always powering ahead

Climate Transition Plan 2022

apa

Contents

1. Acknowledgement of Country

APA acknowledges the Traditional Custodians of the lands on which it operates throughout Australia and their connections to land, sea and community. We pay our respects to their Elders past and present and seek to find meaningful ways to ensure APA operates in a manner that genuinely and consistently reflects that respect.

Entity details

Business name
APA Group

Ownership and legal form
APA Group (APA) comprises 2 registered managed investment schemes – **APA Infrastructure Trust** (APA Infra) and **APA Investment Trust** (APA Invest) – and their controlled entities. APA Group Limited is the responsible entity of APA.

Head office
Level 25, 580 George Street, Sydney NSW 2000

Contact us

If you have any questions or comments relating to this Climate Transition Plan, please email netzero@apa.com.au

2. About this plan

Important notice

This plan has been prepared for APA stakeholders and outlines APA's plans to address climate change-related matters, including risks and opportunities. It has not been prepared as financial or investment advice or to provide any guidance in relation to the future performance of APA.

Disclosure approach

APA's disclosure approach aligns with the recommendations of the Financial Stability Board (FSB) Taskforce on Climate-related Financial Disclosures (TCFD), which address strategy, risk, governance and metrics. Section 13 provides a guide to specific disclosures.

Organisational boundary

Unless noted otherwise, the organisational boundary for all emissions calculations, targets and goals relates to assets under APA's operational control, as defined by the Greenhouse Gas (GHG) Protocol.[1]

FY21 is used throughout the document for all emissions data, targets and goals, except where noted otherwise.

The position statements, policies and governance arrangements referenced in this plan apply to APA Group Limited and its subsidiaries and controlled entities.

Forward-looking statements

This plan contains certain forward-looking information and statements of opinion. Forward-looking statements may include statements regarding APA's climate transition plans and strategies, the impact of climate change and other sustainability issues for APA, energy transition scenarios, actions of third parties, and external enablers such as technology development and commercialisation, policy support, market support, and energy and offsets availability.

The forward-looking statements in this plan are based on management's current expectations and reflect judgements, assumptions, estimates and other information available as at the date of this plan and/or the date of APA's planning processes or scenario analysis processes. Readers are cautioned not to place undue reliance on such statements, particularly in light of the long-time horizon that this plan discusses and the inherent uncertainty in possible policy, market and technological developments in the future. There are also inherent limitations with scenario analysis and it is difficult to predict which, if any, of the scenarios might eventuate. Scenarios do not constitute definitive outcomes or probabilities, and scenario analysis relies on assumptions that may or may not be, or prove to be, correct and may or may not eventuate. Scenarios may also be impacted by additional factors to the assumptions disclosed.

No representation or warranty is made regarding the accuracy, completeness or reliability of the forward-looking statements or opinions contained in this plan, or the assumptions on which either is based. All such information is, by its nature, subject to significant uncertainties outside the control of APA, and actual results, circumstances and developments may differ materially from those expressed or implied in this plan. Except as required by applicable laws or regulations, APA does not undertake to publicly update or review any forward-looking statements, whether as a result of new information or future events. To the maximum extent permitted by law, APA and its officers do not accept any liability for any loss arising from the use of the information contained in this plan.

1. The following assets are not within APA's operational control for emissions reporting purposes: Victorian Transmission System (maintenance excepted), Gruyere and X41 Power Stations, CNG supply to the Perth bus network, Wallumbilla Gladstone Pipeline, SEA Gas Pipeline and Mortlake Pipeline, Tipton West Processing Plant, North Brown Hill Wind Farm and Australian Gas Networks.

3. Chairman's and Managing Director's statement

This Climate Transition Plan is an important next step in APA's commitment to actively participate and support Australia's energy transition, consistent with the objectives of the Paris Agreement. The science of climate change is unequivocal, and APA is committed to achieving net zero operational emissions for our power generation and electricity transmission infrastructure by 2040 and for our gas infrastructure by 2050. These commitments align with APA's purpose of strengthening communities through responsible energy and our customers' desire for a secure energy supply with lower emissions than the current energy mix.

APA's role in the transition

The recent electricity market events playing out internationally and on Australia's east coast has highlighted a key challenge to achieving Australia's net zero ambitions – maintaining access to secure and affordable energy while coal-fired power generation phases out and the transition gathers momentum.

As a leading Australian-owned and listed energy infrastructure business, APA is playing a pivotal role in delivering energy security and supporting the transition through our gas infrastructure and renewable energy generation asset portfolios, and electricity transmission investments, consistent with our strategy.

Natural gas is essential for an orderly energy transition as coal generation is retired. Gas complements renewable generation, providing critical firming to support the intermittent nature of renewable generation, while also delivering reliable energy supply for Australian communities including currently irreplaceable energy supply for hard-to-abate industries.

Events have shown the energy transition is not likely to follow a smooth and predictable path. Continued near term investment in new gas supplies and in the infrastructure that will get it to market is essential. And while we recognise that this may increase APA's emissions in the near term, we are taking a whole-of-economy perspective to lower emissions. Our expanded gas assets will make a significant contribution to decarbonising the wider grid, complementing our investments in renewables and electrification.

While we may see near term increases in emissions as a result of adopting a whole-of-economy approach, APA's overall commitments to net zero operational emissions will guide our actions and responses should that occur.

Significant progress through developing our Climate Transition Plan in FY22

Australia's net zero transition is already underway, and we are progressing APA's.

Noting differences in base years and sector coverage, we believe APA's gas infrastructure target of 30% reduction in operations emissions by 2030 (on FY21), accords with the Australian Government target of a 43% reduction (on 2005).

Over the past 12 months, we have:

- Produced this plan, which updates APA's 2020 commitment of net zero emissions by 2050 with more tailored targets, goals and commitments for 2030, 2040 and 2050 that are fit for purpose for our business
- Evaluated the opportunities and pathways to get there
- Undertaken work to understand the capital required to support structural abatement for emissions reductions
- Established supporting governance structures
- Progressed important foundational work and set a timeline to set a goal for Scope 3 emissions
- Progressed projects that support the key platforms in this plan
- Continued to advance the APA Pathfinder Program, which supports the identification of new energy technologies
- Undertaken asset level transition resilience testing of four different assets.

Split targets for a diverse portfolio

APA faces a variety of climate change related opportunities, risks and influencing factors across multiple sectors. Parts of our portfolio will necessarily decarbonise at different rates – for example, our gas infrastructure assets will reduce emissions more slowly than our power generation business.

APA has therefore set tailored targets, goals and commitments for our gas infrastructure and power infrastructure portfolios, including interim commitments.

Splitting commitments in this way recognises the varying emissions profiles of different portfolios and their impact on our business's overall net zero commitment. In addition, it enables us to make APA's actions and outcomes clearer to stakeholders.

Our evaluations and targets are robust, and we have been authentic and transparent in our strategy and the role we believe we can and need to play in the transition.

Looking forward

The journey to net zero requires long-term thinking and accelerating action. In an increasingly disorderly transition, working closely with customers and being adaptable and flexible is essential. Consistency across the regulatory and policy environment with decarbonisation objectives must also be achieved to smooth the transition.

In this dynamic environment, it is important we embed consideration for this Climate Transition Plan organisation-wide, to guide decision-making across APA, including our investment strategy.

We will keep evaluating new opportunities to advance our ambitions to achieve net zero operational emissions and have committed to disclosing an annual performance report against key commitments in this plan.

These and other approaches outlined in this plan will ensure APA plays a key role in ensuring Australia's transition to a decarbonised energy sector is orderly and sensible.

We look forward to keeping our Securityholders, customers and communities informed as we deliver on our plan and our pathway to net zero.

Michael Fraser,
Chairman

Rob Wheals,
Chief Executive
and Managing Director

4. Executive summary

APA is pleased to publish our inaugural Climate Transition Plan ('the plan'), which consolidates and updates APA's previous disclosures related to climate change. The plan represents an important step in APA's commitment to actively participate in and support Australia's energy transition. It also fulfils our commitment to provide an update on the interim emissions reduction goals and targets that are part of our pathway to achieving net zero.

As well as updating our headline targets, the plan describes APA's 2030 interim climate-related commitments, the approach we have taken to determining them, and outlines how we plan to achieve them. In addition, it provides an overview of the outcomes of APA's most recent climate transition analysis.

APA aims to align our disclosures with the Financial Stability Board's Taskforce on Climate-related Financial Disclosures (TCFD). We have therefore communicated these commitments in the context of APA's Corporate Strategy and governance, outlined our climate-related risks and how they have been considered in our approach and strategy, and provided metrics for ongoing performance monitoring.

We have formalised our position on climate change in a new Climate Change Policy

The APA Climate Change Policy establishes the strategic position and overarching commitments that inform our approach to addressing the global challenge of climate change and Australia's transition to a net zero economy. Our policy ensures APA's activities are conducted in line with our group purpose, vision and strategy and that risks and opportunities are appropriately managed and realised.

APA Climate Change Policy positions and commitments

APA's position	APA's overarching commitments
The science of climate change, as assessed by the International Panel on Climate Change, is unequivocal. The Paris Agreement goal to limit global temperature increase to 2.0°C and to pursue efforts to limit this increase to 1.5°C is fundamental to reducing the adverse impacts of climate change.	Pursue our ambition to achieve net zero operations (Scope 1 and 2) emissions by 2050.
Natural gas and natural gas infrastructure will play a critical role in the transition to net zero by 2050 or earlier by firming the electricity market and providing decarbonised gases. Technology is a key enabler in delivering net zero through, for example, hydrogen, renewable electricity, energy storage and carbon capture and storage.	Develop and maintain a net zero 2050 plan, set interim targets, and embed consideration of this goal and climate risks into our business strategy, processes and decision-making, consistent with the Paris Agreement.
The transition to a net zero economy is accelerating, presenting APA with risks to manage and opportunities to realise. In doing so, we will play our role in facilitating this transition.	Disclose progress against our commitments and plan and in accordance with the Taskforce for Climate-related Financial Disclosures.
Effective planning, policy certainty and well-designed market-based mechanisms provide for the most orderly, efficient and least cost transition in support of the Paris Agreement.	Ensure the appropriate resources and capability are in place to enable our transition, including collaborating with, partnering with and supporting our value chain to achieve emissions reductions.
Emissions reductions should be prioritised where reasonable to do so. If costs or technology are prohibitive, we support the use of high-quality carbon offsets, with co-benefits that meet our defined criteria for being responsible.	Enhance the resilience of our asset portfolio by periodically undertaking scenario analysis and resilience testing and adapting to the physical impacts of climate change.
Communities should be supported to adapt to, and benefit from, the transition to net zero.	Advocate consistent with our Climate Change Policy, including through industry associations we are members of.
	Align executive remuneration to ensure consistency with our climate transition ambition and goals.
	Support measures to ensure communities adapt to, and benefit from, the transition to net zero.

Our net zero commitment has been updated and interim goals and targets are in place

APA's commitments are fit-for-purpose, based on currently available technologies and tailored to reflect the different rates of decarbonisation of our diversified energy infrastructure portfolio.

Based on our assessment and the analysis outlined in this plan, we have sought to set **interim targets and goals that align with the Paris goal to limit warming to well below 2.0°C.** We enter a 12-month embedding phase from October 2022.

All APA's material opportunity areas for reduction come from proven technologies available in the market today.

We have prioritised structural abatement where reasonable to do so and defined what we mean by 'reasonable'. This threshold sits at a significant premium to the voluntary offset market, with a view to influencing decision-making towards structural abatement. Where reductions are not 'reasonable', **we will use high-quality offsets that meet clearly defined responsibility criteria to ensure credibility.**

Reflecting our tailored approach, we have revised our headline net zero goal and **increased the level of ambition for the power generation and electricity transmission components** of our portfolio with a revised goal to 2040.

APA's power generation portfolio already has a low emissions intensity of 0.29 and by comparison significantly outperforms the current intensity of the National Electricity Market (NEM) of 0.72. Our goals for these assets focus on aspects APA can control (power generation) and recognise our contribution to wider grid decarbonisation (electricity transmission).

Our power generation and electricity transmission goals are investment-led and as such, they will be funded by growth capital.

With our **gas infrastructure assets**, APA's interim target of 30% emissions reduction by 2030 will be achieved by focusing on four material opportunity areas:

- Compressor methane emissions
- Site methane emissions
- Compressor and operational efficiency
- Compressor electrification.

A component of our 30% target comes from commitments to renewable energy procurement and fleet emissions reductions across the gas infrastructure and corporate areas of our business.

APA has evaluated the cost of our gas infrastructure reduction initiatives, on a P50 basis, as approximately $150–$170 M (nominal) for FY23 to FY30. This includes estimated operating and capital expenses and an allocation for offsets. These initiatives are reflected in APA's internal long-term financial forecasts.

Building on foundational work conducted in FY22, APA will collaborate and partner across the value chain to **develop a meaningful Scope 3 goal** to be finalised before, or in conjunction with, the release of our next Climate Transition Plan in 2025.

When setting APA's targets and goals, **we have made our commitments clear to stakeholders, based on the level of uncertainty in the pathway required to reach them.**

Target is an intended outcome where we have identified one or more pathways for delivering that outcome, subject to certain assumptions or conditions.

Goal is an ambition to seek an outcome for which there is no current pathway but where we will try to address that challenge, subject to certain assumptions or conditions.[2]

2. APA would like to acknowledge BHP's lead for establishing the precedent for these definitions.

Goal: gas infrastructure - net zero operational emissions by 2050 [1]

Goal: power generation and electricity transmission infrastructure - net zero operational emissions by 2040 [2]

Interim Commitments for 2030

Target:	30% emissions reduction for gas infrastructure (FY21 base year)
Target:	100% renewable electricity procurement from FY23 onwards
Goal:	100% zero direct emission fleet by 2030
Commitment:	Responsible criteria applied when offsets are required

Goal:	35% reduction in emissions intensity for power generation (FY21 base year)
Goal:	Contribute positively to grid decarbonisation measured by MW of enabled renewable infrastructure
Commitment:	Active program to reduce emissions we can control and apply best practice management techniques to managing line losses

Total nominal expenditure to 2030

Approximately $150M-$170M

Investment

Growth capital investment

Key Supporting Commitments

1. Incorporation of the Methane Guiding Principles
2. Hold a non-binding Securityholder vote on our Climate Transition Plan (starting at 2022 Annual Meeting)
3. Report annually on progress against the targets, goals and commitments in our Climate Transition Plan
4. Link executive remuneration to climate-related performance from FY23
5. Scope 3 emissions goal to be finalised before or in conjunction with next Climate Transition Plan

1. Includes transmission, distribution, gas processing, storage and corporate.
2. Includes power generation and interconnectors.

Ensuring strategy supports our net zero ambition

Our net zero commitments sit within the context of APA's Corporate Strategy and our role in Australia's energy transition.

This plan outlines how the transition is being considered in APA's strategy and planning and describes the related considerations.

APA's energy infrastructure assets play a critical enabling role in Australia's decarbonisation journey

Our assets support reliable and least cost decarbonisation of the electricity sector. The plan explains how our Corporate Strategy aims to leverage the related opportunities and manage the challenges.

APA's responsibilities in the transition demand a wider perspective

Setting emissions commitments for a single entity such as APA considers only part of Australia's energy value chain, while climate change is a function of emissions from the global economy. This means Australia's energy transition requires responsible long-term stewardship of our energy infrastructure and a whole of economy approach.

Some investments may, on their own, increase our short-term emissions

This is a function of APA's role in the energy transition and market. However, these investments can facilitate overall system emissions reductions by supporting higher renewable energy penetration. We have articulated how we plan to respond to and disclose our response when this occurs.

Gaining the trust and understanding of all stakeholder groups is essential

Transparency, disclosure and accountability are vital. APA is committed to strengthening our approach so we can achieve the highest standards of transparency and accountability and evolve in accordance with stakeholder expectations.

APA's targets are designed to increase granularity of disclosure and our metrics support this.

In addition, we have revised the APA corporate scorecard for executive remuneration, which is disclosed in APA's Annual Report. **The scorecard now incorporates a dedicated and specific component of the short-term incentive (STI) scheme** that is linked directly to implementing this Climate Transition Plan. The component will be 10% of the STI. From FY23 onwards, it will apply to relevant members of the executive.

APA has committed to undertaking **a non-binding shareholder advisory vote** on adopting this Climate Transition Plan. From FY23, we will provide **an annual performance report** against progress made on the targets, goals and commitments in the plan.

Using scenario analysis to test the resilience of our assets

The plan details how APA continued to evolve our approach to scenario analysis and resilience testing during 2022 by taking the next step to assess specific asset resilience.

We evaluated the resilience of four APA assets to climate transition (or stranded asset) risk under several Paris-aligned scenarios to identify potential implications if they eventuated. They were Moomba to Sydney Pipeline (MSP), South West Queensland Pipeline (SWQP), Victorian Transmission System (VTS) and Diamantina Power Station Complex (DPSC).

Under the modelled climate scenarios, MSP and SWQP are considered resilient to climate risk (particularly until 2040), assuming northern gas supplies are sufficient to supply demand. In practice, this may require new basin development. Beyond 2040, the assets are more exposed to lower export and domestic demand, eroding value compared to APA's current BAU Case.

Under the modelled climate scenarios, DPSC's shift from baseload to firming varies, depending on the North West Power System's rate of change due to higher renewables penetration. All three climate scenarios present value erosion compared to APA's BAU Case. This represents both risk and opportunity, as DPSC value is highly sensitive to customer contracting behaviour and its operating response.

Note that **scenarios are not forecasts and there are inherent limitations on their use**, including the use of a range of assumptions. Please read the sections explaining their purpose and limitations.

Transition momentum

FY11

- Acquired 80 MW Emu Downs Wind Farm

FY18

- Opened 20 MW Emu Downs Solar Farm
- Established an Environmental, Social and Governance (ESG) Improvement Program
- Formally supported the FSB TCFD recommendations

FY19

- Opened 17.5 MW Badgingarra Solar Farm
- Increased in-house energy and emissions capabilities
- Total power generation capacity exceeded 50% renewables
- Commissioned external audit of NGER processes

FY20

- Established Sustainability & Community function
- Produced Climate Change Resilience Report
- Developed Carbon Management Plan
- Published first Climate Change Position Statement

FY21

- Commissioned Badginarra Wind Farm
- Joined Australian Industry Energy Transitions Initiative
- Opened 110 MW Darling Downs Solar Farm
- Received ARENA funding and announced renewable methane pilot
- Established Pathfinder Program and started investigation into Parmelia Gas Pipeline 100% hydrogen readiness
- Established Sustainability Roadmap
- Established Climate Change Management Framework
- Announced ambition for net zero operations emissions by 2050
- Established Net Zero and Climate Program

FY22

- Signatory to UN Global Compact
- Published APA Climate Change Policy
- Signatory to Methane Guiding Principles
- CEO and APA joined the Australian Climate Leaders Coalition
- Shortlisted for NSW Central-West Orana Renewable Energy Zone Proposal
- Began constructing 88 MW Mica Creek Solar Farm
- Commissioned Gruyere Microgrid

5. Introduction

Purpose of this plan

This Climate Transition Plan (the plan) updates, consolidates and transparently communicates APA's commitments and performance in managing climate change risks and opportunities, as the energy transition accelerates.

In FY21, we outlined APA's ambition for net zero operations emissions (Scope 1 and Scope 2) by 2050. This plan provides context for our approach and rationale, including setting interim net zero goals and targets for Scope 1 and Scope 2 emissions.

Our plan underscores our commitment to strengthening APA's approach as we chart a pathway to our net zero ambition. By addressing the transition aspects of climate change, it publicly defines APA's commitments to actively contribute to Australia's energy transition and to being held accountable against these commitments.

It also outlines a significant step forward in APA's transition analysis by communicating insights from our latest scenario analysis. This tests the resilience of four different assets.

We will address the physical aspects of climate change and develop an Adaptation Plan as a FY23 priority.

