

Our approach to addressing climate change



As a provider of financial services – including lending, insurance and wealth management – the physical and transition impacts of climate change are strategically important to our business. We are taking a phased approach to identifying and managing both the risks and the opportunities.

We aim to disclose our progress, performance and plans in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

We are focusing on having the right policies in place, undertaking detailed analysis to better understand the risks and opportunities, developing and implementing strategic responses, building internal understanding and customer capabilities, and contributing to economy-wide initiatives.

Addressing climate change (continued)

	Phase 1-2 Policy, due diligence, governance, analysis of portfolio risks and opportunities	Phase 3 Extending scenario analysis, strategic responses, capability building	Phase 4 Embedding climate considerations into strategy, business and risk management processes
	Pre-FY19	FY19	FY20-21
Governance	<ul style="list-style-type: none"> Climate Policy Position Statement¹ Group Environment Policy¹ Equator Principles III Report¹ ESG Lending Commitments¹ Responsible Investing Framework¹ The Board governs climate risks and opportunities through the Risk Management Framework² 	<ul style="list-style-type: none"> Developed a Group Environmental and Social Policy with updated climate commitments, including: <ul style="list-style-type: none"> – continuing to reduce our exposures to thermal coal mining and coal fired power generation, with a view to exiting the sectors by 2030, subject to Australia having a secure energy platform – supporting the development of existing and emerging technologies that enable an accelerated transition to a low carbon future 	<ul style="list-style-type: none"> Review the Group Environmental and Social Policy to ensure alignment with the rapidly evolving nature of environmental and social issues Review the Group Risk Appetite Statement Review of climate-related roles and responsibilities
Strategy	<ul style="list-style-type: none"> Commitment to support the objectives of the Paris Agreement Climate scenario analysis: <ul style="list-style-type: none"> – Business lending: transition risks – FirstChoice Australian Share Fund: transition risks – Retail (home lending) and insurance: physical risks Portfolio-level strategic responses 	<ul style="list-style-type: none"> Climate scenario analysis: <ul style="list-style-type: none"> – Agribusiness lending: physical risks Portfolio-level strategic responses Client engagement 	<ul style="list-style-type: none"> Climate scenario analysis: <ul style="list-style-type: none"> – Business lending: physical risks for other key portfolios – Retail (home lending) and insurance: transition risks – Investment portfolios: transition and physical risks Further develop strategic responses Client and customer engagement
Risk management	<ul style="list-style-type: none"> Elevated climate as a strategic risk and a long-term driver of both financial and non-financial risks Introduced an ESG Risk Assessment Tool, including climate and energy considerations, for business lending Training on ESG risks, including climate, for business lenders Established Energy Value Chain analysis 	<ul style="list-style-type: none"> Physical climate risk added to the ESG Risk Assessment Tool process for business lending Reviewed clients within carbon sensitive sectors, based on FY18 scenario analysis, to better understand their management of climate risk Updated Energy Value Chain Analysis 	<ul style="list-style-type: none"> Continue to update the ESG Risk Assessment Tool and build capabilities as stakeholder expectations and global developments evolve Work with clients as they progress their transition strategies
Metrics and targets	<ul style="list-style-type: none"> Emissions reduction target (Scope 1 and 2) Assessed emissions in business lending portfolio Low carbon project funding target of \$15 billion by 2025 	<ul style="list-style-type: none"> Joined the global RE100 initiative and committed to sourcing 100% of our electricity needs from renewable energy by 2030 Assessed emissions in business lending portfolio³ Progress on low carbon project funding target 	<ul style="list-style-type: none"> Continue to make progress on our RE100 commitment Science-based emissions reduction target (Scope 1 and 2) Assess emissions in business and retail lending and investment portfolios Emissions reduction target (Scope 3) Progress on low carbon project funding target

1 All policies are found at commbank.com.au/policies.

2 Further information on the Group's Risk Management Framework is provided on page 201.

3 Our assessed emissions reporting is available at commbank.com.au/CRreporting.

Climate governance

The Board directly oversees the management of the Bank's climate-related risks, opportunities and strategies.

Specifically, in the 2019 financial year the Board:

- reviewed and endorsed the Group's Environmental and Social Policy (E&S Policy), which outlines our approach to climate-related risks and opportunities
- monitored performance against our climate-related goals and targets
- reviewed and approved our climate-related strategy and disclosures.

