

BNZ Net Zero Banking Alliance targets disclosure

May 2023



Introduction

BNZ is committed to contributing to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5°C above pre-industrial levels. We will do this through accelerating the just transition to a net zero emissions economy, in a way that supports the regeneration of the natural environment and builds climate resilience.

Key to this are two objectives in our Climate Strategy.

- Our target to transition our lending portfolios to net zero emissions by 2050.
- Supporting our customers to transition to low emissions, climate resilient business models.

To support this ambition, we signed up to the Net Zero Banking Alliance (NZBA) in October 2021. Through our commitment to the NZBA, and in line with our Climate Strategy, we are publishing our first round of emissions reduction targets (targets) for our priority sectors. Through setting targets for our financed emissions and tracking the level of our financing to various companies and sectors, we can better allocate our capital towards the transition to a low emissions economy. Our operational emissions are reported annually in our Climate Report.

This document sets out the baseline emissions, reference scenarios, and other parameters for the targets.

What does net zero emissions mean?

Net zero emissions means cutting greenhouse gas emissions (GHG) to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere.¹

Principles for target setting

We have chosen these initial targets using the following principles.

- Alignment with the [UNEP FI Guidance for target setting under the Net Zero Banking Alliance](#).
- Reflecting Aotearoa New Zealand's specific circumstances for relevant sectors, such as the high proportion of renewable energy generation, and taking into account the role of the independent Climate Change Commission (CCC).
- Setting targets that are ambitious, achievable, and equitable, and do not rely on technological developments or other assumptions that are not currently expected to become commercially available within the target period.
- Alignment with the NZBA targets of our parent bank, National Australia Bank (NAB), where the relevant NAB target is appropriate for a BNZ sector.

This document contains targets, assumptions and other forward looking information. These statements necessarily involve projections and assumptions about the future, which are inherently uncertain and subject to limitations, particularly inputs, available data and information which is likely to change. Targets, assumptions and other forward-looking information in this document are based on our reasonable understanding as at 28 February 2023 but future performance and actions may differ from this document as circumstances and our understanding develop over time, and as data availability improves. Whether we are able to meet our targets will depend on factors out of our control, such as governmental policy, regulatory and economic factors, as well as the actions of our customers. We will update the information in this document in future annual Climate Reports, together with our reporting on progress against our targets.

Our chosen sectors

Our first set of targets are for the Coal Mining, Dairy, Power Generation, and Oil and Gas sectors. We have chosen these sectors because of their emissions intensity, the relative availability of emissions data, and the relative amounts that we lend to these sectors. More work is required to understand the total financed emissions attributable to BNZ across all our lending portfolios, and we will report on our total financed emissions through future annual Climate Reports.

1. Definition taken from the UN's Net Zero Coalition: <https://www.un.org/en/climatechange/net-zero-coalition>

From here, we will publish:

- By 30 April 2024: for each of the above sectors, a high-level transition plan that documents the actions we will take to meet these targets, and
- By 30 October 2024: our emissions reductions targets for the following remaining sectors: Sheep and Beef; Aluminium; Cement; Commercial and Residential Real Estate; Iron and Steel; and Transport.

Choosing sector specific scenarios

We considered a wide range of climate scenarios to support our target setting. The NZBA requires that scenarios be from well recognised, credible institutions, with scenarios that are aligned with the temperature goals of the Paris Agreement, being “no-overshoot” or “low-overshoot” scenarios. In addition, NZBA requires that the scenarios rely conservatively on negative emissions technologies, with reasonable assumptions on carbon sequestration through nature-based solutions and land use change, with minimised misalignment with the UN Sustainable Development Goals.

Based on our target setting principles, we consider that the International Energy Agency (IEA) and the CCC provide the most appropriate scenarios for our initial targets. The following scenarios were selected:

- IEA Net Zero Emissions 2050 scenario for the Oil and Gas sector.
- CCC Demonstration Pathway scenario for the Dairy sector.
- CCC Tailwinds scenario for the Power Generation sector.

2. For example, [McKinsey & Company](#) attributed almost 80% of the oil and gas industry’s emissions to combustion of the oil and gas itself.

Our rationale for selecting each scenario in relation to each sector target is set out below, together with the key assumptions for each scenario. Future reviews of these targets (as is required by the NZBA every five years), and new, additional sector targets, will consider any updates to, or enhancements of, the above scenarios and the development of new scenarios.

Target types

Under the NZBA guidelines two types of targets can be set for each sector:

1. Absolute emissions reduction target

This represents the total emissions attributed to our financing of customers in the sector (referred to as “financed emissions”), and these must be reduced in absolute terms.

For example, if we financed emissions of 1000 tCO₂e in a target sector, and had an absolute emissions reduction target for that sector of 40% by 2030, we would need to reduce our financed emissions to the sector by 400 tCO₂e to 600 tCO₂e by 2030.

In this disclosure, we have used an absolute emission reduction target for the Oil and Gas sector. Setting an absolute emissions reduction target is consistent with the reduction in combustion of oil and gas (the Oil and Gas sector’s main source of emissions) required to meet climate targets.

Absolute emissions reduction targets are appropriate for the fossil fuel sector to limit the most severe impacts of climate change.

2. Physical intensity target

A physical intensity target is a target which measures the amount of emissions produced per unit of production. Physical intensity targets focus on improving the emissions efficiency of production processes. Where appropriate, they support growing a sector in a way that reduces absolute emissions overall.

For example, if a sector had a current emissions intensity of 100 kgCO₂e / unit of production, and a physical intensity target of 40% reduction in physical intensity by 2030, then we would need to reduce our financed emissions intensity of the sector to 60 kgCO₂e / unit of production by 2030.

In this disclosure we have used physical intensity targets for the Dairy and Power Generation sectors. A physical intensity target allows for climate resilient growth in sectors that support living standards and expected population increases across Aotearoa New Zealand.

Scope of financed emissions included in each target

The scope of emissions in these initial targets has been informed by UNEP FI guidelines, however we have been constrained by available emissions data. We have focussed on incorporating the most material sources of emissions for each sector in both our target pathway and associated baseline emissions. We will look to extend the scope of emissions coverage over time, as emissions data and scenario granularity and quality allow.

We have incorporated scope 1, 2 and 3 emissions for upstream Oil and Gas. Inclusion of scope 3 emissions for fossil fuel sectors is consistent with NZBA requirements and reflects the significant contribution of the combustion of fossil fuels, such as oil and gas, to the sector’s emissions profile.²

Scope 3 emissions have not been included in the targets for Power Generation and Dairy due to a combination of lack of available data and scenario detail and granularity. Regardless of this exclusion the targets that we have set for these sectors capture a significant majority of emissions associated with each sector.