Organisation

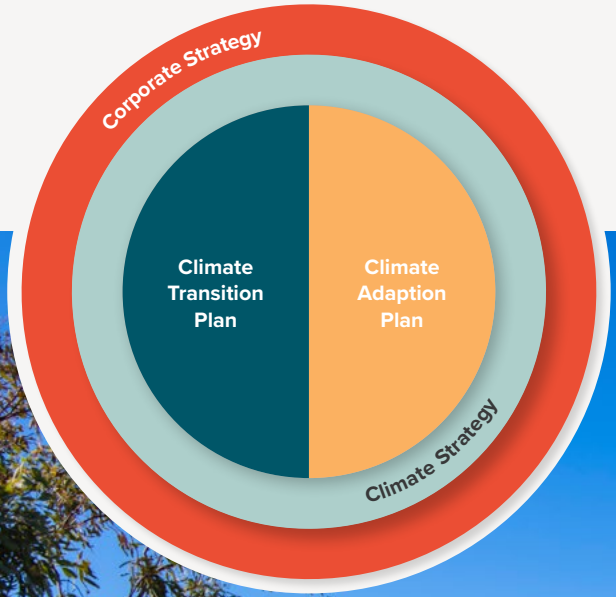
APA is a leading Australian Securities Exchange (ASX) listed energy infrastructure business. Our market capitalisation of approximately $14 billion[3] makes APA one of Australia's largest listed businesses.

We own and/or manage and operate a diverse $21 billion portfolio of gas, electricity, solar and wind assets. Our purpose is to strengthen communities through responsible energy. We deliver about half the nation's gas and our investments in electricity transmission assets connect Victoria with South Australia and New South Wales with Queensland. We also own and operate power generation assets, with wind and solar projects across the country.

APA's principal activities include:

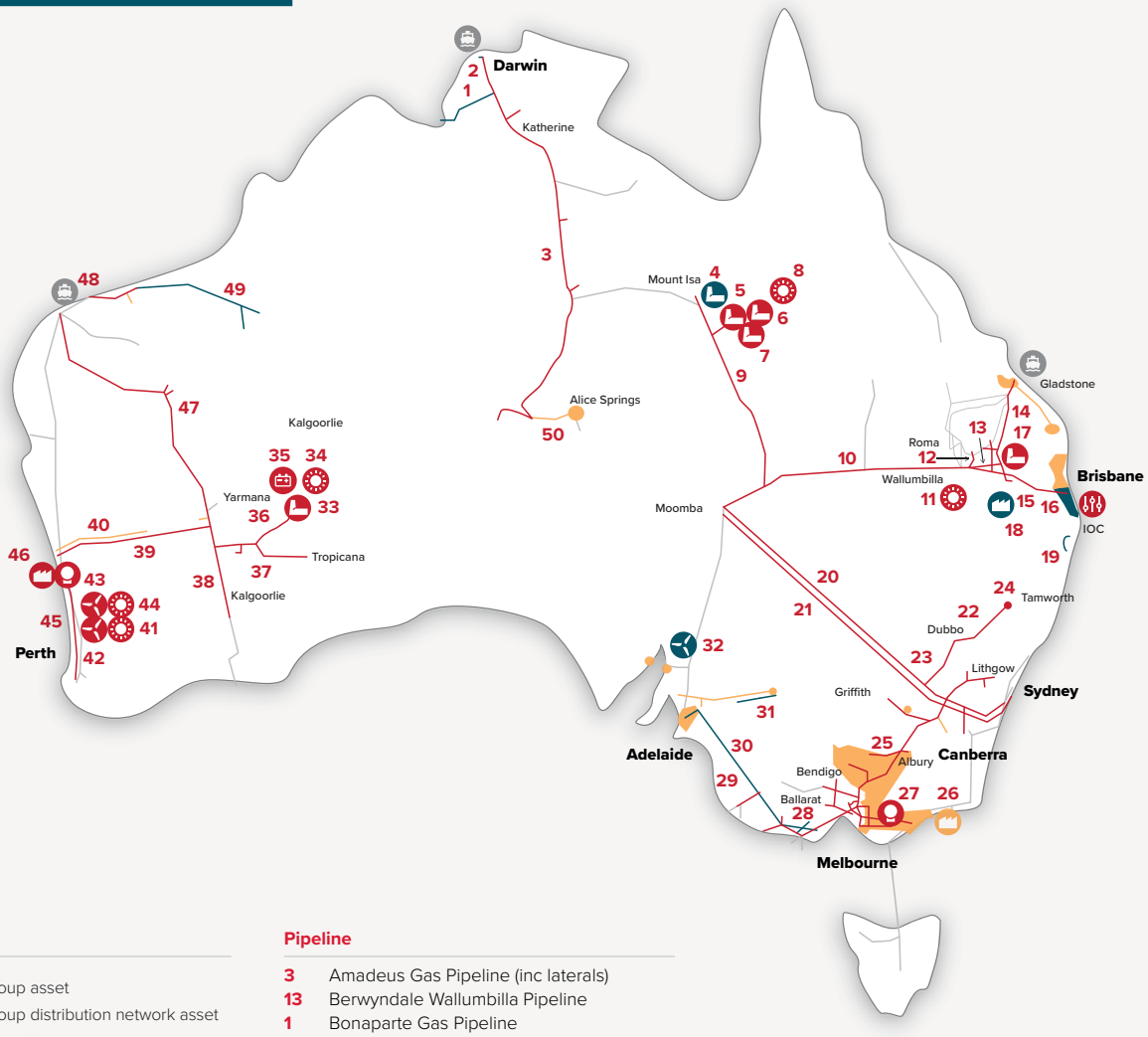
- Owning and operating energy infrastructure, comprising gas transmission, gas storage and processing, and gas-fired and renewable energy power generation businesses located across Australia
- Asset management services for most of APA's energy investments and for third parties
- Energy investments in unlisted entities.

How this plan fits into APA's strategy



3. As at 10 August 2022.

APA's portfolio of assets and investments



Key

- APA Group asset
- APA Group distribution network asset
- APA Group investment
- Investment distribution network
- APA Group managed asset (not owned)
- Managed distribution network
- Other natural gas pipelines

- Wind farm
- Solar farm
- LNG plant
- Battery storage
- Gas storage facility
- Gas processing plant
- Gas power station
- Integrated Operations Centre

Pipeline

- 3 Amadeus Gas Pipeline (inc laterals)
- 13 Berwyndale Wallumbilla Pipeline
- 1 Bonaparte Gas Pipeline
- 9 Carpentaria Gas Pipeline
- 22 Central Ranges Pipelines
- 23 Central West Pipeline
- 37 Eastern Goldfields Pipeline
- 47 Goldfields Gas Pipeline
- 38 Kalgoorlie Kambalda Pipeline
- 40 Mid West Pipeline
- 20 Moomba Sydney Pipeline
- 21 Moomba to Sydney Ethane Pipeline
- 28 Mortlake Gas Pipeline
- 39 Northern Goldfields Interconnect[1]
- 45 Parmelia Gas Pipeline
- 48 Pilbara Pipeline System
- 12 Reedy Creek Wallumbilla Pipeline
- 15 Roma Brisbane Pipeline (inc Peat lateral)
- 30 SEA Gas Pipeline
- 29 SESA Pipeline
- 10 South West Queensland Pipeline
- 49 Telfer/Nifty Gas Pipelines and lateral
- 25 Victorian Transmission System
- 14 Wallumbilla Gladstone Pipeline (inc laterals)
- 2 Wickham Point Pipeline
- 36 Yamarna Gas Pipeline

Gas processing and storage

- 27 Dandenong (680TJ / 12000t)
- 35 Gruyere Battery Station (4.4 MW/MWh)
- 18 Kogan North (12TJ/d)
- 46 Mondarra (18PJ)
- 26 Orbost (49TJ/d)[2]

Gas Distribution

- 16 Allgas Gas Network
- 50 Australian Gas Networks
- 24 Tamworth Gas Network

Electricity transmission

- 19 Directlink
- 31 Murraylink

Generation

- 17 Daandine (30 MW)
- 6 Diamantina (242 MW)
- 33 Gruyere (45 MW)
- 7 Leichhardt (60 MW)
- 5 Thomson (22 MW)
- 4 X41 (41 MW)

Solar Farm

- 43 Badgingarra (19 MW)
- 11 Darling Downs (110 MW)
- 41 Emu Downs (20 MW)
- 34 Gruyere Solar Farm (13.2 MW)
- 8 Mica Creek (88 MW)[1]

Wind Farm

- 44 Badgingarra (130 MW)
- 42 Emu Downs (80 MW)
- 32 North Brown Hill (132 MW)

1. Under construction.
2. Average rate as reported by Cooper Energy Limited (ASX:COE) on 2 August 2022.

6. Strategy and the energy transition

The science of climate change as assessed by the International Panel on Climate Change is unequivocal. The Paris Agreement goal to limit global temperature increase to well below 2.0°C and to pursue efforts to limit this increase to 1.5°C is fundamental to reducing the adverse effects of climate change.

The collective global ambition to decarbonise and limit warming presents risks and opportunities for both APA and the long-term prosperity of the economy and communities.

APA is committed to being a part of the successful transition to a net zero economy and we are taking the necessary steps to respond. Our Corporate Strategy integrates consideration for climate transition-related risks and opportunities.

Role of APA in the energy transition

It is recognised that natural gas and its associated infrastructure needs to play a critical role in Australia's energy transition as coal-fired generation retires.[4]

For example, the Australian Energy Market Operator (AEMO) indicates in its 2022 Integrated System Plan (ISP) that natural gas 'will complement battery and pumped hydro generation in periods of peak demand, particularly during long 'dark and still' weather periods. It will help cover for planned maintenance of existing generation and transmission. And it will provide essential power system services to maintain grid security and stability, particularly following unexpected outages and earlier than expected generation withdrawal.'[5]

Most recently:

- In winter 2022, the electricity market saw reduced coal and solar generation. More than any other source, flexible gas-fired generation has increased its output to compensate. This occurred at the same time cold weather on the east coast saw peaking energy demands for gas heating.
- Similarly, flexible gas generation responded in 2021 when the electricity market experienced near-simultaneous outages of Yallourn Power Station in Victoria and Callide Power Station in Queensland.

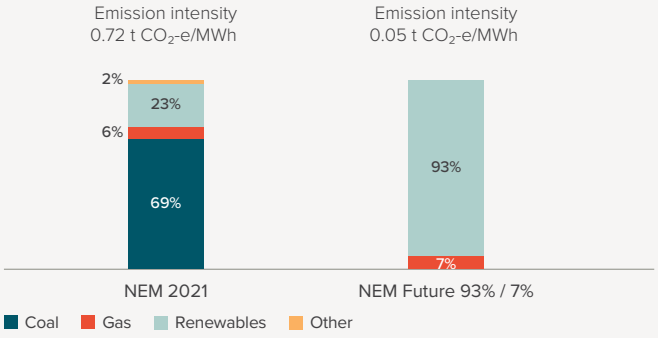
The accelerated retirement of coal-fired power generation in Australia will be the most significant contributor to emissions reduction in the electricity sector in the decades to 2050.[6]

AEMO's ISP indicates this can be accommodated by a large-scale expansion of renewable energy generation, firming generation and electricity transmission. Gas infrastructure supports the required firming generation to ensure security of supply as the energy transitions to renewables.

As the transition evolves, the role of gas and gas infrastructure will support hard-to-abate applications and assist with efficient provision of low emissions molecules.

Gas supporting electricity sector decarbonisation[7]

Gas can ensure the reliability of a very high renewable generation system (93%) at a lower cost and emissions



- Gas firming can be combined with very high renewable penetration to largely decarbonise the electricity sector, using available technologies.[8]
- Australia's National Electricity Market (NEM) can be largely decarbonised by accelerating coal closure and further investment in known gas, storage and renewables technologies.
- Multiple studies[9] including a NEM-wide emission scenario have concluded that an energy sector fuelled by gas and renewables is the most economical and secure pathway to net zero.

4. Australian Energy Market Operator 2022 Integrated System Plan June 2022.
5. Australian Energy Market Operator 2022 Integrated System Plan June 2022.
6. Clean Energy Regulator, Electricity sector emissions and generation data 2020-2.
7. Clean Energy Regulator Greenhouse and energy information by designated generation facility 2020-21 data used to create the NEM 2021 column and the Gas-Powered Generation emissions intensity in the NEM future scenario.
8. Frontier Economics Potential for Gas-Powered Generation to support renewables; Climate Change Commission (NZ).
9. Frontier Economics, Potential for Gas-Powered Generation to support renewables; Climate Change Commission (NZ), 2021 Draft Advice for Consultation; Goldman School of Public Policy University of California Berkeley 2035 The Report.

Energy security and affordability remains a central focus for the sector, consumer advocacy groups and government, and therefore solutions must simultaneously deliver decarbonisation, reliability and globally competitive costs.

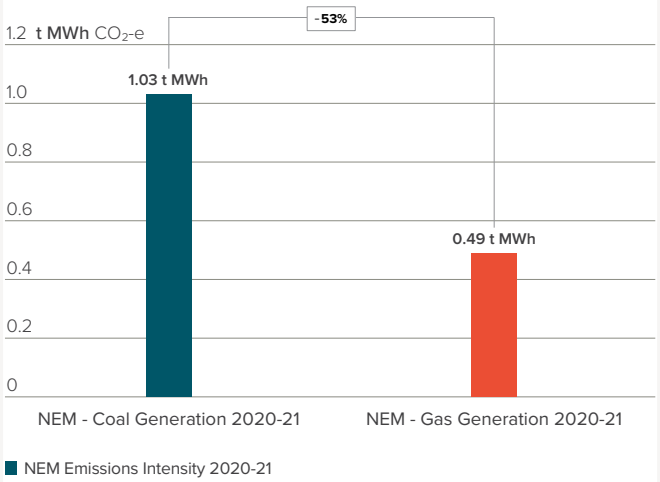
APA's energy infrastructure assets therefore play a critical enabling role in Australia's decarbonisation journey, supporting reliable and least cost decarbonisation of the electricity sector.

APA's Corporate Strategy aims to leverage these opportunities by:

1. Using and developing **gas pipeline and storage infrastructure** to enable capacity increases and diversity of supply, peaking and firming to accelerate coal replacement.
2. Providing **off-grid generation** via renewable and hybrid solutions for mining customers.
3. Providing **on-grid firming** and being an enabler of grid decarbonisation via batteries, storage, gas turbines and engines, and selective **on-grid renewable** investment.
4. Investing in **electricity transmission infrastructure** to enable critical connections for renewable energy penetration such as Renewable Energy Zones.
5. Pursuing readiness opportunities via our **Pathfinder Program** for hydrogen, new energy solutions and CO_2 transportation and storage.

These are explained further in the table following.

The direct emissions intensity of combined-cycle gas power generation is around half that of coal[10]



Gas plays an essential role

It is a source of reliable heating and power in homes and businesses, provides LNG export to Asia and is a feedstock for industry.

The industrial sector accounts for around half of Australia's domestic natural gas use.*

Australia's energy transition requires an expansion of mining activities including lithium, nickel, copper and a range of other technology and steel industry-related minerals**. In turn these mining activities typically need gas for reliable power generation and/or process heat.

In the long-term other technologies such as hydrogen or other lower emissions gases have the potential to become commercially viable in scale and utilise gas transportation infrastructure.

* Department of Industry, Science, Energy & Resources Australian Energy Update 2021 Includes mining, manufacturing & other domestic gas use (excludes gas used for LNG plants and LNG exports).

** Minerals Council of Australia Commodity Demand Outlook 2030.

10. Clean Energy Regulator Greenhouse and energy information by designated generation facility 2020-21.

APA is providing integrated solutions for customers

APA is combining the reliability of gas generation with renewables in Mount Isa in Queensland and at the Gruyere Gold Mine in Western Australia through microgrid solutions that include gas engines, solar and battery energy storage systems.

Our 88 MW Mica Creek Solar Farm development in Mount Isa will be Australia's largest off-grid solar farm.

APA's Pathfinder Program supports innovation

In 2021, we announced APA's Pathfinder Program. This supports us in seeking opportunities to extend APA's core business through innovation, technology and new energy opportunities, unlocking the new technology solutions of tomorrow.

Pathfinder is a key enabler in APA's goal to achieve net zero commitments. Current Pathfinder initiatives include:

- Parmelia Gas Pipeline (PGP) hydrogen conversion project in Western Australia
- Being part of a consortium of Australian and Japanese energy player to establish Queensland's largest green hydrogen project
- Investigating opportunities for blue hydrogen.

Taking a wider perspective of APA's responsibilities

Australia's energy transition requires responsible long-term stewardship of our energy infrastructure and a whole of economy approach.

Setting emissions commitments for a single entity such as APA, considers only part of Australia's energy value chain, while climate change is a function of emissions from the global economy.

For example, while it is possible for a single organisation to achieve internal emissions targets by transferring emissions intensive assets to others, this has no impact on global emissions.

Similarly, we acknowledge that APA's role in the energy transition and market means some investments may, on their own, increase our short-term emissions. However, these investments can facilitate overall system emissions reductions by supporting higher renewable energy penetration.

Gaining the trust and understanding of all stakeholder groups is essential as we address these and other transition challenges, so transparency, disclosure and accountability are essential. We have designed APA's targets to increase granularity of disclosure and our metrics support this (see Section 8).

APA Corporate Strategy

APA's strategy is to invest in gas, electricity, and renewable infrastructure (contracted and regulated). Our capabilities and strategy integrate consideration for the energy transition and the risks and opportunities this presents.

How APA's strategy supports our net zero ambitions

Strategy priorities	Focus	Examples	Role in the transition/decarbonisation
1. Gas infrastructure	Priority	East Coast Grid Expansion South West Pipeline Expansion Western Outer Ring Main Pipeline Kurri Kurri Pipeline and Storage Northern Goldfields Interconnect	Coal-fired stations are retiring and becoming less reliable. Adequate pipeline capacity will be required in peak market conditions to support the ability for gas peaking to firm renewables and ensure system security in the winter heating peak. This may mean increased investment in gas capacity that is used infrequently but is critical to the system as a whole. Domestic gas pipelines are materially less emissions-intensive relative to the import and transport of LNG via ocean shipping. Key mineral provinces supported by APA generation are planning substantial expansion. One driver is demand for resources to support electrification and renewable generation. Mining customers are seeking firm generation supplies delivered by gas-powered electricity generation.
2. Off-grid generation	Priority	Renewables or hybrid/integrated customer solutions Northern Goldfields Interconnect	Mineral provinces supported by APA generation are planning expansion. One driver is demand for resources to support electrification and renewable generation. Mining customers are seeking to reduce emissions as part of a bundle of services that includes firm energy supplies.
3. On-grid firming and on-grid renewables	Selective	Batteries, other storage technologies, gas turbines, gas engines Numerous wind and solar businesses/sites for sale, typically at high asset prices/low returns, with merchant revenue or development risk that is less attractive to APA on a risk-adjusted basis	Critical enabler of grid decarbonisation and energy security. Renewable generation entry is relatively low-cost, albeit with relatively low reliability. The increasing penetration of renewable generation is putting significant pressure on less flexible coal-fired generation and reinforcing the need for firming. Most coal-fired stations are facing accelerated retirement relative to prior expectations, with several parties announcing accelerated closure dates.
4. Electricity transmission	Priority	Electricity transmission connections Central-West Orana Renewable Energy Zone Basslink	Electricity transmission is a critical enabler for facilitating higher renewable energy penetration in the electricity market.
5. Pathfinder	Selective	Hydrogen readiness New energy solutions e.g. biofuels Carbon dioxide transportation and/or storage	APA is pursuing projects that: – Can facilitate transport of lower emissions fuels in existing pipeline infrastructure – Create new production of lower emissions fuels. We are also at the early stages of considering infrastructure that would transport carbon dioxide for sequestration; reducing net emissions.

APA's strategy approach aligns with 3 important considerations:

Capital structure and disciplined investment

To facilitate delivery of our strategy, APA seeks to maximise Securityholder returns from disciplined investment and a strong balance sheet. This will include BBB (Standard & Poor's) and Baa2 (Moody's) credit ratings and access to a wide range of capital markets.