The Executive Leadership Team (ELT) continues to be responsible for:

- directing the development and implementation of ESG policies, including climate
- overseeing progress, performance and reporting on climate
- leading external engagement and advocacy and helping customers and clients on climate-related matters.

Under our E&S Policy, business and support units across the Group are responsible for addressing specific climate-related impacts, risks and opportunities. Internal procedure documents provide clear guardrails and guidance on issue management and client activity.

An example of how this works in practice is our commitment to reducing our exposures to thermal coal mining and coal fired power generation. This applies to our Institutional Banking & Markets (IB&M) business which has accountability for adherence to, and implementation of, this part of the E&S Policy.

Climate strategy

To better understand potential climate change impacts, risks and opportunities for the Bank, and to build the resilience of our business and our customers, we are taking a phased approach to scenario analysis. We prioritise analysis of areas that are material to the Bank and to our customers. The results of our scenario analysis help inform our business and strategy planning.

The scenario analysis we undertook in 2018 has helped inform our strategic responses as follows:

	Physical risk		Transition risk	
FY18 focus	Building insurance policies	Home loan portfolio	Business lending portfolio	FirstChoice Australian Share Fund
Risks	Flooding, storms, extreme heat and drought, bushfires, sea level rise		Market, regulatory, legal, reputation, technology	
Progress during FY19	<ul style="list-style-type: none"> • We continue to focus on supporting sector-wide initiatives that enhance climate resilience and reduce disaster risk, including through our membership of the Climate Change Action Committee within the Insurance Council of Australia. 	<ul style="list-style-type: none"> • We are developing a green mortgage initiative that rewards and encourages energy efficiency, by giving cashbacks to customers who use solar panels and make their homes more energy efficient. • We are building our capabilities to develop and implement business solutions that protect customers and the Bank from climate risk. 	<ul style="list-style-type: none"> • We have incorporated physical climate risk into our ESG Risk Assessment Tool and ESG risk e-learning. • We have made a commitment to reducing our exposure to thermal coal mining and coal fired power generation, with a view to exiting the sectors by 2030, subject to Australia having a secure energy platform. • We are conducting deeper analysis on our lending to carbon sensitive sectors to understand how clients manage their carbon risk. 	<ul style="list-style-type: none"> • We are investigating tools to display carbon risk within portfolios for use as an asset allocation tool. • We are working with an external specialist vendor to utilise its latest climate scenario model and receive reporting on climate-related risks within our portfolios.

Addressing climate change (continued)



Wealth management focus on climate

We continue to build capabilities across our wealth management businesses to manage climate and broader ESG risks on our customers' behalf, and to offer new investment solutions:

- Colonial First State (CFS) Investments measures and reports carbon emissions intensity (see page 61 for details).
- CommSec Pocket now enables investment in ETHI, an Exchange Traded Fund that invests in 100 large global stocks that are climate change leaders.
- Colonial First State Global Asset Management and Commonwealth Bank Group Super both report their climate governance, strategy, risk management and metrics in line with the TCFD¹.

FY19 climate scenario analysis – risks and opportunities in Australian agriculture

This year we conducted scenario analysis on the physical risks of climate change on our agribusiness lending portfolio.

This reflects the important role Australia's farmers play in the nation's economy and for our business, and the sensitivity of the sector to changes in climate.

Farming under challenging climate conditions is not new to Australian farmers. Climate change however has the potential to increase the frequency of acute climate events such as floods and droughts, and to alter longer-term climate conditions which can impact farm productivity.

As a major lender to Australia's farmers² we have undertaken detailed scenario analysis to understand how climate change affects agriculture through acute and chronic shifts in temperature, humidity and rainfall. Our analysis enables us to understand the risks, identify ways to support our customers into the future, and contribute to building resilience in the sector.

What we did

We undertook a forward-looking assessment of climate-related factors that could impact the grains³, livestock⁴ and dairy⁵ sectors which represent approximately 65% of our Australian agribusiness portfolio across Commonwealth Bank and Bankwest.

We worked with climate consultancy Energetics to simulate agricultural productivity against a range of potential climate conditions up to 2060, using models derived from peer reviewed scientific literature and industry research.

