	
► Total equity share emissions	
► Total equity share intensity	
Scope 2 emissions:	
► Total gross operated emissions	
► Total equity share emissions	
Scope 3 emissions:	
► Total equity share emissions	

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We were also responsible for maintaining our independence and confirm that we have met the requirements of the APES 110 Code of Ethics for Professional Accountants including independence, and have the required competencies and experience to conduct this assurance engagement.

We have complied with the independence and relevant ethical requirements, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm applies Auditing Standard ASQM 1, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Santos' responsibility

Santos' management was responsible for selecting the Criteria and preparing and fairly presenting the Subject Matter in the Report in accordance with that Criteria. This responsibility includes establishing and maintaining internal controls, adequate records and making estimates that are reasonable in the circumstances.

Our approach to conducting the review

We conducted this review in accordance with the International Federation of Accountants' *International Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* (ISAE 3000), *Assurance Engagements on Greenhouse Gas Statements* (ISAE 3410) and the terms of reference for this engagement as agreed with Santos on 17 January 2023.

Summary of review procedures performed

A review consists of making enquiries, primarily of persons responsible for preparing the Report and related information and applying analytical and other review procedures.

Our procedures included:

- Interviewing key personnel to understand the reporting process, including management's processes to identify Santos' material climate-related risks and opportunities

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- Interviewing key personnel and reviewing documentation to understand how Santos' identified material climate related risks and opportunities are reflected in the qualitative disclosures

- Evaluating the suitability of the Criteria and that the Criteria have been applied appropriately to the Subject Matter

- Checked if the assumptions and approach supporting Santos' scenario analysis and portfolio assessment were consistent with the principles specified in the Criteria, noting that no analysis was performed for the 2023 Report

- Undertaking analytical procedures of the Metrics disclosed in the Report

- On a sample basis, based on our professional judgement, agreeing claims and metrics to source information to check the accuracy and completeness of the claims

- Identifying and testing the reasonableness of assumptions and approach supporting Santos' climate scenarios, noting that no further analysis beyond that reported in 2022 was performed for the 2023 Report.

- We note that Santos did not update its scenario analysis for the 2023 Report and relied on the analysis performed and disclosed within the 2022 Climate Change Report.

Limited Assurance

Procedures performed in a limited assurance engagement vary in nature and timing and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Use of our Assurance Statement

We disclaim any assumption of responsibility for any reliance on this assurance report to any persons other than management and the Directors of Santos, or for any purpose other than that for which it was prepared.

Our review included web-based information that was available via web links as of the date of this statement. We provide no assurance over changes to the content of this web-based information after the date of this assurance statement.

Ernst & Young

M. Nelson

Ernst & Young
Melbourne, Australia
27 February 2023

Matthew Nelson
Partner



Santos Limited

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

Annual reports

You can view our Annual Report online at Santos.com

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