Customers are at the centre of everything APA does and play an important role in our own transition

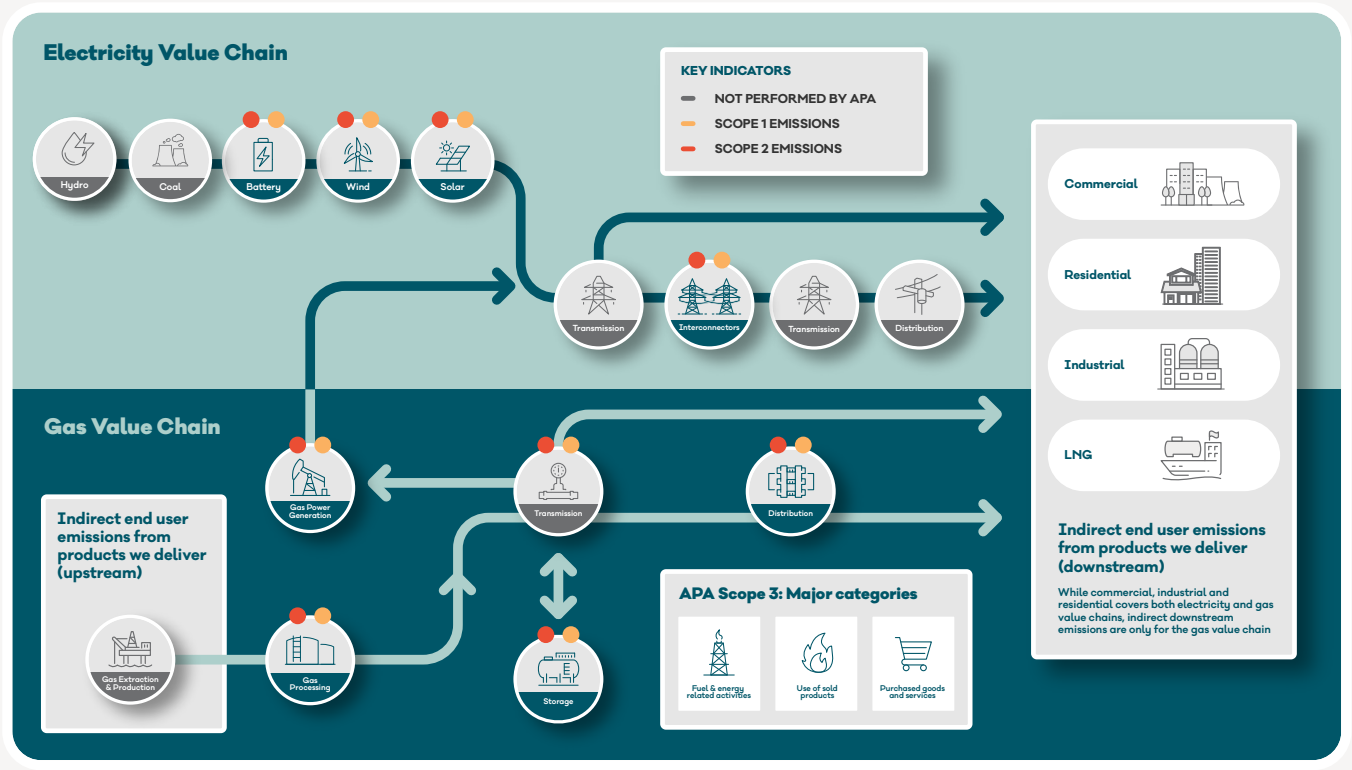
Our customers are engaged in their own journeys to reduce emissions. They are increasingly seeking energy solutions that combine security of supply with reduced emissions.

For example, APA will continue to support the mining industry with gas infrastructure capacity for secure energy supplies while also investigating renewable opportunities with our customers. Our focus will be on providing integrated solutions that support customers' decarbonisation and our own.

Using transition scenario analysis when planning investments

As we embed net zero considerations into our investment processes, APA will progressively incorporate transition scenario analysis insights (as appropriate) when considering material new capital expenditure opportunities and augmentations expenditure on existing assets.

APA's role in the value chain

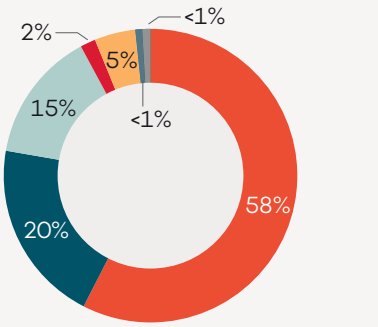


7. APA emissions profile

Scope 1 and Scope 2 emissions from assets within APA's operational control were 1,511,767 t CO_2-e in FY21. Based on FY21 Scope 1 and 2 corporate emissions data, we were ranked the 48th highest in Australia when compared against other NGER reporting corporations.[11]

APA's combined Scope 1 and Scope 2 emissions by sources

(GHG emissions (t CO-e)



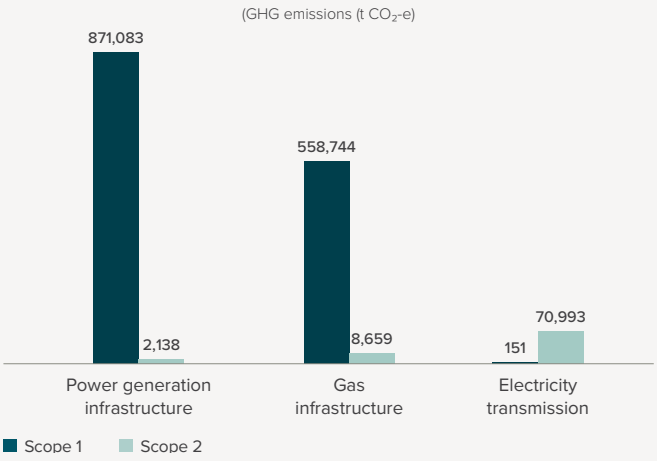
- Gas combustion - power generation **870,416**
- Gas combustion - compressors and GEAs **303,777**
- Methane **223,223**
- Flaring **25,312**
- Line Losses **68,264**
- Grid electricity **13,526**
- Other **7,249**

APA's Scope 1 and 2 emissions are made up of:

- **Natural gas combustion from:**
  - » Power generation assets that supply electricity to the grid (58%).
  - » Gas infrastructure compressors and gas engine alternators that operate our pipelines (20%).
- **Methane and flaring emissions** due to the operation of our gas infrastructure assets (17%)
- **Lines losses** due to the transmission of electricity in our interconnectors (5%)
- **Grid electricity use** (<1%)
- **Other**, including diesel use and SF6 emissions (<1%).

The breakdown of APA's emissions by asset class is detailed below. It reveals that whilst gas transmission is the largest part of our largest business, emissions from this asset class are not our biggest source of emissions.

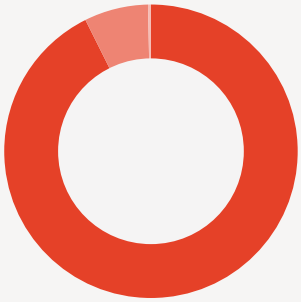
APA Scope 1 and Scope 2 emissions by asset class



11. Clean Energy Regulator FY21 National Greenhouse and Energy Reporting corporate data Corporate emissions and energy data 2020-21.

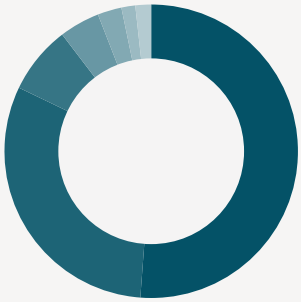
Break-down of APA Scope 1 and Scope 2 emissions by asset class

Power generation infrastructure



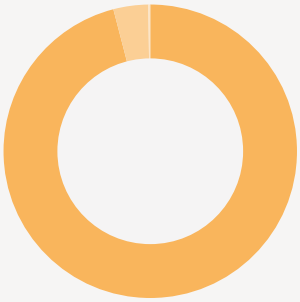
- Natural gas combustion **92.6%**
- Coal seam methane combustion **7.0%**
- Other - power generation infrastructure **0.3%** (incl. SF6)[i]

Gas infrastructure



- Gas compression **51.2%**
- Fugitives (transmission) **30.9%**
- Fugitives (distribution) **7.5%**
- Fugitives (flaring) **4.5%**
- Electricity generation (GEAs/DEAs) **2.6%**
- Grid electricity **1.5%**
- Other - gas infrastructure[ii] **1.7%**

Electricity transmission



- Line losses **96.0%**
- Grid electricity **3.8%**
- Other - electricity transmission[iii] **0.2%**

i. Includes grid electricity, SF6 (a major greenhouse gas), miscellaneous, transport energy, stationary energy and transmission fugitives.
ii. Includes miscellaneous, transport energy, stationary energy and transmission fugitives.
iii. Includes miscellaneous, transport energy and stationary energy.

For a complete breakdown of APA's climate change data, refer to our FY22 Sustainability Data Book.

Power generation infrastructure

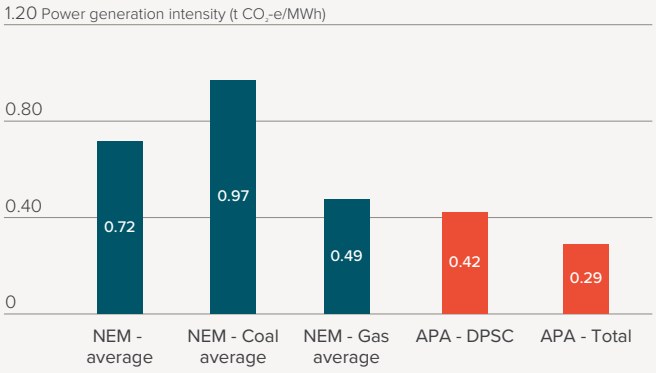
APA's power generation portfolio is made up of gas-fired and renewable generation assets and these are APA's largest source of absolute emissions (58%).

APA's power generation infrastructure comprises 354 MW of gas-powered and 359 MW renewable generation capacity. In FY21, 67% of electricity was generated from gas-powered and 33% from renewable generation assets.[12]

Our gas-powered generation assets consist of the Diamantina Power Station Complex (DPSC), which is made up of the combined cycle gas turbine Diamantina Power Station, Leichhardt back-up open-cycle gas turbine and the recently commissioned reciprocating engine Thomson Power Station. These assets supply electricity to the North West Power System (NWPS) in the Mount Isa region. The recently closed Daandine Power Station, located in Kogan, supplied electricity into the National Electricity Market (NEM).

The DPSC[13] is the largest single contributor of emissions within this asset class with 809,429 t CO_2-e emissions (93%). It is highly efficient, emitting 57% less emissions per MWh than the NEM average for coal generation and 42% less than the total NEM average. It has the seventh lowest emissions intensity of all Australia's gas power generation facilities.[14]

Power generation average emissions intensity APA vs NEM FY21[15]



12. Clean Energy Regulator Greenhouse and energy information by designated generation facility 2020-21.
13. The DPSC includes the combined cycle gas turbine Diamantina Power Station and back-up open-cycle gas turbine Leichhardt and reciprocating engine Thomson Power Stations. For NGER emissions reporting purposes DPSC is simply referred to as Diamantina Power Station.
14. Clean Energy Regulator *Greenhouse and energy information by designated generation facility 2020-21.*
15. Clean Energy Regulator *Greenhouse and energy information by designated generation facility 2020-21.*

In absolute terms, the DPSC's emissions have increased over the last 5 years due to growth in demand within the NWPS[16] and the commissioning of Leichhardt and Thomson Power Stations.

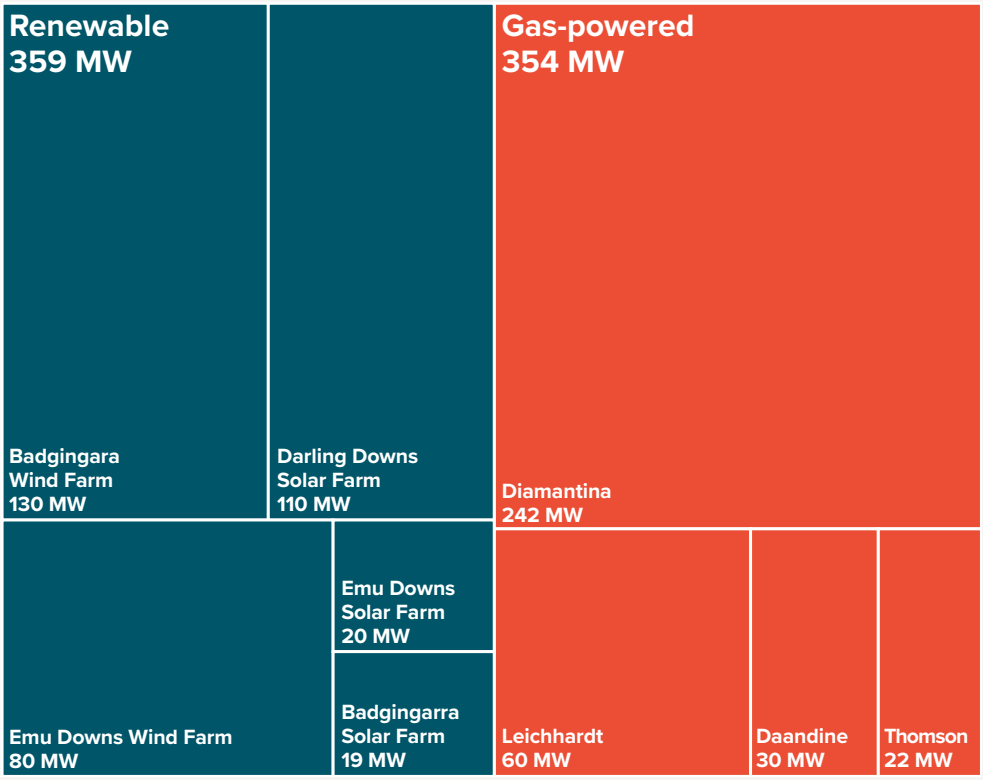
APA's renewable assets consist of:

- Darlings Downs Solar Farm located near Dalby in Queensland which supplies electricity into the NEM
- Badgingarra and Emu Downs wind and solar farms located approximately 200km north of Perth near Cervantes, which supply electricity into the South West Interconnected System of Western Australia.

In December 2021, APA reached the Final Investment Decision stage on an 88 MW solar farm in Mica Creek. When completed it will be the largest solar farm outside of the main electricity grid.[17]

In FY21, APA's owned and operated renewable generation assets were the eighth largest generator of electricity from solar and wind in Australia.[18]

APA's power generation infrastructure portfolio by capacity[19]



Electricity transmission infrastructure

As the penetration of renewable electricity increases so does the criticality of electricity transmission infrastructure in supporting the energy transition.

APA owns a part share in the Murraylink and Directlink interconnectors and operates these assets to transmit electricity between NEM regions.

The major source of emissions for this electricity transmission infrastructure is associated with the loss of electricity (line losses) due to the transmission of electricity over distance.

APA has operational control of these assets and therefore these line losses fall within our emissions boundary. However, APA's options to mitigate emissions associated with these losses are limited as emissions associated with line losses are largely a function of the prevailing power generation mix in the grid and the associated emissions intensity.

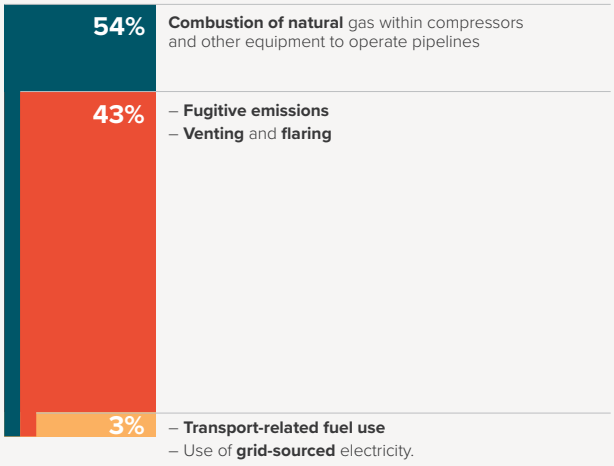
16. The NWPS is also known as the Mount Isa-Cloncurry supply network.
17. Renew Economy, Mt Isa solar farm to be biggest outside main grids after new contract with local miner 17 December 2021.
18. Clean Energy Regulator Greenhouse and energy information by designated generation facility 2020-21.
19. Excludes Gruyere Power Station which is not under APA's operational control for emissions reporting purposes. The recently closed Daandine power station is included in APA's FY21 base year inventory and is shown for completeness.

Gas infrastructure

APA's gas infrastructure portfolio comprises approximately 15,000 km of high-pressure transmission pipelines, processing and storage facilities, and distribution networks. Our FY22 Annual Report provides further details on these assets, including their geographic spread.

Within our gas infrastructure portfolio, gas transmission pipelines are APA's largest source of emissions, at 82%. These predominantly arise when gas is combusted in our pipeline compressor units and through methane emissions.

Methane emissions comprise fugitive emissions caused by the unintended release of natural gas as a result of operating a pipeline, (i.e. flaring, which is the controlled combustion of natural gas during production and processing) or venting (the controlled release of natural gas for operation or maintenance reasons).



Scope 3 emissions

APA recognises the importance of decarbonising our value chain and the role we can play in working with our customers, partners and suppliers in achieving this outcome. By actively working together, APA can help to achieve shared objectives and outcomes that would not be possible if each participant acted alone.

In FY22, APA:

- Established Scope 3 emissions boundaries
- Worked with suppliers and partners to obtain relevant data
- Established internal reporting processes to quantify Scope 3 emissions in accordance with the GHG Protocol
- Identified value chain focus areas to support potential future targets.

We also participated in the Australian Climate Leaders Coalition Scope 3 project so we could learn from and share information and experiences with our ASX peers. This is helping to inform our approach and supports our best practice efforts.

Scope 3 emissions profile and organisational boundary definition

APA uses an operational control organisational boundary as defined by the GHG Protocol. This means that assets we own but do not operate are included as a Scope 3 emissions source. APA uses the GHG Protocol Scope 3 Accounting and Reporting Standard to calculate emissions associated with owned assets and have incorporated these into category 3 (Fuel and energy related activities - not included in Scope 1 or 2) rather than category 15 (investments.)[20]

APA's first Scope 3 emissions inventory is based on FY20 data.[21] Our inventory totalled 708,901 t CO_2-e with the largest categories:

- **Fuel and energy related activities** (approximately 59%). This is comprised of the extraction, production and transportation emissions from the energy products APA consumes and sells, along with emissions from assets we own but do not operate. This includes the Gruyere and X41 power stations, the Wallumbilla Gladstone pipeline, Victorian Transmission System (VTS) (except maintenance), Sea Gas and Mortlake transmission pipelines, CNG supply to the Perth Bus Network, North Brown Hill Wind Farm and Tipton West Gas processing plant.
- **Use of sold products** (approximately 20%). This is the end use emissions associated predominantly with selling compressed and pipeline natural gas products.

APA uses the GHG Protocol Corporate Value Chain Accounting and Reporting Standard (Scope 3) to calculate APA's Scope 3 emissions and apply the principles of relevance, completeness, consistency, transparency and accuracy.

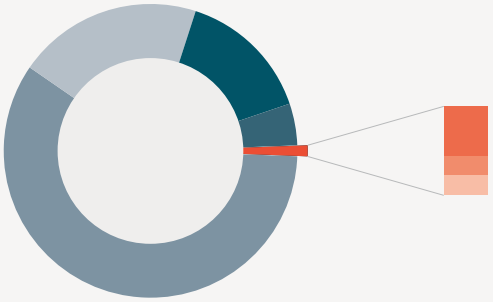
Of the 15 different GHG Protocol emissions categories, 7 are relevant for APA.

APA FY20 Scope 3 emissions by relevant GHG Protocol category

Scope 3 category	Emissions t CO_2-e
(3) Fuel and energy-related activities	418,351
(11) Use of sold products	144,367
(1) Purchased goods and services	105,056
(2) Capital goods	32,670
(6) Business travel	4,739
(7) Commuting	1,886
(5) Waste	1,833
Total	**708,901**

20. A further clarification relates to category 11 (use of sold products). This category does not include natural gas that APA transmits but does not sell. To illustrate, upstream and downstream end user emissions associated with natural gas that APA delivers but does not sell are not an APA Scope 3 emission.
21. We selected FY20 for APA's initial Scope 3 inventory because of data availability when we began the exercise. Future disclosures will be consistent across all emission types utilising most recent year available at time of reporting compilation.