Impacts were assessed on both a 'do nothing' and 'adapt' basis to understand the extent to which the impacts of climate change could be mitigated. The analysis also incorporated economical viability, recognising that adaptation requires both investment and a willingness to change established practice.

A detailed outline of the methodology is provided on page 60. It remains important to note that scenario analysis considers the outcomes of a range of possible future pathways, based on assumptions, and is not a forecast or prediction.

1 Available at cfsgam.com.au and oursuperfund.com.au/annual-reports.

2 We conducted our analysis on the most recent client insights available. Group agriculture exposure was \$22.4 billion at 31 December 2018 of which \$11.2 billion was loans to Australian farmers.

3 Grains include cereals (e.g. wheat and sorghum), oilseeds (e.g. canola) and pulses (e.g. lupins and chickpeas).

4 Livestock includes beef cattle and sheep for wool and lamb.

5 Dairy includes dairy cattle only.

What we found

Grains

Current grain growing regions face the risk of potential farmer profitability declines by 2060, due to falls in productivity in many areas of up to 50% below the 2018 baseline levels, primarily due to changes in predicted rainfall (Figure 01). Adaptive measures can preserve current productivity levels in most regions, and even improve profitability up to 65% above the baseline in some regions (Figure 02). However, the trend of declining rainfall could result in some regions becoming significantly less viable for crop production in the long term.

Adaptive measures including breeding for improved tolerance to drought and heat could improve crop yields by up to 20% by 2060 for certain crops. Genetic modification can markedly increase crops' climate resilience, with the potential to improve the yield of some crops by up to 40% over the next 40 years. However, the use of genetically modified organisms (GMOs) is a controversial solution and is currently banned in parts of Australia.

Further developments in crop monitoring and management technology to maximise water efficiency and optimise activities are expected to boost productivity. Farmers can also shift the sowing window to optimise the growing season, and there is potential for further improvements.

Livestock

Livestock regions face significant farmer profitability declines by 2060, with falls of up to 40% due to a deterioration in pasture growth and quality (Figure 03). However, adaptive measures can significantly improve livestock production, with most regions able to convert an absolute decline in profitability to an improvement above the baseline by 2060. There is a cost to these adaptive measures, which may outweigh the benefits for some regions (Figure 04).

Potential adaptive measures include breeding for increased tolerance to heat and humidity, improving pasture quality in harsher conditions and cooling livestock by providing shade and water sprays. Developments in monitoring and management technology can maximise resource efficiency. An example is rotational grazing using virtual fencing technology. This maintains soil and pasture quality by reducing overgrazing. Genetic modification of pasture species has most potential in the south where pastures are typically not native.