Our Power Generation target includes scope 1 and 2 emissions that together represent energy consumed in the process of electricity generation.

For our Dairy target we have covered scope 1 emissions from on-farm activities. This predominantly includes emissions of methane (CH₄) and nitrous oxide (N₂O) gases, from sources such as enteric fermentation and fertiliser application. Together these two gases comprise the significant majority of the sector's emissions.³ As we explain in the Dairy section, our target has been drawn from the CCC's demonstration path that also includes carbon dioxide (CO₂) from activities such as liming.⁴ Currently, our target excludes scope 1 emissions from non-biological processes (e.g. machinery) and our Scope 1 baseline encapsulates methane and nitrous oxide only. Due to the current available data our baseline emissions do not include Scope 1 emissions that occur off farm, such as when stock are wintered off farm. We will look to close these gaps and extend the scope of emissions included in our target (for example Scope 2 emissions from electricity consumption) as data improves.

For baselining purposes, we have adopted the Partnership for Carbon Accounting Financials (PCAF) methodology to score the quality of data from which our baselines have been derived. These are provided alongside key target elements for each sector.

Operationalising the targets

The 2030 targets for the Dairy, Power Generation, and Oil and Gas sectors in this document are interim targets. These interim targets are key milestones that will demonstrate our progress towards our long-term target that all lending portfolios will be net zero emissions by 2050. We will continue to develop targets for the remaining lending portfolios listed in the UNEP FI guidance for publication by 30 October 2024.

Target governance, oversight and review

Our sector targets have been approved by BNZ's Executive team and BNZ's Board. Governance of the targets will fall within existing governance processes, as outlined in our [2022 Climate Report](#).

We will also consider whether revisions to a target or approach to target setting are necessary in light of future updates to Aotearoa New Zealand government policies, strategy, regulations or targets, or applicable reference pathways, and at a minimum we will review our targets every five years in line with the UNEP FI NZBA guidelines. Significant government policy change may impact BNZ's ability to meet its targets.

Measuring progress against targets

Progress against each target will be reported annually in the Climate Report, using the relevant target metric for the sector. We will also explain challenges that we have encountered and whether there have been any changes to our target or baseline in our Climate Report. We do not anticipate consistent linear progress to be made between now and meeting each of our sector targets – significant uncertainty remains around how and when each sector will decarbonise.

We are aiming to meet our interim 2030 targets for the Dairy, Power Generation and Oil and Gas sectors without the use of offsets. We will monitor evolving leading practice on the use of offsets, including what is included in the GHG protocol in line with UNEP FI guidance. We recognise offsets will likely play a role for remaining hard to abate emissions to reach net zero emissions by 2050.

Achieving the targets

Having set our initial targets, we are implementing and integrating these across our business.

Key priorities to integrate targets include:

- Working with customers on credible transition plans, and improving our maturity to assess them.
- Policy guidance and training for colleagues on target setting.
- Integrating emissions targets into relevant policies and processes, so progress towards targets is considered during decision making.
- Improving emissions data quality, particularly for the Dairy sector.
- Setting up internal enablers, such as data systems, to store and track emissions information across different lending portfolios.
- Where required, and in line with UNEP FI guidance, developing high level transition plans for Dairy, Power Generation, and Oil and Gas sectors.

We recognise there is significant work to align our existing processes to achieve these targets, and will report on our progress and challenges as part of our annual Climate Report.

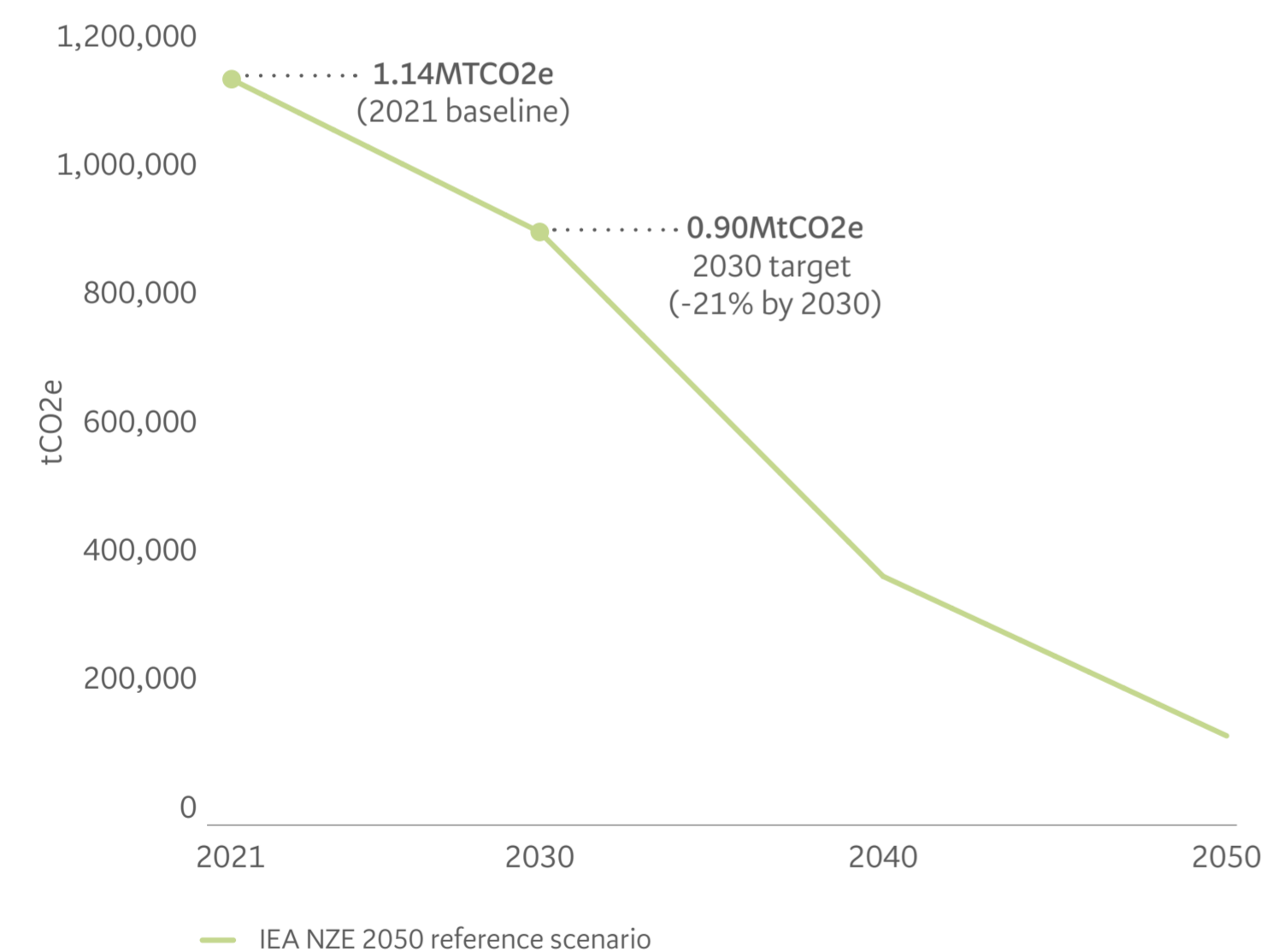
3. Estimates of CH₄ and N₂O contribution to total dairy and agricultural emissions differ marginally dependent on emissions scope. [The Ministry for the Environment \(2022\) New Zealand's Greenhouse Gas Inventory 1990-2020 \(p.149\)](#) attributes approximately 98% of agricultural carbon dioxide equivalent (CO₂e) emissions to an aggregate of the CH₄ and N₂O gases.

