Climate-related Disclosure

Meridian Energy Limited 2024

Meridian Energy Limited presents its Climate-related Disclosure for the year ended 30 June 2024.

Meridian.

AUGUST 2024

About this report

Meridian Energy Limited (Meridian) presents its Climate-related Disclosure for the year ended 30 June 2024 (FY24).

This report has been prepared in compliance with the Aotearoa New Zealand Climate Standards (NZ CS) published by the External Reporting Board (XRB).

Meridian has elected to not use any of the adoption provisions in NZ CS 2.

Reporting Entity

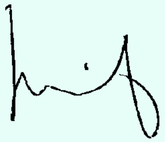
Meridian is a climate reporting entity under the Financial Markets Conduct Act 2013.

These Climate-related Disclosures are for Meridian Energy Limited, its subsidiaries and controlled entities (referred to throughout this report as “Meridian”, “Meridian Group” or “we”). The scope of the reporting entity aligns with that used for Meridian’s FY24 Group Financial Statements, which are located in its 2024 Integrated Report, available on the Meridian website.

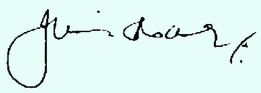
This report has been broadly structured in accordance with NZ CS 1 and incorporates recommendations from the Task Force on Climate Related Financial Disclosures framework.

Numbers presented are in New Zealand dollars (NZD) and rounded to millions ($M) unless otherwise stated. In some instances, quantifications have been provided as a range.

Approved on behalf of the Board on 27 August 2024.



Mark Verbiest
Chair



Julia Hoare
Chair, Audit and Risk Committee

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A message from the Chair and Chief Executive

We are proud that Meridian is now in its sixth year of releasing a Climate-related Disclosure report. This year marks the first reporting year for Meridian in which it is required to comply with the Aotearoa New Zealand Climate Standards.

Our early strategic focus on climate change and voluntary adoption of these standards has improved our understanding of matters relating to our company's overall climate resilience, along with supporting our ability to adopt the mandatory standards. As a result of our early adoption of reporting, we have not needed to use any of the optional first-year adoption provisions in this first mandatory report.

Meridian has continued its journey this year to enhance our reporting and our approach to managing climate-related risks and opportunities.

As climate events continue to dominate both local and international news, climate action and being prepared for the changes that are happening have never been more important than they are today. Meridian has a responsibility to understand how the changing climate impacts its operations and to manage and communicate these impacts to investors, stakeholders and the wider community.

We continue to see climate-related risks and opportunities for Meridian driven by two factors: acute physical impacts such as storms and floods and more gradual climatic changes, and transitional effects as the world moves towards a lower-carbon future. While we focus on the risks, we also see great potential in the opportunities that transitioning to a low carbon economy will provide us, such as the electrification of transport and process heat. We are in a unique position here in Aotearoa New Zealand as our renewable energy abundance has the potential to give us a significant advantage when it comes to this transition.

We believe that as more New Zealand businesses take on the responsibility of assessing and taking action to manage these risks and opportunities, the more resilient we are as a nation to our changing climate.

Mark Verbiest, Chair and
Neal Barclay, Chief Executive

Governance

Board oversight of climate-related risks and opportunities

Meridian's Board of Directors is responsible for the oversight of risks and opportunities, including those related to climate change. In April 2024, Meridian's Board Charter[1] was updated to explicitly include the following responsibilities:

- Providing leadership and setting strategic objectives, including climate-related strategic objectives.
- Overseeing and monitoring progress in achieving climate-related metrics and targets.
- Approving Meridian's Climate-related Disclosure and Climate Action Plan, published annually.

Two Board Committees support the Board in its oversight of climate-related risks and opportunities:

1. The Audit and Risk Committee (A&R).
2. The Safety and Sustainability Committee (S&S).

The A&R assists the Board in fulfilling its responsibilities in all matters related to identifying, assessing, monitoring and managing risks and opportunities (including climate-related risks and opportunities).

The Committee reviews key climate-related risks annually as part of the review of the annual Climate-related Disclosure. The Committee recommends to the Board for final approval Meridian's annual Climate-related Disclosure, which incorporates climate-related risks and opportunities. The A&R also perform a six-monthly review of enterprise risks, and a quarterly review of new and emerging risks. These enterprise risks and new and emerging risks may incorporate climate-related risks.

The S&S supports the Board in all matters related to safety and sustainability, including performing reviews of Meridian's primary sustainability impacts and performance, its Climate Action Plan, and relevant policies such as the Environment Policy introduced in 2024. The Committee reviews Meridian's environmental, social and governance (ESG) activity on a quarterly basis, which includes emissions reduction initiatives.

Both Committees proceedings are reported back to the Board. Additional internal reporting between the Committees and Board occurs for specific issues as required – for example, as climate-related policy changes.

The Board approves strategic objectives annually through its business plan and strategy map. While Meridian has not to date formally integrated climate-related risks and opportunities into the Board's strategy development and oversight processes, in practice the business plan and strategy map take into account certain matters relating to climate change given the centrality of these to Meridian's business. Detail in relation to how Meridian's overarching strategy takes climate change into account is set out on page 9. The Board holds management accountable for implementing the key priorities and initiatives in the annual strategy map via:

- Policies – including annual reviews of Meridian's Risk Management Policy, Remuneration Policy and Environment Policy (new in 2024).
- Strategic objectives and performance incentives that are set each financial year – objectives are set for both the short and the long-terms.
- Oversight of key risks and opportunities.

Board skills and competence

The Board ensures that appropriate skills and capabilities are available to provide oversight of climate-related risks and opportunities through director appointments, development and the maintenance of a director skills matrix. In April 2024 our A&R Charter was updated to include an explicit requirement for at least one member of the A&R to have recognised capability regarding climate-related matters, including climate-related risks and opportunities.

Meridian's FY24 Corporate Governance Statement[2] shows the director skills matrix and attendance at Board and various Committee meetings. 'Climate risk and opportunity management' is included within a capability area in the matrix. In FY24, five directors were assessed to have this capability, including two directors who are members of the A&R.

When there are significant changes to climate-related risks, relevant regulation, or Board membership, the Board may hold a session to upskill members on the latest requirements, good practice, and the implications for Meridian. The most recent of these climate-related sessions was held in May 2023.

The Board accesses climate-related expertise from within Meridian, and from external specialists. For example, Meridian seeks independent external climate scientific advice for the purposes of informing short, medium, and long-term assumptions on the physical impacts of climate change on its operations, such as hydro inflows.

1 Meridian Board and Committee Charters are available on its website.
2 Meridian's Corporate Governance Statement is available on its website.

Governance continued

Harapaki now fully operational, Hawke's Bay.

Monitoring progress against metrics & targets

Meridian has a range of metrics and targets that are used to manage climate-related risks and opportunities. These metrics and targets are usually set and approved by the Board as part of the annual business planning processes, or longer-term strategic planning cycles. These targets cover horizons ranging from one year through to longer-term targets out to 2050. Other metrics and targets may be agreed upon by the business during the year. If these are deemed to be related to managing a climate-related risk or opportunity, they will be endorsed by the A&R as part of the annual Climate-related Disclosure process then recommended to the Board for final approval.

Starting in April 2024, the A&R is responsible for reviewing progress against climate-related targets on an annual basis. This progress is reviewed annually as part of the wider review of the Climate-related Disclosure. Ultimately the Board oversees progress in achieving climate-related targets as part of their approval of the annual Climate-related Disclosure or as part of routine Committee proceedings which are reported back to the Board.

The Executive Scorecard is the mechanism used to monitor the performance of strategic objectives and embed performance against climate-related goals into the remuneration of the Executive Team.

The Scorecard includes the key initiatives in Meridian's business plan and defines the criteria for adequate, good, and excellent performance on each. The Executive Scorecard is ultimately approved by the Board. The initiatives that make up the Scorecard align with the key initiatives in the business plan for the financial year. They are defined through the business planning process by considering strategic goals and risks – including climate-related elements. The People, Remuneration and Culture Committee reviews progress on behalf of the Board twice a year. Details of the elements that make up the Executive Scorecard are provided in the Metrics and Targets section on page 38.

Management's role in assessing and managing climate-related risks and opportunities

The Board assigns climate-related responsibilities to management using mechanisms such as policy and the Executive Scorecard. Management report to the Board Committees on a quarterly basis. This reporting covers climate-related issues as required. For example, in FY24, management reporting on climate-related issues included a paper submitted to the Board on Dam Safety Flood Loadings, covering how climate change is being considered throughout the business.

Meridian Executive Team members are responsible for ensuring the business identifies, assesses, manages and monitors climate-related risks and opportunities. From FY24 Meridian's Climate-related Disclosure process (which incorporates the annual climate-related risk and opportunities assessment) has been facilitated by the Strategy and Finance team with a primary governance pathway via the A&R to the Board. The Strategy and Finance team are led by the Chief Financial Officer.

The Strategy and Finance function complete an annual update of climate-related risks and opportunities. This update considers significant context changes that could create new risks or opportunities or change the materiality of existing ones. Progress on the management actions associated with climate-related risks and opportunities is reported to the Board or one of the Committees, depending on the topic. For more detail on the risk management approach, refer to page 5.

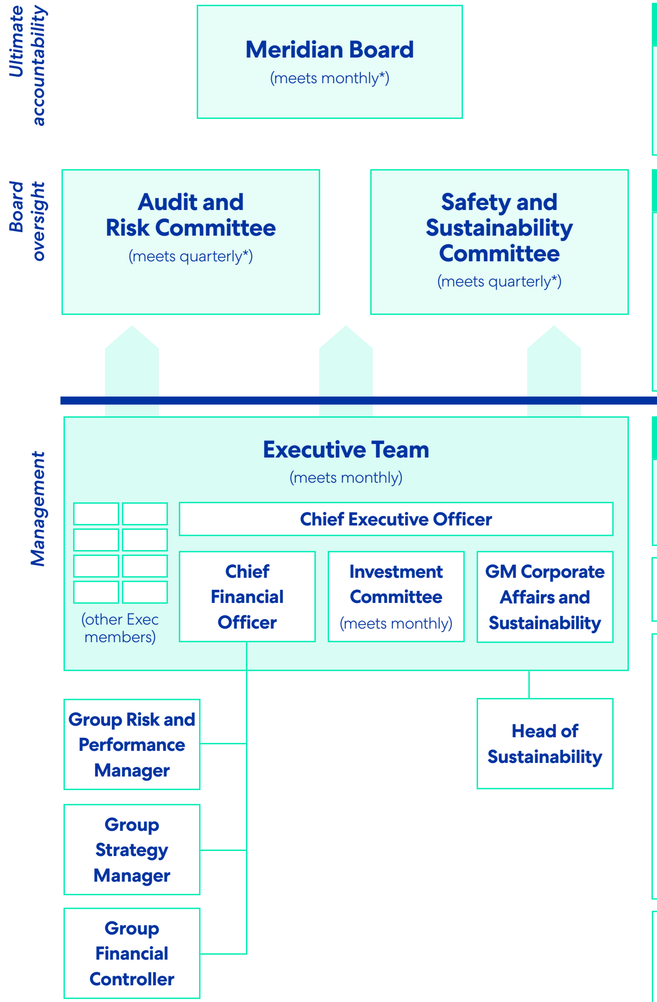
Meridian has an Investment Committee with representative members from the Executive Team. Since FY23 sustainability-related guidance has been included in the Investment Committee initiative card template regarding a range of criteria, including climate risk. This template is the basis for all initiatives that go to the Investment Committee.

An outline of key climate-related risk and opportunity responsibilities and processes at both Board and management level is provided in Figure 1.

Governance continued

Governance and Management Hierarchy Overview

Figure 1. Governance and management of climate-related issues at Meridian.



Meridian Board

- Has oversight of climate-related risks and opportunities and monitoring of progress against achieving climate-related metrics and targets.
- Ensures Meridian has appropriate and effective risk and opportunity-management practices in place, including for climate-related issues.
- Ensures Board skills, size, and composition are fit for purpose.
- Assigns climate-related strategic objectives to management annually via the setting of an Executive Scorecard.
- Approves the Executive Scorecard, Risk Management Policy and annual Climate-related Disclosures, including the Greenhouse Gas (GHG) Inventory.

Audit and Risk Committee

- Ensures risks are managed in accordance with Meridian's Risk Management Policy. Reviews top risk reports twice a year, and new and escalating risk reports from management quarterly, as well as the annual review of climate risks and opportunities.
- Reviews and updates Meridian's Risk Management Policy (International Standard [ISO] 31000) annually.
- Is responsible for reviewing progress against climate-related metrics and targets annually (starting from FY24).

Safety and Sustainability Committee

- Ensures Meridian has an effective sustainability strategy and reporting and supporting processes, and monitors management's execution of that strategy.
- Reviews Meridian's annual GHG Inventory, emissions reduction initiatives, and Meridian's Climate Action Plan.
- Reviews Meridian's Environment Policy annually (new Environment Policy introduced in May 2024).
- Reviews significant climate-related risks raised for inclusion in the Committee's agenda by the A&R (expected to commence in FY25, as required).
- Is responsible for reviewing progress against sustainability initiatives and outcomes.

Executive Team

- Responsible for ensuring business units are identifying, assessing, managing and monitoring climate-related risks and opportunities in accordance with Meridian's Risk Management Policy, and other relevant targets set in the annual Executive Scorecard.
- Implements appropriate risk-mitigation strategies as approved by the A&R.
- Implements sustainability initiatives aligned with performance targets and agreed strategic initiatives.

Chief Executive Officer

- Is responsible for day-to-day management of Meridian, and is ultimately accountable to the Board for the identification, assessment and management of climate-related risks and opportunities.

Chief Financial Officer

- Owns the implementation of the Risk Management Policy and associated processes.
- Facilitates the annual business planning processes and ensures climate-related opportunities and risks are considered where required.
- Is responsible for ensuring that financial decisions give appropriate consideration to climate resilience.
- Reports to the A&R on a quarterly basis.
- Is responsible for the preparation of the annual GHG Inventory and Climate-related Disclosure (including annual climate-related risk and opportunities update).

Investment Committee

- Acts as the approval body for significant investment expenditure (operating and capital) and acts as an advisory group to the Chief Executive for investment decisions.
- The Committee will ensure appropriate issues have been considered as part of the investment evaluation process, including sustainable procurement considerations such as carbon emissions.

General Manager of Corporate Affairs and Sustainability

- Owns the setting and annual review of the Environment Policy (which incorporates some climate-related matters) and ensures that resourcing and capability exists to effect it.
- Reports to the S&S on a quarterly basis.
- Is accountable for the preparation of the annual Integrated Report and Climate Action Plan on an annual basis.

Key management roles reporting to Executive Team

- **Head of Sustainability** – responsible for quarterly reporting to S&S on Meridian's sustainability initiatives, and associated metrics and targets; and the annual review of and update on Meridian's Climate Action Plan.
- **Group Risk and Performance Manager** – responsible for the Group Risk Management Policy and oversight and alignment of climate-specific risk processes to the Group Risk Management Policy.
- **Group Strategy Manager** – accountable for ensuring the Board is engaged on strategic planning and choices, including climate-related issues, and Group scenario analysis and modelling – via the Modelling Team.
- **Group Financial Controller** – manages climate-related disclosures process, and quarterly assurance reporting. Manages budget-setting process, external financial reporting, and internal processes relating to financial decision-making, including ensuring that the right level of climate consideration is included.

* While the Board and Committees typically convene on a monthly and quarterly basis respectively, the actual frequency of meetings may vary from time to time as required.

Risk Management

Identifying and assessing climate-related risks and opportunities – methodology

Meridian's climate risk and opportunity assessment methodology is informed by methodologies outlined by the Intergovernmental Panel on Climate Change (IPCC) and Aotearoa New Zealand's National Climate Change Risk Assessment (NCCRA) method report. Meridian's approach to risk assessment draws on recommendations from the Task Force on Climate-Related Financial Disclosures framework.

In FY23, Meridian adopted a new approach to identifying and assessing climate-related risks and opportunities. Meridian further refined the process in FY24, with new internal guidelines developed to support the assessment process (in use from April 2024). The guidelines establish clear roles and responsibilities, and provide an overview of the process for identifying, assessing, managing, and reporting on climate-related risks and opportunities, with specific alignment to Meridian's overall enterprise risk management approach.

The process has three stages, which in FY24 involved the following:

- **First Pass:** In this stage, existing climate-related risks and opportunities are reviewed to confirm whether they remain relevant to Meridian's business and determine if any amendments are required. It includes a review by a Sustainability Subject Matter Expert (SME), a Regulatory/Government Affairs SME and a Risk SME. The updated list is validated by risk and opportunity owners to determine if the risk should progress to the next stage. An existing list of physical and transition climate hazards is also reviewed to identify any omissions or changes required.
- **Detailed Assessment:** This stage involves workshops with the key risk/opportunity owners and business SMEs. In these sessions the current impacts and anticipated future impacts of the risks are captured.
- **Action Planning:** The final stage confirms the recommended actions in respect of the identified climate-related risks, and an assessment of the urgency required for actions. Where feasible, anticipated impacts were quantified.

The risks and opportunities identification and assessment methodology considers all Meridian value chain stages as in scope, including our own operations and both upstream and downstream activities. Where information gaps exist they are noted. Meridian acknowledges that many of our suppliers are in the early stages of their journeys and, as a result, data and information are limited in some areas. The identification process considers a broad range of types of risks and opportunities, including current and emerging regulation, technology, legal, market, reputational, and both acute and chronic physical risks or opportunities.

Outside the annual review process of climate-related risks and opportunities, management actively responds to emerging issues and considers the regulatory landscape and its potential impacts on Meridian. Management considers climate-related risks and opportunities as required during strategy development, business planning, when planning new initiatives and when making large financial decisions. Some elements of this process (outside the annual review) are informal in nature but will mature over time.