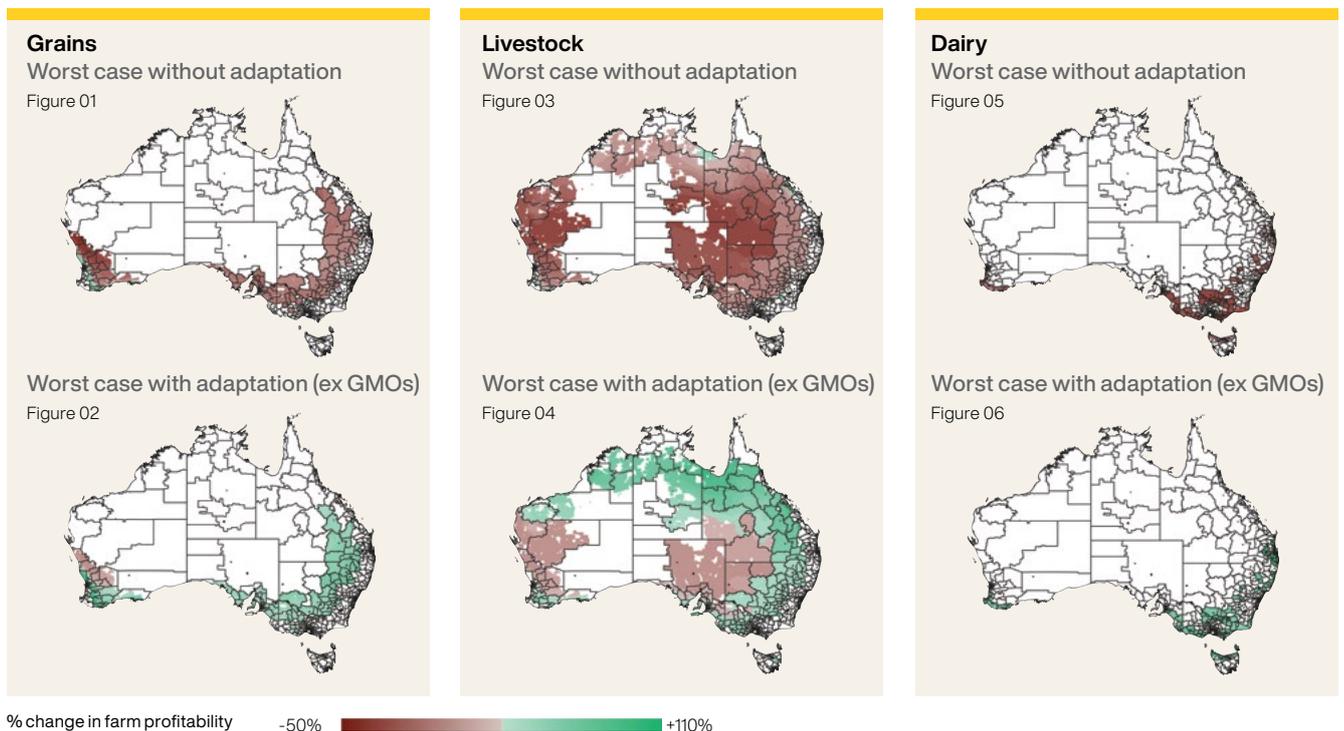
Dairy

Dairy regions also face the risk of farmer profitability declines by 2060, with falls in most regions of up to 40% from baseline levels (Figure 05). A key risk for declining dairy profitability is the incidence of consecutive days of significant heat stress, measured using the Temperature Humidity Index (THI). After five such days in a row dairy cows can stop lactating, ceasing production.

Adaptive measures can significantly improve the situation for dairy production, with most regions projected to at least maintain baseline levels of profitability. As Figure 06 shows, in some regions a farmer profitability decline could be converted to an improvement of up to 40% above the baseline.

Breeding in *Bos indicus* genetics could increase tolerance to heat and humidity but may also lower milk yield, so uptake of this measure is likely to be delayed. Improved monitoring technology has the potential to maximise output, by optimising supplemental feed and the cooling of cows using shade and water sprays. Genetic modification of pasture or supplemental feed species can also potentially increase yield.

Climate simulation: impact on farm profitability by 2060



Addressing climate change (continued)

How we are responding

We have estimated the impacts of the above potential changes on the credit quality of our portfolio. We found that while many customers are likely to be impacted by potential productivity falls due to climate change, in aggregate the impacts are not significant for our portfolio. Through our credit assessment, we have observed that our farmers are largely able to manage climate events within their financials, due

to the buffers present in their current and future interest coverage ratios. With the right adaptive measures, and the right timing of their uptake, these impacts can be successfully mitigated by adaptation improving yields for farmers.

As a Group, we are using the findings of our analysis to inform the future management of our agriculture portfolio, including building better tools to manage and monitor our risks. We will focus on

supporting our customers operating in those areas of Australia that, according to our modelling, will be significantly impacted by climate change. We are also engaging and upskilling our agribusiness teams through training, policies and toolkits, so that they are able to incorporate considerations of climate resilience and adaptation into conversations with our farming customers.

Methodology for agriculture portfolio physical risk scenario analysis

Climate change scenarios

Climate change impacts to each agriculture sector were assessed in response to multiple emissions pathways, climate scenarios and adaptation responses to capture a wide range of potential impacts. The Intergovernmental Panel on Climate Change's (IPCC) low (Representative Concentration Pathway 4.5) and high (RCP 8.5) global emissions pathways were considered as well as two climate models to provide a range of potential outcomes. Outcomes were then considered with and without the uptake of cost-effective adaptive measures. Altogether, 12 scenarios were considered, book-ended by a best case (low emissions pathway, climate model showing least change, full adaptation uptake, inclusive of GMO developments) and worst case (high emissions pathway, climate model showing most change and no adaptation uptake).