Breakdown of APA FY20 Scope 3 emissions sources[22]



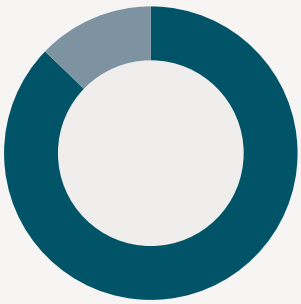
- (1) Purchased goods and services **14.8%**
- (2) Capital goods **4.6%**
- (6) Business travel **0.7%**
- (7) Commuting **0.3%**
- (5) Waste **0.3%**
- (3) Fuel and energy-related activities **59.0%**
- (11) Use of sold products **20.4%**

Use of delivered products

In accordance with the GHG Protocol Scope 3 Accounting and Reporting Standard category boundaries, emissions associated with natural gas products we transport but do not sell to the end user are not an APA Scope 3 emission. However, in the interest of enhanced disclosure, we have estimated these emissions in this plan.

We estimate the upstream and downstream emissions associated with using products that APA delivers to be 68.3 Mt CO_2-e.[23]

Breakdown of APA's FY20 delivered products emissions sources



- Use of delivered products **87%**
- Extraction, production and transportation **13%**

Limitations when calculating Scope 3 emissions

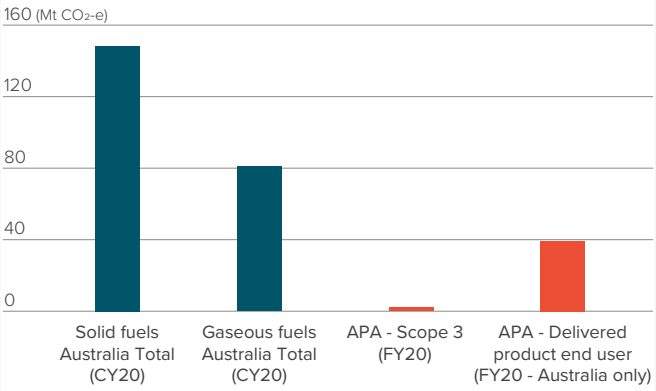
Estimating Scope 3 emissions is inherently challenging due to several factors, including categorisation of purchasing data, availability of data from assets operated by others and estimating methods for some categories. Nevertheless, we will continue to enhance APA's approach by developing our systems and processes and using the latest and most appropriate emissions factors.

It is possible there is some minor double-counting of the Scope 1 and Scope 3 emissions disclosed in this plan. When calculating Scope 3 emissions associated with the natural gas APA consumes, we apply the National Greenhouse Account Scope 3 emissions factors. These include emissions associated with the extraction, production and transportation of natural gas. Emissions associated with transportation (such as stationary energy and methane emissions) are also captured within our Scope 1 inventory, as required under the NGER legislation, potentially leading to double-counting.

Comparison of Scope 3 stationary emissions

In Australia, stationary energy emissions from solid fuels (predominantly coal) are 83% higher than those from gaseous fuels. APA's Scope 3 emissions and end user emissions from products (natural gas) that are delivered from our pipelines in Australia are 1% and 48% of the stationary energy emissions from gaseous fuels respectively.

Stationary energy emissions comparison - solid and gaseous fuels, APA Scope 3 and delivered product end user emissions[24]



22. Values may not add up to 100% due to rounding.
23. To calculate these emissions, we used metered data to measure APA's gas deliveries to end users, combined with standard upstream and downstream natural gas combustion emission factors. The figures include gas transported for LNG export.
24. Australian Government Department of Industry, Science and Resources, National Inventory Report 2020

8. Targets, goals and commitments

Goal: gas infrastructure - net zero operational emissions by 2050 [1]

Goal: power generation and electricity transmission infrastructure - net zero operational emissions by 2040 [2]

Interim Commitments for 2030

Target:	30% emissions reduction for gas infrastructure (FY21 base year)
Target:	100% renewable electricity procurement from FY23 onwards
Goal:	100% zero direct emission fleet by 2030
Commitment:	Responsible criteria applied when offsets are required

Goal:	35% reduction in emissions intensity for power generation (FY21 base year)
Goal:	Contribute positively to grid decarbonisation measured by MW of enabled renewable infrastructure
Commitment:	Active program to reduce emissions we can control and apply best practice management techniques to managing line losses

Total nominal expenditure to 2030

Approximately $150M-$170M

Investment

Growth capital investment

Key Supporting Commitments

1. Incorporation of the Methane Guiding Principles
2. Hold a non-binding Securityholder vote on our Climate Transition Plan (starting at 2022 Annual Meeting)
3. Report annually on progress against the targets, goals and commitments in our Climate Transition Plan
4. Link executive remuneration to climate-related performance from FY23
5. Scope 3 emissions goal to be finalised before or in conjunction with next Climate Transition Plan

1. Includes transmission, distribution, gas processing, storage and corporate.
2. Includes power generation and interconnectors.

APA's approach to setting targets

When we set the interim goals and targets for APA, these considerations were central:

- Aligning with the objectives of the Paris Agreement
- Considering and using the most relevant published scenarios, pathways and standards and, where they do not exist or cannot be reasonably applied, considering the intent and/or principles in light of the APA portfolio and its role in the economy and provision of services to our customers
- Being fit for purpose for APA's diverse portfolio of energy infrastructure assets, our growth ambitions, and the Australian context
- Taking a conservative approach to assessing opportunities for structural abatement and evaluating interim target trajectories
- Applying a mitigation hierarchy, prioritising structural abatement and avoiding emissions in asset selection and design (where this is reasonable) before resorting to offsets
- Ensuring APA's level of certainty and maturity of evaluation are reflected in our definition of ambition
- Adopting the most recent full year (FY21) as a baseline, in alignment with best practice.

Key definitions

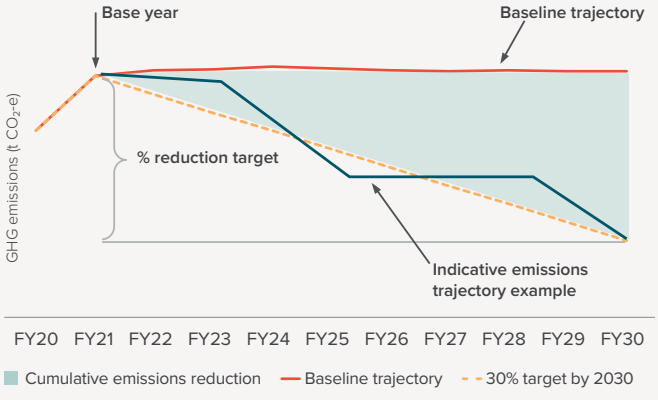
APA has adopted the following definitions[25] to provide clarity around our levels of certainty and the maturity of our assessment:

Target: an intended outcome where we have identified one or more pathways for delivering that outcome, subject to certain assumptions or conditions.

Goal: an ambition to seek an outcome for which there is no current pathway but for which efforts will be pursued towards addressing that challenge, subject to certain assumptions or conditions.

We are also applying the terms described below. For definitions of other terms in this plan, see the Glossary.

Common definitions in this plan, illustrated



'Split' commitment approach

APA's portfolio comprises gas, power generation and electricity transition infrastructure. Each has different opportunities and constraints regarding decarbonisation.

Their potential decarbonisation pathways are directly impacted by:

- Variations in emissions characteristics and profiles
- The availability of proven, commercial decarbonisation technology applications
- The propensity of customers and regulators to pursue and/or support decarbonisation objectives
- APA's ability to control the emissions reduction outcomes.

Different sectors will be required to decarbonise at different rates, with gas infrastructure far more constrained and harder to abate than power generation. Power generation is expected to decarbonise at an accelerated rate, with near net zero emissions by 2040.

Accordingly, APA has elected to pursue a split approach to setting targets and goals.

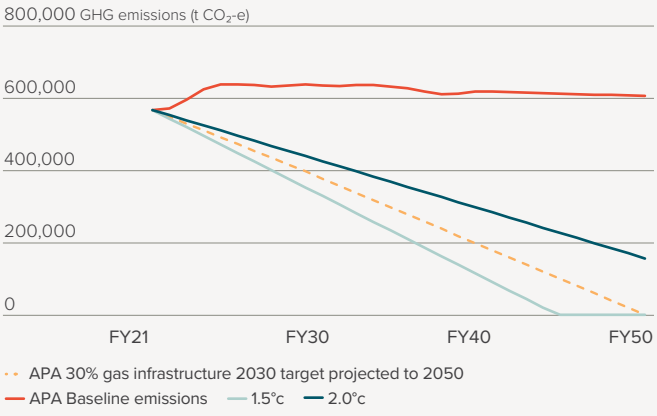
This means we have replaced our 2020 commitment to net zero operational emissions by 2050, with more granular and ambitious goals that reflect, and are tailored, to our portfolio.

As a result, our disclosures will be more granular and transparent, providing enhanced insight and accountability for APA's performance.

Alignment with global ambition and intent

The objective of the Paris Agreement is to hold the increase in global average temperature to well below 2.0°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C.

APA's gas infrastructure emissions reduction target of about 3.3% per year aims to align with the objective of the Paris Agreement to limit global warming to well-below 2.0°C



* 1.5°C and well below 2°C based on SBTi cross sector reduction pathways.

There is no global emissions reduction roadmap for sectors in different regions to support this objective, so APA's approach to target-setting was guided by reviewing and considering respected published reports and scenarios. These assisted us with defining acceptable pathways that we believe align with global ambitions. The table following describes the key sources and aspects of their intent we relied upon and how we have considered these in APA's trajectory and commitment setting.

Based on our assessment and the analysis outlined here, APA has sought to set interim targets and goals aligned with the Paris goal to limit warming to well below 2.0°C.

25. BHP Climate Transition Action Plan 2021.

APA's approach to setting targets and goals is informed by a range of credible sources

Source	Key characteristics informing APA's approach to setting targets	Application to APA targets and goals
IPCC Sixth Assessment Report	– Modelled mitigation pathways that limit warming to 1.5°C and 2.0°C and involve deep, rapid and sustained emissions reductions. – Net global emissions are projected to fall 27% and 43% by 2030 to limit warming to 2.0°C (>67%) and 1.5°C (>50%) compared to 2019 respectively, with no or limited overshoot. – Global net zero CO_2 emissions are reached in the early 2050s in modelled pathways that limit warming to 1.5°C (>50%) with no or limited overshoot, and around the early 2070s in modelled pathways that limit warming to 2.0°C (>67%). – The contribution of different sectors varies in modelled mitigation pathways; doing less in one sector must be compensated by further reductions in other sectors to limit warming. Some sectors are required to decarbonise faster than others. – The remaining carbon budget directly correlates with the global warming outcome and the probability of achieving it.	– The 2.0°C and 1.5°C IPCC scenarios equate to a **2.3% and 3.6% p.a. reduction** respectively. – APA gas infrastructure interim reduction target equates to **3.3% p.a.** (linear). It is **more ambitious than the IPCC 2.0°C** scenario (2.3%) and **slightly less ambitious than the 1.5°C** (3.6%) scenario. – APA power generation emissions intensity goal is a **3.9% p.a.** reduction. – APA targets and goals are consistent with deep and rapid reductions. For gas infrastructure, our target is to achieve **net zero emissions by 2050**. For power generation, our **2040 goal** is to **match or exceed the IPCC pathway.**
International Energy Agency Net Zero by 2050 Roadmap	– Natural gas related CO_2 emissions reduce by 17% and electricity generation remains flat by 2030 compared to 2020. – Unabated coal-fired generation reduces by 69% and 100% at 2030 and 2040 respectively compared with 2020.	– The APA interim gas infrastructure target of **30%** is **significantly higher**. – Gas-powered generation will remain a critical part of the electricity grid, supporting renewables.
Science Based Target initiative	Note: at the time of evaluation, there was no SBTi oil and gas method, so APA only considered elements of SBTi that could be directly applied to our business. – Cross-sector annual emissions reduction requirements of 2.5% to align with either well below 2.0°C or 4.2% for 1.5°C. We note that SBTi applies a one-size-fits-all approach when applying a cross-sector method and does not acknowledge the need for different sectors to decarbonise at different rates. Power sector: – Intensity based (t CO_2-e/MWh) metric rather than absolute. – At a minimum, aligned with a 1.5°C scenario that approaches net zero around 2040. – Emissions intensity reduction of 85% at 2035 compared with 2020. – The method does not distinguish between forms of power generation (such as gas or coal) and existing emissions intensity.	– APA interim gas infrastructure target is approximately **halfway between** the 2.0°C scenario and the 1.5°C scenario. – APA's power generation goal **aligns with the SBTi sector intensity metric of achieving net zero by 2040.** This reflects the absence of coal in the APA generation mix and an intensity starting point that is significantly below the existing NEM emissions intensity average. – SBTi sector generation intensity at 2020 is 0.42, which is significantly higher than APA's starting point of 0.29 t CO_2-e/MWh.
Australian Energy Market Operator Integrated System Plan 2022 – step change scenario	– Details power generation mix in the NEM, consistent with a 1.8°C scenario and achieving 83% penetration of renewables by 2031. – Gas-powered generation capacity is maintained "2023-24" through to "2029-30" playing a crucial role as coal retires.	– APA base year power generation intensity of **0.29** is **materially lower** when compared to the NEM average of 0.72 t CO_2-e/MWh. This reflects APA's already efficient gas power generation and renewable assets. – APA's goal is to align with the forecast NEM intensity of **0.19 at 2030** (35% intensity reduction), **reaching net zero at 2040.**

APA emissions mitigation hierarchy

First, our priority is to **AVOID** emissions being released into the atmosphere by pursuing opportunities in line with our investment framework. And **REDUCE** emissions by enhancing our Capex/SIB projects and Operations' business processes.

Then we'll **INNOVATE** by considering new and emerging technologies, partnerships and other innovations e.g. Pathfinder Program.

We'll **INVEST** by embedding net zero targets into our portfolio strategy, capital allocation decision making, planning and valuation.

Finally, we'll **OFFSET** any emissions that cannot be reasonably avoided or reduced.

Prioritising structural abatement

APA prioritises emissions avoidance and reduction where it is reasonable to do so. We apply a mitigation hierarchy to guide our approach and to ensure structural abatement is prioritised.

The determination of what is 'reasonable' sets the threshold for APA's preparedness to pay for structural abatement and alternative design solutions to avoid emissions. Internally, we refer to this threshold as an 'abatement premium'. Our method for calculating, updating and applying it will be defined in APA's Carbon Price Framework.

The abatement premium is intended to:

- Drive decision-making towards structural abatement and avoid establishing a structure that would result in emissions reduction being delivered solely through offset procurement
- Recognise the cost of voluntary credits may be below the true cost of abatement, were that to be compulsorily mandated
- Recognise there are a range of market forecasts for the costs of carbon that generally are at a premium to the Australian Carbon Credit Unit (ACCU)
- Provide a straightforward and easy to apply measure.

Therefore, it is set at a significant premium, calculated utilising a 100% premium to a combination of historical and forecast ACCUs.

On this basis, we forecast that achieving APA's 30% emissions reduction target for gas infrastructure will be weighted towards structural abatement, based on the material opportunities we have identified. APA's reliance on offsets will probably vary over time as we continue evolving our asset-level assessments and pursuing asset-specific initiatives, and as the premium acts to 'permit' greater investment in currently less economically feasible options.

Gas infrastructure 2030 commitments

Target: 30% emissions reduction by 2030

To achieve this Scope 1 and 2 emissions target, we have evaluated APA's existing portfolio to identify the most material areas of opportunity for avoiding and reducing emissions.

Four key areas for emissions reduction and avoidance will be embedded in the impacted asset management plans by the end of FY23:

1. Compressor methane emissions
2. Site methane emissions
3. Compressor and operational efficiency
4. Compressor electrification.

APA became a signatory to the Methane Guiding Principles in FY22 and we have undertaken a gap analysis against them. The resulting improvement opportunities have been integrated into the priorities identified in this plan and our asset management planning.

The key opportunities we are pursuing across APA's gas infrastructure portfolio to support this target are described on the following page.

APA's opportunities are not limited to these four areas. We will continue to identify asset-specific opportunities as part of our ongoing asset management and performance planning and embed this approach in APA's asset management processes.

Similarly, the concept development and front-end engineering design stages of any new gas-related infrastructure will include considering how to avoid or reduce emissions.

Material opportunity areas being pursued for emissions reduction in APA's gas infrastructure portfolio

1 Compressor methane emissions

Compressors release system gas as part of a normal operating cycle. Emissions reductions can be achieved by:

- Seal recovery systems that capture and recompress gas leakage from compressor seals
- Blowdown recovery systems that capture and recompress gas released when the compressor automatically depressurises after approx. one hour of no operation
- Reducing seal leakage for reciprocating compressor by upgrading seal packing.

2 Site methane emissions

Release of gas is created by equipment leakage, use of gas to operate valves and intentional venting of gas for maintenance purposes. These emissions can be reduced by:

- Replacing gas-powered pneumatic valves and actuators that consistently release gas when open, particularly focused on larger control valves
- Reviewing and minimising routine venting required for operation and maintenance.

3 Compressor and operational efficiency

Compressor fuel emissions are driven by the amount of fuel used to drive the compressor engine.

The fuel requirement depends on compressor use and fluctuates based on system/customer requirements. Emission reductions can be achieved through more efficient operation by:

- Minimising the operation of compressors when actual compression is not required (recycle or standby mode)
- Ongoing monitoring and review of operating efficiency based on customer/contracting changes.

4 Compressor electrification

Compressor fuel emissions are difficult to reduce. Switching to electric motor drives enables the use of electricity rather than gas to fuel compression.

The grid electricity that would be used is expected to be sourced from greater levels of renewable energy over time, and in the interim APA can purchase Large Generation Certificates that effectively purchase renewable energy.

Electrification can only occur with access to secure grid electricity. Potential sites for electrification at this stage include Wallumbilla and Young.

Once installed, electric compressors will be run preferentially to maximise emission reduction impact.

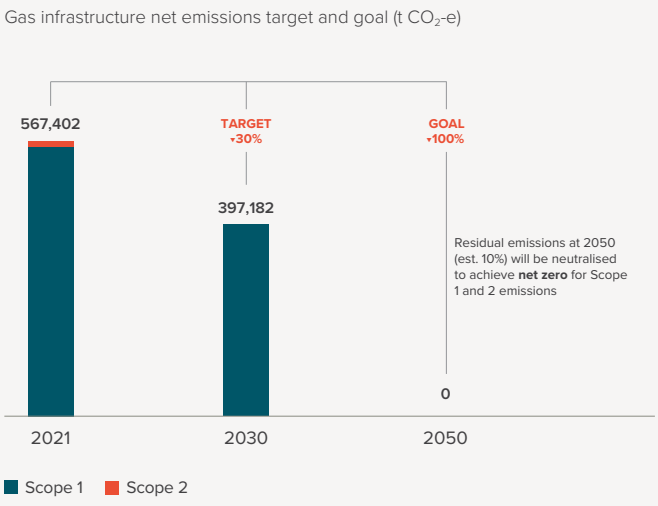
The challenges to achieving our gas infrastructure reduction target include:

- Demand and business growth in gas firming and peaking infrastructure that will enable wider grid decarbonisation
- Commercially feasible opportunities for compressor electrification are limited to sites that are grid-connected or proximate
- Methane measurement techniques do not enable accurate measurement of improvements.

APA plans to address these challenges by:

- Offering off-grid renewables or hybrid/integrated customer energy solutions wherever possible
- Working with customers and partners who are aligned with our decarbonisation goals and prepared to share costs
- Designing out emissions wherever possible
- Updating our methane measurement techniques and applying the Methane Guiding Principles.

Gas infrastructure emissions target and goal (t CO_2-e)



Case Study: Challenges of compressor electrification

To support more efficient processing, transportation and storage, natural gas is compressed. By decreasing the volume and increasing the pressure, pipelines can accommodate much higher gas flow rates.

Compressor electrification represents a material opportunity area for APA to reduce or avoid emissions.