Time horizons and risk scoring

Meridian's annual climate risk and opportunity assessment considers scenarios across three time horizons. Longer time horizons are helpful in considering the useful lives of assets (beyond a typical business case horizons). These horizons will continue to be reviewed based on emerging and relevant contexts, including climate science. The time horizons are as follows:

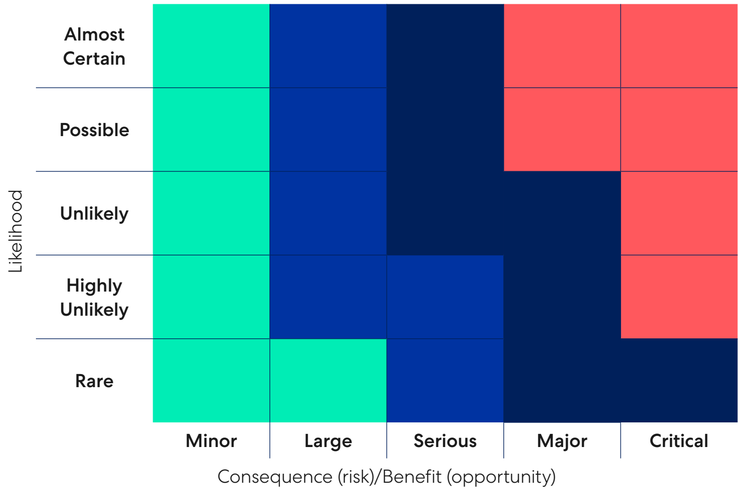
- Short term: from today through to 2030.
- Medium term: from 2030 to 2050.
- Long term: from 2050 to 2100.

Risk Management continued

Transition risks and opportunities

Transition risks are assessed using the same likelihood/consequence framework as that used to assess enterprise risks within the business (refer Figure 2). The consequence assessment considers impacts that may eventuate across People, Financial, Environmental and Reputational categories. The category which is expected to be the most significant drives the overall consequence rating. With Transition opportunities, Meridian uses 'benefit' in place of consequence. These risks and opportunities tend to consider a short-to-medium time horizon as the transition impacts beyond a mid-century time horizon are highly uncertain. Initial assessments of transition risks and opportunities are generated for each relevant scenario and time-horizon.

Figure 2. Climate-related transition risk/opportunity heat map.



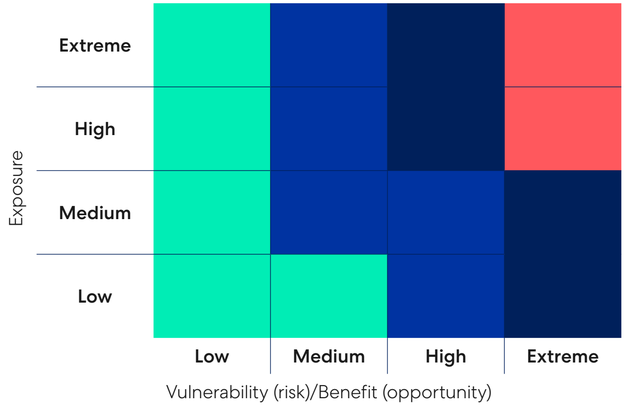
Note: Extreme = Red, High = Dark Blue, Medium = Blue, Low = Green.

Physical risks and opportunities

Meridian has considered physical risks and opportunities for the three time horizons, including the long term as its core business relies on assets that have useful lives over that period.

Meridian assesses physical risks using exposure and vulnerability. Physical opportunities are assessed using exposure and benefits. Exposure refers to how much of an asset, business activity, or other element is exposed to a hazard when it occurs. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (adaptive capacity). This approach has been informed by IPCC and NCCRA guidance. Initial assessments of physical risks are generated for each relevant scenario and time-horizon.

Figure 3. Climate-related physical risk/opportunity heat map.



Note: Extreme = Red, High = Dark Blue, Medium = Blue, Low = Green.

Risk Management continued

Overall assessment

The overall risk and opportunities rating assessment is defined by the risk/opportunity owner through their considering all the information gathered in the process including an assessment of the consequences, the urgency of action, and the current and future impacts for Meridian. This overall rating requires judgement to be applied, including a consideration of the previous risk ratings generated under each relevant scenario and time horizon. The high-level definitions for each risk and opportunity rating level are shown in Table 1 and 2. A check for consistency is applied after all risks have been assessed.

Table 1. High-level risk assessment criteria for physical and transition risks.

Low	Medium	High	Extreme
Local interest or moderate regional interest. Can be handled via business as usual.	Moderate interest nationally or significant regional interest. Moderate impacts on the way Meridian will operate.	Substantial reduction in the value of Meridian or ability to achieve Meridian's strategic objectives. High interest nationally due to prolonged or significant disruption to people, the environment, or communities.	Impacts so significant they would impact Meridian's viability as a business or be of significant interest nationally due to permanent disruptions for multiple groups.

Table 2. High-level opportunity assessment criteria for physical and transition opportunities.

Low	Medium	High	Extreme
Local interest or moderate regional interest. Can be handled via business as usual.	Moderate interest nationally or significant regional interest. Moderate positive impacts on the way Meridian operates.	Substantial increase in the value of Meridian or ability to achieve Meridian's strategic objectives. High interest nationally due to prolonged or significant benefit to our people, the environment or communities.	Positive impacts so significant they would enhance Meridian's strategic advantage as a business or be of significant interest nationally due to permanent benefits to multiple groups.

Managing climate-related risks and opportunities

The impact of each risk is quantified (where possible) as part of Meridian's annual Climate-related Disclosure process. This process also includes the assessment and recording of any management actions completed and/or recommended to manage these risks. Accordingly, Meridian considers this disclosure process to be a method used to manage climate-related risks and opportunities.

The use of the Low-Medium-High-Extreme rating scale to indicate the relative significance of climate-related risks and opportunities is primarily driven by their potential/actual impacts on enterprise value.

Inclusion of a risk or opportunity in this disclosure is based on materiality guidance from the Aotearoa New Zealand Climate Standards.

Refer to the **Strategy section** of this report for disclosed risks and opportunities, including a description of impacts (quantified where feasible).

Decisions to mitigate, transfer, accept or control are made on a risk-specific basis and are informed by:

- Viable mitigation and/or control options.
- Views on the most appropriate entity and/or individual to take mitigation action(s).
- Materiality and likelihood.

Meridian's latest governance committee charters set out responsibilities for the oversight of climate-related risks and opportunities. The A&R reviews the aggregate climate risks and opportunities annually, where they are then recommended to the Board for final approval. This review includes the mitigation measures (including any relevant metrics and targets) in place to deal with these risks.

Risk Management continued

Climate-related risks and integration with Group risk-management approach

Meridian's Risk Management Policy provides the overarching framework for assessing, monitoring and managing risks, including climate-related risks. The policy meets ISO 31000:2018 Risk management – Guidelines (second edition). An overview of the policy is available on Meridian's website, outlining the categories of risk considered, such as people, financial, environmental and reputational risks.

In general, the specific process for climate risks and opportunities is aligned with the corporate risk management methodology, with some key differences around 1) inclusion of opportunities, 2) assessing physical risks/opportunities on the basis of vulnerability and exposure and 3) focus on residual risk ratings across multiple time horizons and climate scenarios. These points of difference are detailed in Meridian's internal guidance 'Climate Risk and Opportunities Assessment Guidelines' (in use from April 2024).

These guidelines set out a framework for the resourcing, reporting and monitoring of climate-related risks once they have been identified and assessed as outlined in this section. Because the guidelines were only implemented in April 2024, Meridian is continuing to work on implementing this framework.

Table 3. Level of climate risk categorisation and response – from Meridian's internal Climate Risk and Opportunities Assessment Guidelines.

Risk rating	Low	Medium	High	Extreme
Ownership	Manager or subject-matter expert.	General Manager together with their direct report.	General Manager (GM).	Chief Executive (CE).
Resourcing	Staff and resources applied based on risk/reward assessment.	Staff and resources applied based on risk/reward assessment.	Priority focus of staff and resources reducing risk and building mitigation in response.	High-priority focus with significant organisational effort directed at moving risk out of the Extreme rating.
Reporting	Business units oversee and review actions.	Risk-review process with GM and their direct reports to ensure adequate assessments of risk and treatments are in place with a strong focus on risks with actions requiring near term action (5 years).	Biannual formal reporting to Audit and Risk Committee meeting with a strong focus on risks with actions requiring near term action (5 years).	Monthly reporting to the Board with specific reference to risks with a strong focus on risks with actions requiring near term action (5 years).
Monitoring	Business units monitor improvement initiatives via quarterly reviews.	Monitoring undertaken by peers or self-monitoring as appropriate.	Risk owner (GM) to select most appropriate monitoring (peer or external) to ensure the steps Meridian is taking are necessary and sufficient.	Risk owner (CE) needs to consider whether Meridian needs independent advice to provide assurance that the steps being taken are necessary and sufficient.

Meridian's climate-related risks are assessed with the same Low, Medium, High and Extreme categories as the Group Risk Management approach. Climate risks assessed as 'High' or 'Extreme' and requiring near-term action are included in the enterprise risk register that is reviewed by the A&R on behalf of the Board.

Applying a consistent approach to risk categories and integrating climate-related risks into the risk register enables Meridian to prioritise all risks (including climate-related risks) according to their impact in a consistent way.

Strategy

Meridian's business model and strategy

Meridian's purpose statement "Clean Energy for a Fairer and Healthier World" and underlying strategy "An All-Encompassing Focus on Climate Action" both highlight Meridian's strategic aim to help our country transition to a net-zero and climate-resilient future[3]. Meridian's business model is anchored in creating short-, medium- and long-term value by generating electricity from renewable energy sources (wind, water and sun) and retailing electricity to customers. Meridian can help with New Zealand's decarbonisation through growing renewable energy capacity and flexibility, and providing targeted decarbonisation offers to customers in sectors such as transport and process heat.

The Meridian Group undertakes the following business activities:

- **Meridian New Zealand** – seven large hydro power stations and six large wind farms contributing around 30% of the national electricity generation, sitting alongside a retail business with two brands (Meridian Energy and Powershop) that sell electricity to customers in New Zealand.
- **Flux** – a subsidiary that offers configurable energy software, operating in New Zealand and Australia.
- **Dam Safety Intelligence** – a subsidiary that offers dam-management expertise to dam owners in New Zealand and internationally.

Meridian's strategy aims to deliver value by integrating the activities above. It presents this strategy internally using the framework shown in Figure 4.

Meridian's scenario analysis process

Meridian conducts scenario analysis annually as part of its climate disclosures process. Scenario analysis is facilitated by the Strategy and Finance team with a primary governance pathway via the A&R to the Board. The Risk Management section of this report describes how Meridian uses its three climate scenarios to identify and assess its climate-related risks and opportunities across short-, medium- and long-term time horizons. The outputs from the annual scenario analysis are reviewed and endorsed by the A&R on behalf of the Board. For FY24, the Board approved the final outputs.

While climate considerations are a key focus in Meridian's strategy, the climate scenario analysis process is not yet formally integrated into its wider strategy development process. In FY24 the climate scenario analysis was undertaken as a standalone process. However, Meridian's strategy development process is informed by climate-related issues as outlined on page 2 in the Governance section of this report.

The resilience of Meridian's strategy and business model to climate scenarios

Overall, Meridian considers that it is well-positioned to benefit from the transitional impacts of climate change – its strategy, business model and capability are focused on climate action. The products and services Meridian offers can be enablers for businesses and individuals across Aotearoa to decarbonise.

Meridian has identified both risks and opportunities relating to the physical impacts of climate change. There is a potential opportunity if hydro-generation inflows better align with the seasonal electricity demands unique to New Zealand (i.e. more rainfall anticipated in winter when electricity demand is normally higher). To help mitigate against physical climate change risks, Meridian must ensure that its assets, and those of its local and international partners, are resilient, particularly to acute weather events. Meridian acknowledges that it will face the increasing effects of climate change over the long term.

Based on the assessment of climate-related actual and potential impacts at both the individual risk and opportunity level outlined further below, Meridian has assessed its business model and strategy to be resilient to the climate scenarios assessed. The transition plan aspects of Meridian's strategy, including mitigating actions to manage climate risks and opportunities, and targets, are outlined on page 29 in the Strategy section.

Risk and opportunity summary

Climate-related risks and opportunities have been categorised as being driven by either:

- Physical impacts arising from climate impacts such as floods and other climate system changes. Physical impacts can be acute (extreme weather events) or chronic (sea-level rise and other gradual changes); or
- Transition impacts that arise as the economy and people transition to a lower-carbon future, such as changes to policy and customer demand that are primarily motivated by climate interests.

Meridian's identified physical risks are dominated by impacts on water/hydroelectricity generation, asset damage from extreme weather events and/or impacts on the goods and services procured through its global supply chain. Identified physical opportunities also exist for potential seasonality changes for water.

The identified transition risks feature in the shorter term due to the combined effects of significant renewable energy generation build underway (bringing new capacity over time) and growing electricity demand, with a likely increasing carbon price affecting thermal generation in the New Zealand electricity system. The net effect is likely some impact on power system flexibility due to fewer flexible energy products in the shorter term. This will improve as new builds and flexible demand products become available at a greater scale. Transition opportunities are very significant for Meridian, driving growth in the business and further opportunity to utilise the flexibility of our hydro generation facilities. Meridian is well-placed to support the electrification of transport and process heat at scale.

A summary of our climate-related risks and opportunities, including assessment outcomes, financial quantification where feasible, and management actions in place, is provided in Tables 4–7. Refer to the Metrics and Targets section to identify the climate-related risks and opportunities to which Meridian's metrics and targets connect.

3 Our purpose statement and strategic aim are both aspirational in nature and not a formal target or summary of Meridian's current performance.

Figure 4. Meridian Energy strategy – summary.

Our strategy map

Te kaupapa
Our purpose

Clean energy for a fairer and healthier world

Te rautaki
Our strategy

An all-encompassing focus on climate action

Te kaupapa matua
Our priorities

Grow renewable generation

Te arotahinga
Our focus

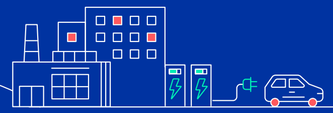
To speed our path to a resilient, net zero future

Te mahi
Our key initiatives

- Accelerate Aotearoa New Zealand's decarbonisation by delivering scale energy projects at pace:
  - Build renewable generation options.
  - Deliver on our 7 in 7.
  - Secure long-term access to water.
  - Accelerate electrification of transport and process heat.
- Grow system flexibility:
  - Grow our dispatchable MW capacity.
  - Bring dispatchable customer capacity to market.

Deliver cleaner, cheaper energy

Through innovation that unlocks value for customers



- Develop an innovation culture that delivers digital, and data driven customer experiences
- Expansion of the energy product set that unlocks the value of transport electrification, process heat and demand flex
- Continued investment in energy hardship and community programmes that promotes equitable access to the benefits of the energy transition
- Policy advocacy that promotes climate action and supports New Zealanders through the energy transition

Deliver operational excellence

So everything we do aligns to deliver on our goals

- Build operational flex and agility while sustaining excellent asset productivity.
- Modern data and digital systems to promote collaboration, operational efficiency, innovation and data-driven decisions.

Grow capability and culture

Because how we do the mahi is what will make the real difference

- Grow a diverse and inclusive, skilled work-force that reflects the country we live in.
- Nurture leadership capability to support the cultural and digital maturity of a future Meridian.
- Our developing understanding of the Māori world view helps build long term relationships with tangata whenua and better outcomes for all.
- Safety leadership that grows in maturity as we build into the energy transition.
- Sustainability culture and leadership that benefits people and planet, inspires climate action, and attracts investors.

Te whaipainga
Our values

Be a good human

Be gutsy

Be in the waka

Strategy continued

Meridian's planning horizons

Meridian's business planning and capital allocation timeframes are currently defined as: short 1–5 years; medium 5–10 years; and long term 10–30 years. Transitional climate impacts strongly influence short term business planning and capital allocation decisions (such as investment in a renewable energy generation pipeline).

Our climate-related scenarios inform physical climate risks and opportunities that increase in impacts (and uncertainty) over longer time horizons out to 2100. We use this information to inform business planning and capital allocation decisions today, such as land purchases and the design of new assets.

Climate-related impacts as an input into internal capital deployment and financial planning

Meridian undertakes financial planning annually, taking into consideration its two-year rolling budget cycle, five-yearly strategic targets, 30-year internal model and climate scenarios that extend to a 2100 time horizon. Major investment decisions have typically been made on a 30-year time horizon, but we are starting to consider a longer time frame.

Climate-related risks and opportunities are factored into financial planning and capital allocation by accounting for climate-related transitional impacts in Meridian's models and climate scenarios. These include, for example, factoring in plausible demand increases for electricity over time, driven by policy impacts and customer demand for transport electrification. These demand pathways then inform aspects such as the scope of Meridian's renewable energy generation pipeline and its assumptions for the planned allocation of capital over time for future investments. Information about the planned allocation of capital for future investments is provided in Table 12 in the Metrics and Targets section of this report. Climate-related risks and opportunities are also factored into funding decisions on a project-by-project basis.

Meridian has established a Green Finance Programme and accompanying Framework[4]. This is aligned with Market Standards: the International Capital Markets Association Green Bond Principles; the Climate Bonds Standard version 3.0 (CBS); and the Asia Pacific Loan Market Association Green Loan Principles. The Framework sets out the process, criteria and guidelines under which Meridian intends to issue and/or manage existing and future bonds and loans. The Programme and Framework contribute to achieving Meridian's sustainability objectives. The Framework enables Meridian to connect company strategy and vision to financing requirements and provide investors who want investments that align with the Market Standards with a mechanism to make that investment.

Meridian's climate scenarios, methodology and assumptions

In 2023 Meridian developed three scenarios to help it identify potential climate risks and opportunities and test the resilience of its business model and strategy. Meridian recognises that many plausible futures exist, with differences in global temperature pathways, changes in climate-motivated regulations, and changing consumer preferences. It is also plausible that climate action in New Zealand occurs at a different pace from elsewhere in the world, potentially creating unique transition impacts for us.