Impact models

Climate impact models were sourced for grains, dairy cattle and livestock based on a survey of Australian literature. The impact models are:

- Grains: a statistical relationship between productivity, seasonal rainfall and seasonal temperature was applied to historical and future climate data on a five kilometre grid.
- Livestock: a statistical relationship between productivity, seasonal rainfall and seasonal temperature was applied to historical and future climate data on a five kilometre grid.

- Dairy: a statistical relationship between productivity and seasonal rainfall, temperature and the Temperature-Humidity Index modelled at three sites by Dairy Australia was applied to the other five dairy regions.

Climate variables

The climate variables are:

- seasonal rainfall and temperature
- daily average temperature and humidity.

Additional climate variables and related environmental stressors are known to affect production but were assessed more broadly due to data and evidence limitations. These parameters include fire, cyclones, sea level rise, pests and diseases. As a result, our modelling of physical climate risk may understate the potential impact of climate change.

Outputs

Bounds were placed on the results of the statistical models to ensure that outputs were plausible. Results were filtered, using Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) land use data, to remove unused land such as deserts and waterways. The effects of climate change were expressed as percentage changes in productivity from a 2018 adjusted baseline to ensure relevance to the current day. Commodity prices were assumed to remain steady. In adaptation scenarios the change in profitability is the change in output post adaptation less the cost of adaptive measures.

Adaptation

Potential adaptive measures were researched for each agricultural sector. These include measures already taken up by some farmers but with potential for increased uptake, as well as measures

not yet implemented but well researched. Additionally, an allowance was included for future technology not yet developed, projected to be available from around 2035. Adaptation uptake curves were developed for each representative commodity type based on the selected measures, their expected crop yield improvements, and costs to implement and uptake rates.

Credit risk

Using the profitability and productivity impacts, we were able to estimate how climate change could effect the credit risk metrics of our existing agribusiness customers. Using a driver based approach and our existing credit risk models we were able to assess the impact on the portfolio's probability of default. A number of simplifying assumptions were made for example, land values and commodity prices were held constant. As a consequence, the actual impacts may be greater or less than those calculated.

Data sources

Farm location information was obtained from the Australian Bureau of Statistics (ABS) Agricultural Census 2015-16. Other geographical information was obtained from the ABS, ABARES and other Australian Government agencies. Climate impact models were drawn from research by CSIRO, ABARES and Dairy Australia.

Limitations and uncertainties

This analysis is based on best available information. However, it is unable to overcome some important limitations and uncertainties. For example, climate change simulations currently have minimal ability to model extreme weather events. Similarly, agricultural impact models need to be further developed to test the bounds at which statistical relationships change.

Climate risk management

Climate-related, and wider environmental risk, is an important element of strategic risk which we identify, assess and manage via our risk management framework and ESG business practices.

Policy and processes

Our approach to climate risk management cascades down from our Group level policies via the frameworks for each material risk type, which are documented in the Group's Risk Management Framework (see page 201).

The requirements of these policies and frameworks are translated into sector/ portfolio controls and specific transaction and client level processes that support appropriate consideration of ESG risks in business decisions.

In particular, climate change is included as an area of special focus in our Group Environmental and Social Policy, which is underpinned by comprehensive procedure documents that govern and guide implementation across the Group.

Climate risk has the potential to create both financial and non-financial impacts for the Group, as its physical and transition impacts have the potential to affect our customers' ability to service and repay their loans, as well as the value of collateral the Bank holds to secure loans. These impacts include long-term changes in climatic conditions, extreme weather events, and the action taken by government, regulators or society more generally to transition to a low carbon economy. For more please refer to *Climate-related risk* in Note 9.2 of the *Financial report* on page 206.

Climate in our ESG risk assessment process

The Bank is a major provider of business loans. A key step in our credit risk due diligence for business lending is the assessment of potential transactions for ESG risks, including climate risk, through our ESG Risk Assessment Tool.

All Institutional Bank loans and large loans in other business units are subject to a compulsory ESG risk assessment. This must take place before a loan can be priced. The process includes an initial ESG risk assessment based on country of operations and more than 500 industry sectors. The overall ESG risk levels are aligned with the Equator Principles' risk categories A, B and C. Additional ESG due diligence is required for transactions which have medium or high ESG risks identified in the initial assessment.