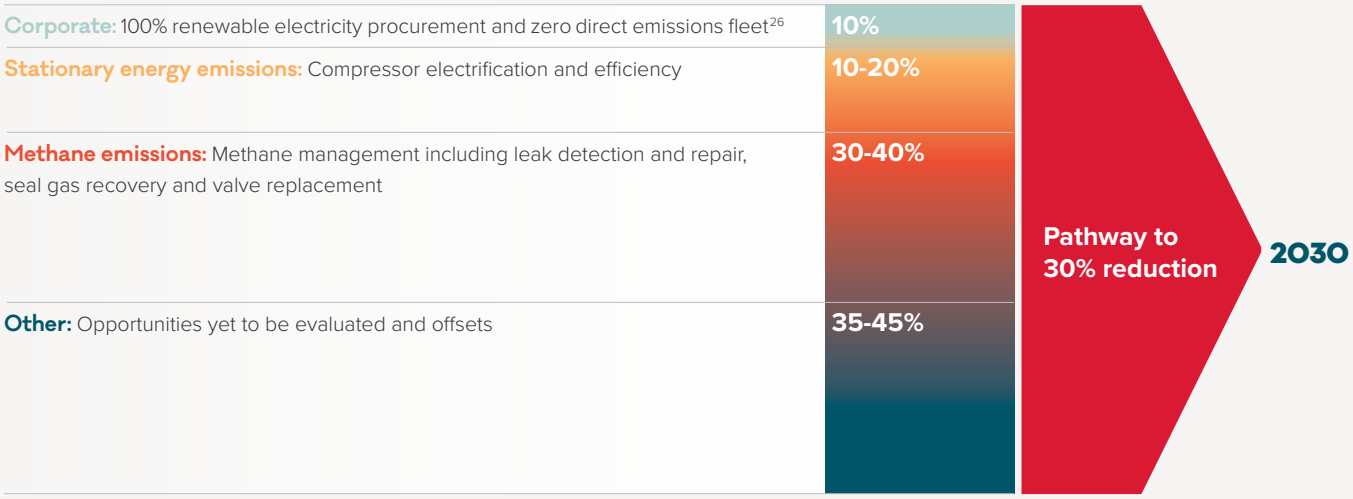
Operating a gas compressor requires a significant amount of energy. This power is typically generated onsite by gas turbines or gas engines using the natural gas being transported and paid for by the customer. This is particularly valuable for pipelines in regional locations where there is no (or limited) access to grid electricity.

Of APA's compressor stations, 75% are considered remote or regional and not in sufficiently close proximity to an electricity network. This significantly limits the number of viable compressor sites for electrification as part of our emissions reductions plan.

Compressors need from 0.5 MW to 25 MW of power. To electrify, a remote medium-sized compressor requiring 5 MW must be supported by a dual fuel compressor for system reliability and a renewable facility of around 25 MWp. The addition of battery storage would support the greater use of renewables for overnight loads. We expect the marginal cost of abatement to implement this technology to be significantly above our abatement premium. Access to land for renewable power facilities of the required size may also present challenges.

Commercial hurdles also exist in the electrification of compressors. APA's customers pay for the gas which is used within our compressor stations. Customers need to be willing to structure new or adjust existing commercial arrangements to support investment in existing compressor electrification.

APA's gas infrastructure Scope 1 and Scope 2 target for 2030 will be achieved primarily through structural abatement



Target: 100% renewable electricity procurement from FY23

Commencing in FY23 APA will voluntarily purchase and surrender large-scale generation certificates (LGCs) equivalent to the electricity the whole APA Group consumes from an electricity grid under our operational control. The Australian Government's Large-scale Renewable Energy Target requires APA's electricity retailers to purchase LGCs based on the renewable power percentage. Our 100% renewable electricity commitment will be met through our voluntary purchase and surrender of LGCs and those already purchased and surrendered by our electricity retailers.

Due to APA's relatively modest electricity consumption volumes, we do not expect it will be possible to enter into a bundled power purchase agreement supporting new sources of renewable electricity generation. However, we will explore this possibility as part of a procurement exercise.

This target is included under our gas infrastructure asset class as it consumes the majority of electricity. However, the target applies to the whole APA Group electricity consumption including the power generation and electricity transmission infrastructure asset classes.

Goal: 100% zero direct emission fleet by FY30

As leases expire across APA Group's passenger and light commercial vehicle fleet our goal is to replace them with zero direct emission vehicle (ZDEV) alternatives to reach 100% coverage of our vehicle fleet by 2030. We will also continue to assess ZDEV solutions for commercial and heavy vehicle categories.

Achieving our goal may be challenging. A suitable ZDEV may not be available, or a vehicle may be unviable for operational reasons, such as lack of charging and refuelling infrastructure in remote locations where APA operates.

This goal is included under our gas infrastructure asset class as it operates the most vehicles. However, it applies to the whole APA Group.

26. 100% renewable electricity commitment will be met through our voluntary purchase and surrender of LGCs and the mandatory purchase and surrender by our electricity retailers to match grid-sourced electricity consumption.

Commitment: Responsible criteria applied when offsets are required

APA prioritises emissions avoidance and reduction where it is reasonable to do so.

Within APA's power generation infrastructure asset class, we expect offsets to play a limited role in neutralising emissions to achieve net zero.

Gas infrastructure is considered a hard-to-abate sector. Where emissions reductions are not reasonable due to the lack of commercially viable technology, we will apply best practice criteria that enable us to acquire offsets as an interim measure that supports achieving the target.

The following best practice criteria for the procurement and origination of offsets, will be embedded in our Climate Change Standard.

Transparency: Public disclosure of credit information, including methodology.

Co-benefits: Synergies with APA's Sustainability Roadmap and our priority issues, such as support for First Nations engagement.

Permanence: Minimum of 25 years, with a longer term preferred.

Credibility: Independent verification through recognised national/international standards. Listed and tracked in a publicly transparent registry.

No double-counting: Reductions attributable to the surrender or retirement of any offset are otherwise unclaimed by others.[27]

Leakage: The standard under which the offset is generated has a reversal mechanism that deals with emissions reversal (for example, if there is a bushfire).

Additionality: Offsets represent genuine abatement and prioritise nature-based sequestration over avoidance projects.

Vintage: Offsets' vintage (the year the credits were issued) are close in time to when the emission occurred.

Where offsets are required, APA's strategy is to procure a diverse portfolio of Australian and international responsible offsets. We will obtain them primarily through structured third-party broker contracts, direct investment and market-based purchases. We recognise the need to adapt to an evolving and changing market.

Capital investment to support gas infrastructure commitments

APA has evaluated the cost of reduction initiatives, on a P50 basis, as approximately $150 – $170M (nominal) for FY23 – FY30. This includes estimated operating and capital expenses and an allocation for offsets. We have reflected these initiatives in APA's internal long term financial forecasts.

Power generation and electricity transmission infrastructure 2030 commitments

When setting goals for APA's power generation portfolio, we considered a range of complex variables. These include:

- APA's growing investment focus on electricity transmission infrastructure
- Market and regulatory certainty and predictability
- Our ability to control emission outcomes, given that portfolio development is a function of customer contracting and future opportunities to meet customer needs will determine changes in the portfolio composition over time.

Splitting APA's goals for power generation into core generation assets and electricity transmission recognises and manages these complex variables for APA while enabling us to disclose our actions and outcomes more transparently.

Importantly, it means we can:

- Set goals focused on the aspects we can control (power generation)
- Recognise APA's contribution to wider grid decarbonisation (electricity transmission).

27. Specifically, the party that surrenders or retires the offset can claim the reduction of CO_2 emissions, and no other party, including the party that originally generates and subsequently sells the offset, can claim that reduction potentially resulting in 'double counting'.

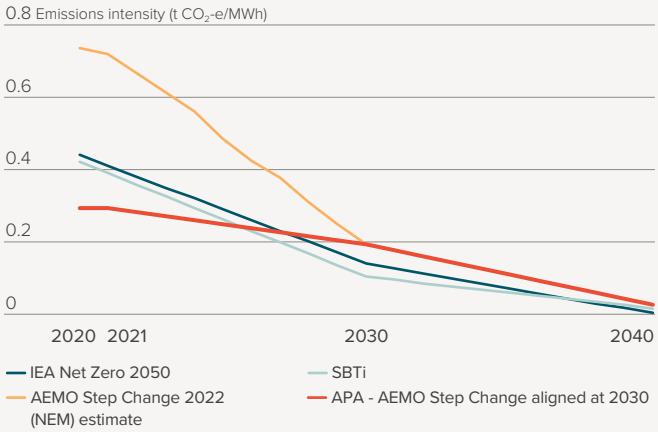
Power generation infrastructure

Goal: Reduce power generation intensity by 35% by 2030, reaching net zero by 2040

APA considered a range of roadmaps and standards in setting our Scope 1 and Scope 2 power generation goal. These included IEA's Net Zero by 2050, the Science Based Targets initiative (SBTi) power sector guide and calculator, Bloomberg New Energy Outlook 2021 and AEMO's 2022 ISP step change scenario.

We considered AEMO's ISP step change scenario the most informative as it is based on Australia's NEM, and most closely reflects the market conditions for APA's assets.

Power generation intensity - decarbonisation scenarios [28]



The SBTi power sector guide provides generic target guidance that, in our view, does not consider the relative emissions intensity starting point for different corporations and the importance of different types of generation assets in the energy transition. Also, when testing its application, it resulted in an implausible investment requirement for renewable energy.

APA has defined the commitment as a goal, as the pathway is largely centred on new business investment and influenced by several factors out of our control, including customer demand.

Power generation intensity trajectory selection

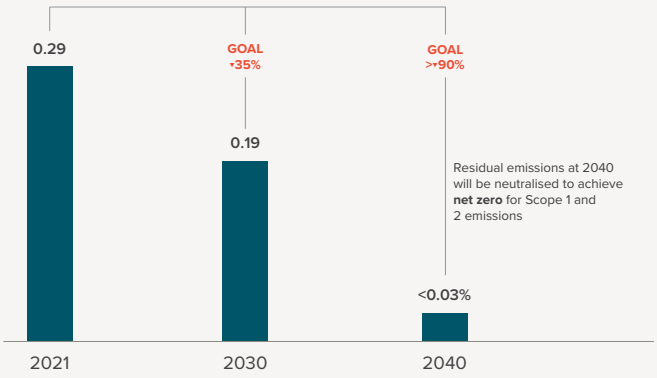
As highlighted earlier, power generation target/goal selection requires recognising accelerated decarbonisation, with net zero being achieved by 2040. APA's FY21 power generation intensity of 0.29 is already below – in some cases significantly – all reasonable published trajectory scenarios.

Accordingly, APA's 35% intensity reduction goal defines a trajectory that aims to meet the AEMO step change scenario in 2030 with an estimated intensity of 0.19, then achieve net zero by 2040.

APA will pursue the emissions intensity goal through investments in renewables, storage technology and optimisation of existing power generation infrastructure.

Power generation emission intensity goals (t CO_2-e/MWh)

Power generation gross emission intensity goals (t CO_2-e/MWh)



Absolute emissions vs emissions intensity

While absolute emissions are important, emissions intensity as a goal or target is more informative when it comes to power generation on the pathway to net zero. Absolute emissions increases are often the result of increased electricity demand by customers.

Emissions intensity enables APA and our stakeholders to understand the emissions performance of individual power stations. It also recognises the benefits of APA's investments in renewable assets, which absolute emissions do not.

In addition, it focuses our planning on ensuring the capacity of existing renewable assets is as high as possible to support the overall intensity measure.

28. AEMO Step Change 2022 (NEM) estimate based on data from the 2022 Final ISP results workbook - Step Change - Updated Inputs (2023-24 to 2029-30). FY20 and FY21 based on CER corporate designated generation data.

Case Study: Diamantina Power Station Complex efficiency

APA's high-efficiency power station maintains a low emissions intensity in remote Queensland

APA plays a pivotal role in providing energy in the North West Minerals Province (NWMP) of Queensland. Most power in the region is supplied through DPS and the adjacent Leichhardt and Thomson Power Stations, which feed into the NWPS. APA owns and operates all three assets. Electricity generation in this region contributed to around 54% (809,429 t CO_2-e[29]) of APA's emissions in FY21.

Situated in the province, Mount Isa supports significant mining operations. It has a standalone power grid and is not connected to the NEM, so it is crucial that APA continues providing safe and reliable power to this region and its communities.

DPS is a modern, high-efficiency 242 MW combined cycle gas turbine power station. This type of power station has a much higher fuel conversion efficiency than a conventional gas power plant as it utilises the heat from the gas turbines to feed a secondary steam cycle, generating more electricity from the same fuel. This type of system burns far less fuel to generate the same amount of electricity. This keeps the emissions intensity of generation in the province far lower than conventional gas generation.

Emissions intensity comparison[30]

DPSC	0.42 t CO_2-e/MWh
NEM	0.72 t CO_2-e/MWh
NEM - Queensland	0.78 t CO_2-e/MWh

DPS is supplemented by generation from the 60 MW Leichhardt Power Station and a further 242 MW from the Thomson Power Station. These provide flexible generation options that cater to changing regional demand and optimise efficiency.

Reducing the emissions intensity of APA generation in the NWPS presents a significant opportunity to support our power generation intensity goal of a 35% reduction by 2030, while continuing to provide this essential service in the region.

In taking steps to reduce power generation emission intensity, APA is currently building Mica Creek Solar Farm to provide an extra 88 MW of generation from early 2023. This will drive down the region's emissions intensity even further, to 0.38 t CO_2-e/MWh.

Gas generation will continue to play an enduring role to ensure a secure energy supply for the province. As renewable generation develops, there will still be a need for firming to ensure electricity is available to meet demand when renewable energy is not.

29. Daandine power station is located outside of the NWPS and hence not included in this number.
30. Clean Energy Regulator *Greenhouse and energy information by designated generation facility 2020-21.*

Electricity transmission infrastructure commitments

Goal: Contribute positively to grid decarbonisation, as measured by MW of enabled renewable infrastructure.

Commitment: Active program to reduce emissions we can control and apply best practice management techniques to managing line losses.

APA's goal and metric for electricity transmission align with our commitment to providing energy infrastructure that effectively supports Australia's decarbonisation ambition and wider grid decarbonisation.

To ensure APA's contribution to grid decarbonisation is transparent and accountable, we have committed to a quantifiable metric that demonstrates how this is being achieved.

Line losses are the major source of emissions from electricity transmission and are included in APA's emission's inventory. Reductions are largely determined by the rate of grid decarbonisation, not by direct APA intervention. On this basis line losses are not included in our electricity transmission infrastructure goal.

While APA recognises line losses are largely out of our control, we have also committed to consider best practice design for line loss management as part of any greenfield development investment decisions.

If APA is involved in developing greenfield transmission infrastructure, we will consider how to apply best practice design requirements to minimise operational line losses as part of our investment decision.

APA's active program to reduce emissions will focus on emissions sources that we can control including sulphur hexafluoride (SF6) and fuel use for transport energy purposes. This will include enhanced measurement of SF6 to quantify our emissions and reviewing options to reduce emissions.

APA will disclose all Scope 1 and Scope 2 emissions associated with transmission infrastructure. These include line losses, SF6, diesel and electricity use.

Key challenges

APA's power generation and electricity transmission infrastructure commitments reflect that:

- Achieving emissions reductions largely depends on customer requirements and APA's competitiveness in providing lower emissions power generation solutions
- Achieving our power generation intensity goal requires a significant investment in renewables
- Customers are likely to seek a mixture of renewables and firming solutions that include emissions-producing gas or diesel power
- APA's strategy includes providing firming generation, which in some instances may firm renewable generation provided by third parties
- Uncertainty about the future of the Mount Isa electricity market complicates investment decision making for APA and customers alike.

Setting our ambition for Scope 3

Building on our foundational work in FY22, APA will spend time to collaborate and partner across the value chain to develop a meaningful Scope 3 goal. This will be finalised before or in conjunction with the release of our next Climate Transition Plan in 2025.

In addition, we will pursue opportunities to support gas value chain decarbonisation through our Pathfinder Program and exploring how we can support our customers' and others' decarbonisation journeys.

Consideration for wider grid decarbonisation impacts APA's emissions and commitments

As indicated earlier, in certain circumstances APA's emissions may temporarily increase as we respond to the needs of wider system decarbonisation.

Where this occurs, we will:

- Disclose the contributing factors and explain the impacts
- Attempt to quantify and disclose the resulting impact on system decarbonisation in a meaningful way
- Identify and disclose our proposed pathway to align with our target trajectories.

Post-2030 considerations

APA's 2030 interim targets, goals and commitments are one step on the journey to achieving our 2040 and 2050 goals. The path APA takes will continue to evolve as we evaluate further reduction opportunities, the cost of implementing decarbonisation initiatives reduces and new technologies emerge.

Improved domestic regulatory alignment, effective long-term planning, policy certainty and well-designed market-based mechanisms are essential for continuing decarbonisation momentum over the medium to long term. Failing to provide market certainty risks a disorderly and costly transition for businesses and communities as APA's 2022 resilience testing demonstrated.

Over the medium to long term, APA's pursuit of net zero emissions is likely to be supported by four key areas.

- **Power generation:** Further reductions in emissions intensity may be delivered by investing in renewables technologies, storage and long-duration firming from natural or renewable gas-powered generation.
- **Gas infrastructure:** Further improvements in methane management will deliver greater emissions reductions. The key enablers will be technology that supports more accurate quantification of methane emissions. Stationary emissions reductions will depend on APA's ability to electrify remote compressor stations with renewable electricity (see the compressor electrification case study) and the composition of the renewable gases we transport.
- **Electricity transmissions infrastructure:** More investments in electricity transmission infrastructure that enables the further deployment of renewables.
- **Future fuels:** Using gas infrastructure for alternative fuels and storage subject to the creation of feasible markets, including supportive government and economic regulation, and customer acceptance.

Baseline selection and re-setting

APA's most recent FY21 emissions profile forms the base year for the emissions reduction targets and goals outlined in this plan. The reduction opportunities focus on the largest emissions sources based on FY21 NGER emissions data.

We will review and reset APA's base year inventory and targets where:

- Significant changes in company structure and activities (such as acquisitions, divestitures, mergers, insourcing or outsourcing) alter the base year inventory by more than 10%
- Emissions from exclusions in the base year inventory or reporting boundary change significantly, for example a shift to an equity share reporting boundary
- There are significant adjustments to the base year inventory or changes in the data we used to set targets (for example, we discover significant errors or several cumulative errors that are collectively significant).

Community transition and adaptation

APA's purpose is to strengthen communities through responsible energy.

Consistent with our purpose, we aim to support the communities that we work with to adapt to, and benefit from, Australia's transition to net zero and respond to the challenges and opportunities presented by climate change.

This is a priority in the APA Sustainability Roadmap and sustainable development program. The APA FY22 Sustainability Report includes details about our Sustainability Roadmap.