4. CO₂ accounts for approximately 4% of CO₂e emissions in CCC modelling. CH₄ and N₂O contribute the balance (See rows 592, 596 and 600 of the "Demonstration path" tab of the [CCC's \(2021\) Scenario-dataset-final-advice.xlsx](#) for more details).

Sector targets

Oil and Gas sector

Figure 1: Oil and Gas sector target and reference scenario



Key target elements	Approach selected
2021 baseline	1.14MtCO2e
2030 target	0.90MtCO2e (-21% by 2030)
Sector coverage (based on 1993 ANZSIC)	120001 Gas, Natural Extraction 120002 L.N.G. Production At Wellhead 120003 Liquefied Petroleum Gas Production (Not At Refineries) 120004 Natural Gas Separation At The Wellhead 120005 Oil Shale Mining 120099 Oil And Gas Extraction 150002 Oil and Gas Field Services 151101 Petroleum Exploration (Own Account) 151201 Natural Gas Exploration On Contract 151202 Petroleum Exploration On Contract 151299 Petroleum Exploration Services 152001 Contract Mining Services 152002 Oil and Gas Field Services 152099 Other Mining Services
Reference scenario	IEA NZE 2050 (May 2021)
Emissions scope	Scope 1, 2 and 3
Target metric	Absolute emissions, tCO2e
Financing scope	Total Committed Exposure, excluding derivatives and bonds or guarantees associated with environmental rehabilitation
PCAF data quality score	2

Sector overview

Decarbonisation of Aotearoa New Zealand’s economy is dependent on reducing demand for oil and gas products across many sectors, including transport, power generation and industry.

Our Oil and Gas sector target is a 21% reduction in absolute financed emissions by 2030, from a 2021 baseline. Our Oil and Gas target is limited to upstream Oil and Gas industries, that is, those that primarily explore or extract Oil and Gas.

We have chosen to focus on upstream oil and gas industries because:

- These customers produce the majority of our financed emissions in our Oil and Gas portfolio;
- Influencing reduction in Oil and Gas extracted and produced upstream will spur decarbonisation through the rest of the Oil and Gas sector, and
- It aligns with our parent NAB for a co-ordinated group approach in an international industry.

As our target setting processes develop, we will consider publishing a revised target which extends to the rest of the Oil and Gas sector.

Adopting the IEA NZE 2050 pathway

For the Oil and Gas sector we have chosen to adopt the IEA NZE 2050 pathway, which is NZBA compliant and consistent with the goals of the Paris Agreement. It also aligns with the Oil and Gas sector target set by our parent bank, NAB. While almost all gas extracted in Aotearoa New Zealand is consumed here, the oil is primarily exported, making the adoption of the global IEA NZE 2050 scenario appropriate for this sector.

Our approach

We are committed to decarbonising our upstream Oil and Gas portfolio through helping our customers transition away from oil and gas. We will look to support customers with credible transition plans in making the necessary investments to decarbonise existing production (for example through the reduction of methane leaks and flaring) and transitioning their businesses away from reliance on fossil fuel activities. Our high-level transition plans for the Oil and Gas sector will detail our sector approach, providing detail on the actions expected to be undertaken to meet these targets as well as an approximate timeline.

Key target assumptions

To achieve net zero emissions by 2050, the IEA NZE 2050 scenario requires absolute emissions attributable to the Oil and Gas sector to reduce by 21% by 2030, from a 2021 baseline. Key assumptions and limitations underpinning this scenario include:

- No exploration is required, and no new oil or gas fields are needed beyond those that have already been approved for development from 2021.
- Demand for Oil and Gas declines by 14% from 2020 to 2030, with an anticipated carbon price of \$US130 per tCO₂-e in 2030 in advanced economies making a large portion of production not economically viable and, therefore, putting downward pressure on production.
- The emissions reductions required under this scenario pathway include CO₂ emissions only. Carbon dioxide is the predominant gas emitted by the Oil and Gas sector, however we recognise this does not include methane. Note we have included all greenhouse gases in our baseline year emissions, and will include all greenhouse gas emissions in tracking progress against this target, using our target metric of tCO₂e.