Meridian's chosen three scenarios are not forecasts but aim to provide sufficiently distinct and plausible futures to help Meridian test the resilience of its business model and strategy, and identify and assess climate-related risks and opportunities. The scenarios were developed by Meridian with expert, independent peer review and advice from a climate scientist. Meridian's Executive Team and Board endorsed these scenarios in May 2023.

Meridian initially developed its three climate scenarios in 2023 prior to the XRB's Staff Guidance: Entity Scenario Development being published (September 2023). Therefore, the process followed to develop the climate scenarios in 2023 did not cover all six steps recommended in the XRB guidance. In 2023, Meridian began by identifying the list of transitional and physical variables captured in the context of its unique business – for example, changes in the frequency/intensity of storm events, precipitation, carbon pricing and policy intervention levels in New Zealand and abroad. Meridian also developed scoring criteria with which to benchmark international and local scenarios. As a result of this review, Meridian concluded it could best access the necessary variables by sourcing data and information from a combination of: the Network for Greening the Financial System (NGFS); IPCC Shared Socioeconomic Pathways; New Zealand – Climate Change Commission (CCC); and New Zealand – National Institute of Water and Atmospheric Research (NIWA) Representative Concentration Pathway (RCP) scenarios. Meridian was able to complement this more widely accessible work with additional bespoke work it had already completed, to help it understand the possible hydro-catchment-specific impacts of climate change.

Meridian climate scenarios overview

Net Zero Revolution	Emissions are in line with the Paris Agreement climate goal of limiting global warming to 1.5°C by the end of the century, with low overshoots (<0.1°C) of 1.5°C in earlier years. This leads to high transition risks, but lower physical climate risks.
Adaptive Evolution	There is a lack of international coordination on the climate response, with regions operating independently. Emissions decline but lead nonetheless to 2.7°C of warming by 2100, associated with moderate to severe physical risks. Transition risks are low-moderate.
Hot House	Globally, only currently implemented policies are preserved. Emissions increase until 2100, leading to 3°C+ of warming by 2100 and severe physical risks but lower transition risks.

4 More information about this programme is available on the Meridian website.

Strategy continued

Meridian's modelling work

Meridian maintains future-looking long-term forecasts – its Wholesale Market Outlook (WMO) – that are used to inform its views of the New Zealand power system. The WMO models are not the same thing as Meridian's three climate change scenarios, but have been used to inform our three climate scenarios. An explanation of which WMO model has informed which climate scenario is provided in the sources section for each climate scenario on pages 13 to 15.

WMO is a forward-looking, long-term quantitative analysis of the fundamentals underpinning the New Zealand wholesale electricity market. It provides an analytical framework to explore, understand and respond to the strategic issues facing Meridian and the electricity market within a volatile future environment.

The methodology seeks to establish a balance in the costs, security, and sustainability challenges inherent in meeting the future energy needs of New Zealand.

Meridian's WMO modelling uses historical weekly hydro inflow sequences – historical data that represents a distribution of possible hydro inflow profiles for a given year. These hydro inflow distributions are then applied to future years, but with adjustments applied for climate change effects (intensifying seasonality and volatility). The models each use an average hydro inflow profile from the distribution of future climate-change-adjusted hydro inflow sequences. Extreme future climate-change-adjusted hydro inflow sequences may be used for targeted analysis if needed. The modelling methodology necessarily maintains a view on all the other non-hydro features needed by a power system to serve consumer demand, from wind and solar generation, to power transmission, instantaneous reserves and frequency management.

FY24 updates to climate scenarios

In 2024, Meridian reviewed and updated its three climate scenarios. This year we considered the XRB's recommended six step process for climate-related scenario development. In 2024 we undertook the following steps to update our three climate-related scenarios:

XRB six steps	Related work undertaken by Meridian in 2024
1. Engage stakeholders and prepare an effective group	A group of relevant Meridian personnel was appointed to review and update the scenarios ahead of FY24 disclosure. The team included personnel from our modelling team, Sustainability and Strategy and Risk functions. An externally contracted climate disclosures specialist was also involved in reviewing and updating the scenarios. No other external stakeholders were involved in updating the scenarios in 2024.
2. Define the problem	We defined a focal question and boundaries for our climate-related scenarios. These are provided in Appendix A on page 45.
3. Identify driving forces and critical uncertainties	We conducted a 'STEEP' (Social, Technological, Economic, Environmental, and Political) analysis to determine driving forces of relevance to Meridian. A summary of the STEEP analysis and driving forces is provided in Appendix A on page 45.
4. Select temperature outcomes and pathways	We reviewed the 'architecture' of each climate-related scenario. This resulted in some minor changes from last year's scenario architectures. For example, we changed the alignment of our Net Zero Evolution scenario from the NGFS 'Divergent Net Zero' scenario (in FY23) to the NGFS 'Net Zero Emissions' scenario (in FY24). This change reflects removal of the 'Divergent Net Zero' scenario from the latest Phase 4 set of NGFS scenarios published in November 2023. We also updated our climate-related scenarios to explicitly include assumptions regarding carbon sequestration and negative emissions technology.
5. Draft narratives and quantify	The driving forces identified in the STEEP analysis were used to revise and expand the narrative component of each climate scenario. Building on the STEEP analysis, we added a section to each scenario covering implications specific to Meridian across short, medium, and long term time horizons.
6. Assess strategic resilience	Strategic resilience was tested via our annual risk and opportunity assessment process, described in the Risk Management section of this report on page 5.

Relevance of scenarios

Meridian is confident that its climate scenarios are relevant and appropriate for assessing the resilience of our business model and strategy to climate-related risks and opportunities. We have based our climate scenarios on the internationally recognised NGFS and IPCC scenarios. We have also incorporated data from reputable domestic scenarios: the Climate Change Commission scenarios, and NIWA physical climate data downscaled for New Zealand (based on the IPCC's fifth assessment RCP scenarios). We recognise that there is an inherent uncertainty and limitations associated with any climate scenarios. In climate science there is a concept known as "tipping points." Tipping points are critical thresholds beyond which a system reorganises, often abruptly or irreversibly. Examples of possible climate tipping points include Antarctic Ice Sheet loss, permafrost collapse, and Amazon rainforest dieback. The treatment of potential tipping points in internationally recognised scenarios, such as the IPCC scenarios, is an area of on-going research and uncertainty. The international and domestic scenarios we have used to develop our own are, however, widely used by entities for conducting scenario analyses and climate risk assessments (both internationally and in New Zealand).

A summary of the scenarios is provided over the page.

Net Zero Revolution

Emissions are in line with the Paris Agreement climate goal of limiting global warming to 1.5°C by the end of the century, with low overshoots (<0.1°C) of 1.5°C in earlier years. This leads to high transition risks, but lower physical climate risks.

Global response

Policy ambition	Policy reaction	Technology change	CO_2 removal approaches	Regional policy variation
1.5°C (SSP1-1.9)	Immediate but divergent	Fast change	Low-medium use	Medium variation

NZ Response & Physical Risk

Risks to assets	Risks to generation	Ease of development	Government intervention	Market response
Small increase	Small increase	Easier	Medium	High demand; High competition

Meridian implications

Short to medium term (now-2050):

- Winter snow replaced by rain will boost winter hydro inflows.
- Less snow reduces spring and summer spill risk for hydro dams.
- Flood, drought, and other extreme weather event risk rises.
- Falling levelised cost of electricity for wind and solar.
- Increased investment in wind and solar generation.

Long term (2050-2100):

- Winter rains increase by 0-5%, while summer rains decrease by 0-10% in our hydro catchments.
- Warmer summers increase demand (2% per degree abnormality).

Globally, some countries achieve net-zero targets faster and more easily than others. In New Zealand, some sectors face higher burdens to cut emissions than others, while other sectors are protected from policy pressures. However, accelerated uptake of consumer electrification and industrial decarbonisation is rapid, broad, and well-supported. New investment in renewable energy generation is required with a phase out of fossil fuels occurring rapidly.

Rapid, broad, and well-supported electrification and industrial decarbonisation swiftly reduces gross emissions, reducing the need for mass afforestation of exotic species. Locally and globally, indigenous reforestation and nature-based solutions are priorities for carbon sequestration.

Attempts are made for carbon capture and storage, but these are technically or economically infeasible in the short to medium term. Carbon capture and storage may play a moderate to significant role in the long term.

Hydro inflows are favourable in the medium term. The number of hot days (>25°C) across New Zealand is expected to increase by 40% by 2040, and plateau out to 2090. The increase in hot days is expected to have minimal impact on solar yields (given solar output derating occurs at temperatures >35°C). This is reflected in modelled regional solar yields within our WMO.

For details regarding assumptions and drivers underlying the scenarios refer Appendix A (page 45).

Data sources

- NIWA Our Future Climate New Zealand – available on NIWA website.
- Global – to 2050 – NGFS Net Zero 2050.
- Global – to 2100 – IPCC Shared Socioeconomic Pathway SSP1-1.9.
- New Zealand – to 2050 – CCC Headwinds.
- New Zealand – to 2100 – NIWA Representative Concentration Pathway RCP2.6*.
- Meridian's Revolution model (WMO Revo) – which models a low-carbon future, with strong uptake of disruptive technology.

* In FY25, NIWA SSP1-2.6 will be used (published July 2024 – not available in time for FY24 reporting). RCP2.6 has been used, and SSP1-2.6 will be used next year, as these are the lowest emissions scenarios that NIWA has downscaled for New Zealand. NIWA has not downscaled data for RCP1.9 or SSP1-1.9.

Adaptive Evolution

There is a lack of international coordination on the climate response, and regions operate independently from each other. Emissions decline but lead nonetheless to 2.7°C of warming by 2100, associated with moderate to severe physical risks. Transition risks are low-moderate.

Global response

Policy ambition	Policy reaction	Technology change	CO_2 removal approaches	Regional policy variation
~2.7°C (SSP2-4.5)	Delayed and divergent	Slow change	Low-medium use	Medium variation

NZ Response & Physical Risk

Risks to assets	Risks to generation	Ease of development	Government intervention	Market response
Moderate increase	Moderate increase	Same	Low-medium	Medium demand; High competition

Meridian implications

Short to medium term (now–2050):

- Electricity demand growth is slower (compared to Net Zero Revolution).
- Fossil fuel plants remain, and new thermal generation is installed in the 2020s.
- Peak electricity prices increase (relative to 2024).
- Less incentive to invest in new renewables.
- Costs of wind, solar, and batteries get cheaper.
- Low carbon prices slow development.
- Physical changes are similar to those in the Net Zero Revolution scenario.

Long term (2050–2100):

- Climate changes and impacts will be more rapid than in the Net Zero Revolution scenario.
- Drought and flood risks increase.
- Inflow occasionally disrupted by dry weather (e.g. summer -5%-10%), especially in Waitaki chain.

Globally, existing climate policies are delayed or postponed and new climate policies are not introduced until 2030. Levels of action differ across countries and regions based on currently implemented policies, leading to a 'fossil-fueled recovery' out of the economic crises of the early 2020s as countries rely on coal, oil and gas developments to underpin energy security and drive economic growth at the expense of climate goals.

In New Zealand, government subsidies in place today are wound back, slowing the rate of electrification and decarbonisation. While these processes do still occur, financial and reputational incentives are lower.

Globally, annual emissions do not begin to decrease until after 2030. Stronger policies are then needed to limit warming, but take time to be implemented.

Attempts are made for carbon capture and storage, but these are technically or economically infeasible in the short to medium term. Carbon capture and storage may play a moderate role in the long term. New Zealand is more reliant on afforestation in attempting to meet its decarbonisation goals in the medium term (compared to Net Zero Evolution). CO_2 removal approaches tend to use mass monoculture plantations both in New Zealand and globally, and there is a limited deployment of nature-based solutions.

Hydro inflows favourable in the medium term are affected by drought. The number of hot days (>25°C) across New Zealand is expected to increase by 40–100% by 2040, and to 40–300% by 2090. The increase in hot days is expected to have minimal impact on solar yields, particularly in the short to medium term (given solar output derating typically occurs at temperatures >35°C). This is reflected in modelled regional solar yields within our WMO.

For details regarding the assumptions and drivers underlying the scenarios, refer Appendix A (page 45).

Data sources

- NIWA Our Future Climate New Zealand – available on NIWA website.
- Global – to 2050 – NGFS Nationally Determined Contributions.
- Global – to 2100 – IPCC SSP2-4.5.
- NZ – to 2050 – CCC Current Policies.
- NZ – to 2100 – NIWA RCP4.5*.
- Meridian's Evolution model (WMO Evo) – which models a more business-as-usual mode for the New Zealand electricity system.

* In FY25, NIWA SSP2-4.5 will be used (published July 2024 – not available in time for FY24 reporting).

Hot House

Globally, only currently implemented policies are preserved, leading to elevated physical climate risks. Emissions increase until 2100, leading to 3°C+ of warming and severe physical risks.

Global response

Policy ambition	Policy reaction	Technology change	CO_2 removal approaches	Regional policy variation
3.0°C+ (SSP3-7.0)	No change	Slow change	Low use	Low variation

NZ Response & Physical Risk

Risks to assets	Risks to generation	Ease of development	Government intervention	Market response
Large increase	Large increase	Harder	Low	Low demand; High competition

Meridian implications

Short to medium term (now–2050):

- Demand growth is sluggish; some industries close rather than decarbonise.
- The consumer home adoption of solar and batteries is slow due to high costs.
- The government subsidises thermal generation to support energy security, even when not commercially viable, which drives increased price volatility.
- Severe weather increases plant and line outage timeframes.

Long term (2050–2100):

- Climate changes and impacts increase more rapidly compared to other scenarios.
- Drought and flood risks increase.
- Inflow often disrupted by dry weather in Waitaki chain (e.g. summer, -10-15%) and Manapōuri (e.g. summer, -5-10%).

The economic costs of climate change impacts are strong, making finance for new investments more expensive, which in turn limits new renewable investment. Demand growth is muted but still occurs. The national and global economies are battered by increasing physical risks.

Government policies in New Zealand are delayed, or divergent, hindering investor confidence as sudden policy changes make planning increasingly uncertain. Government intervention is haphazard, and many actions taken by local communities are maladaptive, wasting time and resources. Due to the lack of absolute emissions reductions, New Zealand is more reliant on afforestation in attempting to meet its decarbonisation goals in the medium term (compared to Net Zero Evolution). CO_2 removal approaches tend to use mass monoculture plantations both in New Zealand and globally, and the deployment of nature-based solutions is limited. Limited attempts are made at carbon capture and storage, but these are technically or economically infeasible in the short to medium term. Carbon capture and storage plays a minor role in the long term.

Political fractiousness is high, and investment is increasingly diverted to maintain increasingly fragile and expensive legacy systems rather than in durable solutions. Insurance costs rise, leaving some communities uninsured, as some companies choose riskier self-insurance policies.

Physical climate risks include irreversible changes such as higher sea-level rise. Significant drought impacts hydro generation. The number of hot days (>25°C) across New Zealand is expected to increase by 100% by 2040, and to 300% by 2090. The increase in hot days is expected to have minimal impact on solar yields, particularly in the short to medium term (given solar output derating typically occurs at temperatures >35°C). This is reflected in modelled regional solar yields within our WMO.

For details regarding the assumptions and drivers underlying the scenarios, refer Appendix A (page 45).

Data sources

- NIWA Our Future Climate New Zealand – available on NIWA website.
- Global – to 2050 – NGFS Current Policies.
- Global – to 2100 – IPCC SSP3-7.0.
- NZ – to 2050 – CCC Current Policies.
- NZ – to 2100 – NIWA RCP8.5*.
- Meridian's Devolution Model (WMO Devo) – which models a disrupted and divergent future with limited decarbonisation, de-industrialisation, and difficult conditions for new builds. (New for FY24).

* In FY25, NIWA SSP3-7.0 will be used (published July 2024 – not available in time for FY24 reporting).

Climate considerations in asset management

An overview of Meridian's assets and a summary of the regional climate change impacts is provided in Figure 5. The ranges represent the variation across the three scenarios.

Figure 5. Meridian assets and potential climate change impacts.

Meridian Asset Key

- Wind Farm
- Hydro Station
- Solar Array
- Battery Storage
- Meridian Offices
- Powershop Office

Climate impacts on existing assets, all scenarios with a long-term view to 2100.

Northland
We can expect 37-99 more hot days per year and a 1% increase to 4% decrease in average precipitation. Drought conditions are expected to become more frequent.

Waikato
Storm events will become more likely. We can expect 5-50 more hot days per year and a 0–15% increase in average precipitation.

Hawke's Bay
Storm events will become more likely. We can expect 5–25 more hot days per year. Minimal change in annual precipitation.

Lower North Island
There may be a 0-15% increase in average precipitation and the risk of storm events will increase.

Lower South Island
There may be an increase in winter precipitation of 5–20% and a decrease in summer precipitation of 0–10%. There would be a greater risk of drought or prolonged dry periods as well as a risk of more frequent flood events.

Impact on Meridian assets

Hydro
Periodic reviews of probable maximum inflows to Meridian catchments will inform the dam safety processes and procedures, ensuring the physical climate resilience of the assets.

Wind
A 30-year design life for equipment means more frequent upgrades to the latest technology. At the point of these upgrades, Meridian tests the continued viability of the sites and ensures that the new equipment will be resilient to likely changes in their lifetimes.

Battery storage
The Ruakākā Battery Energy Storage System (BESS) is currently under construction and has been designed to be resilient against climate-related hazards that are likely to be experienced over the project's design life.

Offices
We have not identified any material anticipated impacts on our offices. Meridian leases its office sites and could re-locate these in the future, if necessary, to avoid exposure to physical climate risks.

Future development opportunities
Meridian has a number of development options in the pipeline. Meridian reviews the suitability of sites when determining which options progress.