Along with climate and energy as focus areas, we now include physical climate risk in our ESG risk assessment process. This means loans are reviewed to understand how clients are managing their carbon impacts and climate resilience.

There is compulsory training on ESG Fundamentals and the ESG Risk Assessment Tool for all our Institutional Banking and Business Banking client facing roles, plus the credit risk teams.

Assessing the emissions in our investments and business lending

To understand the concentration of our carbon-related exposures we measure the carbon intensity of equity investments, our exposure to companies in the energy value chain, and the overall emissions we finance through our business lending portfolio.

Carbon emissions of equity investments in FirstChoice investment options

In line with our commitment to reduce our own emissions we measure the climate – related risks of our investments. For our equity investments in the MySuper products¹, from June 2016, we see a continued downward trend in carbon emissions per \$100,000 invested.

In the largest cohort of our FirstChoice Employer Super offer, (FirstChoice Employer 1970-74), emissions have gone from 32.2 tCO₂-e at 30 June 2018 to 30.6 tCO₂-e at 30 June 2019². This is equivalent to a reduction from 6.8 cars driven daily for a year to 6.5 cars³.

For our multi manager equity portfolios, our FirstChoice Australian Share emissions stood at 18.9 tCO₂-e per \$100,000 invested and FirstChoice Global Share was a lower 14.2 tCO₂-e (4 cars compared to 3 cars) at 30 June 2019.

Another measure of carbon is carbon intensity. This measures carbon emissions normalised by sales revenue to allow for comparison between companies of different sizes. From June 2018 to June 2019 the carbon intensity of First Choice Employer 1970-74 has changed from 360.4 tCO₂-e/\$ revenue to 325.7 tCO₂-e/\$ revenue.

At June 2018, FirstChoice Australian Share had a carbon intensity of 326.5 tCO₂-e/\$ revenue compared to 230.4 tCO₂-e/\$ revenue at June 2019. FirstChoice Global Share also reduced its carbon intensity, from 209.0 tCO₂-e/\$ revenue in June 2018 to 148.4 tCO₂-e/\$ revenue in June 2019.

1 On 16 March 2019 we updated the Commonwealth Essential Super age based investment option, known as the 'Lifestage option', to be more tailored to the member's age. This means the asset allocation is in line with that of the Lifestage option in FirstChoice Employer Super. Both MySuper products will therefore have the same emissions per \$100,000 going forward and will not be reported separately.

2 The equivalent number of cars data is sourced from the *United States Environmental Protection Agency Greenhouse Gas Equivalencies Calculator*.

3 Carbon emissions data is provided and calculated by MSCI Inc. MSCI collects reported Scope 1 and Scope 2 emissions from each company. Only 60% of companies in the global equities universe report their greenhouse gas emissions, so MSCI estimates the remaining 40%.

Addressing climate change (continued)