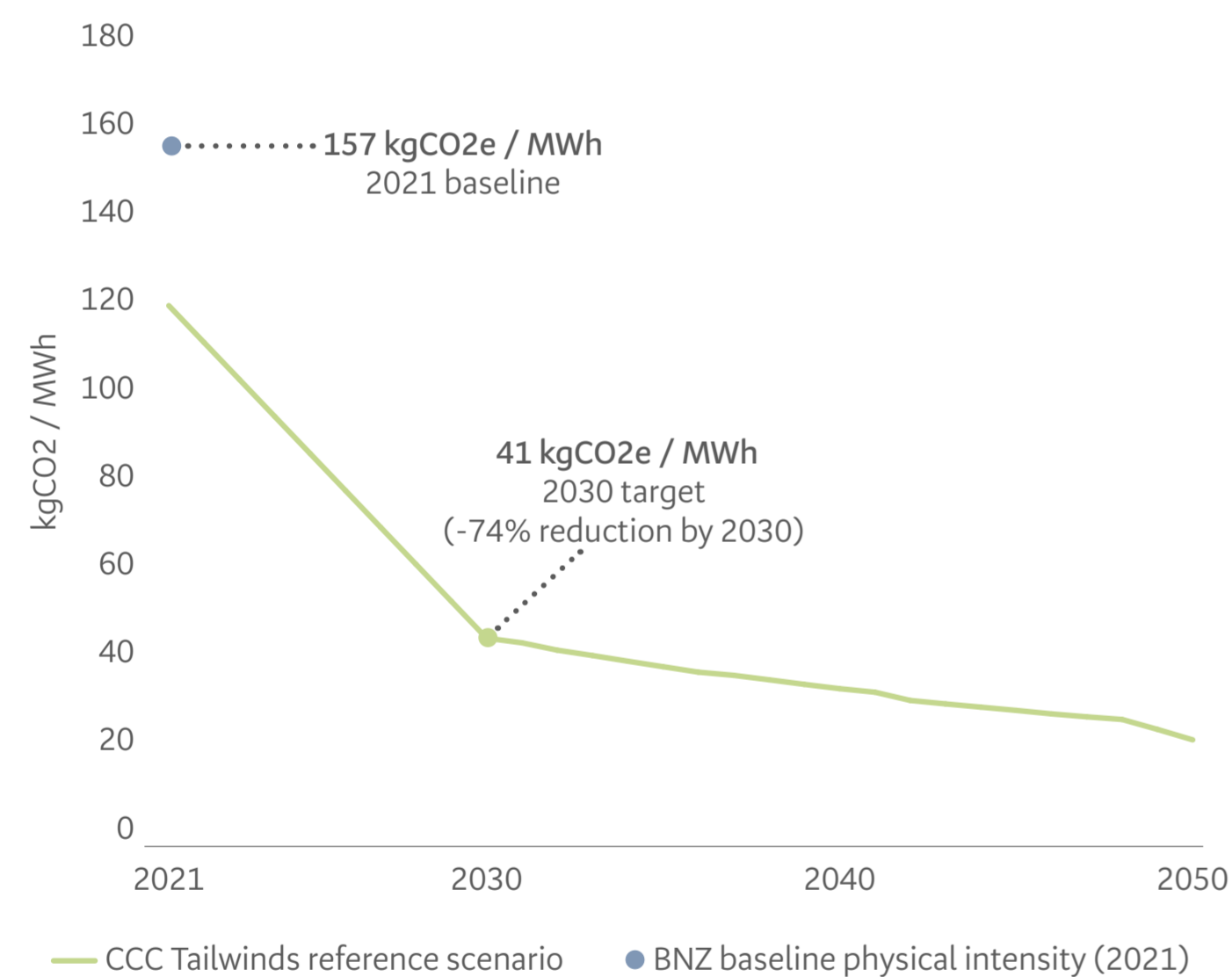
We also note that the IEA NZE 2050 scenario assumes adoption of carbon capture, use and storage (CCUS) technologies to capture Scope 3 emissions. However, we will aim to achieve our emissions targets, without reliance on CCUS. We will, however, consider financing customers' investment in CCUS technologies, where credible and appropriate.

Sourcing sector data

We sourced the emissions data directly from Oil and Gas sector customers. The data provided includes emissions data which has not been independently verified.

Power Generation sector

Figure 2: Power Generation sector target and reference scenario



Key target elements	Approach selected
2021 baseline	157 kgCO2 / MWh
2030 target	41 kgCO2 / MWh (-74% by 2030)
Sector coverage (based on 1993 ANZSIC)	361002 Electricity Generation 361004 Hydroelectric Power Generation 361007 Electricity Generation using Coal 361008 Electricity Generation using Gas 361010 Wind Farms 361011 Renewable Energy
Reference scenario	CCC Tailwinds scenario (May 2021)
Emissions scope	Scope 1 and 2
Target metric	kgCO2e / MWh
Financing scope	Total Committed Exposure, excluding derivatives and bonds or guarantees associated with environmental rehabilitation
PCAF data quality score	2

Sector overview

The Power Generation sector will make a significant contribution to decarbonising the broader energy sector. While the majority of power generation is currently renewable, generation capacity needs to increase substantially to meet the total energy needs of Aotearoa New Zealand. Increasing demand is expected as transport and industrial processes are decarbonised. Significant investment is required to rapidly build out renewable generation to meet this increasing demand.

Our Power Generation target is a 74% decrease in financed emissions intensity (kgCO2e / MWh) by 2030, against a 2021 baseline.

Adopting the CCC Tailwinds pathway

We have adopted the CCC’s Tailwinds scenario for setting our Power Generation target, which takes into account Aotearoa New Zealand’s largely renewable power generation mix. We have adopted the CCC’s most ambitious scenario as our expectation is that the assumptions underpinning it are ambitious but achievable. This is supported by current government policy, the [recent decarbonisation roadmap prepared by the Boston Consulting Group](#) and analysis of the plans and aspirations of our power generation customers.

Our approach

The Power Generation sector is key to Aotearoa New Zealand decarbonising its economy, with a significant increase in renewable power generation capacity required this decade in order to support electrification of parts of the economy currently reliant on fossil fuels, such as transportation.

We are committed to supporting the further decarbonisation of the power generation mix and expansion of renewable power generation capacity to meet these goals. The primary lever we have to achieve the targeted reduction is through financing customers' investment in new renewable power generation capacity, as well as network and battery capacity to support the integration and effective use of increased renewable power generation. As BNZ provides lending to support this transition, including to support investment in emissions reduction activities, absolute financed emissions in the Power Generation sector may increase in the short-term.

We recognise the criticality of reliable, secure and affordable electricity in encouraging further electrification of the Aotearoa New Zealand economy. The transition to a more renewable electricity system needs to be orderly, affordable, maintain reliability and incentivise businesses to switch to low-emissions fuels, requiring a managed phase-out of coal and fossil gas.

Key scenario assumptions

Key assumptions underpinning the CCC Tailwinds scenarios for the Power Generation sector include:

- Electricity demand grows by approximately 50% from 2020 to 2050, driven by electrification of transport, off-road vehicles, industrial and building heating.
- Tiwai aluminium smelter assumed to close at the end of 2025. Sensitivity analysis undertaken by CCC indicates that continued operation has little impact on projected technology mix.
 - Note: We have smoothed out the closure of Tiwai aluminium smelter in the reference scenario shown in figure 2, on page 7. This does not impact the emissions reduction required at 2030 or 2050.
- Fossil fuels ramp down quickly but not completely - much of the reduction from current levels that occurs before 2025 is due to the displacement of baseload fossil generation (gas and coal) with lower-cost renewables.
- Some fossil gas is maintained exclusively for flexible generation.

Additional assumptions we have used when choosing this scenario include:

- The Government's energy strategy and related policies, along with market economics, will support decarbonisation of the power generation sector in line with the Government's aspirational target of 100% renewable by 2030.
- Our forecast for our financed emissions in power generation assumes that customers' existing fossil fuel generation asset retirement plans remain the same (or are accelerated).
- We assume that when non-renewable generation capacity is retired, it is replaced with renewable generation (for example there are no new non-renewable power generation assets).

If the above assumptions do not occur as anticipated, our sector target for Power Generation will be difficult to achieve without some other government action and/or technological improvements in the sector.