Strategy continued

Climate-related risks and opportunities

The following tables set out Meridian's current physical and transition impacts of climate change, a description of the transition and physical climate-related risks and opportunities that Meridian has identified over the short, medium and long term, and the anticipated impacts of climate-related risks and opportunities reasonably expected by Meridian. This includes setting out the current financial impacts of Meridian's physical and transition impacts, the anticipated financial impacts of climate-related risks and opportunities Meridian reasonably expects, and the time horizons over which the anticipated financial impacts could reasonably be expected to occur. Where Meridian has been unable to disclose quantitative information, the reasons for this are explained. This table also sets out metric detail corresponding to each risk or opportunity. This is provided to help primary users to understand the amount or extent of assets or business activities vulnerable to climate-related risks or aligned with climate-related opportunities. Meridian has utilised industry metrics where possible, but has found that many of the risks and opportunities identified do not have suitable industry metrics. In previous years Meridian has identified a climate-related opportunity around green hydrogen. Meridian are currently working through the feasibility and timing of this project. At present, there is too much uncertainty to capture this as a material climate-related opportunity.

Physical risks and opportunities are denoted with the abbreviation PR and PO respectively, and transition risks and opportunities are denoted with the abbreviation TR and TO respectively.

Table 4. Physical risks.

PR 1 – More intense, extreme rainfall events impact hydro catchment flood risk

More intense, extreme rainfall events in the hydro catchments and uncertainty of climate change impacts surrounding probable maximum flood levels could affect Meridian's flood flow capacity, potentially resulting in physical damage to spillway/control structures.

Summary	Risk Rating	Anticipated Impacts Time Horizon	Materiality
New Zealand dam safety guidelines specify estimation of probable maximum flood (PMF) using a conservative assessment of probable maximum precipitation (PMP) that Meridian plans for. Climate change means the estimates of PMP/PMF need to be kept up to date with the latest climate science.	• Overall rating: Medium. • Net Zero Revolution: Low. • Adaptive Evolution: Low. • Hot House: Medium.	Medium term (2030–2050).	This risk is not considered a key risk, but links to the enterprise risk on Event or Disaster Destroys Balance Sheet Value. The risk is disclosed here to demonstrate that it is being actively managed.

Current Impacts

Meridian has had no events where inflow rainfall has exceeded the PMP for a catchment or caused damage to any physical structures.

In FY24, Meridian has continued its contribution to work underway by the industry-led Dam Safety Hydrology Group (DSHG). Part of this work is reviewing PMP modelling and assessment levels to ensure this is set accurately in the context of potential future climate impacts. This work will provide a new tool to enable estimates of climate change impacts to be included in the forecasting of PMP levels.

Meridian has updated flood rules to incorporate new flood flow values, mitigate dam safety vulnerabilities and embed lessons learned from international experience. These new flood rules have been included in the Waitaki Resource Consent application.

Actual financial impact: Not material.

Quantification methodology: Meridian has not incurred any costs or other impacts owing to this risk in FY24.

Anticipated Impacts

The impacts of climate change may lead to an increase in the frequency and intensity of extreme rainfall events. This may result in larger estimates of extreme inflow events to Meridian's reservoirs. The impacts of this would be most easily mitigated by reducing operating levels in Meridian's main storage reservoir (Lake Pukaki).

Significant increases in PMP/PMF in the longer term may require the business to consider physical modifications to its dams and spill outlets to increase flood storage capacity and/or to increase spill outlet capacity. This is not currently deemed necessary.

Through implementing amended flood rules and continuing to update PMP/PMF assessments, there is unlikely to be any change in the risk of actual damage to dam structures causing business interruptions (restrictions on generating) from passing extreme floods.

Anticipated financial quantified impact: Not quantified.

Based on current information, there are no plausible known anticipated financial impacts of this risk eventuating. There are plausible future mitigations required – being reduction to lake levels and/or physical asset modifications required to protect vulnerabilities. These mitigations could result in increased capital spend and reduced earnings. These have not been quantified as they are future mitigations and there are high uncertainties over what form these mitigants would take.

Management Actions

Continue contributions to industry DSHG work to update PMP methodology and ensure it can incorporate projections of climate change impacts based on contemporary climate change projections. This will inform the ongoing 10-year reviews.

Continue to implement the ongoing programme of 10-yearly PMP/PMF reviews, with the next reviews to incorporate projections of climate change impacts.

Last reviews:

- 2016 for Waitaki Valley catchments. Next review in 2026.
- 2017 for Waiau catchments. Next review in 2027.

Provide for any physical asset modifications required in asset management and business plans in the future if required.

Implement new aligned Waitaki Valley flood rules, and work to get adoption from Environment Canterbury ahead of resource consent renewal, controlled under a Management Plan not via the Resource Consent.

Continue to ensure insurance is in place for both material damage and business interruptions, resulting from damage to generation assets.

Continue work on understanding and remediating spillway vulnerabilities through our Dam Safety Assurance Programme and Structural Safety Evaluation Programme.

Related Targets:

Implement the next 10-yearly PMP/PMF review cycles for all hydro catchments by FY28, using the new tool/methodology that considers climate change scenarios.

Complete climate risk assessments (using Climate and Natural Hazards Framework tool) and develop climate adaptation plans for all key operational and new development sites by FY30.

Metrics

FY24: 85% of Meridian's property, plant and equipment asset base is potentially vulnerable to this risk (FY23: 85%, FY22: 87%).

Metric trend: The trend has remained stable from FY22 to FY24, reducing slightly as more non-hydro generation has been added to Meridian's renewable capacity.

Methods and assumptions: This metric calculates the portion of Meridian's hydro generation assets as a percentage of its total property, plant and equipment asset base. Hydro assets are measured at fair value. All hydro generation sites are deemed potentially vulnerable to this risk, although Meridian notes the current exposure and vulnerability of these assets is considered low. Meridian expects the percentage to reduce over time as new solar and wind development assets are completed and added to the generation mix.

Table 4. Physical risks continued.

PR 2 – Changing seasonal weather patterns increases hydro inflow volatility
Increased hydro inflow volatility (prolonged dry periods and larger inflow events) due to changing seasonal weather patterns, leading to increased spilling or running out of storage.

Summary	Risk Rating	Anticipated Impacts Time Horizon	Materiality
While Meridian expects future average annual and seasonal hydro inflow profiles to cause improved generation and demand alignment (refer Opportunity PO 1), it also expects increased volatility in the weather, such as prolonged dry periods and larger inflow events when they occur. This could make it harder to manage lake levels to balance reducing the need to spill when it is wet and retaining enough water to last for a dry season. This could affect Meridian's earnings by requiring more hydro firming products.	• Overall rating: Medium. • Net Zero Revolution: Medium. • Adaptive Evolution: Medium. • Hot House: Medium.	Long term (2050–2100).	This risk links to the existing enterprise risk – Wholesale imbalance in a dry period. The risk also overlaps with the climate transition risk TR 1.

Current Impacts

Meridian is experiencing increased weather volatility and has noted both dry periods and significant rain events in FY24. However, it is challenging to isolate the impacts of climate change from other seasonal variations (e.g. El Niño and La Niña).

Meridian has not incurred direct material costs or other impacts on revenue in FY24 as a result of this risk. Indirectly, Meridian continues to invest in the construction of new renewable generation assets and power system flexibility that will help mitigate this risk.

Actual financial impact: Not quantified.

There is a considerable number of non-linear interactions between inflows and prices in the current market. It is also difficult to assess the current climatic influence on inflow volatility within the same year.

Anticipated Impacts

Meridian expects increasing weather volatility over time. This will depend on how climate change plays out, with Meridian's Hot House scenario presenting the greatest weather volatility. This risk will continue to change in the future with a generation mix where wind and solar are likely to make up a bigger portion of the market.

With hydro, it is becoming more difficult to predict patterns accurately, and therefore harder to determine the ideal lake level. If the level is too high, Meridian increases the risk of needing to spill, while if too much water is used during the wet season, Meridian risks not having enough storage to get through a prolonged dry season.

This risk could have significant financial impacts as well as strategic and reputational, depending on the level of volatility that is observed.

Anticipated financial quantified impact: Not quantified.

This is due to the significant uncertainty associated with the basis for any potential financial quantification. Meridian sees the potential for both negative and positive financial impacts. Negative impacts would likely take the form of reduced future earnings.

Management Actions

Management actions that contribute to mitigating this risk include:

- Continuing to deliver new developments (wind and solar) in order to increase generation capacity.
- Continuing work on developing grid-level battery storage to help balance peak capacity.
- Continuing work on Virtual Power Plant offerings that help peak capacity by enabling electric vehicle (EV)/battery users to sell power back to the grid when demand is high.
- Utilising existing demand-response flexibility options with industrial customers, and continuing work on growing number of options available. In FY24 Meridian negotiated additional demand-response flexibility in its contract with NZAS.
- Continue work on maximising hydro capacity from existing assets.
- Continue developing a flexible retail portfolio to support demand response.
- Continuing regular reviews of the optimal contract book size and shape. Meridian expects this may need to be adjusted in the future, e.g. according to whether a summer weighted contract book remains suitable given potential seasonal weather pattern changes.

Many of the above actions are both ways to mitigate this risk and present opportunities for Meridian's future growth.

Related Targets:

Deliver 500MW of generation capacity from existing assets by FY28.

Seven new renewable generation projects underway by 2030.

20,000 residential customers on demand-flex product by FY26.

Metrics

Dry period volatility: FY24: 12%, FY23: 3%, FY22: 7%

Wet period volatility: FY24: 4%, FY23: 8%, FY22: 5%

Metric trend: Both metrics fluctuate from year-to-year. Three years of data is a relatively short period to track volatility, with uncertainty in how much the percentages are influenced by normal weather patterns versus climate change.

Methods and assumptions: The metric calculates the percentage of days in the year where total inflows are below the 10th percentile average inflow levels[5] at Meridian hydro catchments (dry period) or above three times the median inflow levels (wet period). The metric is considered a proxy to represent the extent of Meridian's hydro inflows which are exposed to this risk.

5 Historic inflow levels in hydro catchments from 1933 to 2010 (inclusive). This time period aims to capture historical inflow levels before climate change begins significant impacts on weather patterns (deemed to be 2011 onwards).

Strategy continued

Table 4. Physical risks continued.

PR 3 – Increased severe weather events could damage assets and infrastructure
Damage to assets and infrastructure due to severe weather events (storms), resulting in financial loss via reduced generation and increased insurance premiums. (Note extreme rainfall to dams is treated separately via PR 1.)

Summary	Risk Rating	Anticipated Impacts Time Horizon	Materiality
Meridian expects climate change to bring more frequent and intense storms. There is a risk that one or a number of events will strike and cause damage to Meridian's assets or the wider infrastructure on which it relies, such as generation assets in operation, development sites under construction and third-party infrastructure (access roads, network lines etc). The Cyclone Gabrielle and Hale events in early 2023 demonstrated that while Meridian's assets themselves might have adaptive capacities during extreme weather events, damage to the surrounding land and infrastructure can also disrupt its operations significantly.	• Overall rating: Medium. • Net Zero Revolution: Medium. • Adaptive Evolution: Medium. • Hot House: Medium.	Long term (2050–2100).	Links to Meridian enterprise risks – Event or Disaster Destroys Balance Sheet Value and Extended Significant Outage of Other Party's Transmission or Generation.

Current Impacts

No material weather events occurred during FY24. Meridian continued to incur some carryover costs from the 2023 Cyclone Gabrielle/Hale events.

In FY24, Meridian has commenced work on establishing a Climate and Natural Hazards Framework for new development projects to help ensure climate risks are understood and design guidelines mitigate these risks appropriately.

Actual financial impact: $5M in carryover costs from the 2023 Cyclone Gabrielle/Hale events in FY24.

Quantification methodology: Actual costs incurred from site repair and recovery, offset by any insurance proceeds received. The FY24 impact also includes a re-allocation of costs to date (including FY23 costs) that have been re-assessed as non-cyclone related. The cost above does not include the impacts of lost time and delays to the project. This cost (net of insurance proceeds) will form part of asset capitalised in Meridian's financial statements – Section B – Integrated Report).

Anticipated Impacts

Extreme weather events will become more frequent over time. Meridian's largest exposure is to its hydro assets. These assets all have comprehensive dam safety plans that apply very conservative thresholds. This means short-term risks are low (refer to physical risk PR 1).

Meridian's wind assets, and grid-scale solar and battery assets (in development) have typical design lives of 30 years. Meridian also has assets on these sites with longer lifespans, such as sub stations. Severe weather events (including landslips) could cause damage to Meridian's assets, with potential impacts including increased costs, supply-chain disruptions, an inability to generate resulting in reduced revenue, and increased insurance premiums. Future development projects could have higher costs to ensure their resilience to severe weather, e.g. as experienced recently with Harapaki wind farm roading design.

Meridian also notes this risk could have broader impacts on people, the environment and communities where Meridian operates. These impacts could lead to reputational damage to Meridian. Other impacts include Meridian staff being displaced and pressure on staff wellbeing (e.g. through increased calls to contact centre from distressed customers).

These events could also cause damage to third-party transmission infrastructure, leading to a network disruption. The main exposure would be to Transpower's HVDC (high-voltage direct current) link connecting the South and North Islands.

Anticipated financial quantified impact: Not quantified.

Meridian has been unable to quantify the anticipated financial impacts of this risk described qualitatively above, given the variety of asset types and geographic locations. Meridian intends to use NIWA's newly downscaled climate projections data to attempt to quantify the impacts of this risk, in conjunction with future work in developing a Natural Hazards Framework. Potential impacts will vary by asset type and location.

Management Actions

Meridian continues to work with local government and the National Emergency Management Agency on hazard analysis and applying lessons learned.

The broader risk of natural disasters represent a material risk which is reviewed on a regular basis by the Executive Team and the Board. Mitigation efforts include insurance cover of $1.5 billion for asset damage and business interruption. Seismic risk is the most significant component of natural disaster risk for Meridian. The climate-related storm event factor is lower and is not likely to affect all asset types and all asset locations.

In addition Meridian is continuing work on developing a Climate and Natural Hazards Framework for assessing and mitigating the impacts of climate change on new development projects. It is intended this will include consideration of longer-time horizons, and factors such as sea-level rise, land stability, and the frequency and intensity of severe storm events. The outputs of this tool are expected to aid in asset resilience and adaptation planning.

Meridian intends to use updated NIWA information to help quantify the potential impacts of this risk.

For risks to third-party transmission assets, Meridian can continue to utilise its Electricity Hedging policy to manage its maximum exposure to the North Island (in the case of an HVDC outage) and to use financial instruments to reduce spot pricing exposure in the case of a supply outage.

Related Targets:

Complete climate risk assessments (using Climate and Natural Hazards Framework tool) and develop climate adaptation plans for all key operational and new development sites by FY30.

Metrics

FY24: 100% of Meridian's generation assets are potentially vulnerable to this risk (FY23: 100%, FY22: 100%).

Metric trend: Metric has remained the same for the past three years.

Methods and assumptions: This metric has been calculated using the assumption that all of Meridian's generation assets are potentially exposed to damage from severe weather events.

Meridian notes this vulnerability will differ significantly by asset type and location.

Table 4. Physical risks continued.

PR 4 – Global climate change impacts on supply chain cost and reliability
Increased supply chain disruptions and costs due to global climate-change impacts on Meridian's service and operating cost levels.

Summary	Risk Rating	Anticipated Impacts Time Horizon	Materiality
Climate change will affect the operations of Meridian's suppliers globally and potentially impact their ability to supply materials. Meridian has a complex range of suppliers who in turn source key materials from around the globe. This risk will have impacts across Meridian's supply chain, with the biggest impacts likely to affect our Generation and Development business units. Meridian needs a better understanding of where its suppliers source key materials so that it can confidently identify vulnerabilities to climate change in its supply chain.	• Overall rating: Medium. • Net Zero Revolution: Low. • Adaptive Evolution: Medium. • Hot House: Medium.	Long term (2050–2100).	This climate-specific risk is not currently identified as a key risk to Meridian. This risk has been included to demonstrate that Meridian has information gaps relating to its supply chain vulnerability that it wishes to address. Meridian has a separate Transition supply chain risk – TR 3.

Current Impacts	Anticipated Impacts	Management Actions	Metrics
Meridian is not aware of any material supply-chain challenges in FY24 related to its suppliers and caused by the physical impacts of climate change. As noted in the physical risk PR 3, Meridian is still experiencing the flow-on impacts of the Cyclone Gabrielle storm event from FY23. This event caused supply chain disruptions and increased costs (quantified in PR 3). In FY24 Meridian has progressed work in understanding supply chain risks. A new Supply Chain Manager role has been established in the Generation team. Meridian is also in the process of rolling out an ESG supplier programme – referred to as "Supply Chain – Good Energy programme". **Actual financial impact:** Not material. **Quantification methodology**: Meridian has not identified any material financial impacts on either supply chain costs or reliability in FY24 that are directly attributable to physical climate change impacts.	Meridian expects its current and future suppliers to be exposed and vulnerable to the physical impacts of climate change. As the focus on climate change increases among companies around the world, Meridian expects greater visibility and transparency from suppliers as to the extent of this vulnerability. Meridian acknowledges it needs more information in this space, but notes that its key suppliers are usually large and well-resourced multinational companies, which potentially increases their ability to adapt to climate change impacts. This could help to reduce Meridian's vulnerability to supply chain disruptions. The anticipated impacts of supply chain disruptions include increased costs, supply chain delays leading to longer lead times and shortages in or an inability to access certain goods and services. **Anticipated financial quantified impact:** Not quantified. Meridian is currently unable to quantify the anticipated impacts of supply chain disruptions caused by climate change impacts described qualitatively above due to limited visibility and data from its global supply chain. A detailed supply-chain assessment is needed to quantify the impacts of this risk.	Meridian has started a project to implement new technology in the next two to three years that will allow a greater centralisation of and improvements to data collection regarding its supply chain. Meridian plans to implement an enterprise Supplier Relationship Management (SRM) framework, to assist it in managing its relationships with suppliers, including in relation to climate change matters. To help mitigate this risk, Meridian maintains 'on-hand' critical spare parts for generation assets. This helps to minimise downtime in the case of supply chain disruptions. **Related Targets:** Introduce enterprise Supplier Relationship Management framework in FY25, and include the introduction of Climate Risk in the FY25 Supplier ESG programme update.	**FY24:** 100% of Meridian's supply chain is potentially vulnerable to this risk (FY23: 100%, FY22: 100%). **Metric trend:** The metric has remained the same for the past three years. **Methods and assumptions:** Meridian has not yet undertaken a detailed assessment of its supply chain. Until an assessment is completed that breaks down supply categories and key suppliers, it is assumed the full supply chain is potentially vulnerable to the physical impacts of climate change.