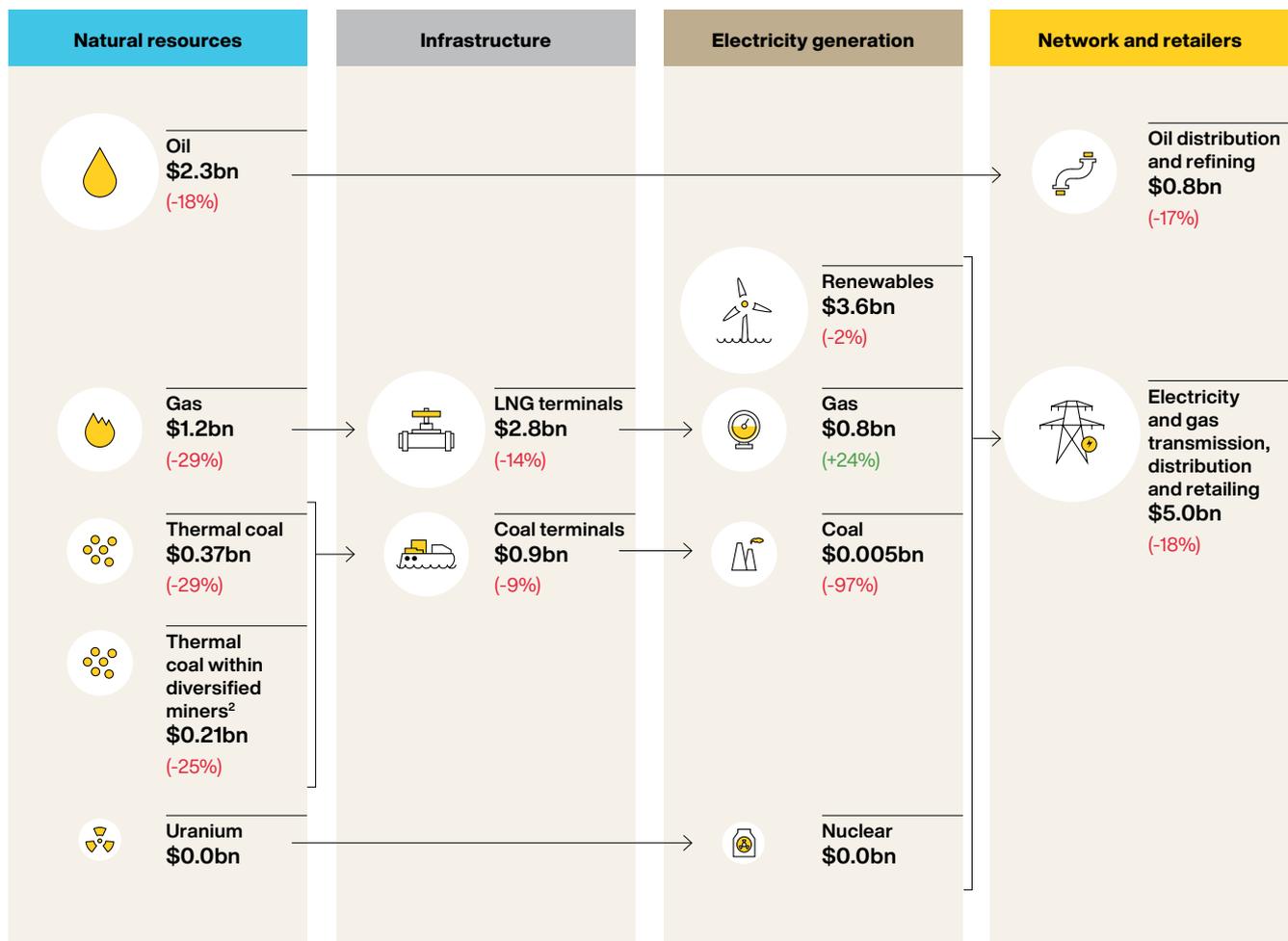
Energy value chain

For increased transparency, we have disclosed our exposure to thermal and metallurgical coal mining separately and we have detailed our exposure to thermal and metallurgical coal within diversified miners.

As part of our review of the diversified miners, we have classified exposures to coal subsidiaries of diversified miners to thermal and metallurgical coal directly.

Our exposure to metallurgical coal mining is \$7 million and our exposure to diversified miners allocated to metallurgical coal mining is \$82 million (not included below).

Exposures as at 30 June 2019¹



Key: (+%) (-%)
Change since FY18

1 All figures are Total Committed Exposures (TCE) as at 30 June 2019. Figures represented have been specifically derived based on material client exposures. Not included are 'Other energy-related' exposures (\$0.8 billion) which comprise smaller loans and exposure to energy trading entities.

2 Thermal coal exposure within each diversified miner is calculated as the Group's exposure to the miner, excluding exposure to coal subsidiaries, multiplied by the percentage EBITDA contribution of thermal coal in its latest annual financial statements. Exposure to coal subsidiaries of diversified miners are allocated to thermal coal.