Sourcing sector data

The emissions and generation data used for setting the Power Generation baseline was sourced primarily from customer reporting. When there was no publicly available information, we have engaged with customers and used emissions factors where emissions data was otherwise not available.

The following emissions factors were used:

- 0 kgCO₂e / MWh for hydro, solar, wind⁵,
- 457 kgCO₂e / MWh for steam turbine combustion fuelled by natural gas,⁶ and
- 530 kgCO₂e / MWh for gas in open cycle turbine.⁷

We have used emissions factors from Aotearoa New Zealand literature, where possible, to best reflect Aotearoa New Zealand's specific emissions profile. Where this is not possible we have utilised the PCAF emissions factor database.

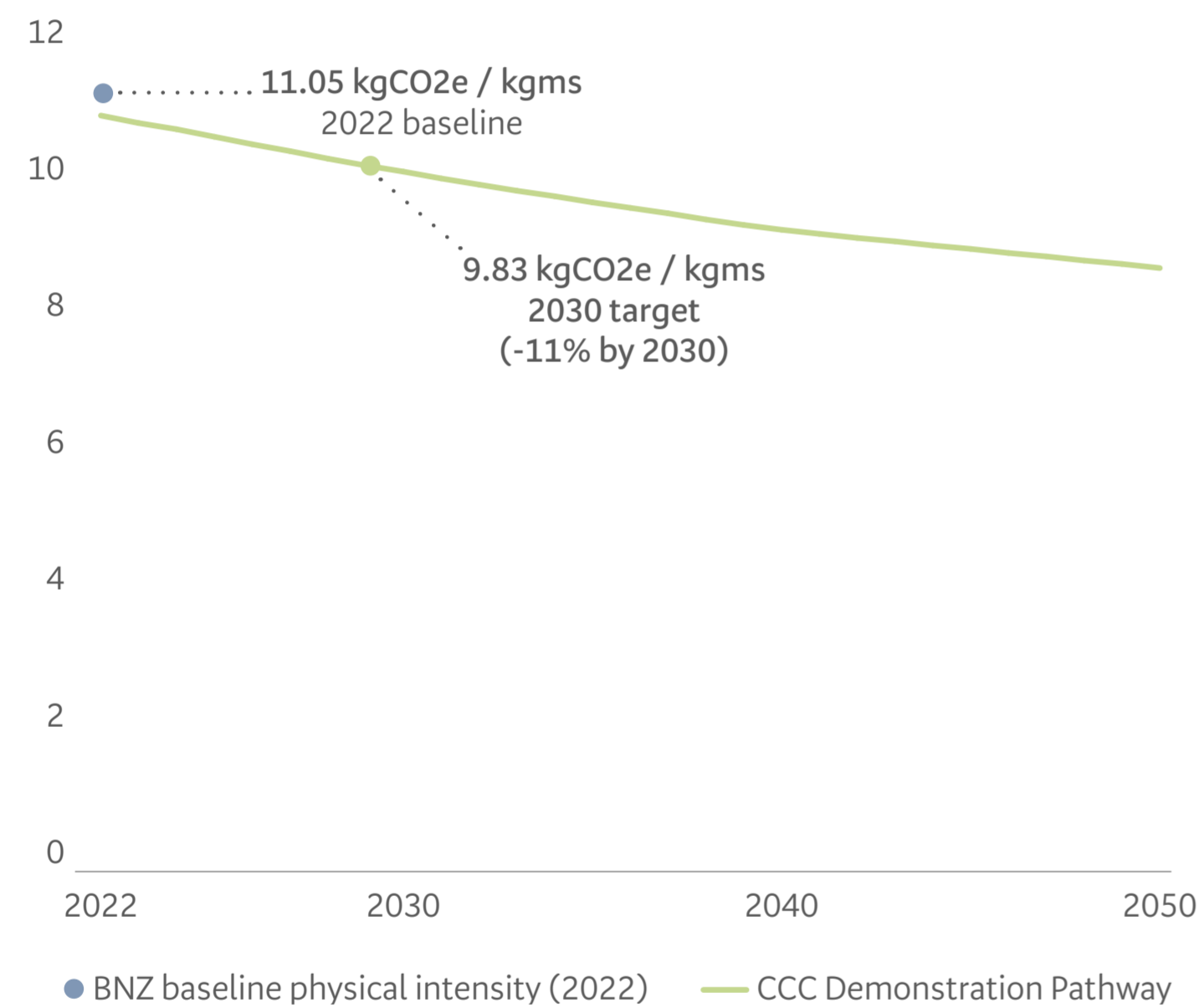
5. McLean, K., Richardson, I., Quinao, J., Clark, T., & Owens, L. (2020, November). Greenhouse gas emissions from New Zealand geothermal: Power generation and industrial direct use. In Proceedings 42nd New Zealand Geothermal Workshop (Vol. 24, p. 26)

6. From PCAF emissions factor database

7. McLean, K., Richardson, I., Quinao, J., Clark, T., & Owens, L. (2020, November). Greenhouse gas emissions from New Zealand geothermal: Power generation and industrial direct use. In Proceedings 42nd New Zealand Geothermal Workshop (Vol. 24, p. 26)

Dairy sector

Figure 3: Dairy sector target and reference scenario (kgCO₂e / kgMS)



8. [The dairy sector in New Zealand: extending the boundaries](#) (Productivity Commission), 4 December 2020

9. StatsNZ (2021) Greenhouse gas emissions (industry and household): Year ended 2020. Available at <https://www.stats.govt.nz/information-releases/greenhouse-gasemissions-industry-and-household-year-ended-2020/>

10. He Pou a Rangī the Climate Change Commission Ināia tonu nei: a low emissions future for Aotearoa, at 9.5, paragraph 30.

11. The Demonstration Pathway is a low overshoot scenario, with reductions in agricultural methane sitting just outside the IPCC’s interquartile range at 2030, but within the IPCC interquartile range by 2050. See He Pou a Rangī the Climate Change Commission Ināia tonu nei: a low emissions future for Aotearoa, at 9.4.2, paragraph 30.