Strategy continued

Table 5. Transition risks.

TR 1 – Transitioning to fully renewable generation sources and increasing demand reduces flexibility in the power system
There is a risk to earnings due to increasingly scarce flexible energy products, and increased volatility of wholesale electricity prices (from intermittent generation).

Summary	Risk Rating	Anticipated Impacts Time Horizon	Materiality
Thermal generation in New Zealand currently plays a significant role in responding to periods of reduced renewable supply, such as dry periods in the hydro catchments. In the short to medium term, while new renewable generation is built and alternative flexible products are developed, it is likely higher levels of electricity spot price volatility and increased demands on flexible elements within the existing power system, such as hydro will be experienced. This risk has significantly influenced Meridian's strategy and decision making to ensure Meridian is contributing to a resilient, efficient, and flexible energy supply for New Zealand.	• Overall rating: Medium. • Net Zero Revolution: Medium. • Adaptive Evolution: Medium. • Hot House: High.	Short term (now–2030).	This risk is linked to the Meridian enterprise risk around Peak Capacity. This risk also overlaps with the physical risk PR 2 and transition risk TR 4.

Current Impacts

Meridian continues to manage its risk of exposure to volatile spot prices through a number of measures, including the use of financial products and work underway across the business to increase its flexibility, capacity and demand-response options.

In FY24 Meridian has incurred spend in maintaining its swaption portfolio and has called on peak demand response flexibility options (e.g. the exercise of demand-response options with NZAS during the year).

Meridian's team is also progressing work on a flexible portfolio that supports demand response and growing renewable generation capacity through development projects. Meridian is investing in a utility scale battery that will be operational in early 2025.

Actual financial impact: $24M.

Quantification methodology: Meridian's annual spend on availability of energy flexibility financial products (swaptions and demand-response agreements).

These options are in place to help Meridian manage its exposure to risk arising from the generation, purchase and sale of energy. The spend is not solely attributable to this transition risk.

Anticipated Impacts

This risk should reduce over the longer time horizon. In the short to medium term, Meridian expects it may see a higher spend on financial instruments in order to ensure its exposure to volatile spot pricing is mitigated.

This transitional period has the potential to overlap with inadequate supply risk, as identified in TR 4. This could lead to government intervention or regulation which may impact on Meridian's future earnings.

Anticipated financial quantified impact: $20M – $110M annualised over the short term (to 2030). Represents exposure of 2-9% of Energy Margin.

Quantification methodology: This calculation is based on high-level estimates of future flexibility requirements in the power system, with an applied price per megawatt (MWh), discounted back to the current year. This represents how much Meridian may need to spend on financial instruments to cover exposure. This spend is used as a proxy to represent Meridian's future exposure to volatile spot pricing. We have used Meridian's internal WMO models Evo & Revo to quantify this risk. These two models are in line with assumptions in the Net Zero Revolution and Adaptive Evolution climate scenarios.

Key assumptions and inputs:

- The two key assumptions in this calculation are future flexible capacity requirements in the short to medium term and future electricity prices (using generation weighted average price per kilowatt hour).
- Other key inputs used are Meridian's Weighted Average Cost of Capital (WACC), Consumer Price Index (CPI) percentages, estimated premium percentage and Meridian's expected market share.

Management Actions

Meridian has a mature commodity risk framework outlined in its Electricity Hedging Policy. This includes specific limits on allowable exposures to spot electricity price risks. Within that framework, the cost of mitigation is traded off against the impacts of accepting risks. Meridian will continue to maintain a swaption portfolio and peak demand-response options with key customers – to provide greater flexibility within its portfolio.

Meridian is actively investing in assets and strategies that increase flexibility. Meridian is working on initiatives such as large-scale batteries. The Virtual Power Plant initiatives will enable greater access to flexible demand-side resources such as industrial heat processes, batteries and hot water cylinders.

Meridian will utilise asset management and flexible outage planning to reduce constraints and maximise capacity available to the market.

Many of the above actions will create opportunities for Meridian's future growth.

Related Targets:

Deliver 500MW of generation capacity from existing assets by FY28.

Seven new renewable generation projects underway by 2030.

20,000 residential customers on demand-flex product by FY26.

Metrics

Meridian's share of total New Zealand flexible generation capacity

FY24: 30% FY23: 30% FY22: 30%

Metric trend: Meridian's share has remained stable across FY22 to FY24.

Methods and assumptions: This metric is calculated as Meridian's flexible generation capacity as a proportion of the total flexible capacity in the market. This metric represents the extent of Meridian's vulnerability to total industry flexibility capacity. We have assumed that 'flexible capacity' is made up of hydro, gas, coal, oil or battery capacity.

Strategy continued

Table 5. Transition risks continued.

TR 2 – Carbon price uncertainty increases uncertainty in wholesale market
Higher wholesale market prices caused by carbon price rises during a period when Meridian is supply constrained (key drivers being dry winter periods and where shorter-term capacity constraints exist), impacting on Meridian's earnings.

Summary

This risk is directly correlated with power system flexibility due to carbon price benchmarking in some financial derivative product arrangements. This represents Meridian's most significant exposure to carbon price escalation.

Meridian is also exposed through the price offers of thermal generators, particularly through winter. This exposure is limited as Meridian tends to be a net generator rather than net purchaser of energy. Meridian notes an increasing carbon price could also benefit its earnings at times when it is a net generator of energy.

Risk Rating

- Overall rating: Medium.
- Net Zero Revolution: Medium.
- Adaptive Evolution: Medium.
- Hot House: Medium.

Anticipated Impacts Time Horizon

Short term (now–2030).

Materiality

This risk is not a key risk to Meridian but is linked to the transition risk TR 1. This risk has been included to demonstrate that carbon price risk is considered and managed.

Current Impacts

Meridian's FY24 spend on the carbon component of swaption products is detailed below.

More widely, the future price of the New Zealand Emissions Trading Scheme (ETS) remains uncertain. The most recent June 2024 carbon credit auction failed to clear with no bids received.

Actual financial impact: $4M.

Quantification methodology: This is calculated as Meridian's spend on the carbon component of swaption products. This spend does not include the cost of carbon Meridian incurs when exposed to spot pricing from thermal generators. Spot prices are set based on a multitude of variables, and it is not possible to calculate the pricing component related to carbon prices.

Anticipated Impacts

It is anticipated that this risk will be most relevant over the next 5–10 years, then is likely to reduce over the longer-time horizon, consistent with transition risk TR 1.

Anticipated impacts include:

- The availability and pricing of financial derivative products. These could become scarce or more expensive for Meridian.
- The exposure to spot pricing of thermal generators. If carbon prices rise or continue to fluctuate, these price offers will likely be more expensive, reducing Meridian's earnings at times when Meridian is a net purchaser of energy.

The potential for changing government policy settings is likely to continue to remain a risk for long-term pricing and investment.

Anticipated financial quantified impact: $0M–$40M annualised over the short term (to 2030). This represents exposure of 0-3% of Energy Margin.

Quantification methodology: This calculation applies the same underlying methodology as detailed in TR 1. It takes an assumed future flexibility capacity and applies to this a range of carbon prices. There is uncertainty in this calculation.

Key assumptions and inputs:

- Key assumptions made in this calculation are around flexible capacity future requirements, estimated thermal mix of this capacity and carbon pricing assumptions out to 2030.
- Other key inputs used are Meridian's WACC, CPI, and a carbon emissions conversion factor.

Management Actions

Management actions outlined under transition risk TR 1 apply here. They ultimately reduce the dependency on flexible products priced from a carbon price benchmark.

Related Targets:

Deliver 500MW of generation capacity from existing assets by FY28.

Seven new renewable generation projects underway by 2030.

20,000 residential customers on demand-flex product by FY26.

Metrics

FY24: Meridian spend $4M (FY23: $1M, FY22: $10M).

Metric trend: Spend has fluctuated from year to year. This is due to the volume of generation capacity called under the swaption products that Meridian holds, and the market price of NZUs.

Methods and assumptions: This metric is calculated as Meridian's spend on the carbon component of swaption products and is considered a proxy to track the extent of Meridian's vulnerability to this risk.

This spend does not include the cost of carbon Meridian incurs when exposed to spot pricing from thermal generators. Spot prices are set based on a multitude of variables, and it is not possible to calculate the pricing component related to the price of carbon. This spot-pricing exposure is negligible.

Table 5. Transition risks continued.

TR 3 – Global supply chain demand may impact affordability of and timely access to goods and services
Increased demand for associated goods and services restricts Meridian's access due to changes to international policy and market demand for low carbon products resulting in renewable energy asset development and maintenance costs increasing and untimely access to goods.

Summary	Risk Rating	Anticipated Impacts Time Horizon	Materiality
As the world decarbonises there will be increased competition for products and materials that support decarbonisation. Meridian is a small purchaser on a global scale so it has to be strategic in how it secures the goods and services required. Meridian is committed to ethical sourcing and recognises that its suppliers have growing businesses in a range of countries with differing employment standards. There is an opportunity to increase Meridian's visibility of its global supply chain and refine its assessment methodology for this risk.	• Overall rating: Medium. • Net Zero Revolution: Medium. • Adaptive Evolution: Medium. • Hot House: Medium.	Short term (now–2030).	This climate-specific risk is not currently identified as a key risk to Meridian. It has been included to demonstrate that Meridian has information gaps relating to its supply chain vulnerability that it wishes to address. Meridian has a separate physical supply chain risk – PR 4.

Current Impacts	Anticipated Impacts	Management Actions	Metrics
Meridian is continuing to experience increasing lead times and increasing prices in its supply chain. The impact of increased competition from climate-motivated demand is difficult to distinguish from supply chain disruptions caused by geo-political factors, inflation and the lasting impacts of COVID-19-related supply chain disruptions. **Actual financial impact:** Not material. **Quantification methodology:** Meridian has not identified any material financial impacts on its supply chain costs in FY24 that are directly attributable to this risk.	Over time Meridian expects the installed capital cost of wind and solar generating technology to fall. However, in the short-term global demand may mean these savings are not realised. This demand surge introduces possible environmental and social standard risks requiring investments in supply-chain transparency, and possible cost premiums from sole sourcing where required to mitigate the risks. **Anticipated financial quantified impact:** Not quantified. Meridian notes there is significant uncertainty associated with the basis for any potential financial quantification of the anticipated financial impacts described qualitatively above. Supply chain impacts are influenced by multiple factors beyond climate-specific ones. A detailed supply chain assessment is needed to be able to quantify the impacts from this risk.	Management actions outlined under PR 4 'Global climate change impacts supply chain cost and reliability' apply here. In addition, Meridian completes targeted due diligence for major developments, to aid in its ethical sourcing commitment. This includes seeking visibility of mineral re-purposing, recycling, and resource recovery initiatives. **Related Targets:** Introduce enterprise Supplier Relationship Management framework in FY25, and include the introduction of Climate Risk in the FY25 Supplier ESG programme update.	**FY24:** 100% of Meridian's supply chain is potentially vulnerable to this risk (FY23: 100%, FY22: 100%). **Metric trend:** Metric has remained the same from FY22 to FY24. **Methods and assumptions:** Meridian has not yet undertaken a detailed assessment of its supply chain. Until an assessment is completed that breaks down supply categories and key suppliers, it is assumed the full supply chain is vulnerable to this risk.

Table 5. Transition risks continued.

TR 4 – Inadequate market supply due to insufficient physical firming plant

Inadequate market supply due to insufficient firming plant capacity (e.g. premature retirement of thermal generation) could create a risk to security of supply and increase the risk of government intervention.

Summary	Risk Rating	Anticipated Impacts Time Horizon	Materiality
The transition to increasingly renewable electricity generation carries risks, with one significant concern being the early retirement of thermal power plants before new renewable sources are fully operational. Specifically, the depletion of gas generation given its role as a transition fuel. Additionally, regulatory interventions aimed at promoting renewable electricity generation could exacerbate the risk of a disorderly transition.	• Overall rating: Medium. • Net Zero Revolution: Medium. • Adaptive Evolution: Medium. • Hot House: Medium.	Short term (now–2030).	This risk relates to the Meridian enterprise risk in relation to inadequate market supply. It has been disclosed as it is an important issue facing the country, and Meridian has a part to play in mitigating this New Zealand-wide risk. Note: This risk overlaps with transition risk TR 1.

Current Impacts	Anticipated Impacts	Management Actions	Metrics
In FY24 there have been no occurrences of inadequate market supply causing outages. There have been recent forecasts that gas supply may not sufficiently meet demand, which could lead to increased usage of higher-emission alternatives such as coal. Meridian monitors and manages supply and demand forecasts to ensure it can meet the market requirements. Where necessary Meridian can call on its demand-response options to assist it in meeting market demand. **Actual financial impact:** Not material. Cost of demand-response options exercised in FY24 disclosed under TR 1.	Meridian notes the current gas supply constraints in the market. If these gas supply issues persist and the availability of gas supply for generation becomes less reliable, there is a risk to the orderly economic transition to a low carbon economy. Where there is less gas firming plant capacity in the market, there will be a heavier reliance on Meridian to fill the gap. This could mean additional drawdown of our hydro storage lakes. More widely, depletion of existing gas fields could pose serious risks to New Zealand's energy security. Industry-wide impacts of reliance on gas and coal to meet supply shortages include higher emissions, reputational risks, and the possibility of regulatory intervention. Meridian's expectation is that this risk should reduce over the longer time horizon as new generation supply is added to the market. **Anticipated financial quantified impact:** Not quantified. **Quantification methodology:** Meridian is unable to quantify the anticipated impacts from this risk described qualitatively above. There is high uncertainty in what direct financial impacts (if any) this risk would have on Meridian. There is likely to be crossover with the impacts identified in TR 1. Indirectly it is expected this risk could impact Meridian's future earnings.	Management actions outlined under transition risk TR 1 apply here. Meridian continues to work with the wider industry and the Government to ensure mitigations are in place for this risk. **Related Targets:** Deliver 500MW of generation capacity from existing assets by FY28. Seven new renewable generation projects underway by 2030. 20,000 residential customers on demand-flex product by FY26.	Refer metric in TR 1.

Strategy continued

Table 5. Transition risks continued.

TR 5 – Sharp increase in private solar leads to reduced demand, impacting on Meridian's earnings
Risk to demand for Meridian retail products and reduced earning capacity if a significant amount of the market is able to self-generate electricity through rooftop solar.

Summary	Risk Rating	Anticipated Impacts Time Horizon	Materiality
Currently private residential rooftop solar makes up a very small portion of the New Zealand market. However, in Australia it is greater than 30%. If New Zealand follows a similar trajectory, this could significantly reduce overall residential electricity demand, thereby reducing Meridian's forecast revenue. Meridian also sees this uptake as a potential future opportunity.	• Overall rating: Medium. • Net Zero Revolution: High. • Adaptive Evolution: Medium. • Hot House: Medium.	Medium term (2030–2050).	This risk is disclosed as it is of likely interest to stakeholders and links to Meridian's strategy for delivering digital capability and innovations to grow its customer base and promote equitable access to the benefits of the energy transition.

Current Impacts

Meridian is not currently experiencing a reduction in demand or impacted earnings from private residential solar.

Actual financial impact: Not material.

Quantification methodology: Meridian's retail earnings have not been materially impacted in FY24 by private residential solar.

Anticipated Impacts

Meridian expects the residential uptake of rooftop solar to increase in the medium term. This is anticipated due to a combination of consumer preference, rising electricity costs, and the expected future reduction in solar installation costs.

This increase in uptake could reduce Meridian's future residential earnings.

Anticipated financial quantified impact: $0M–$30M per annum annualised over the medium-term (to 2050). This represents exposure of 0–2% of Energy Margin.

Quantification methodology: This calculation is based on high-level estimates in the number of New Zealand households with rooftop solar. Assumptions are derived from Meridian's internal WMO models which are in line with assumptions in the three climate scenarios. We have then applied a modelled price per MWh, assumed solar generation, and assumed Meridian share of residential market, then discounted this back to the current year. There is high uncertainty in this range.

Key assumptions and inputs:

- The key assumptions in this calculation are around future expectations of number of New Zealand households with rooftop solar and battery storage, Meridian's share of this market and pricing forecasts (using load weighted average price per kilowatt hour).
- Other key inputs used are Meridian's WACC, CPI, and solar generation assumptions.

Management Actions

Meridian will continue to monitor and respond to growth in private residential solar. We also see the increase in uptake of solar as a potential opportunity to grow our customer base and provide new solar propositions to customers.

We have established a team to broaden our internal capability to provide in-house solar photovoltaic solutions to our customer base. The initial focus is on existing commercial customers.

It is expected that in time this will build up into a rolling sales and project pipeline to serve our prospective commercial solar customers with our in-house solution and capability, then extend this to a residential solar proposition for our mass-market customers.

We can counter any increased demand for residential solar by offering solar solutions to our customer base.

Related Targets:

Grow retail customer base to 500,000 connections by FY30.

Metrics

FY24: 4% of residential customer base earnings vulnerable to this risk (FY23: 3%, FY22: 2%).

Metric trend: Percentage of customer base has increased year on year from FY22 to FY24, but remains at a relatively low base (<5%).

Methods and assumptions: This metric has been calculated using Meridian's existing number of residential consumers with private solar and applying this as a proportion of Meridian's total residential consumer base. This calculation is used as a proxy to represent the percentage of residential earnings vulnerability.