Action Plan

	Operated Assets			Value chain (Scope 3)
	Gas	**Power generation**	**Electricity transmission**	
Emissions	**567,402 (S1+2) t CO_2-e**	**873,221 (S1+2) t CO_2-e 0.29 t CO_2-e / MWh (S1+2)**	**71,144 (S1+2) t CO_2-e**	**708,901 (S3) t CO_2-e**
Target, goal or commitment	100% renewable electricity procurement from FY23 100% zero direct emission fleet by 2030 Hold a non-binding shareholder vote on our Climate Transition Plan (starting at 2022 Annual Meeting) Report annually on progress against the targets, goals and commitments within our Climate Transition Plan Link executive remuneration to climate-related performance from FY23			Scope 3 emissions goal to be finalised before or in conjunction with next Climate Transition Plan
	Net zero by 2050 30% emissions reductions by 2030 Apply responsible criteria to offsets (when required) Total nominal expenditure to 2030: Approx. $150-170M Incorporation of the Methane Guiding Principles	Net zero by 2040 35% emissions intensity reduction by 2030	Net zero by 2040 Contribute positively to grid decarbonisation by enabling renewables Active program to reduce emissions we can control and apply best practice management techniques to managing line losses	
FY22 achievements	East Coast Grid expansion stage 1 and 2 FID Kurri Kurri Lateral Agreement NGI construction commenced Incorporation of the Methane Guiding Principles	Mica Creek Solar Farm FID and construction commenced	Acquired rights to Basslink debt Network REZolution consortium shortlisted for Central-West Orana Renewable Energy Zone	Developed emissions boundary and estimated Scope 3 emissions for the first time Gruyere microgrid completion
Focus areas – FY23	– Embed proactive emissions management and reduction activities to support targets into 100% of asset management plans – Procure 100% renewable electricity and establish mechanisms to support ongoing adherence – 100% zero direct emission fleet goal strategy initiated – Monitor for emerging technologies that support emission reduction			Enhance reporting methodologies and data process Confirm target pathways
	Compressors – Identify electrification of key sites – Study/implement compressor efficiency actions **Methane** – Establish target – Study/implement loss reduction and enhanced measurement	Complete Mica Creek Solar Farm (88 MW) Investment opportunities in renewables and firming technologies	Pursue investment in electricity transmission infrastructure to support renewable penetration	
Focus areas FY24 – FY30	**Compressors** – Execute electrification of key sites – Execute all efficiency actions **Methane** – Embed target into BAU – Implement enhanced measurement – Implement loss reduction actions	Invest in renewables and firming technologies Optimise gas power generation including capacity	Pursue investment in electricity transmission infrastructure to support renewable penetration	Finalise Scope 3 target (no later than FY25) Establish and implement Scope 3 target plan

Value chain (end user emissions from delivered product)	Broader stakeholder contribution	Governance and accountability
68.3 M t CO_2-e	**N/A**	**N/A**
Continue Pathfinder feasibility and investment	– Contribute to grid decarbonisation – Advocacy consistent with our Climate Change Policy including with industry associations we are members of – Support measures to ensure communities adapt to and benefit from the transition to net zero	– Non-binding shareholder vote on Climate Transition Plan – Climate-related performance linked to executive remuneration
Pathfinder progress – H2 Parmelia Pipeline conversion (stage 1) complete – MOU with Wesfarmers (WesCEF) to produce and transport H2 to WesCEF Kwinana – Joined Gladstone H2 consortium – Consortium with Pilot Energy and Warrego Energy Limited to study blue hydrogen	Australian Climate Leaders' Coalition member (including active contribution to Scope 3 Energy Deep Dive) Founding Member of Material and Embodied Leaders' Alliance (MECLA) Net Zero Australia Project donation Energy Transition Initiative partner supporting phase 1 and 2 reports Government climate policy related consultations submissions including on Victorian Gas Substitution Roadmap and 2035 Target, and Corporate Emissions Transparency Report	Net zero and climate program Design Phase complete – Targets, goals and commitments set – Governance structures established – Climate Change Policy and Standard – Critical controls determined
Progress Pathfinder – Parmelia Gas Pipeline hydrogen conversion - complete phase 2 – Central Queensland Hydrogen Project - complete feasibility study and commence FEED – Parmelia Green Hydrogen Project (WesCEF) - complete pre-feasibility study – Mid-West Blue Hydrogen Project - complete pre-feasibility study Support customers with reliable and lower emissions energy solutions Identify value chain collaboration opportunities	Energy Transition Initiative – support phase 3 of the project including release of the final report Develop and commence implementation of our MGP action plan including influence and outreach activities Increased MECLA participation and stakeholder engagement to support Scope 3 reduction opportunities Commence implementation of regulatory advocacy plans in relation to the energy regulatory framework	– Embed new governance structures and cascade executive remuneration inclusion as appropriate – Progress and complete Embed Phase of the program, including change management plan and all process/system changes – Physical climate risk assessment (portfolio level) – Emissions reporting automation platform – Enhanced disclosure in line with our metrics – Establish governance mechanisms and capability to support procurement and management of offsets – Evaluate and plan for Safeguard Mechanism changes
Advance collaboration opportunities	Advance regulatory advocacy objectives by January 2025.	Physical climate impact assessments and adaptation plans developed and integrated into asset management plans Annual performance disclosure against this plan

Embedding climate consideration into executive incentives

The APA corporate scorecard for executive remuneration now incorporates a dedicated and specific component of the short-term incentive (STI) scheme that is linked directly to implementing this Climate Transition Plan. The component will be 10% of the STI.

From FY23 onwards, it will apply to relevant members of the executive. To support effective consideration and implementation for the plan, it will be cascaded within APA as appropriate.

We consider this to be an initial step in supporting APA employees' awareness and focus on climate transition and our approach will be refined over time.

Transparency and accountability

APA is committed to strengthening our approach so we can achieve the highest standards of transparency and accountability and evolve in accordance with stakeholder expectations.

Accordingly, APA has committed to undertaking a non-binding shareholder advisory vote on adopting this Climate Transition Plan. From FY23, we will provide an annual performance report against progress made on the targets, goals and commitments made in the plan.

For the data APA submits to the Clean Energy Regulator (CER), and on which this plan and our performance reporting relies, we undertake annual reasonable assurance of all emissions under our operational control.

Engagement, public policy and advocacy

APA believes effective planning, policy certainty and well-designed market-based mechanisms provide for the most orderly, efficient and least cost transition in support of the Paris Agreement.

We will advocate for public policy positions that are consistent with the stated positions in our Climate Change Policy and this plan, including with industry associations to which APA belongs. For a full list of APA memberships, see our FY22 Sustainability Report.

Example of inconsistency with decarbonisation objectives

Australia's international climate commitments are not currently reflected in the current National Gas and Electricity Objectives. This hinders our investment in equipment and activities that support decarbonisation of APA's regulated assets as the regulator is not currently able to approve it under regulation.

APA welcomes the announcement of the National Energy Transformation Partnership by State and Commonwealth Energy Ministers. As a first action the Partnership is to fast-track inclusion of an emissions objective into the National Gas and Electricity Objectives.

APA will actively engage with the National Energy Transformation Partnership to ensure any proposed emissions objective enables effective planning, alignment and consideration of decarbonisation outcomes within the energy regulatory framework, including cost recovery mechanisms for decarbonisation initiatives.

Where there is inconsistency or a lack of certainty in regulatory settings, APA intends to:

- Seek to engage with governments, regulators and the Australian Energy Market Commission (AEMC) to collaborate on defining required legislative changes and/or rules to enable consideration of cost-effective net zero proposals and outcomes
- Initiate and/or participate in industry-wide collaboration for the case for change, pursuing consensus among stakeholders.

APA will pursue these efforts with a view to progressing a more aligned and consistent regulatory framework and plans to include decarbonisation initiatives and their costs in forthcoming regulatory proposals for Goldfields Gas Pipeline and the Roma to Brisbane Pipeline.

9. Risk management

Risk management processes and systems

The APA Board is responsible for reviewing and considering the potential impacts of risks related to climate change across the organisation and overseeing our climate change strategies. The Board Audit and Risk Management Committee oversees the APA risk program.

All risks and opportunities, including climate change, are managed in accordance with APA's Risk Management System. The system is aligned with the ISO 31000 international standard for risk management to ensure effective risk management and strong decision-making. Climate change risks (including emerging risks) are assessed using an enterprise risk matrix considering likelihood and impact to determine a risk rating. We then establish risk treatment options and implement management actions.

Material climate risks are disclosed in APA's FY22 Annual Report and this plan. The APA Risk Management Policy sets out APA's approach.

APA's Risk Appetite Statement recognises key risk areas for climate change, the need to respond to market changes (including decarbonisation) and how developing skills and capability in new energy technologies will generate long-term value.

For further information on our risk management system, see the APA FY22 Sustainability Report.

Climate-related risks and opportunities

Global energy markets are shifting rapidly, with many governments (including the Australian Government and all state and territory governments) and APA customers establishing net zero targets and decarbonisation pathways in response to climate change.

The Australian energy market is experiencing widespread disruption, including:

- Displacement of traditional fuels
- Accelerated fossil fuel plant closures
- Rapid deployment of clean energy solutions
- The increasing influence of activist investors.

Climate-related risks encompass a broad set of risks with potential financial implications for specific assets in APA's portfolio. The TCFD framework categorises climate-related risks into transition risks and physical risks.

Transition risks refer to the risks associated with transitioning to a lower carbon economy. This encompasses risks associated with the policy, legal and technological changes required to address climate change. Climate transition risks that align with the TCFD categorisation include:

- **Market risks:** reduced demand for gas or gas generation, potentially driven by volatility or increase in gas prices or disruption in the gas supply.
- **Technology risks:** substitution of gas by alternatives such as electrification or hydrogen or competing investment in new energy technologies.
- **Policy and legal risks:** legislation of carbon pricing, introduction of heightened emissions reporting requirements, or policy changes around electrification or cleaner electricity.
- **Reputational risks:** loss of social licence of gas as a transition fuel, activist investors, or negative stakeholder feedback over operations or reporting.

Physical risks refer to the direct impacts of climate change on business operations and broader society. These include direct damage to assets, supply chain disruption and the availability of raw materials.

The following tables summarise APA's climate-related risks and opportunities.

APA's climate-related risks using the TCFD categorisation

Risk summary	Risk description	Risk level and time horizon[31]	APA management controls
Rapid or inconsistent public policy changes related to climate	Change in government policy or regulation, such as pricing GHG emissions	High Short-term to long-term	Emerging issues monitoring Advocating for consistency and alignment of regulation and policy with Australia's decarbonisation ambition Engagement with economic regulators, customers and stakeholders of our asset portfolio Climate Transition Plan
Market uncertainty and changing/ reduced demand for natural gas	Decrease in domestic gas demand due to increasing incentives for customers to switch to lower emissions alternatives	Moderate Medium-term to long-term	Scenario analysis and resilience testing Corporate Strategy Climate Transition Plan
Exposure to increasing climate-related litigation	Business disruption and/ or financial and reputational impacts	Moderate Short-term	Climate Transition Plan Corporate governance processes
Chronic and acute physical risks of climate change	Impact on the operability of APA's existing assets	Low Short-term to long-term	Scenario analysis and physical climate risk assessment (portfolio and asset)

APA's climate-related opportunities

Opportunity summary	Opportunity description	Opportunity time horizon
Role of gas in firming and peaking	Continued demand for energy infrastructure to support penetration of renewables	Short-term to medium-term
Increased energy demand from mining sector	Increased demand for off-grid renewables or hybrid/integrated customer solutions	Short-term, medium-term to long-term
Renewable gases	New and upgraded infrastructure to transport hydrogen and/or renewable methane or other gases	Medium-term to long-term
Carbon capture and storage	Transportation and storage of carbon within geological reservoirs	Medium-term to long-term
Offsets for APA and customers	Origination of offsets to support APA and customers' decarbonisation requirements	Short-term, medium-term to long-term
New energy investment opportunities	Growth in electricity transmission, renewable electricity, and renewable electricity firming infrastructure to support the increased penetration of renewable electricity	Short-term, medium-term to long-term

31. For the purposes of this plan APA defines short-term as 0-3 years, medium-term as 4-10 years and long-term as 10+ years.

Using scenario analysis

Scenario analysis is a well-established method of informing strategic planning and an important and useful tool for understanding the strategic implications of climate-related risks and opportunities.

APA uses scenario analysis and resilience testing to understand the potential impacts of a range of climate transition pathways on our energy infrastructure portfolio and we continue to evolve our approach. While scenario planning is an important planning tool for APA, there are inherent limitations with scenario analysis and scenarios do not constitute definitive outcomes or probabilities. It is difficult to predict which, if any, of the scenarios might eventuate and scenario analysis relies on assumptions that may or may not prove to be correct.

We have begun scoping detailed scenario analysis for assessing APA's physical climate risk. This work will be a priority for FY23.

Enhancing our climate scenario analysis and resilience testing

In 2020, we undertook APA's first dedicated climate transition resilience testing to assess the resilience of our portfolio under 3 divergent climate scenarios. This work represented a step change in APA's climate change focus and level of disclosure.

We published the resulting insights in the APA 2020 Climate Change Resilience Report. They indicated that APA's portfolio of assets remained robust under all 3 scenarios tested and benefited from existing contracts.

2022 asset level resilience testing

During FY22, APA continued to evolve our approach to scenario analysis and resilience testing by taking the next step to assess specific asset resilience. We evaluated the resilience of four APA assets to climate transition (or stranded asset) risk under several Paris-aligned scenarios to identify potential implications if they eventuated.

The assessment helped us to understand the opportunities and risks arising from the energy transition and will inform our strategy evolution. It increased APA's understanding of how the transition may impact asset life, ensuring the risks are appropriately considered in future planning at a corporate and asset level.

We are also using the outputs to inform subsequent iterations of our scenario analysis and mature the development of a consistent organisation-wide view.

2022 asset-level resilience testing approach

Our approach to assessing climate transition risks across APA's asset portfolio consisted of:

- Selecting a set of material assets representative of APA's portfolio, with a range of characteristics and sensitivities to demonstrate the broad range of impacts
- Defining a set of scenarios aligned with reputable sources and industry best practice to illustrate the spread of potential climate-related transition risks and opportunities.

For each selected asset, the asset resilience assessment involved:

- Identifying the key climate-related risks and defining how they will impact the financial outcomes of each asset
- With the support of global consulting firm the Boston Consulting Group (BCG)[32] modelling the outcomes of each asset across different transition scenarios using BCG Integrated Gas Model (IGM) for pipeline assets and Energy Resource Adequacy and Dispatch Model for generation assets
- Modelling the financial implications of the scenarios on each asset in line with how it was affected by the IGM outcomes, including impacts to revenue, operating expenses, and stay-in-business capital expenses.

Limitations and use of assumptions

Climate scenario analysis is an increasingly common approach to assessing the strategic implications of climate risks and opportunities. As Australia's largest gas infrastructure business, APA is exposed to a range of climate risks and opportunities across a broad portfolio of gas pipeline and generation assets.

By analysing climate transition scenarios, we can assess asset portfolio resilience across possible future states and pathways and over a broad set of possible policy and social actions. As such, climate scenarios allow for a standardised assessment of climate risk based on different decarbonisation trajectories.

Climate transition scenarios present the policy actions required for a specific warming target. They do not forecast which policy actions are likely to happen, or whether they should. For example, inducing certain climate scenarios required the models to incorporate carbon taxes to a level of taxation burden that would be generally regarded as socially unacceptable. These policy actions have only been applied for this purpose in scenario analysis, are not forecasts of likely outcomes, and do not form the basis of asset planning or carrying value models within APA.

Overall, the approach APA took for climate transition scenario analysis was based on achieving economically optimal outcomes, but without re-optimising assets for the modelled climate scenarios. Given the complexity of the assets and long-term timeframes, we needed to simplify many assumptions. As such, the scenario analysis and associated financial modelling have limitations.

The key assumptions and limitations are highlighted throughout the following sections.

32. BCG does not guarantee or make any representation or warranty as to the accuracy, reliability, completeness or currency of the modelling outcomes, nor its capacity to achieve any purpose. BCG, its subsidiaries and affiliates disclaim all liability relating to or arising from access, use or reliance on its contribution to this report.

Asset selection

We selected four assets for resilience testing based on their asset type, materiality, risk exposure and the presence of mitigating factors.

- **South West Queensland Pipeline (SWQP)** is a transmission pipeline subject to bilateral contracts with shippers. SWQP transports gas between the Moomba Gas Supply Hub in South Australia and the Wallumbilla Gas Supply Hub in Queensland.
- **Moomba to Sydney Pipeline (MSP)** is a pipeline transporting gas from the Moomba Gas Supply Hub into New South Wales subject to bilateral contracts with shippers. It transports significant volumes of gas to Sydney and has exit points into the Victorian Transmission System.

  Together with SWQP, it forms a key part of APA's East Coast Grid, as it transports gas from basins in Queensland to meet southern domestic demand and from southern gas basins to Queensland for export via Curtis Island LNG facilities.

  SWQP and MSP were assessed together as a system for the asset resilience testing.
- **Victorian Transmission System** is a fully regulated transmission network in Victoria. It delivers natural gas to Victorian end users and transports some gas to neighbouring states.
- **Diamantina Power Station Complex** is a group of gas-fired power stations supplying the North West Power System, subject to bilateral contracts with customers.

Asset selection criteria for resilience testing

Criteria	
Asset type	Representative of different asset types in APA's portfolio (e.g. generation, regulated gas transmission and distribution, non-regulated transmission), in different regions, showing the full range of risk exposure
Materiality	Asset value, defined as the contribution of the asset to APA's total revenue or emissions
Key risk areas	Level of exposure to key demand and supply risks
Mitigating factors	Potential mitigations against climate risks e.g. new sources of supply or demand

Scenario selection

APA tested the extent to which these assets are at risk of becoming 'stranded' using scenario analysis modelling undertaken by BCG. Stranded assets are those with no clear path to capital recovery and no continued role in the energy system.

We selected climate scenarios based on three key criteria.

Externally defensible: based on, and consistent with, widely used international scenarios, with publicly available and accessible data for validation.

Best practice: aligned with TCFD recommendations and consistent with peer and industry standards.

Insightful: accurately illustrate the spread of potential climate risks and opportunities, with resulting analysis assisting with strategic thinking.

The three climate scenarios aligned with the Paris Agreement that we selected were:

- '1.5°C' Smooth transition scenario
- '2.0°C' Smooth transition scenario
- '2.0°C Disorderly' transition scenario.

The outputs were translated into financial implications by assessing their impact on each asset's business as usual revenues, operating expenses and stay-in-business capital expenses.

Scenario mapping – the key modelling inputs utilised by BCG in the scenario analysis are applied on a state-by-state basis with individual industry-level assumptions

	2022 to 2030	2030 to 2040	2040 to 2050
1.5°C Scenario	● Hydrogen Superpower AEMO GSOO		● **GPG:** Flat from 2040 onwards ● **Industrial, Residential:** Forecast from previous 10 year CAGR ● **LNG:** Matches long-run trajectory of international gas demand from IEA NZE scenario from 2022 to 2050
2.0°C Scenario	● Step Change AEMO GSOO		● **GPG:** Flat from 2040 onwards ● **Industrial, Residential:** Forecast from previous 10 year CAGR ● **LNG:** Matches long-run trajectory of international gas demand from IEA SDS scenario from 2022 to 2050
2.0°C Disorderly Scenario	● Low gas price AEMO GSOO	● Follows trend of Hydrogen Superpower AEMO GSOO from 2022–2032 (10 years prior), signifying beginning of climate action	● **GPG:** Flat from 2040 onwards ● **Industrial, Residential:** Forecast based on remaining carbon budget to reach 2 degrees warming ● **LNG:** Based on the trajectory of the Networking for Greening the Financial System Disorderly scenario

● Tailored to local scenarios ● Based on global scenarios

Risks considered during scenario analysis

For this analysis, we focused on risks with a financial impact on APA's assets that could reasonably be modelled. Consequently, for pipeline assets, the focus was on domestic and international gas demand and domestic gas supply. For generation assets, the focus was on demand for gas generation capacity.

The specific risks we assessed under these scenarios included:

- Declining demand for domestic gas and Australian LNG exports, based on demand forecasts aligned with each scenario
- Changing gas supply locations, which in turn impacts pipeline use
- Increasing pressure on the regulatory model of regulated gas networks, as lower volumes lead to higher prices for end users
- The declining role of gas generation as customers transition to lower carbon electricity supply.

For the South West Queensland Pipeline (SWQP), Moomba Sydney Pipeline (MSP) and Victorian Transmission System (VTS), BCG's Integrated Gas Model (IGM)[33] was used to model physical outcomes. The IGM was also used to determine the optimal outcomes for the East Coast Gas Market using the demand forecasts under the 3 climate scenarios.

For SWQP and MSP, the outcomes were used to estimate contracted volumes and revenue under each scenario. For VTS, the outcomes were used to analyse the potential price impact on end users, including the risk of fuel switching as alternative fuels become more competitive.

For the Diamantina Power Station Complex (DPSC), BCG's Energy Dispatch and Resource Adequacy model demonstrated the optimal electricity generation mix under the 'shadow carbon cost' of each scenario (the carbon cost required to achieve the global emissions trajectory).

We used this information to determine the implied gas generation capacity and resulting financial outcomes for DPSC. We assumed DPSC would continue to contract on a capacity basis rather than through bundled energy and capacity contracts.

33. Integrated Gas Model (IGM) – BCG's Integrated Gas Model is a bespoke model of the Australian east coast gas market. It provides a view on the optimal gas market supply and infrastructure decisions, including basin development decisions, pipeline flows, market equilibrium price and supply-demand balance.