Key target elements	Approach selected
2022 baseline	11.05 kgCO ₂ e / kgMS
2030 target	9.83 kgCO ₂ e / kgMS (-11% by 2030)
Sector coverage (based on 1993 ANZSIC)	13001 Dairy Cattle Farming (pasture not irrigated) 13002 Dairy Cattle Farming (irrigated pasture) 13003 Raw Cattle Milk Production 13004 Dairy cattle Sharefarmer (pasture not irrigated) 13005 Dairy cattle Sharefarmer (irrigated pasture) 13006 Dairy Cattle Sharefarming (Land Owner-irrigated pasture) 13007 Dairy Cattle Sharefarming (Land Owner-pasture not irrigated)
Reference scenario	CCC Demonstration Pathway (May 2021)
Emissions scope	Scope 1 biological emissions only (non-biological emissions being a negligible proportion of the sector’s emissions)
Target metric	kg CO ₂ e / kg milk solids (kgCO ₂ e / kgMS)
Financing scope	Total Committed Exposure excluding derivatives and bonds or guarantees associated with environmental rehabilitation.
PCAF data quality score	3

Sector overview

Dairy is Aotearoa New Zealand’s biggest export earner, accounting for around \$18.6 billion of exports (23%), and 5.3% of nominal GDP in 2021, according to the [New Zealand Treasury](#). The sector comprises approximately five million dairy cows in 11,000 herds, employing approximately 40,000 workers with 27,500 on farm and a further 13,000 in dairy processing.⁸ The Aotearoa New Zealand Dairy sector is recognised as one of the most efficient dairy producers in the world, according to [AgResearch](#).

The Dairy sector contributes approximately 22% of Aotearoa New Zealand’s gross emissions and approximately 42% of agricultural emissions.⁹ The Dairy sector is exposed to both physical and transition risk due to climate change. Methane is the primary greenhouse gas emitted by the Dairy sector, accounting for approximately three quarters of all Dairy emissions. Having a climate resilient, efficient Dairy sector is key to Aotearoa New Zealand’s future success.

Our dairy emissions reduction target is an 11% reduction in financed biological emissions intensity (kgCO₂e / kgMS) by 2030 against a 2022 baseline.

Adopting the CCC Demonstration Pathway

The Demonstration Pathway is the CCC scenario that underpins the CCC’s advice to Government on Aotearoa New Zealand’s emissions budgets. The CCC’s analysis shows that its recommended emissions budgets set Aotearoa New Zealand on track to reach net zero for all long-lived greenhouse gases before 2050, meeting Aotearoa New Zealand’s 2050 targets and legislative requirements.¹⁰

The Demonstration Pathway is less ambitious than the CCC's Tailwinds scenario.

The Demonstration Pathway does not achieve the reduction targets required by the NZBA guidance by 2030. However it achieves net zero emissions for Aotearoa New Zealand significantly before 2050.¹¹ In accordance with the Climate Change Commission's advice, this reflects Aotearoa New Zealand's emissions profile which differs significantly from what the IPCC pathways are based on, and provides a pathway to show that Aotearoa's New Zealand's emissions budgets can be achieved in a just and equitable way. This approach aligns with our principle of any target being ambitious yet achievable and only relying on technological developments that can reasonably be expected to become available within the target period.

It also provides a pathway to meet the Government's legislated 10% biogenic methane emissions reduction from a 2017 baseline. Biogenic methane primarily comes from the Agriculture and Waste sectors and is the primary greenhouse gas emitted by the Dairy sector.

Our approach to meeting its Dairy emissions reduction target

We are committed to working with the Dairy sector in Aotearoa New Zealand, and supporting it to remain as one of the most efficient dairy producers in the world. Taking climate action now will help maintain the Dairy sector's global market access as other jurisdictions look to account for carbon emissions when trading goods.

We will support dairy customers to improve their emissions profile and make the appropriate farm system changes through:

- Provision of products that support our customers in making the necessary investments and changes to farming practices, for example Agribusiness Sustainability Linked Loans and Business Green Loans for Agribusiness customers.
- Ensuring our Agribusiness bankers have the right capabilities and expertise to engage in meaningful conversations with customers around emissions reduction opportunities.

- Providing Agribusiness bankers and customers with insights on GHG mitigation and best demonstrated operational practices.
- Considering opportunities to support the primary sector to reduce on-farm emissions.

Further detail on our approach will be contained in the high-level transition plan for the Dairy sector, which will be published by 30 April 2024.

Key target assumptions

The CCC Demonstration Pathway includes several assumptions:

- Average livestock per hectare decreases by 8.9% to 15% by 2035, with dairy cattle reducing 13% below 2019 level by 2030.
- 4% decrease in milk production below 2019 levels by 2030.
- Nitrogen fertiliser use reduces by 20% by 2030 from 2019 levels.
- Share of urea fertiliser coated with urea inhibitor increases to 100% by 2030.
- Average animal productivity change increases by 7.6% by 2035.
- Low methane breeding is available from 2030, leading to at least 7.5% reduction in methane emissions by 2050.
- Methane inhibitors reduce methane by 1% by 2030.
- Nitrification inhibitor available from 2030, reducing N₂O emissions by 2.5% to 7.5% by 2035.

Consistent with the Demonstration Pathway, we have also assumed there are no commercially available mitigation technologies (such as methane inhibitors, methane vaccine, low methane genetics, nitrification inhibitors) available before 2030, therefore emissions reductions are achieved through on-farm practice change. [Modelling by the Biological Emissions Reference Group](#) shows that it's possible to use individual interventions to reduce biological on-farm emissions by 2% - 10% in various ways, including:

- Decreasing Stocking Rate by up to 15% while maintaining total milk solids production through increasing animal productivity.

- Utilising better genetics and selective breeding.
- Improving herd reproductive performance and less replacement animals.
- Improving pasture and feed management.
- Improving nitrogen use, through limiting the amount of nitrogen used, and using it more precisely.
- Increased use of urea coated with urea inhibitor, leading to less ammonia losses and less nitrogen fertilizer needed.
- Use of [EcoPond](#), a chemical compound that is added to effluent and can reduce methane emissions from effluent by up to 98%.

BNZ also assumes that on-farm practice change that is appropriate for individual farms, driven by the agricultural emissions pricing scheme we expect to be implemented by the Government, will allow the Dairy target to be achieved.

Sourcing sector data

We received emissions data that was aggregated at a regional level. We then mapped our Dairy lending to the data, matching around 75% of our Dairy lending portfolio.

Taking a precautionary approach, the 75th percentile of the data (those who emit more than average) was applied to the remaining 25% of our Dairy portfolio to provide a conservative baseline estimate of the current emissions intensity of the total Dairy portfolio.

We are working to improve the accuracy of data over time and will report any changes to our baseline or methodology.

Coal mining sector

In 2020, we published our decision to exit all lending to thermal coal mining by the end of 2025 and all remaining lending to coal mining by the end of 2030. As at March 31 2023, Total Committed Exposure (TCE) to the sector amounted to \$1.06m. Given we intend to exit the sector by 2030, and the small amount of lending we have to the sector, we are not setting an additional sector decarbonisation target.

We will report on our level of financing to the coal sector annually in our climate reporting to track progress towards exiting lending to this sector.