Strategy continued

Table 6. Physical opportunities.

PO 1 – Annual and seasonal hydro inflow profiles improving generation and demand alignment
Improved generation capacity and demand alignment due to projected changes in hydro inflow profiles resulting in positive impacts for Meridian earnings.

Summary	Opportunity Rating	Anticipated Impacts Time Horizon	Materiality
Projected changes to Meridian's inflow profiles in the Waiau and Waitaki catchment areas is likely to better match anticipated changes in New Zealand's electricity demand profile.	• Overall rating: Medium. • Net Zero Revolution: Medium. • Adaptive Evolution: Medium. • Hot House: Medium.	Long term (2050–2100).	This is not a key opportunity for Meridian but is a noteworthy benefit of potential interest to its stakeholders. This opportunity has been included for visibility that Meridian has identified and assessed the potential future impacts.

Current Impacts

Meridian has not yet seen an increase it can attribute to climate change.

El Niño and La Niña weather patterns tend to have a more immediate impact and will continue to mask long-term climate patterns.

Actual financial impact: Not quantified.

There is a considerable number of non-linear interactions between inflows and prices in the current market. It is also difficult to assess the current climatic influence on inflow volatility within the same year.

Anticipated Impacts

Meridian expects to see revenue uplift as a result of changing inflows into its hydro catchments that align with increases in consumption during winter.

This value will be largely driven by increased prices seen by Meridian's hydro generation assets.

Anticipated financial quantified impact: $0M–$20M annualised, over the medium term (to 2050). This represents an opportunity that is approximately 0–2% of Energy Margin.

Quantification methodology: This calculation models anticipated inflow changes to Meridian's hydro catchments under WMO Revo and Evo models (representative of Net Zero Revolution and Adaptative Evolution scenarios). There is significant uncertainty in this calculation.

Key assumptions and inputs:

- The key assumptions used relate to expected seasonal hydro inflow changes to base-case model (in GWh) and future pricing (measured in time weighted average price per kilowatt hour).
- Other key inputs used are Meridian's WACC and CPI expectations.

Management Actions

No specific actions are required. This opportunity is expected to occur naturally as the climate changes.

Related Targets:

Deliver 500MW of generation capacity from existing assets by FY28.

Metrics

FY24: 12,125GWh of hydro generation making up 89% of total Meridian generation (FY23: 12,701GWh, 91%, FY22: 12,271GWh, 91%). While this metric has been included to show the opportunity, the potential increase in Meridian's hydro generation from improved hydro inflows is estimated at between 0 to 5%.

Metric trend: Trend has remained largely stable from FY22 to FY24. Proportion has reduced slightly as more wind and solar capacity has been added to the mix.

Methods and assumptions: This metric shows total annual hydro generation in gigawatt hours and reflects this as a percentage of Meridian's total generation. There is too much uncertainty to quantify the portion of total generation that is influenced by hydro inflow profiles, and how much of this is due to normal weather patterns, versus climate change. As Meridian introduces more wind and solar generation, this metric is expected to reduce as a percentage in the future.

This metric will also be affected by plant outages in each given year.

Table 7. Transition opportunities.

TO 1 – Electrification of transport and process heat, and Virtual Power Plants (VPP)
The increased demand for renewable electricity as the economy decarbonises, particularly in process heat and transportation, could result in business growth and increased earnings as well as provide opportunities for demand flexibility through VPP.

Summary

An increase in electricity demand that results from transport and process heat electrification is an opportunity for business growth. This lift in consumption should also increase the volume and value of demand-response options to Meridian – offering, for example, an opportunity to build VPP, that aggregate demand-side resources such as EV chargers, industrial heat processes, solar, batteries, and hot-water cylinders.

Opportunity Rating

- Overall rating: High.
- Net Zero Revolution: Extreme.
- Adaptive Evolution: Extreme.
- Hot House: High.

Anticipated Impacts Time Horizon

Medium (2030–2050).

Materiality

This opportunity is a central part of Meridian's strategy with progress reporting and governance oversight at Board level. The opportunity is a feature in the shared Executive Scorecard.

Current Impacts

In FY24 Meridian's Retail team has continued to focus on homes and businesses decarbonisation. Meridian is working with large industrial customers to secure process heat electrification.

Meridian has established a dedicated team who are trialling a number of initiatives aimed at growing the residential customer base and providing flexible residential demand-response at scale via VPP. Meridian is also continuing to roll out its Zero EV charging network.

Actual financial impact: Not material.

Quantification methodology: The net financial impacts associated with the Zero charging network and VPP are currently immaterial for Meridian; both are still in relatively early stages. The current impacts from process heat electrification are unable to be disentangled from the wider industrial portfolio performance.

Anticipated Impacts

Electrification of transport and process heat is expected to lift electricity consumption and grow Meridian's customer base, increasing revenue while enabling demand-response. Meridian expects these benefits to be most significant in the medium term (to 2050). This opportunity also ties into Meridian's strategy of growing its renewable energy generation capacity and retail customer base.

Anticipated financial quantified impact: $20M–$140M increase to revenue annualised over the short term to 2030. $30M–$250M increase to revenue annualised over the medium term 2030 to 2050. Represents an opportunity that is approximately 2–20% of Energy Margin[6].

Quantification methodology: This calculation is based on high-level estimates of the future energy demand requirements in the power system. Assumptions on these are derived from Meridian's internal WMO models which are in line with assumptions in the three climate scenarios. We have applied a modelled price per gigawatt hour (GWh) to Meridian's assumed share of demand and discounted back to the current year. We have disclosed two ranges: short term and medium term. There is high uncertainty in these ranges – demand and pricing forecasts vary in each scenario out to 2050.

Key assumptions and inputs:

- A key assumption in this calculation is future New Zealand energy demand requirements, with input areas in industrial decarbonisation, EV load, irrigation load and heat pump load.
- Other key inputs used are Meridian's WACC, assumptions around future electricity prices (using time weighted average price per kilowatt hour), CPI, and Meridian's expected market share.

Management Actions

Meridian is enabling electricity demand from the electrification of industrial heat and transport, and the scaling of VPP.

Initiatives include:

- A process heat electrification offer.
- A Zero EV charging network.
- The development of home and business EV charging solutions.
- The development of solar and battery and hot-water flexibility solutions.
- Development of VPP.
- Growing Meridian's generation development pipeline to underpin anticipated demand growth.

Related Targets:

1,000GWh of process heat under contract by FY30.

420 Zero public charge points (including 125 high-capacity DC charge points) by the end of FY25.

20,000 residential customers on demand-flex product by FY26.

Grow retail customer base to 500,000 connections by FY30.

Deliver 500MW of generation capacity from existing assets by FY28.

Seven new renewable generation projects underway by 2030.

Metrics

Process heat in GWh agreed under contract and as a percentage of total retail sales volume: **FY24:** 525GWh, 6%.

Metric trend: This is a new metric so comparatives have not been disclosed.

Method and assumptions: This metric calculates total process heat in GWh under contracted agreements. These have then been converted to a percentage of annual retail volumes to help show the scale of current/future conversions. The amount presented represents conversion under agreements and does not represent how much has already been converted to date. In previous years our metrics have focused on process heat under any form of agreement (including Memorandum of Understanding).

FY24: 328 Zero public charge points available, $2M of EV charging assets (FY23: 235[7] Zero charge points, $1M assets, FY22: 90 Zero charge points, $0M assets).

Metric trend: The number of EV charging points and asset base has been growing from FY22 to FY24 as Meridian has been actively focusing on growing its EV network.

Method and assumptions: This metric counts the number of EV public charging points available as part of Meridian's Zero EV charging network. The value of assets is based on the net book value of EV charging assets held on Meridian's fixed-asset register at year end.

FY24: 0% of residential customers on demand-flex products (FY23: 0%, FY22: 0%).

Metric trend: Residential demand-flex products that reward flexibility are a new area of strategic focus for Meridian in FY24 and make up less than 1% of the total residential customer base. FY23 and FY22 customers were negligible.

Methods and assumptions: This metric calculates the number of Meridian customers on a demand-flex product as a percentage of total residential consumer connections. 'Demand-flex' has been defined as any product or offering to residential customers that rewards flexibility.

6 Meridian has refined its methodology for quantifying this opportunity compared to that used in FY23. The key changes are presenting impacts at a revenue level rather than margin level, and the inclusion of the WMO Devo model (proxy for the Hot House scenario).
7 Comparative numbers have been re-stated from FY23.

Table 7. Transition opportunities continued.

TO 2 – Sustainability leadership and environmental, social and governance (ESG) performance
Opportunity to increase Meridian's value through leadership in ESG and sustainability being perceived positively by stakeholders.

Summary	Opportunity Rating	Anticipated Impacts Time Horizon	Materiality
Meridian is committed to sustainability and ESG performance. As these factors become increasingly important to investors and consumers, Meridian may gain reputational advantages over less mature organisations.	• Overall rating: High. • Net Zero Revolution: Extreme. • Adaptive Evolution: Extreme. • Hot House: Extreme.	Short term (now–2030)	This is a key opportunity to Meridian with performance reporting and improvement plans having oversight up to Board level. It is a measured performance area in the shared Executive Scorecard.

Current Impacts

As captured in the Strategy section of this report, Meridian continues to prioritise sustainability at the heart of its strategy.

This is recognised by external stakeholders with Meridian maintaining its inclusion in the S&P Dow Jones Sustainability Asia/Pacific Index while maintaining the top position on Forsyth Barr's analysis of New Zealand's largest listed entities' Carbon & ESG rankings.

In FY24 Meridian also increased its internal resourcing in the sustainability and climate space so that it delivers improved outcomes. It has commenced a project to implement ESG software to support increased resourcing and lift efficiency while refocussing people on improving ESG outcomes.

Meridian has actively participated in the Aotearoa Circle energy sector group, contributing to the development of climate scenarios relevant to the New Zealand energy industry.

Actual financial impact: Not quantified.

Quantification methodology: With significant uncertainty associated with any quantification method, Meridian has not quantified the current impacts of this opportunity.

Anticipated Impacts

Meridian expects to see a continued opportunity to improve its sustainability impacts and reputation through its position on sustainability.

Anticipated financial quantified impact: Not quantified.

Quantification methodology: Meridian expects the value associated with strong ESG leadership to be significant. However, due to the significant uncertainty associated with any quantification method, Meridian has opted not to disclose an indicative figure for the anticipated financial impacts of this opportunity described qualitatively above. It is expected this opportunity could lead to increased share price and enterprise value. However these are both dependent on a significant number of variables, and it is difficult to isolate the impacts of this opportunity.

Management Actions

Meridian is aiming to continue to lift its ESG performance, and as it does so, aim towards inclusion in the S&P Dow Jones World Index.

Meridian aims to improve the quality and efficiency across ESG reporting through the rollout and implementation of new ESG software, while continuing to prepare and disclose ESG reports that include key climate-focused public disclosures in its Integrated Annual Report, Climate-related Disclosure report, GHG Inventory report and Climate Action Plan.

Meridian is planning to continue work on delivering ESG initiatives and ensuring they are prioritised throughout the business, including further development and delivery on its Climate Action Plan.

Related Targets:

Achieve inclusion in the S&P Global Dow Jones World Sustainability Index by FY26 (2025 submission).

Interim target: Achieve inclusion in the S&P Dow Jones Sustainability Asia Pacific Index Upper Quartile – top 25% by FY25 (2024 submission).

GHG Emissions targets – refer table 9.

Internal Emissions Price target – refer table 13.

Metrics

FY24: $1M of Meridian expenditure aligned to this opportunity (FY23: $1M, FY22: $0M).

Metric trend: Meridian's expenditure has increased from FY22 levels. Increased spend is consistent with the business's focus on delivering ESG leadership and performance.

Method and assumptions: This metric has been calculated using spend directly linked to Meridian's Sustainability team. This team is responsible for a range of initiatives relating to sustainability, and accordingly this spend includes some matters that do not relate directly to climate change. Meridian notes across the business there are a wide range of initiatives which indirectly also link to this opportunity. These have not been included in this calculation. Refer to Capital Deployment metric for capital spend on emissions reduction initiatives.

FY24: Achieved inclusion in S&P 2023 Dow Jones Sustainability Asia Pacific Index (FY23: Achieved inclusion, FY22: Achieved inclusion).

Metric trend: Meridian has consistently achieved inclusion in the Asia-Pacific index across the past three years of comparative data.

Method and assumptions: The index inclusion in FY24 relates to the 2023 submission. Inclusion is given to the highest scoring 20% of the 600 largest entities in the Asia Pacific region. The index adopts a robust and structured ESG framework to assess performance.

Meridian uses the metric of inclusion on the index as an independent measure of its ESG performance.

Transition plan aspects of Meridian's strategy

What is a transition plan?

The **New Zealand Climate Standards** define a transition plan as an aspect of an entity's overall strategy that describes an entity's targets, including any interim targets, and actions for its transition towards a low-emissions, climate-resilient future.

Transition planning is about the repositioning and transformation of an entity's business model and strategy in response to climate-related risks and opportunities. It means exploring the options available, charting a pathway informed by the different risks and opportunities identified, and taking tangible actions (External Reporting Board, Staff Guidance: Transition Planning: Questions to get started – August 2023).

Capital deployment aligned with transition plan

The extent to which transition plan aspects of Meridian's strategy align with capital deployment is provided in Table 12 on pages 39 to 40. We have a planned spend (out to FY26) for key aspects of our transition plan that are aligned with material capital deployment in the future. The time horizons for our planned spend align with Meridian's short-term (1-5 year) business planning horizon described earlier in this section. We aim to provide more information about estimated capital deployment towards transition plan aspects of our strategy in future reporting years. We discuss the extent of the alignment between the transition plan aspects of our strategy and funding decision-making processes earlier in the Strategy section on page 11.

*Our purpose**

Meridian's purpose of Clean energy for a fairer and healthier world is at the centre of our journey to a resilient, net zero future.

Our priorities

Renewable generation

Customer decarbonisation

Manage our emissions and build capability

Our key initiatives

Renewable energy development pipeline
Creating a pipeline of resilient grid-scale projects for construction. Our '7 in 7' first horizon goal aims for seven projects in seven years to 2030.

Construction of new generation assets
Beginning with Harapaki wind farm, we're building new assets to increase the supply from our existing 100% renewable energy asset base.

Grow system flexibility – grid scale
Enhancing the capability of our assets – 500MW by the end of FY28 – and increasing overall system flexibility via demand response.

Grow system flexibility – customer
Helping to create a more flexible energy system that delivers cheaper, cleaner energy for our customers.

Electrify transport and heat
Helping businesses replace fossil fuel boilers, growing the EV charging network and making it easier for homes and businesses to drive electric.

Increase access to energy and community good
Investing in our programmes to reduce energy hardship and supporting communities to decarbonise.

Construction emissions
Staying focused on minimising emissions and waste as we grow.

Half by 30
Halving total Scope 1, 2 and 3 operational emissions by FY30 from a FY21 baseline**. Work to our new Net Zero by 2050 target.

Forever Forests
Growing a permanent, and over time 100%, native forest sink for our emissions.

Build capability
Growing capability to reduce emissions and adapt to climate change impacts across Meridian and our suppliers.

Resilience We are improving our climate resilience across the key initiatives related to risk assessment and adaptation planning for our sites, and our supply chain.

Actions and targets to manage our climate-related risks and opportunities

Actions that Meridian will continue to take, is exploring, or plans to take in the future **in response to** specific **climate-related risks and opportunities** identified through our climate scenario analysis. These actions are described in the 'management actions' column in Tables 4–7 on pages 17 to 28 in the Strategy section of this report. There is overlap between the management actions and our key initiatives.

Targets associated with **reducing** our **vulnerability to climate-related risks** and **increasing** our **alignment with climate-related opportunities**. These targets are described in Table 9 through Table 13 in the Metrics and Target section of this report.

Capital deployment

Planned **capital deployment** towards managing climate-related risks and opportunities, and towards transition plan aspects of our strategy. Provided in Table 12 on pages 39 to 40 in the Metrics and Targets section of this report.

Other climate-related targets

Targets to increase our internal emissions price (IEP), described on page 41 in the Metrics and Targets section of this report.

Targets to increase the weighting of the climate-related components of Meridian's Executive Scorecard. Described on page 38 in the Metrics and Target section of this report.

* Our purpose statement is aspirational in nature and is not a formal target or summary of Meridian's current performance.
** The Half by 30 target excludes all Scope 3 one-time construction emissions from major projects and all activities that are capitalised as part of renewable energy projects.

Transition plan – Meridian's priorities

Meridian's priorities for transition planning and related key strategic initiatives are outlined in more detail in this section.

Improving climate resilience

Underpinning all three of our key transition plan strategy initiatives is an underlying aim to improve climate resilience. Key initiatives include:

- By FY30 we plan to complete climate risk assessments and develop climate adaptation plans for all our key operational sites and new development sites. To do this we intend to create a framework to determine how vulnerable these sites are to the physical impacts of climate change, such as extreme weather. For more information about progress towards this target refer Table 15 on page 42 in the Metrics and Targets section.
- This year we initiated a supplier ESG programme – Good Energy Programme – with the aim of enhancing sustainability outcomes through our supply chain. Having set up the programme, we plan to spend the year ahead looking at emissions and climate risk (including physical risks), training for our key buyers and strengthening our contracts. It will be a multi-year journey and we plan to review the project annually to determine progress and next steps. For more information about related targets refer Table 15 on page 42 in the Metrics and Targets section.

Additional actions to manage our physical climate-related risks are described in the 'Management Actions' column in Table 4 on pages 17 to 20 of the Strategy section.