Methodology – overview of the scenario modelling approach for each asset

	Identify key risks	Model outcomes	Assess financial impact
SWQP & MSP	Demand risks – Domestic demand scenarios based on AEMO GSOO scenarios (modified to extend to 2050) – LNG export demand scenarios based on AEMO GSOO scenarios (extended to 2050 based on IEA/NGFS scenarios) – LNG price scenarios sourced from Rystad	Model optimal gas market outcomes using BCG's Integrated Gas Model (IGM) – Models optimal market outcome to provide views on future supply, demand, infrastructure and market equilibrium price – Decides timing for basin development and determines optimal supply mix for each demand centre (based on production and transport costs) – Volumes post-calibrated based on historical flows (where gas has multiple routes to market e.g. from Moomba to Melbourne) – Note: does not account for contracting behaviour	Revenue impact – Contracted volumes estimated based on historical ratio of contracted volumes to physical flows – Pricing as per APA base case pricing, except for SWQP transport from Ballera to Moomba only (~$0.12/GJ)
VTS	Supply risks – Underlying basin data based on Rystad (same for all scenarios) – Development decisions determined using BCG's Integrated Gas Model (see next step)		End user pricing impact – Increase in regulated network and retail tariffs due to declining volumes – Forecast wholesale/transport costs – Retail costs fixed per customer – Mitigations: H2 blending, lower RAB Residential fuel switching economics – Based on TCO for gas vs electric
DPSC	Demand risks – Customers recontracting at lower capacity due to decarbonisation and rising shadow carbon costs – Total demand in Mount Isa assumed to remain constant 255MW, with Mount Isa continuing to be isolated from NEM and DPSC the only gas generator in local grid – Shadow carbon costs follow IPCC and NGFS scenarios	Energy resource model to determine optimal mix of gas and renewables – Model economics and resource adequacy of different generation mixes on a 30 minute basis based on AEMO ISP and scenario inputs – Find optimal capacity mix of wind, solar, solar thermal, batteries, and gas for each scenario leading to lowest system cost	Model financial impacts based on installed capacity and capacity factor – Assuming capacity payment model continues, revenue falls as installed capacity declines – Pricing assumed to be constant until 2040, then declines (reflecting lower CapEx) – OpEx from APA base case until 2030; post-2030 fixed vs variable OpEx from APA – CapEx follows APA base case until 2030, then after 2030 scaled based on installed capacity in each climate scenario relative to APA base case

The specific impacts of these scenarios on the selected assets included:

– **SWQP and MSP:** Falling domestic demand and LNG export demand, leading to falling utilisation; supply risks from scaled-down basin development, leading to falling utilisation from a lack of supply or supply coming from areas where APA assets are not used.

– **VTS:** Falling domestic demand due to substitution, leading to falling utilisation and supply risks from scaled-down basin development. As VTS is heavily regulated these scenarios would result in increased per-user charges and contribute to escalation in overall per-user charges through the gas infrastructure value chain, since gas distribution assets would be conceptually impacted in similar ways.

– **DPSC:** Falling demand as customers recontract at lower capacity to decarbonise their energy supply due to internal climate targets, government policies or technology risks.

Methodology – scenario modelling approach for VTS

1 Model impact on volumes

Model impact on volumes

- Identify key demand and supply risks
- Model optimal gas market outcomes using BCG's IGM
- Calibrate IGM output as needed

2 Model end user pricing

Without mitigations

- Determine increase in regulated network and retail tariffs due to declining volumes
- Forecast wholesale/transport costs and retail costs

With mitigating factors

- Apply mitigations: H2 blending, lower RAB
- Determine new increase in regulated network, retail tariffs and wholesale prices

3 Model residential fuel switching economics

Model TCO for gas

- Determine CapEx for water and space heating
- Determine OpEx for water and space heating under scenario-specific future end user gas prices

Model TCO for electricity

- Determine CapEx for water and space heating
- Determine OpEx for water and space heating based on current electricity price cost

Determine electricity price where TCO is equal to or lower than gas

TCO - Total cost of ownership **RAB -** Regulated asset base **IGM -** Integrated gas model

Scenario characteristics

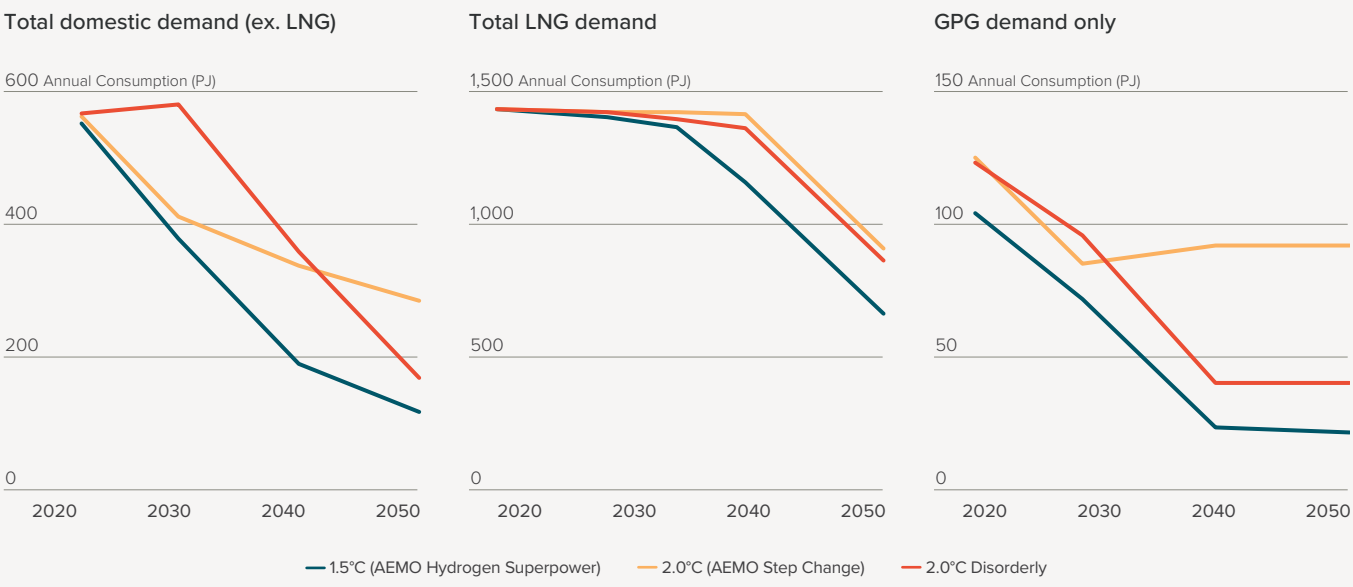
The key characteristics of each scenario are described below, enabling comparison of the key levers impacting APA assets.

The scenarios utilised for the transition analysis have different industry-level trends over time

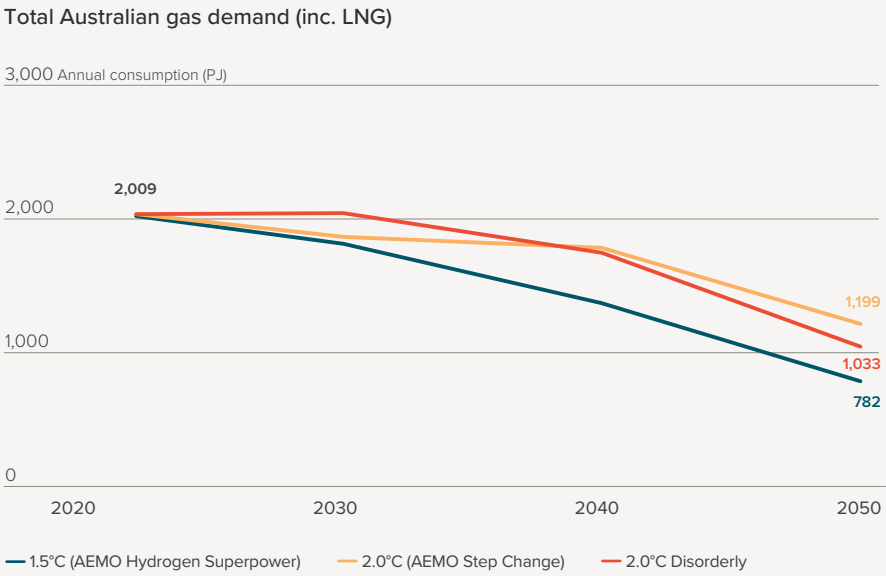
	1.5°C Scenario	2.0°C Scenario	2.0°C Disorderly scenario
Description	– **Emissions sharply decline,** reaching net zero by 2050. Aligned with IPCC SSP1-1.9 and IEA NZE scenarios	– **Emissions decline at projected levels**, global institutions progressing towards Paris targets aligned with IPCC SSP2 2-2.6 and IEA SDS scenarios	– **Minimal action taken until 2030s**, after which **severe emergency action** will be taken. Aligned with NGFS disorderly transition scenario
Carbon pricing	– **Aggressive carbon pricing**[34], starting at over $400 per t CO_2-e by 2030, significantly higher than current carbon prices (e.g. ~$112 in EU), and ~$850 by 2050	– Carbon pricing in all OECD countries **to ramp up to current benchmarks** (e.g. ~$112 in EU), peaking in ~2050	– No carbon price in Australia until ~2030, after which a similar carbon price to the 1.5°C scenario will be adopted, **reaching ~$400 per t CO_2-e by 2040, and ~$800 by 2050**
Electricity generation	– **Baseload** to be provided by **renewables** (solar, wind), supported by storage technologies with limited role for gas firming	– **Baseload increasingly provided by renewables**, with non-renewable generators to operate at reduced capacity factor	– **Minimal changes** until **~2030**, after which large scale decarbonisation of electricity generation, likely leading to rapid **fall in generation from non-renewables**
Australian gas demand	– Domestic gas demand **to fall rapidly (down ~40% by 2040)**, led by decrease in residential and commercial demand, with GPG falling due to shift towards renewables	– Similar to 1.5°C scenario for the first ~10 years – From **2030-2040**, **10%** overall decline due to **residential and industrial segments**	– Minimal changes until ~2030, after which aggressive climate action leads **to 2050 demand sitting between 1.5°C and 2.0°C scenarios**
Global LNG price and demand	– **LNG prices are suppressed** due to low global demand – Decline in LNG **export volumes** from **2030**	– **Gradual decline in LNG pricing** and demand, in line with standard current LNG market forecasts – Decline in LNG **export volumes** from **2035**	– **Short-term higher LNG pricing**, with significantly **lower prices in the long term** – Decline in LNG **export volumes** from **2040**

34. Implicit carbon price based on combination of direct Government carbon pricing, 'shadow price' costed by private companies, or other of government subsidies.

Industry-level trends vary for each scenario utilised in the analysis



Gas demand implications under each scenario utilised in the analysis



- Gas demand will fall significantly by 2050 in all scenarios
- Total domestic (ex. LNG) demand will fall in both 1.5°C and 2.0°C scenarios for the next 10 years, with the 1.5°C scenario sustaining the decline until past 2040
- Disorderly scenario implies very little change in domestic demand until at least 2030, after which pace of decline exceeds all other scenarios
- LNG exports will begin falling in the mid-2030s as Asia transitions away from gas-powered generation, with larger reductions in the Disorderly and 1.5°C scenarios
- While gas demand falls by 2050 in all scenarios, the pipelines that were the subject of analysis continued to provide services to the market to 2050.

Note: Current total gas demand in 2022 is 2018 PJ including exports and 204 PJ for Victoria.

Financial insights from 2022 resilience testing

Overview of financial analysis

Using the scenario modelling outcomes, we assessed the financial implications of the 1.5ºC, 2.0ºC and 2.0ºC Disorderly scenarios on APA's business-as-usual (BAU) cash flow forecasts (BAU Case) for MSP, SWQP and DPSC.

Each asset was assessed for the period from FY23 to FY50 for the implications of the modelled climate scenarios on its:

- Uncontracted revenues
- Operating expenses (OpEx) and stay-in-business capital expenses (SIB CapEx)
- Resulting Net Present Value (NPV) on an ungeared pre-tax basis.

This approach assumed no strategic responses or asset management decisions were made outside those already existing and inherent in each asset's BAU Case so there was no change in the asset footprint or cost base.

Each scenario's NPV presented is relative to the BAU Case at a given point in time and does not necessarily translate into a carrying value assessment. The modelled scenarios are necessarily simplified for this particular purpose and do not replace the internal asset management scenarios APA develops for internal purposes and carrying value assessments.

While the VTS was selected for scenario analysis and modelled, after a period of review, APA decided not to present the financial implications in this plan as the VTS is effectively protected against stranded asset risk by the functioning of the regulatory regime. This provides a high degree of certainty of return on the Regulated Asset Base with no change in return as volumes decline. While the VTS per-unit costs increased in these scenarios, these increases are very small compared with the overall value chain.

Moomba Sydney Pipeline and South West Queensland Pipeline

Under the modelled climate scenarios, MSP and SWQP are resilient to climate risk (particularly until 2040), assuming northern gas supplies are sufficient to supply demand. In practice, this may require new basin development. Beyond 2040, the assets are more exposed to lower export and domestic demand, eroding value compared to APA's current BAU Case

For the purposes of this climate scenario analysis, we grouped MSP and SWQP together. Both underpin the East Coast Grid and are exposed to similar gas market dynamics, including domestic and LNG export demand and changes in gas supply sources.

Customers contract on the MSP and SWQP to ship gas south to serve residential and industrial demand (especially Victorian heating demand in winter) and east to serve the Queensland LNG export market.

Under APA's BAU Case, we assumed:

- Northern gas supplies (including Beetaloo) are developed, without which there may be a gas shortfall in the market:
  - » This is consistent with the scenario analysis which included Beetaloo as part of the optimal economic solution. Without it, east coast LNG export facilities may experience curtailed production. Although domestic demand is served in the near term from other basins, shortfalls were observed in the domestic market in later years in the absence of scenarios that include new basin developments.

    Scenario testing used existing data and assumptions in the IGM and did not include a full exploration of all possible gas basin supply scenarios.
  - » No government policies are enacted to curtail export of LNG in favour of domestic demand (commonly called gas reservation policies) even in circumstances where northern supply falls short.
- East Coast Grid expansions stages 1 and 2 are included, with no further strategic responses or asset decisions impacting the asset footprint or cost base of MSP and SWQP.
- OpEx and SIB CapEx are at levels that maintain asset integrity and safety.
- Revenues are increasingly exposed to gas market dynamics, including climate driven scenario outcomes as contracts expire.

Financial implications insights – for MSP/SWQP relative to the BAU Case

Climate scenario	1.5°C			2.0°C			2.0°C Disorderly		
FY	2030	2040	2050	2030	2040	2050	2030	2040	2050
EBITDA (weighted average for period up to financial year ended)									
NPV for cashflows (over the period)									

KEY BAU Case = EBITDA or Valuation

+/-5% of BAU Case somewhat (5-15%) below BAU Case materially (15%+) below BAU Case

Modelled climate scenarios – outcomes for MSP/SWQP

- Adequate northern gas supply will be a key revenue driver for the MSP and SWQP.
- Until 2040:
  - SWQP will transport gas to southern domestic markets and LNG export
  - MSP revenues will remain strongly driven by expanded capacity and northern gas being shipped to supply southern markets.
- We observed lower revenues by 2050 for SWQP due to lower LNG export volumes and for MSP because of lower domestic demand in the southern states as electrification uptake increases.
- The climate scenarios primarily impacted uncontracted revenues, with OpEx reducing in line with maintaining a constant EBITDA margin and SIB CapEx reducing nearer FY50 as the asset life declined.
- Under all three climate scenarios, we observed lower revenues in almost all periods, translating to lower EBITDA than the BAU Case. The most pronounced was the final decade (FY41 to FY50).
- Corresponding to this, the resulting valuation impact relative to the BAU Case showed moderate value erosion. This was driven by reduced contracted capacity in the final decade under all three tested scenarios. The highest reduction was under the 2.0°C Disorderly scenario followed by the 1.5°C and 2.0°C scenarios.

Financial implications insights – for DPSC relative to the BAU Case

Climate scenario	1.5°C			2.0°C			2.0°C Disorderly		
FY	2030	2040	2050	2030	2040	2050	2030	2040	2050
EBITDA (weighted average for period up to financial year ended)									
NPV for cashflows (over the period)									

KEY BAU Case = EBITDA or Valuation

+/- 5% of BAU Case somewhat (5-15%) below BAU Case materially (15%+) below BAU Case

Diamantina Power Station Complex (DPSC)

Under the modelled climate scenarios, DPSC's shift from baseload to firming varies, depending on the NWPS's rate of change due to higher renewables penetration. All three climate scenarios present value erosion compared to APA's BAU Case. This represents both risk and opportunity, as DPSC value is highly sensitive to customer contracting behaviour and its operating response.

The DPSC (including the Leichhardt and Thomson Power Stations) serves the NWPS (~80% mining, 20% Ergon retail customers) on a capacity basis.

Under both the BAU Case and the modelled climate scenarios, we assumed the Mount Isa region would continue as an isolated grid.

Under APA's BAU Case, we further assumed:

- DPSC will continue serving the NWPS by shifting from baseload to firming over time as the region's energy mix shifts towards renewables in line with the demand side seeking to decarbonise.
- DPSC faces increasing competitive pressures on contracted capacity due to increasing renewables penetration and on pricing as a result.
- On transition to firming operations, DPSC capacity is taken offline and major overhauls that would have been undertaken if it were running as baseload are deferred, preserving the asset life to 2050.

Modelled climate scenarios – outcomes for DPSC

- The 'shadow carbon cost' used in each climate scenario produced the optimal renewable and gas generation mix required to service the region's demand.
- Under the modelled climate scenarios, DPSC continues to play a critical but evolving role in the region, shifting from baseload to firming. Timing depends on the climate scenario: most rapidly under the 1.5°C, followed by the 2.0°C Disorderly and 2.0°C scenarios.
- The climate scenarios showed:
  - » Under the 1.5°C scenario – DPSC capacity is reduced to 176 MW, then to 88 MW by 2050 (3% capacity factor), supplying ~1% of total demand in the region
  - » Under the 2.0°C scenario – DPSC capacity maintains until 2040, then reduces to 176 MW by 2050, (17% capacity factor), supplying ~16% of total demand in the region.
  - » Under the 2.0°C Disorderly scenario – DPSC maintains capacity until 2040, but this falls to 88 MW by 2050 (6% capacity factor), supplying ~4% of total demand in the region
- DPSC could also play a role providing grid services (such as frequency control and system strength inertia) though this is not considered in our current assessment.
- The modelling shows all three scenarios impacting uncontracted revenues, OpEx and SIB CapEx due to reduced capacity and utilisation.
- On shifting from baseload to firming, the amount of DPSC operational capacity reduces, corresponding to the reduction in EBITDA relative to BAU Case by FY30 as more existing contracts expire.
- By FY40, EBITDA deviates between the three scenarios with the 1.5°C assuming 176 MW of operational capacity. Under the 2.0°C and 2.0°C Disorderly scenarios, while there are no capacity reductions, lower utilisation is assumed, particularly under the 2.0°C Disorderly scenario.
- By the final decade up to FY50, the 1.5°C and 2.0°C Disorderly scenarios see higher renewable penetration. As such, DPSC only has 88 MW of capacity online while under the 2.0°C scenario, 176 MW of capacity remains operational.
- The resulting valuation impact relative to the BAU Case shows all three scenarios resulting in value erosion. The 1.5°C scenario corresponding to highest renewables penetration sees the most negative impact and the 2.0°C scenario shows the least value impact.