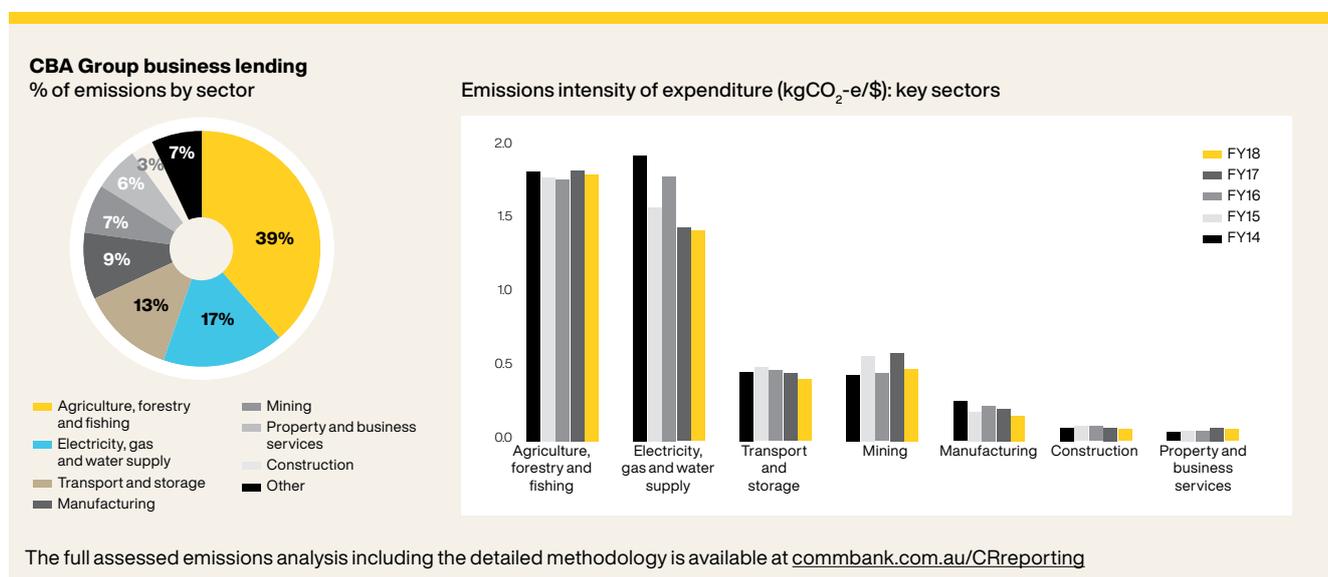
Assessed emissions in our business lending portfolio

As a major provider of lending services, we play a crucial role in supporting economic and social development. We also recognise the role we play in addressing the challenge of climate change and in supporting the transition to a low carbon economy. As a result, we continue to assess the emissions arising from our business lending across Commonwealth Bank, ASB and Bankwest.

The emissions intensity of our overall business lending portfolio has continued to trend downwards, and has decreased in FY18 by 7.4% to 0.26 kgCO₂-e/\$ of expenditure. Most sectors have shown a decrease in emissions intensity in FY18.

The Agriculture, Forestry and Fishing sectors represent the most emissions intensive part of our business lending portfolio.

The Electricity, Gas and Water Supply sectors show a general downward trend. The discontinuation of a number of high emissions intensive exposures contributed to this result in FY18. Our exposure to renewables increased 33% to \$3.7 billion in FY18. A portion of the exposure included projects under construction which are typically initially more emissions intensive than operational renewable electricity assets.



Climate metrics and targets

We report regularly on key metrics to measure our progress and to provide transparency to our stakeholders.

During the year we signed up, as the first Australian corporate, to RE100. This commits us to source 100% of our electricity consumption from renewable sources by 2030. As a first step in that process, as of June 2019 we are sourcing 65% of our national needs from the Sapphire Wind Farm in New South Wales. The table below shows the latest progress against our climate-related targets.

Metric	Target	FY19 progress
Low carbon target	\$15 billion by 2025	\$5.1 billion committed exposure as at 30 June 2019 ²
Sourcing renewable energy for our power needs	100% by 2030	65%
Emissions per FTE (Australia)	2.0 tCO ₂ -e by 2020	2.1 tCO ₂ -e
Solar panels on branches ¹	1,250 kW by 2020	1,105 kW
Assessed emissions in our business lending portfolio	An average emissions intensity decrease of our business lending portfolio consistent with our commitment to a net zero emissions economy by 2050	0.26 kgCO ₂ -e/\$ of expenditure (2018 financial year)

For a full set of our *Environmental, customer, social and governance metrics* (including PwC's external assurance statement) see page 297.

¹ A real time portal which displays data on how our network of solar equipped branches is performing can be accessed at cbasolarpower.com.au.

² Reported exposure in the FY18 Annual Report (page 57) was \$7.3 billion. A review found this was overstated and the correct FY18 figure for low carbon project funding was \$4.6 billion.