Renewable generation

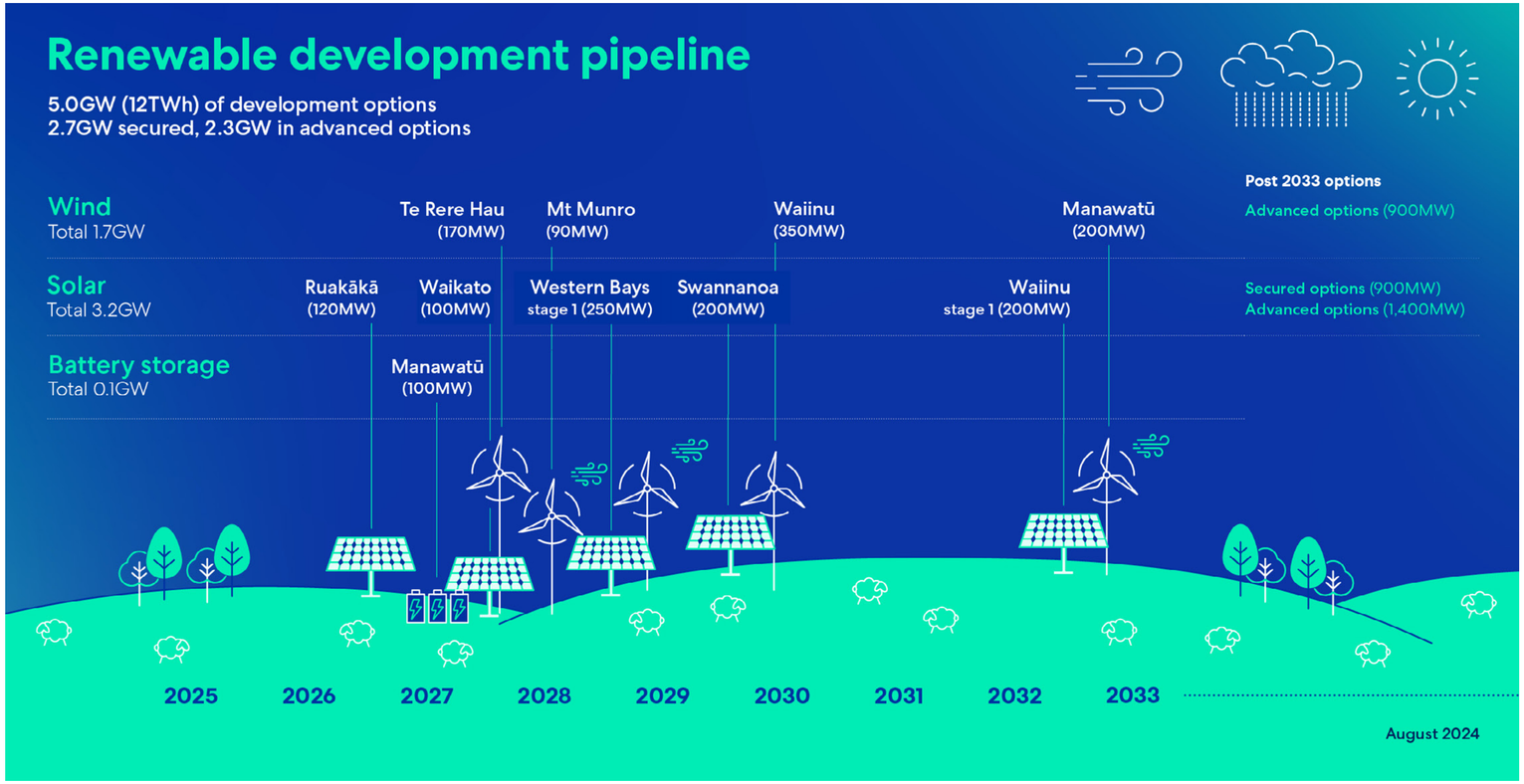
Fully electrifying the Aotearoa New Zealand economy will take collective effort and long-term partnerships. From an economic perspective, New Zealand's national long-term target of Net Zero emissions by 2050 will require around $30 billion of investment in new renewable generation from the sector.

Renewable energy development pipeline

Our pipeline amounts to 5GW (12TWh) of development options. Demand forecasts may see the requirement for up to an additional 30TWh of new generation to come online by 2050. Meridian's pipeline of existing development options equates to approximately a third of this increase.

Build new generation

We are currently on track to deliver our target of 7 in 7, which is our plan to have seven new large-scale renewable generation developments underway by 2030.



The Harapaki wind farm is already operating. We also expect to commission a grid-scale BESS at Ruakākā Energy Park near Whangārei, by early 2025 calendar year. For more information about our 7 in 7 target and progress against this refer Table 15 on page 43 in the Metrics and Targets section of this report. Information about capital deployment towards projects that increase renewable development/storage capacity is available in Table 12 on page 39.

Grow system flexibility – grid scale

In addition to bringing on new capacity, it's important that we maximise our use of existing assets. We have a target to deliver 500MW of restored and new capacity from our generation portfolio by FY28. For more information about this target and progress against this target refer Table 15 on page 43 in the Metrics and Targets section of this report

Transition plan – Meridian's priorities continued

Customer decarbonisation

Grow system flexibility – customer

To help achieve our country's climate change targets, we need to get smarter about how we use our energy and manage capacity. We continue to look for and find ways to pass value on to customers, including ways through which our customers can actively participate in the electricity market through more flexible energy options. Our target is to have 20,000 customers on demand flex products by the end of FY26. For more information about this target refer Table 15, on page 44 in the Metrics and Targets section.

Electrifying transport and heat

Our Process Heat Electrification Programme is on-track, with 525GWh under contract at the end of FY24. For more information about targets related to this programme refer Table 15 on page 44 in the Metrics and Targets section.

This year, we've been trialling a demand flexibility product that enables households with EVs to participate in a 'virtual power plant'. Customers who participate help to alleviate strain on the grid during peak demand periods and are paid for their support.

EV charging is an important factor in transport electrification. Our Zero EV charging network is the second largest in the country and its ongoing expansion will help remove a barrier for those who want to drive electric. For more information about targets related to EV charging infrastructure refer Table 15, on page 44 in the Metrics and Targets section. Information about capital deployment towards investment in energy solution projects, including EV charging, is available in Table 12 on page 39 in the Metrics and Targets section.

Certified renewable energy and community funding

Meridian's Certified Renewable Energy product allows our customers to match the electricity they use from the grid, with an equivalent amount of electricity produced by Meridian from our hydro stations and wind farms – which have been independently verified as producing 100% renewable energy[8]. The net proceeds from this product are invested back into business and community decarbonisation projects. For more information about spend of the net proceeds refer Table 12 on page 40 in the Metrics and Targets section.

Commercial scale solar

We support our large customers with commercial-scale solar solutions. We offer payment flexibility with a buy-now option or customers can choose a Power Purchase Agreement with no upfront capital costs. Information about capital deployment towards investment in energy solutions projects, including commercial solar, is available in Table 12 on page 39 in the Metrics and Targets section.

Increasing community good

Meridian has an Energy Wellbeing Programme that provides flexible support to Meridian households who are experiencing energy hardship. This is a key initiative described in our Strategy Map on page 10.

One of our 328 Zero EV charge points, Days Bay, Te Whanganui a Tara Wellington.

8 Certified supports businesses aiming to report their market-based Scope 2 emissions as zero, using the market-based methodology as per the GHG Protocol Scope 2 Guidance. This Guidance highlights that where market-based method is used for reporting, the location-based method reporting must also be applied.

Strategy continued

Transition plan – Meridian's priorities continued

Manage our emissions and build capability

Our priority is to reduce our own emissions and ensure we are prepared for the impacts of climate change.

Construction emissions

More information about our targets for reducing one-off construction emissions is available in Table 9 on page 37 in the Metrics and Targets section.

Half by 30

Half by 30 is Meridian's interim GHG emissions target, approved by the Science Based Targets initiative (SBTi) in 2022, to reduce operational emissions by 50% by the end of FY30 (excluding all one-time construction emissions from major projects and all activities that are capitalised as part of renewable energy projects).

The Half by 30 goal is a significant challenge and our ability to meet it is uncertain. Recognising this, we're planning our actions across three time horizons – and FY24 marks the end of Horizon 1. We expect to achieve the biggest reductions later in the decade due to the Scope 3 emission reductions needed, and are aware of the challenges this will present at a time in which our business and the sector are experiencing growth. Despite making significant progress in some areas we have been challenged in others and we have not met our first horizon emissions goals.

We recognise this target is a multi-year challenge that requires focus and innovation. More information about our transition plan in place to achieve this target is provided on page 33 below. For more information about progress against our Half by 30 targets refer pages 35 to 36 in the Metrics and Targets section.

Net Zero

Meridian Energy has set longer term emissions reduction targets. We have submitted these targets to the SBTi for Net Zero independent verification and expect to hear the verification outcome in early FY25. In setting these targets we made some key assumptions based largely on: reviewing recent SBTi standards around Net Zero requirements, what Net Zero commitments have or have not been set by our existing suppliers, and considering the plausible technology solutions which may become available over this longer time horizon. For example, a number of our larger suppliers have committed to set net zero targets, and Net Zero SBTi standards are asking organisations to be clear on the key attributes of their net zero targets and Science Based Targets no later than 2050. We expect many others to be aligning themselves with this guidance. Given our 2050 targets are newly set we have not yet developed a detailed plan beyond FY30 for achieving these targets. Our plan to achieve our interim Half by 30 targets is outlined in more detail on page 33 below.

Forever Forests

Since 2019 we have invested in planting permanent forests in Aotearoa through our Forever Forests programme, with the aim of creating our own carbon sink. For more information about the Forever Forests programme and related targets, refer Table 9 on page 37 of the Metrics and Targets section. Information about capital deployment towards emissions reductions or offsets, including Forever Forests, is available in Table 12 on page 40 in the Metrics and Targets section.

Build capability

Meridian has broader objectives to help prepare for and adapt to the impacts of climate change. One example is our aim to build stronger relations with tangata whenua. This is a key initiative described in our Strategy Map on page 10.

Forever Forest planting.

Strategy continued

Transition plan – Meridian's priorities continued

Half by 30 – strategy and assumptions

In Horizon 1 we focused on:

- Emissions we can control directly or over which we can have the greatest influence, such as emissions from our vehicle fleet, air travel and ferry. We are bringing the world's first electric hydro-foiling ferry to Manapōuri, which is expected to start operating in 2025 and to save 240 tCO_2e annually.
- Where we can reduce emissions now. For example, the salmon farms that operate in our hydro canals switching to electric power rather than diesel.
- Enabling reductions later in the decade by starting strategic projects that will take time and require working with others.

In FY24 we had some targeted conversations with others in the sector to help us further understand the shared challenge of sulphur hexafluoride (SF6) – a highly potent fugitive emission found in transformers and switchgear. We also started our Supply Chain – Good Energy Programme, which is designed to build ESG supplier capability. Its initial focus is on helping suppliers learn how to measure and reduce emissions, and set emission-reduction targets.

We plan to step up our work on these strategic projects and on-farm emission reductions in FY25 (the start of Horizon 2), with assistance from our new Farming Engagement and Climate Action Lead.

Key milestones are:

- Implement our Meridian SF6 Roadmap action to detect emission leakage earlier.
- Start training Meridian's key buyers and suppliers in ESG and strengthen our approach to contracts and screening.
- Create action plans for all pastoral-based farms in our inventory and craft a plan to 2030 that reduces emissions.

We plan to focus on reducing emissions in all focus areas – including air travel, land transport, waste and the decarbonisation of our barge. The table below sets out key areas that will need to be met in order to ensure we reach the Half by 30 target.

Overall our emissions (excluding all one-time construction emissions from major projects and all activities that are capitalised as part of renewable energy projects) increased by 14% in FY24 on the previous year, 15% on our FY21 base year emissions, and 38% above our Horizon 1 forecast. These results are confronting and show the challenge and uncertainties surrounding decoupling business growth from emissions growth. As the sector grows to meet the transition to a net zero world, this new activity will drive the overall emissions and Meridian's share of that growth via the methodology used. We are looking to ensure we clearly report our progress as we rise to this multi-year challenge.

In FY25 we plan to review and update our assumptions and abatement forecasts to 2030, including the anticipated reductions across Horizon 2 and 3. We remain committed to our Half by 30 target.

More information about progress against our Half by 30 targets is available in Table 9 on page 36 in the Metrics and Targets section.

Planned approach for CO_2e reductions

	Land transport Scope 1 & 3	**Farm emissions** Scope 3	**Fugitive emissions** Scope 1 & 3	**Air travel** Scope 3	**Ferry and barge** Scope 1 & 3	**Waste and balance emissions** Scope 3
Horizon 1 FY22–24	Electrify Meridian's light fleet; refresh offer supporting staff to reduce emissions	Salmon farm electrification New Meridian farm climate action lead role	Meridian SF6 Roadmap (mitigation phase)	Set and manage annual air travel emission budgets Improve staff awareness and tools	Agreement for electric Manapōuri ferry	Support data quality improvements
Horizon 2 FY25–27	Decarbonisation of supplier fleet and balance of Meridian fleet Keep supporting staff to reduce commuting emissions	Develop Meridian farm strategy and farm action plans, with emission-reduction roadmaps to 2030 Improve data quality	Progress opportunities identified to accelerate SF6 emission reductions, including through collaboration	Support efforts to decarbonise domestic air travel Continue Meridian air budget management	Due diligence on tug decarbonisation options	Good Energy Programme – improve supplier emission-reporting capability and target setting
Horizon 3 FY28–30	Decarbonisation of supply chain heavy fleet	Implement and review farm strategy and action plans, leveraging new technologies and practices to reduce emissions	Momentum and evolution of SF6 action	Explore market-based options for air travel decarbonisation	Implement tug decarbonisation options	

Metrics and Targets

Greenhouse gas emissions

Meridian prepares an annual GHG Inventory, including scope 1, 2 and 3 emissions. A summary of these emissions is reproduced from its GHG Inventory in Table 8.

Meridian's GHG Inventory is stated in accordance with the requirements of:

- ISO 14064- 1:2018: Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals.
- the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004).
- the Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011).

The boundaries for Meridian's GHG emissions inventory were set with reference to the methodology described in the GHG Protocol and ISO14064-1 standards. The boundary encompasses the operations owned or controlled by Meridian, its subsidiaries, associate companies and joint ventures.

Meridian applies the operational control consolidation approach to the Meridian Group emissions inventory. Meridian's diverse activities and resulting emissions are categorised into "facilities" (in line with Annex A of ISO14064-1). A facility is an operation which, by the nature of its processes or geography, can be separately accounted for. ISO 14064-1 defines a Facility as: "a single installation, set of installations or production processes (stationary or mobile), which can be defined within a single geographical boundary, organisational unit or production process."

For the financial year ended 30 June 2024 these facilities are:

- Meridian NZ.
- Flux NZ.
- Te Rere Hau LP.

For more information about the breakdown of Meridian's facilities, refer Section 6.3, page 13 and Appendix 1 and Appendix 2 on page 34 of Meridian's FY24 **GHG Inventory**.

Emission factors and global warming potential (GWP) rates used in the preparation of Meridian's GHG Inventory are outlined in Section 11, page 22 of its **GHG Inventory**. In summary, the emission factors used were sourced from Ministry for the Environment (MfE, New Zealand) or Department for Business, Energy & Industrial Strategy (DBEIS, United Kingdom), unless otherwise stated in Section 11, page 22 of our **GHG Inventory**. GWP is taken from the IPCC Fifth Assessment report.

A summary of emissions source exclusions and justification for exclusions is available in Section 10, page 21 of Meridian's FY24 **GHG Inventory** (available on Meridian's website). For more information about the methodology, assumptions, data quality and uncertainty associated with emissions source inclusions, refer Section 9 on pages 16 to 20 of Meridian's FY24 GHG Inventory.

For information about estimation uncertainties and the effects of these uncertainties on the GHG emissions inventory, refer Section 12 on page 23 of Meridian's FY24 GHG Inventory.

GHG emissions metric trends

Total operational emissions (excluding energy purchased and on-sold and one-time construction emissions (location based)) trended slightly downward between FY22 and FY23 with a reduction of 1,769 tCO_2e. Total operational emissions then trended upwards between FY23 and FY24 with an increase of 4,666 tCO_2e. Total group value chain emissions (including all Scope 1, 2, and 3 emissions (location based)) has trended upwards each year from FY22 to FY24, with the largest increase of 65,662 tCO_2e occurring between FY23 and FY24. The increases in total group value chain emissions each year are largely attributable to increases in one-time construction emissions each year. Meridian's total electricity generation (GWh) has remained relatively steady between FY22 and FY24 with some year-to-year fluctuations. The emissions from fuel used to generate electricity (tCO_2e) and generation emissions intensity (tCO_2e/GWh of generation) has remained at 0 between FY22 and FY24, as Meridian uses only renewable energy to generate electricity.

Table 8. FY24 GHG emissions (including industry-based emissions metrics).

Business activity	Scope	FY21 tCO_2e (base year)	FY22 tCO_2e	FY23 tCO_2e	FY24 tCO_2e
Operational	Scope 1	1,020	643	1,191	1,060
	Scope 2 (location-based)	2,353	1,761	1,208	1,313
	Scope 3 operational	31,812	33,920	32,156	36,848
	Subtotal	35,185	36,324	34,555	39,221
Energy purchased and on-sold*	New Zealand electricity	0	0	0	0
One-time construction	Scope 3 one-time construction	285	8,243	14,295	75,291
Total Group value chain emissions (S1, 2 & 3)**		35,470	44,567	48,850	114,512

Additional indicators	FY22	FY23	FY24
Electricity generation (GWh) Meridian NZ	13,557	13,903	13,565
Emissions from fuel used to generate electricity (tCO_2e)	0	0	0
Generation emissions intensity (tCO_2e/GWh of generation)***	0	0	0

Note: All numbers in the table above have been assured by Deloitte. Refer Page 35 under 'Assurance' for more information.

* Emissions of Meridian's retailed electricity using the market-based methodology. In New Zealand we use the annual netting off methodology. An explanation of the annual netting off methodology is available in Section 11, page 22 of our **GHG Inventory report**.