Financial modelling assumptions and limitations

	MSP/SWQP	DPSC
BAU Case	– APA's forecast model for the asset as at 30 June 2022 – Consistent case with that used for testing carrying value in the APA FY22 Financial Statements	
	– Includes East Coast Grid Expansion Stages 1 and 2 and no further growth CapEx – Northern gas development assumed with no gas shortage as a result	– DPSC includes Thomson and Leichhardt Power Stations, and excludes Mica Creek Solar Farm – Mount Isa region assumed to remain an isolated grid (not NEM-connected) – DPSC will continue to provide firm capacity in the region. APA expects renewable energy output will grow progressively leading to reduced DPSC capacity factor as its role adjusts.
EBITDA	Revenue – Climate scenarios (which modelled physical flows) assumed to impact uncontracted capacity as contracts expire – Historical contracted volumes to physical flows ratio assumed to remain constant – Pipeline tariffs assumed to remain constant OpEx – BAU Case OpEx assumed up to FY40, where asset costs are related to maintaining asset integrity and assumed to not directly correlate to scenario-driven revenue/volume changes – From FY41 onwards, OpEx is scaled, with material revenue reductions observed in the climate scenarios, maintaining a constant EBITDA	Revenue – DPSC assumed to remain contracted on a capacity basis – Climate scenarios drive capacity contracted post-BAU Case contract expiry – Recontracting assumed to be at a competitive price OpEx – BAU Case OpEx assumed up to 2030 – After 2030, it is scaled subject to DPSC operating capacity and utilisation, depending on the modelled climate scenario outcomes.
NPV	– NPV as at 30 June 2022, based on discounting ungeared pre-tax cashflows for the entire modelled period – Terminal Value/EBITDA multiple adopted to maintain a consistent valuation methodology with the BAU Case – Discount rate is the pre-tax Weighted Average Cost of Capital, in line with APA's current impairment testing rate, which is detailed in Note 14 to the APA FY22 Financial Statements	
	– Ungeared pre-tax cashflows are derived by subtracting SIB CapEx from EBITDA – SIB CapEx is assumed to align with the BAU Case, except for a 20% reduction in FY46-50 that aligns with the BAU Case asset life	– Ungeared pre-tax cashflows are derived by subtracting SIB CapEx from EBITDA – SIB CapEx assumed to scale subject to capacity and utilisation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10. Monitoring and metrics

APA has established key climate change metrics. We will monitor these to:

- Inform our Board, management and external stakeholders on progress and performance against this plan
- Use the results for internal management and governance purposes
- Manage risks and opportunities.

Metrics marked with an asterisk will be reported on for the first time in FY23.

Metric	Unit of measurement
GHG emissions and energy	
Absolute Scope 1, 2, 3[35] and delivered gas end user emissions[36] Note: Scope 1 and Scope 2 emissions are split by asset class and emissions are reported using operational control and equity share* boundary.	t CO_2-e (absolute)
Power generation emissions intensity	t CO_2-e /MWh
Energy production and consumption	PJ
Scope 1 emissions covered under emissions limiting regulations	%
Targets and goals	
Annual reduction in emissions (gas infrastructure); cumulative compared with base year. – Gas infrastructure* – Power generation infrastructure*	% and t CO_2-e
Interim target and goals: – Gas infrastructure – Power generation infrastructure	 Net emissions Emissions intensity
Interim target and goals – long-term: – Gas infrastructure – Power generation infrastructure	 Net emissions Net emissions and intensity
Renewable infrastructure enabled through electricity transmission investment*	MW
Renewable electricity as a percentage of total electricity consumed*	%
Zero direct emission vehicles*	Number and % of fleet
Climate-related risks and opportunities	
Percentage of revenue from assets that support the transition to a low carbon economy[37, *]	%
Percentage of revenue from activities vulnerable to transition risk*	%
Capital and operational expenditure on climate-related risks and opportunities – Reporting period* – Forecast future*	$
Carbon prices	
Internal*	$ per t CO_2-e
Offsets	
Purchased and surrendered*	Number and key information
Climate-linked executive remuneration	
Percentage of executive remuneration linked to climate-related objectives*	%

35. Absolute Scope 1, 2 and 3 emissions are disclosed consistent with the greenhouse gas protocol. This will include separately reporting line losses, SF6, diesel and electricity use from electricity infrastructure.
36. Upstream and downstream end user emissions associated with natural gas products we transport but do not sell.
37. Includes electricity infrastructure, renewables, gas-powered generation that supports renewables, batteries and renewable gases.

11. Governance

Net zero enterprise transformation program

In Q4 FY21, APA established an enterprise transformation program to design, evaluate and embed our business approach to net zero and manage our climate risks and opportunities.

The program is broken into several key phases as described in the table.

It is overseen by an executive-level Steering Committee, has a dedicated executive sponsor and is led by a senior business leader.

We also established a cross-functional Business Reference Group comprising senior managers and leaders from across the business to lead a range of workstreams, support thought leadership and coordinate their business unit inputs into target design and evaluation.

The program is supported by a dedicated program management team, including change and communication professionals, to coordinate and implement each phase and lead enterprise change management.

We will adjust the governance structures as APA moves through each phase.

The APA enterprise transformation program phases

Timing	Key deliverables
Design phase	
To end October 2022	✓ Targets
	✓ Climate Transition Plan
	✓ Critical controls and decision-making
	✓ Executive remuneration
Embed phase	
November 2022 to October 2023	✓ Processes, systems, practices
	✓ Responsibilities
	✓ KPIs/metrics
	✓ Culture
Implementation phase (BAU)	
From November 2023	✓ Clear business readiness assurance

To ensure climate-related risks and opportunities are considered and our net zero goals and targets are embedded within BAU, APA has prioritised five business processes where we will add to and/or update critical controls. We plan to have these additions and updates in place when the program's design phase is completed at the end of October 2022.

Climate change-related priority business processes for additional and/or updated critical controls

Division	Business process	Key critical controls
Infrastructure Development	Capital growth projects (asset project development)	Technology selection Engineering design practices
Operations	Asset emission reduction strategies	Infrastructure projects, Project Management Framework Asset Lifecycle Plan and project proposal process
	Asset performance monitoring	Asset Management Framework
Strategy and Commercial	Climate governance	Climate Change Policy Climate Change Standard Climate Change Management Framework Carbon Pricing Framework Portfolio Net Zero Governance Group Risk Management Framework
	Investments/divestments	Opportunity Appraisal & Governance Standard Investment Framework Investment Committee

Governance framework

The APA Board is committed to ensuring the highest standards of corporate governance for our business. Robust corporate governance policies and practices help APA to create long-term value for Securityholders responsibly and to meet the expectations of other stakeholders.

APA's risk-based governance framework ensures critical climate change risks and opportunities are escalated through the Executive Leadership Team to the Board. This occurs either directly via the Net Zero and Climate Steering Committee or with the support of the Board Committees.

We have recently updated APA's committee structure to include a Safety and Sustainability Committee. The revised structure will be implemented in FY23.

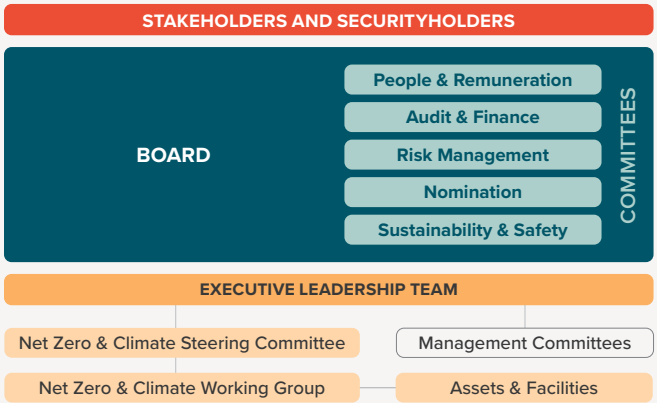
Climate change issues are regularly considered by the Board through business planning and strategy reviews, investment decisions, policy setting and monitoring progress against commitments.

The Board will monitor and oversee progress against the commitments detailed in this Climate Transition Plan through quarterly progress updates from management. The executive Investment Committee will be compelled to consider the commitments in this plan through critical controls – including an Investment Framework and feedback from the Portfolio Net Zero Governance Group – when presenting investment decisions to the Board.

The executive Net Zero and Climate Steering Committee will oversee APA's continued evolution, implementation and performance against this Climate Transition Plan and climate-related matters.

APA's dedicated Net Zero and Climate Team is responsible for stewarding our approach and advising on integrating climate change objectives with APA's Corporate Strategy, decision-making and business processes. The team is also responsible for APA's climate policies, frameworks and standards, building organisational capability related to climate, and informing management of climate-related issues.

Climate change-related governance structure [38]



38. To be implemented in FY23.

12. Glossary

Term	Definition	Link
Absolute greenhouse gas emissions	For a particular reporting period total aggregate greenhouse gas emissions specific to a particular emission Scope or across different Scopes. Excludes offsets.	
ACCU	Australian Carbon Credit Unit.	
Adaptation	Anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause or taking advantage of opportunities that may arise.	Refer to TCFD Technical Supplement
AEMC	Australian Energy Market Commission. Makes the rules for the Australian electricity and gas markets.	https://www.aemc.gov.au/
AEMO	Australian Energy Market Operator. Manages Australia's electricity and gas systems and markets.	https://aemo.com.au/
AER	Australian Energy Regulator. Regulates electricity networks and covered gas pipelines (except in Western Australia) and enforces laws for the National Electricity Market and spot gas markets (southern and eastern Australia).	https://www.aer.gov.au/
APA	APA Group. Comprises 2 registered investment schemes – APA Infrastructure Trust (APA Infra) and APA Investment Trust (APA Invest) and their controlled entities.	https://www.apa.com.au/
ARENA	Australian Renewable Energy Agency. Australian Government agency that supports the net zero transition by funding projects that can help accelerate renewable energy.	https://arena.gov.au/
Assets	An item of value owned or operated by APA e.g. transmission, generation or other.	
Avoid	The avoidance of emissions through decisions APA make when (1) investing in a new entity or asset (2) designing new or when making major modifications to assets.	
Business as Usual (BAU)	Business as Usual. BAU projections are based on the assumption that operating practices and policies continue in a consistent manner. In the case of scenarios, although baseline scenarios could incorporate some specific features of BAU scenarios (such as a ban on a specific technology), BAU scenarios imply that no practices or policies other than the current ones are in place. Where this applies to the financial implications of scenario analysis, BAU is used in context of 'BAU Case', which represents APA's cash forecast view of its assets as at 30 June 2022.	
CapEx	Capital expenses. Money spent to buy or improve fixed assets.	
Carbon offsets	Broadly refers to a reduction in GHG emissions – or an increase in carbon storage (e.g., through land restoration or planting trees) – that is used to compensate for emissions that occur elsewhere.	
CER	Clean Energy Regulator. Government body for measuring, managing, reducing or offsetting Australia's carbon emissions.	https://www.cleanenergyregulator.gov.au/
Clean energy	Energy from renewable, zero emission sources.	
CO_2-e	Carbon dioxide equivalent. See t CO_2-e/t CO_2 equivalent definition.	
Decarbonise	Removing or reducing the amount of carbon dioxide emitted into the atmosphere.	
DPS	Diamantina Power Station. A 242MW combined cycle gas turbine power station owned and operated by APA.	
DPSC	Diamantina Power Station Complex. A group of gas-fired power stations comprising DPS, Thomson Power Station (22 MW reciprocating engine) and Leichhardt Power Station (60 MW open cycle gas turbine).	
Emissions	Known as greenhouse gas (GHG) emissions. These are the aggregate anthropogenic carbon dioxide equivalent emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). All are expressed in carbon dioxide equivalent (CO_2-e).	

Term	Definition	Link
Emissions scenario	A plausible future pathway of man-made emissions (e.g. greenhouse gases and other pollutants) that can affect climate. These pathways are based on a coherent and internally consistent set of assumptions about determining factors (such as demographic and socioeconomic development, technological change) and their key relationships.	TCFD Recommendations Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities - TCFD Knowledge Hub (tcfdhub.org)
FEED	Front-end Engineering Design.	
FID	Final Investment Decision.	
Flaring	The controlled combustion of gas that takes place during production and processing of natural gas.	
FSB	Financial Stability Board. International body that monitors and makes recommendations about the global financial system.	www.fsb.org
Fugitives	The unintentional release of gas in connection with, or as a consequence of, the extraction, processing, storage or delivery of natural gas.	
Gas	Natural gas.	
Goal	An ambition to seek an outcome for which there is no current pathway but for which efforts will be pursued towards addressing that challenge, subject to certain assumptions or conditions. Source: BHP Climate Transition Plan 2021.	
GHG	Greenhouse Gas. Gas that can trap heat when emitted within the atmosphere.	Refer to Greenhouse Gas Protocol
GPG	Gas-powered generation	https://ghgprotocol.org/
Greenhouse Gas Protocol	Greenhouse Gas Protocol establishes comprehensive global standardised frameworks to measure and manage greenhouse gas emissions from private and public sector operations, value chains and mitigation actions. The greenhouse gases included under the GHG Protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PCFs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).	Refer to TCFD Recommendations and Greenhouse Gas Protocol https://ghgprotocol.org/
Hard to abate	Any sector for which the transition to net zero is not straightforward including due to the lack of commercially viable technology.	
IEA	International Energy Agency. An autonomous organisation that works to ensure reliable, affordable and clean energy for its 29 member countries and beyond. The IEA has four main focus areas: energy security, economic development, environmental awareness and engagement.	https://www.iea.org
IGM	Integrated Gas Model. Boston Consulting Group's IGM is a bespoke model of the Australian east coast gas market. It provides a view on the optimal gas market supply and infrastructure decisions, including basin development decisions, pipeline flows, market equilibrium price and supply-demand balance.	
IPCC	Intergovernmental Panel on Climate Change. An international forum of experts established in 1988 and used by the United Nations to undertake periodic assessments that address how climate will change, what its impacts may be, and how we can respond.	https://www.ipcc.ch
ISP	Integrated System Plan produced by the Australian Energy Market Operator.	https://aemo.com.au/-/media/files/major-publications/isp/2022/2022-documents/2022-integrated-system-plan-isp.pdf?la=en.
LGCs	Large Generation Certificate. An LGC represents 1 MWh of electricity generated from an eligible renewable electricity source.	
LNG	Liquefied Natural Gas.	
Mitigation	Efforts to reduce or prevent emission of greenhouse gases. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behaviour.	Refer to TCFD Technical Supplement TCFD Recommendations

Term	Definition	Link
MW	Megawatt.	
NEM	National Electricity Market. Australia's cross-state wholesale electricity market.	https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/about-the-national-electricity-market-nem
Net zero emissions	Achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.	
NGER	National Greenhouse and Energy Reporting Act 2007.	http://www.cleanenergyregulator.gov.au
NWPS	North West Power System. An electricity generation and transmission network centred in Mount Isa, Queensland. The system services residents and businesses in Mount Isa and Cloncurry, as well as surrounding mining operations. It is also known as the Mount Isa-Cloncurry power supply.	
Off grid	A power generation facility that **is not** connected to the National Electricity Market (NEM), the South West Interconnected System (SWIS), the North West Interconnected System (NWIS), the Darwin to Katherine Interconnected System (DKIS) or the Mount Isa-Cloncurry supply network (Mount Isa Network).	
On grid	A power generation facility that **is** connected to the National Electricity Market (NEM), the South West Interconnected System (SWIS), the North West Interconnected System (NWIS), the Darwin to Katherine Interconnected System (DKIS) or the Mount Isa-Cloncurry supply network (Mount Isa Network).	
OpEx	Operating expenses. The ongoing costs of running a business or asset.	
P50	The level of accuracy where there is a 50% probability of the initiatives being delivered within the quoted cost and 50% probability of it exceeding.	
Paris Agreement	In 2015, Parties to the United Nations Framework on Climate Change (UNFCCC) agreed in Paris to keep the global temperature rise this century well below 2.0°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C. The agreement requires all Parties to put forward Nationally Determined Contributions. There is a global stocktake every five years to assess collective progress towards achieving the agreement and keep informed about further individual actions by Parties.	https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
Plan	APA's Climate Transition Plan.	
Reduce	Reducing greenhouse gas emissions through the way we operate our assets as well as modifications to plant and infrastructure.	
SBT	Science Based Targets. GHG emissions reduction targets are considered science-based if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement.	https://sciencebasedtargets.org
SBTi	Science Based Targets initiative. Supports private sector by enabling companies to set science-based emissions reduction targets. The SBTi is a partnership between Carbon Disclosure Project (global system for helping organisations to disclose their environmental impact), the United Nations Global Compact, World Resources Institute and the World Wide Fund for Nature (WWF). The SBTi call to action is one of the We Mean Business Coalition commitments.	https://sciencebasedtargets.org
Scope 1 emissions	Direct emissions that occur from sources owned or controlled by a company e.g. combustion of natural gas within a compressor.	https://ghgprotocol.org/
Scope 2 emissions	Indirect emissions not directly generated by the reporting organisation but used due to its operations, such as consumption of purchased electricity/fuel or electricity line loss.	https://ghgprotocol.org/
Scope 3 emissions	All indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.	https://ghgprotocol.org/

Term	Definition	Link
Target	An intended outcome where we have identified one or more pathways for delivering that outcome, subject to certain assumptions or conditions. Source: BHP Climate Transition Action Plan 2021.	https://www.bhp.com/news/media-centre/releases/2021/09/bhp-releases-climate-transition-action-plan-2021
TCFD	Taskforce on Climate-Related Financial Disclosures. An initiative of the Financial Stability Board (FSB) to improve and increase reporting of climate related financial information.	
TCO	Total costs of ownership, All of the costs associated with buying, using and retiring an asset, product or service.	
t CO_2-e/t CO_2 Equivalent	A carbon dioxide equivalent. A metric measure used to compare the emissions from various greenhouse gases based on their global-warming potential. Calculated by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.	https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Carbon_dioxide_equivalent
Terminal Value	Term for the value beyond the forecast period.	
Transition risk	Risks related to the transition to a lower carbon economy. They can be grouped into 4 categories: policy and legal risk; technological risk; market risk (e.g. consumer preferences); and reputational risk.	TCFD Recommendations
Transition scenario	Scenarios that typically present plausible assumptions about the development of climate policies and deployment of climate-friendly technologies to limit GHG emissions. They draw conclusions, often based on modelling, about how policy and technology regarding energy supply and GHG emissions interact with economic activity, energy consumption and Gross Domestic Product (GDP), among other key factors.	TCFD Recommendations
Venting	Controlled release of natural gas during operation and maintenance.	
WesCEF	Westfarmers Chemicals, Energy & Fertilisers Limited.	https://wescef.com.au
ZDEV	Zero direct emission vehicles are vehicles which don't use petrol or diesel, have no tailpipe, and therefore do not directly emit greenhouse gas (GHG) emissions. There are two types of ZEVs – battery electric vehicles (BEVs) and Hydrogen Fuel Cell Electric Vehicles (HCEVs).	Zero Emissions Vehicle Program

13. Taskforce on Climate-related Financial Disclosures

TCFD Guidance for All Sectors		
	Disclosure	**Section and page number**
Governance	Describe the board's oversight of climate-related risks and opportunities.	Section 11. Governance, page 54
	Describe management's role in assessing and managing climate-related risks and opportunities.	Section 11. Governance, pages 53-54
Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Section 9. Risk Management, pages 39-40
	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	Section 6. Strategy and the energy transition, pages 13-17 Section 9. Risk Management, page 41 Section 11. Governance, page 54
	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2.0°C or lower scenario.	Section 9. Risk Management, pages 39-50
Risk Management	Describe the organization's processes for identifying and assessing climate-related risks.	Section 9. Risk Management, page 39
	Describe the organization's processes for managing climate-related risks.	Section 9. Risk Management, page 39
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	Section 9. Risk Management, page 39
Metrics and Targets	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Section 10. Monitoring and metrics, page 52
	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	Section 7. APA emissions profile, pages 18-22
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	Section 8. Targets, goals and commitments, pages 24-38

TCFD Supplementary Guidance for Non-Financial Groups		
	Disclosure	**Response / Reference**
Strategy	Organizations should 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.	
	Organizations with more than one billion U.S. dollar equivalent (USDE) in annual revenue should consider conducting more robust scenario analysis to assess the resilience of their strategies against a range of climate-related scenarios, including a 2.0°C or lower scenario and, where relevant to the organization, scenarios consistent with increased physical climate-related risks.	
Metrics and Targets	For all relevant metrics, organizations should consider providing historical trends and forward-looking projections (by relevant country and/or jurisdiction, business line, or asset type). Organizations should also consider disclosing metrics that support their scenario analysis and strategic planning process and that are used to monitor the organization's business environment from a strategic and risk management perspective.	Metric being considered for future disclosure

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