Key target elements	Approach selected
2021 baseline	\$8.2 million
2030 target	\$0
2050 target	\$0
Sector coverage (based on 1993 ANZSIC)	110101 Black Coal Mining - Coking 110102 Black Coal Mining - Steaming 110201 Brown Coal Mining 110202 Lignite Mining 110203 Peat Cutting
Reference scenario	Not applicable
Emissions scope	Not applicable
Target metric	Not applicable
Financing scope	Total Committed Exposure, excluding derivatives and bonds or guarantees associated with environmental rehabilitation
PCAF data quality score	Not applicable

Methodology

This section describes the process we have followed to define the pathway for each of our emissions targets. Where elements of each process have already been discussed above we raise them briefly here for completeness with a reference back to the body of this document.

This process is derived predominantly from UNEP FI and TCFD guidance¹² which we have distilled into four overriding steps.

1. Set target boundaries and parameters: defining the scope of the target and the reference scenario upon which it will be based.
2. Translate each scenario to a target: deriving the target benchmark from each scenario.
3. Setting a baseline: establish a base year for each target and estimate the emissions benchmark at that point in time.
4. Generate an emissions reduction pathway: determine the rate of emissions reduction or point of portfolio convergence against each reference scenario.

While these steps are presented here in a linear fashion, the process is iterative as learnings and data deficiencies are learned from and adapted through the process.

Step 1. Set target boundaries and parameters.

This step involves setting the scope of our targets (and by association the benchmark), the nature of customers and activity included, the scenario that we'll reference to set a target pathway and the parameters that will attribute our financing to customer and portfolio emissions.

Scope

As a commercial bank with a large lending portfolio our targets are directed to our business lending portfolios. The scope of emissions and financial instruments of each sector's targets are detailed in the key target elements section within each target. As noted above, the scope of emissions adopted for each sector have been informed by both our UNEP FI guidance (for example Scope 3 emissions are to be included in fossil fuel targets); materiality to sectoral value chain emissions, and the quality of available data. We have defined the scope of financial instruments to be consistent with the financial attribution approach we have adopted (see below).

Identifying customers within scope of target

In this round of targets, we initially identified relevant customers by the ANZSIC code attributed to them. To account for customers with diversified businesses we also applied a revenue threshold to identify further relevant customers in the upstream Oil and Gas and Power Generation sectors (which may have had a different ANZSIC code attributed to them in our systems). If a customer generates at least

20% of its gross revenue from either the Oil and Gas or Power Generation sector the relevant portion of the customer's emissions will be included in the target. We also excluded upstream oil and gas and power generation customers with TCE as at baseline year of less than NZ\$5 million (which represented less than 5% of our financed emissions for these sectors).

Reference scenario

The principles we have used for target setting, and the rationale for choosing each sector scenario are detailed earlier in this document.

Financial attribution

We apply Total Committed Exposure (TCE) to attribute customer's absolute emissions to our lending and to weight the physical emissions intensity of customers across our portfolios. This includes all on balance sheet lending to the customer, excluding derivatives or environmental rehabilitation bonds.

We recognise the application of TCE as a departure from PCAF guidance which recommends using the on-balance sheet outstanding lending amount to a customer. We consider TCE is a higher quality measure for attributing financed emissions because TCE refers to the total amount of funding a client can access at any time. Using TCE to attribute financed emissions also provides a more stable metric than outstanding amount to set and measure emissions reduction targets as it better represents our commitment to the customer and is less likely to fluctuate. Further detail about financed emissions can be found in our [2022 Climate Report](#).

12. Our process was predominantly informed by UNEP FI's (2021) [Guidelines for Climate Target Setting for Banks](#) and the Taskforce on Climate-related Financial Disclosure's (TCFD) (2021) [Portfolio Alignment Technical Supplement](#) available [here](#).

Step 2. Translate each scenario to a target

Selecting a benchmark

Under the NZBA guidelines two types of targets can be set for each sector:

- **Absolute emissions reduction target:** this requires our financed emissions to a sector to reduce in absolute terms; and/or
- **Physical intensity convergence target:** this measures the amount of GHGs emitted per unit of production. Application of a physical intensity target focuses efforts to improve emissions efficiency of a company’s production. In some circumstances (for example power generation) such a target reflects the need to transition from high-carbon inputs to zero carbon, while not recognising expected growth in a sector.

As noted above physical intensity targets have been adopted for the Dairy and Power Generation sectors while an absolute emissions reduction target has been adopted for the upstream Oil and Gas sector.

Establishing a target

For the physical intensity metrics, an interim target was calculated by dividing absolute emissions for the sector as at 2030 by a physical metric as at 2030. For Power Generation, this equated to kgCO₂e / MWh, and for Dairy, this equated to kgCO₂e / kg Milk Solids. For upstream Oil and Gas, the absolute emissions reduction target was calculated as the percentage difference between the sector’s baseline (discussed below) and the absolute emissions depicted in the IEA 2050 scenario at 2030.

Step 3. Setting a baseline

A bottom-up approach was taken to the estimation of each sector’s baseline. First a base year was established from which relevant benchmark metrics (absolute emissions or physical intensity) were estimated. Metrics were estimated on a bottom-up approach for emissions, customers and activities within the bounds of the scope set in Step 1.

Selecting a base year

Data availability was the main driver of our base year selection, as well as NZBA requirements to ensure the baseline year for any target is within two years of signing up to the NZBA.

Good quality data was available for the Oil and Gas, and Power Generation sectors in 2021, so we have used 2021 as the base year for these targets. Where good quality data is available, we expect to use 2021 as our base year for other sector targets as well.

We have only been able to source data for the Dairy sector for 2022, therefore we have used 2022 as our base year for the Dairy sector. We will work to improve the emissions data quality in the Dairy sector.

Bottom-up approach

For all sectors, baselines were estimated at the most granular level of data available and where relevant extrapolated to the residual book.

Parameter	Upstream Oil & Gas	Power Generation	Dairy
Granularity	Customer	Customer	Region
Extrapolation to residual (was emissions data required to be extrapolated to cover full scope of loans within target)	Not required	Not required	75th percentile – the 75th percentile emissions intensity (higher than average) was applied to the customers where the emissions intensity was unknown.
Coverage of TCE in baseline year	97%	96%	100%

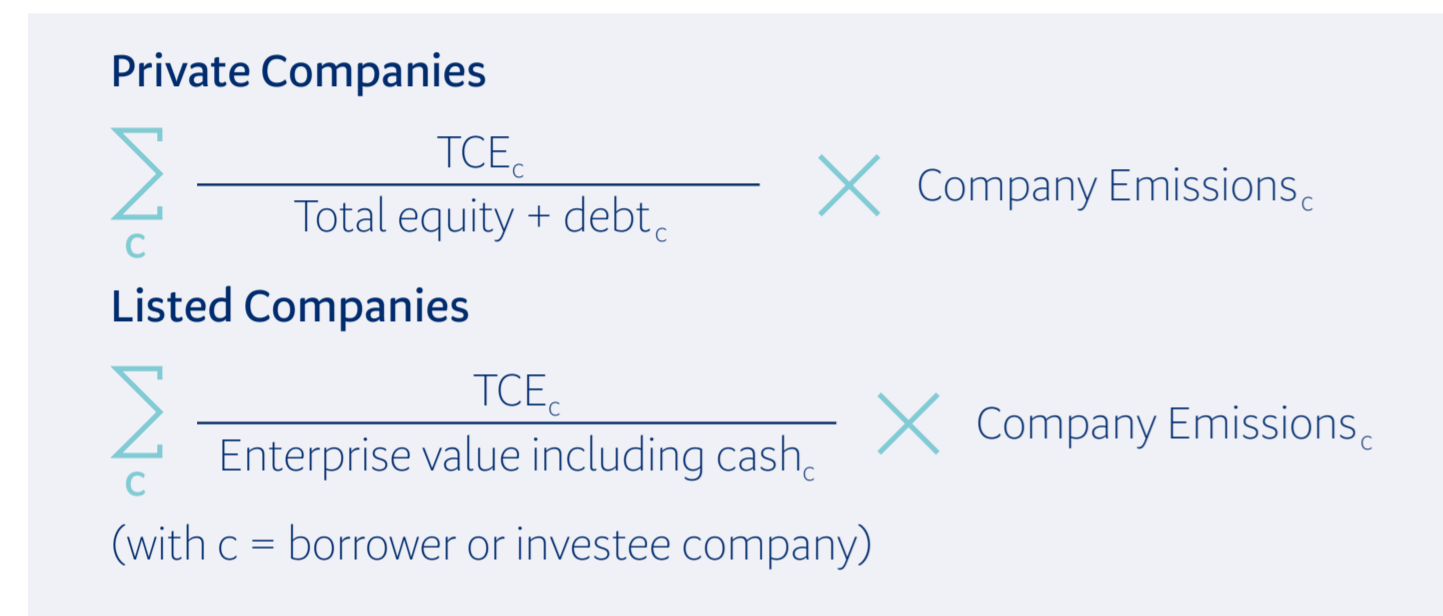
As noted, for our Dairy portfolio, we applied the emissions intensity of the 75th percentile at the total allocated farms to the residual, unallocated Dairy portfolio. In this way we could be confident that the estimate applied is at least as high as 75% of our known population. We applied the 75th percentile in accordance with recent academic literature¹³ that recommends that where emissions data is not available the precautionary principle is applied and that non-reporters do not benefit from allocation of averages of known populations. Application of a higher number is also consistent with target-setting and emissions accounting principles that encourage that emission estimates err on the high side where there is uncertainty.

13. See Hoepner, A. G., & Rogelj, J. (2021). Emissions estimations should embed a precautionary principle. *Nature Climate Change*, 11(8), 638-640.

Attributing absolute emissions

With the exception of a numerator of TCE noted in figure 4, we attributed the financed emissions baseline for each upstream Oil and Gas customer in accordance with PCAF methodology.

Figure 4: Financed emissions calculation methodology



We calculated the total financed emissions for the upstream Oil and Gas sector through summing the financed emissions of all customers.

Attributing physical intensity

We weighted each of the customer- and regional-level physical intensities of Power Generation and Dairy portfolios by the relative portfolio TCE to aggregate to a portfolio-level physical intensity benchmark. This portfolio-weighted approach is applied for several reasons:

1. It's simple and easily understood.
2. Its reliance on only two variables means:
 - a. that any changes are more transparent and more easily analysed than other approaches such as PCAF¹⁴
 - b. that a borrower's financial data is not required for calculation.
3. Companies with missing data can simply be allocated a transparent, default intensity to complete a baseline for the portfolio. This is evident through the emissions factors we have disclosed for the Power Generation portfolio.

Additionally, we consider that this approach more accurately reflects the relative contribution of each company to the emissions intensity of the sector, and helps us identify which customers require additional support and engagement to meet climate goals. The portfolio weighted approach methodology is shown in figure 5.

Figure 5: Portfolio Weighted Average Approach methodology



Step 4. Generate an emissions reduction pathway

The final step in our target setting process is to define an emissions reduction pathway. The process differs for our absolute and physical intensity targets.

Absolute emissions reduction pathway

For the Oil & Gas absolute emissions reduction path we have simply plotted a linear reduction between the 2021 and 2030 baseline, in line with the IEA NZE 2050 scenario.

Physical intensity convergence target

For both our Power Generation and Dairy sectors we have set a convergence year of 2030. We have selected this year as our intermediate target due to our confidence that it is achievable, and its significance in climate change policy.

To plot a path between each baseline and 2030 we have applied the Sector Decarbonisation Approach (SDA) developed by the Science Based Targets Initiative (SBTi) to our adopted pathways. This approach¹⁵ calibrates a sector's convergence with a given reference scenario. In our application of the SDA we have assumed that the growth of both power generation output (MWh) and dairy output (kg milk solids) are consistent with growth projections.

14. PCAF apply an attributed financed approach to aggregating individual customer physical intensity to a portfolio level. While this approach is more consistent with that applied to calculate financed emissions it requires access to customer balance sheet data.

15. For further details see Section 2 of SBTi (2015) Sectoral Decarbonization Approach (SDA): A method for setting corporate emission reduction targets in line with climate science available from: <https://sciencebasedtargets.org/resources/>

Glossary

Key target elements	Meaning
Baseline year	The year we are using as our starting (or baseline) year for the target.
2030 target	The target we have set to reach at the year 2030.
Sector coverage (based on 1993 ANZSIC)	Using ANZSIC is a key criteria in setting boundaries for different sectors when setting targets. The key ANZSICs that make up each sector are disclosed.
ANZSIC	Australia New Zealand Standard Industrial Classification
Reference scenario	This is the scenario we have used as a basis for our target. The year stated in brackets indicates the year the scenario was released.
Emissions scope	The emissions that are in scope of the target. Scope 1, 2, and/or 3 emissions may be in scope of the target.
Target metric	Targets can be absolute emissions or physical intensity targets. Absolute emissions targets are usually measured in tCO ₂ e, whereas physical intensity targets are usually measured in tCO ₂ e / unit of production.
Financing scope	Types of financing and products that are in and out of scope of the target.
PCAF data quality score	We follow the Partnership for Carbon Accounting Financials (PCAF) guidance for estimating the emissions data quality we used for calculating financed emissions. A score of one is best and reflects verified and disclosed emissions. A score of five is worst and reflects poor emissions data quality. We recognise that using TCE is an extension of the PCAF methodology, so we are not strictly following PCAF guidance.

Finding
a way.