** Total emissions shown in table above differs from that shown in GHG Inventory report, as the table above uses the location-based methodology for Scope 2 emissions. An explanation of market-based versus location-based methodologies is available on page 5 of our **GHG Inventory**. Note that Meridian offsets its total market-based Scope 2 emissions (2 tCO_2e for FY24) but not its total location-based Scope 2 emissions (1,313 tCO_2e for FY24). All emissions exclude historical Meridian Australia emissions (business sold end January 2022). Comparative numbers have been re-stated in the table above where required.

*** Meridian's generation emissions intensity is calculated using an industry-accepted metric. The GHG emissions included are those from the fuel used in generation. As Meridian uses only renewable energy to generate electricity, this is 0%.

Metrics and Targets continued

Restatements

Scope 3 operational emissions for FY21 (base year), FY22, and FY23 have all been restated for FY24 due to using new emissions factors for purchased goods and services and couriers. The baseline year and comparatives for Scope 2 have also been restated using the location-based method, when in previous Climate Disclosures we provided market-based Scope 2 emissions. More information about our baseline year (FY21), the restatement of our baseline year emissions (FY21), and restatement of comparatives (FY22 and FY23) is available in Section 13 on page 23 of Meridian's FY24 **GHG Inventory**.

Assurance

Meridian's GHG Inventory is subject to independent assurance by Deloitte Limited in accordance with International Standard on Assurance Engagements (New Zealand) 3410 (revised): Assurance Engagements on Greenhouse Gas Statements ('ISAE (NZ) 3410'), issued by the New Zealand Auditing and Assurance Standards Board. In FY22 and FY23 Deloitte provided 'Reasonable' assurance over Meridian's Scope 1, Scope 2 and Scope 3 GHG emissions. In FY24 Deloitte provided 'Reasonable' assurance over Meridian's Scope 1 and Scope 2 emissions, and 'Limited' assurance over Meridian's Scope 3 emissions. This change in assurance levels is due to a global shift in standards on increasing verification required over third-party data. It is expected that from FY25 Deloitte will provide assurance on GHG emissions using the New Zealand Standard on Assurance Engagements 1: Assurance Engagements over Greenhouse Gas Emissions Disclosures. This Standard will apply for accounting periods ending on or after 27 October 2024.

Half by 30 – interim targets

Meridian has interim SBTi verified GHG reduction targets of halving FY21 operational emissions by FY30, which includes a 50% Scope 1 and 2 reduction, and a 50% Scope 3 reduction (excluding all Scope 3 one-time construction emissions from major projects and all activities that are capitalised as part of renewable energy projects). These targets are referred to as our 'Half by 30' targets. Meridian has had approval from the SBTi that its target to reduce absolute Scope 1 and 2 GHG emissions by 50% by FY30 from a FY21 base year is in line with a trajectory that limits global warming to 1.5°C. The SBTi has noted our further target to also reduce absolute Scope 3 GHG emissions by 50% in the same timeframe. Our Half by 30 targets (with the exclusions noted above) are absolute targets, which means they do not rely on offsets.

Interim targets – one-off construction

A significant portion of Meridian's emissions come from its one-off construction projects. Meridian aims to reduce these construction emissions where possible. Refer to Table 9 for detail on our short-term, one-off construction project targets. Meridian's Scope 3 one-time construction emissions from major projects and activities that are capitalised as part of renewable energy projects are excluded from our Half by 30 targets.

Net Zero targets

Meridian has also set longer-term emissions-reduction targets (new in FY24). A target has been set to reduce absolute Scope 1 and 2 emissions by 90% by FY40 from a FY21 base year. A further target has been made to reduce absolute Scope 3 emissions by 90% by FY50 from an FY21 base year. The FY50 absolute Scope 3 target includes one-time construction emissions. We have submitted these targets to the SBTi for independent verification as aligning with their Corporate Net Zero Standard and expect to hear the verification outcome in early FY25.[9] These long-term targets are absolute targets, which means they do not rely on offsets.

Forever Forests

Since 2019 we have invested in planting permanent forests in Aotearoa through our Forever Forests programme. Our aim is for the Forever Forests programme to provide enough units by FY30 to offset the remaining emissions (50%) not abated via our FY30 absolute emission reduction targets of reducing our Scope 1 and 2 emissions by 50% by FY30 and our Scope 3 emissions by 50% by FY30.

Simulation of our electric hydro-foiling ferry currently under construction.

9 It is currently anticipated that the Scope 3 target which is awaiting SBTi verification outcome may be slightly smaller in scope than Meridian's total Scope 3 emissions. This is due to Meridian including a broader scope in what makes up Scope 3 emissions than SBTi's 'minimum boundary' Scope 3 Net Zero categories.

Metrics and Targets continued

Table 9. GHG Emissions targets.

	Target	Baseline and Comparatives	Performance	Methods/Assumptions
Half by 30: GHG gross operational emissions – interim target. Target supports climate-related opportunity: TO 2 (refer Table 7 in Strategy Section)	Half by 30 – SBTi verified targets: • Reduce absolute Scope 1 and 2 GHG emissions by 50% by FY30 from a FY21 base year, in line with a 1.5°C trajectory. • Further target of reducing absolute Scope 3 GHG emissions by 50% within the same timeframe.	Baseline (FY21): Scopes 1 + 2* = 1,034 tCO_2e Scope 3** = 31,812 tCO_2e Total = 32,846 tCO_2e FY22: Scopes 1 + 2* = 645 tCO_2e Scope 3** = 33,920 tCO_2e Total = 34,565 tCO_2e (5.2% increase on FY21) FY23: Scope 1 + 2* = 1,193 tCO_2e Scope 3** = 32,156 tCO_2e Total = 33,349 tCO_2e (1.5% increase on FY21)	FY24: Scopes 1 + 2* = 1,062 tCO_2e Scope 3** = 36,848 tCO_2e Total = 37,910 tCO_2e (15.4% increase on FY21) For a breakdown of our FY24 emissions by business activity and facilities see pages 6 and 7 of our **GHG Inventory**. In FY24 we exceeded our forecast FY24 operational emissions in line with our plan to Half by 30 by 10,510 tCO_2e (38%). The biggest increase compared to FY21 baseline was in upstream transportation and distribution which increased by 7,351 tCO_2e or 66%. We are currently not on track in meeting the Half by 30 targets. For more information on our Half by 30 performance refer to Section 17, page 30 of our **GHG Inventory**.	**Method of calculation:** Meridian's emissions are calculated using the operational consolidation approach and stated in accordance with the requirements of ISO 14064-1:2018 –Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of GHGs and removals, the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011). Percentage increases have been rounded to the nearest 1 decimal place. **Assumptions:** The Half by 30 targets apply to Scope 1, 2, and 3 operational emissions only. One-time construction emissions and activities that are capitalised as part of renewable energy projects are excluded from the targets and the performance calculations. Meridian's plan to achieve its Half by 30 targets and associated uncertainties are outlined on pages 32 to 33 in the Strategy – Transition Plan section.
Net Zero 2050: GHG emissions target – long-term Target supports climate-related opportunity: TO 2 (refer Table 7 in Strategy Section)	Longer term targets (awaiting SBTi verification outcome): • 90% reduction in absolute Scope 1 and 2 emissions by FY40, from an FY21 baseline. • 90% reduction in absolute Scope 3 emissions by FY50, from an FY21 baseline.	Baseline (FY21): Scope 1 and 2* = 1,034 tCO_2e. Scope 3** = 32,097 tCO_2e *(Scope 3 operational = 31,812 tCO_2e, Scope 3 one-time construction = 285 tCO_2e)* As our long-term targets are new for FY24, we have not provided prior year comparatives for progress against these targets.	FY24: Scope 1 + 2* = 1,062 tCO_2e (2.7% increase on FY21) Scope 3** = 112,139 tCO_2e (249.4% increase on FY21) *(Scope 3 operational = 36,848 tCO_2e, Scope 3 one-time construction = 75,291 tCO_2e)* For a breakdown of our FY24 emissions by business activity and facilities see pages 6 and 7 of our **GHG Inventory**. As our Net Zero targets are new, we have not yet developed a detailed forecast for achieving these targets against which to measure year-on-year performance. We have seen a large increase (+249.4%) from the FY21 baseline in FY24 Scope 3 emissions. As this target includes one-time construction emissions, it is anticipated that emissions will fluctuate significantly from year-to-year depending on construction timelines.	**Method of calculation:** As for the Half by 30 targets above. **Assumptions:** Given our long-term 2050 targets are newly set we have not yet developed a detailed plan for achieving these targets. Achieving our long-term 2050 targets is dependent on a number of factors, including: • Obtaining increased visibility over Meridian's supply chain (expected through Supplier ESG programme) • Organisations across Meridian's supply chain also committing to aligned Net Zero targets. • Stable policy settings and regulatory environment, both in New Zealand and globally. • Power sectors in other countries decarbonising to enable reduced embodied emissions from foreign purchased goods. • Future technology improvements to enable the decarbonisation or minimisation of transport emissions from the construction process.

* Scope 2 market based emissions used to monitor progress as our Half by 30 and Net Zero targets use the market based method for Scope 2. Comparatives for Scope 2 market-based emissions for FY21 and FY22 have been restated from the figures provided in our FY21 and FY22 GHG Inventory reports to exclude emissions from our Australian business (sold January 2022).
** The baseline and comparatives for scope 3 operational emissions have been restated from last year's reporting due to using new emissions factors for purchased goods and services and couriers.

Metrics and Targets continued

Table 9. GHG Emissions targets continued.

	Target	Baseline and Comparatives	Performance	Methods/Assumptions
Reduction of emissions for one-off renewable energy projects Target supports climate-related opportunity: TO 2 (refer Table 7 in Strategy Section).	FY24 Harapaki project: a) Emissions /100km travelled <25kg CO_2/100km (excludes site plant and machinery). This is an intensity target. b) >One continuous improvement per quarter that leads to tangible sustainability benefits. FY24 Ruakākā project: c) Emissions target for plant and machinery of 2lm3 (2 litres of diesel per cubic metre of material moved). Equates to 2l/5.39kgCO_2e/m3. This is an intensity target. d) >Five continuous improvements per quarter that leads to tangible sustainability benefits.	FY22: 8,243 tCO_2e (Harapaki emissions). Ruakākā not yet in construction. FY23 Harapaki: a) 20kgCO_2e CO_2/100km (target achieved). b) One per month (KPI achieved). FY23 Ruakākā: c) Emissions plant and machinery 1.8lm3 (target achieved). d) Ruakākā project was in the construction phase in a minority of FY23 (KPI not applicable).	FY24 Harapaki: a) 22.81kgCO_2e CO_2/100km (target achieved). b) Average of one per month (KPI achieved). FY24 Ruakākā: c) Emissions plant and machinery diesel per cubic meter not applicable during FY24, as project in civil works phase for majority of this period (target not applicable). d) Tangible sustainability benefits minimal for FY24 (KPI not achieved).	The intensity targets (for emission per 100km travelled and litres diesel per cubic metre of material moved) are focused on reducing the emissions associated with particular projects. Meridian has not undertaken an assessment to identify how these project-specific targets contribute to limiting warming to 1.5ºC. The targets have not been independently verified by a third party. The intensity targets themselves do not rely on offsets, however, the remainder of our construction emissions (not reduced via the intensity targets) are offset using Voluntary Emissions Reductions credits. Sources of uncertainty: · Historical data (FY22 and earlier) excluded some emissions elements (for example the construction of pond used for onsite water). · Data available for Harapaki only where contractors have provided km travelled. Not all km travelled data is available. · The Ruakākā project has only been under construction since March 2023, so there is no historical data available prior to this date. Method of calculation: Target on emissions per 100km travelled is calculated based on fuel consumption information provided from contractors, converted to kilograms of CO_2e. Target on litres of diesel used is calculated from information provided from contractors.
Forever Forests initiative Target supports climate-related opportunity: TO 2 (refer Table 7 in Strategy Section).	Create a supply of high-quality emission removals corresponding to Meridian's expected residual operational emissions by FY30 (circa 15,000 tCO_2e), also optimising other benefits such as biodiversity and social outcomes. 700,000 trees in the ground by the end of FY24. We have not set a new target for the number of trees in the ground beyond FY24, as this metric can vary widely year on year depending on supplies and planting conditions. From FY25 onwards we will focus on meeting our longer-term target to secure at least a 15,000 tCO_2e annual supply of credits from FY30.	Baseline: The target was last base-lined to FY21, consistent with Meridian's Half by 30 base-year target FY22: no credits received, on track for FY30 credit target. FY23: we secured 100% of the required land. 2,364 credits were received based on FY22; this equates to 2,364 tCO_2e (on target). We started receiving the first tranche of credits from 2020 plantings, with further planting registered with the Ministry for Primary Industries.	FY24: Trees in the ground equalled 450,000, which did not meet our target of 700,000 trees in the ground by the end of FY24. This was due, in part, to a shortage of seedling availability from nurseries – and has led to a re-phasing of our planting across FY24 to FY26. In FY24 we also introduced a new method of aerial-dropping seeds, which did not count towards our total trees in the ground. We sowed ~30 million native seeds in FY24. The number of trees in the ground by FY26 is forecast at 700,000. The FY24 credit balance is 3,617 tCO_2e. We are on track to meet our FY30 target.	The target around which this programme is designed to secure at least a 15,000 tCO_2e annually supply of credits from FY30. Sources of uncertainty include: · The scope of potential future policy direction and guidance on voluntary carbon markets. · Survival rate of plants. · Any significant delays in delivery of seedlings. Method of calculation: Based on credits at the end of FY24 compared to baseline (FY22) and compared to targets.

Metrics and Targets continued

Remuneration

Meridian's FY24 Integrated Report (available on its website) provides a detailed description of its approach to remuneration, and performance against the Board-approved Executive Scorecard. Executive remuneration includes a Short-term Incentive (STI) scheme, with a target incentive opportunity of 30% of salary for the Executive Team and 50% of salary for the Chief Executive Officer. In FY24, 40% of the STI is based on performance against the Executive Scorecard. Table 10 describes the alignment of climate-related risks and opportunities within each performance area in the scorecard.

Table 10. Executive Scorecard Summary FY24.

Performance Area	Description	Link to climate risks and opportunities – refer Tables 4 to 7	Weighting[10]
NZAS closure mitigation	Using Meridian's renewable energy advantage to fast-track New Zealand's decarbonisation – finding new demand sources to mitigate the impacts of potential NZAS closure.	Focus is on finding new sources of demand in South Island, including green hydrogen, and increasing process-heat electrification. Performance area supports management actions and targets related to climate risks and opportunities: TR 1, TO 1.	20%
Decarbonisation-led growth	Develop a high-quality, diverse suite of renewable energy options to underpin Meridian's renewable growth aspirations. Deliver the Harapaki wind farm and Ruakākā Battery Energy Storage System.	Focus is on supporting New Zealand's decarbonisation through new renewable generation flexibility and capacity. Performance area supports management action and targets related to risks and opportunities: TR 1, TR 2, TR 4, PR 2, TO 1.	20%
Customer	New Zealand's highest customer-satisfaction. Ensure our assets can meet the changing needs of both our retail ambition and a fully renewable New Zealand.	Partial focus on growing customer base for energy-innovation products – helping to increase demand-flex in the power system. Performance area supports management actions and targets related to risks and opportunities: TR 1, TR 2 and TR 4.	20%
Optimise business performance	Promote and execute options that optimise both system and portfolio needs while reducing transition risk. Deliver changes to our operating model to prepare for a fully renewable New Zealand.	Operational changes across parts of the business that support decarbonisation. Focus areas include lifting peaking capacity and delivering flexible outage planning. Performance area supports management actions and targets related to risks and opportunities: TR 1, TR 2 and TR 4.	20%
Sustainability	Grow a clear sustainability leadership position through purposeful action.	Focus is on strong ESG performance and achieving emission-reduction goals. Performance area supports management actions and targets related to risks and opportunities: TO 2.	10%
Investment stability	Meridian's regulatory, legal and government relations functions accelerate to improve New Zealand's decarbonisation transition.	Includes industry and other external influences to support the decarbonisation of New Zealand's economy at speed. Performance area supports management actions and targets related to risks and opportunities: TO 1 & TO 2.	10%

Meridian has set a target to increase Scorecard weightings linked to climate initiatives. The purpose of this is to ensure management is incentivised to achieve climate-related objectives.

Table 11. Executive Scorecard metric and target.

Metric	Methods/Assumptions	Target	Performance
FY24: 68% of Executive Scorecard performance areas were aligned to climate-related risks and opportunities (FY23: 59%, FY22: 40%)	Each performance area in the scorecard is broken down into a list of sub-initiatives. These initiatives have been assessed to determine whether or not they are climate related. We have then apportioned these initiatives evenly by the total weighting given to the performance area (e.g. if the performance area has a weighting of 20% and is split into four sub-initiatives, of which two are deemed to be climate related, the adjusted weighting would be 10% (20% multiplied by 2/4). The metric calculates the sum of each of these apportioned weightings. Judgement has been applied in determining whether the sub-initiatives are climate related, based on whether they mitigate or address a Meridian climate risk or opportunity. Note that performance against the scorecard accounts for 40% of the CEO/Executive STI.	Increase weighting of Executive Scorecard performance areas that align with climate-related risks and opportunities to 80% by FY27.	Progress against the target is overseen by the A&R and ultimately the Board. The baseline year for this target is FY24. The target is set for completion by FY27. **Metric trend and progress against target to date** The alignment of scorecard areas has increased from 40% in FY22 to 68% in FY24. This reflects the increasing focus in Meridian's strategy on climate-related initiatives. When setting the Executive Scorecard, the Board considers key initiatives that are designed to address material risks, opportunities and to execute Meridian's strategy.

10 The sum of the above may be varied based on workplace safety culture, overall workplace engagement and individual performance.

Metrics and Targets continued

Capital Deployment

Table 12 describes Meridian's capital expenditure and investment deployed towards climate-related risks and opportunities. The total capital expenditure towards increasing renewable generation capacity and storage capabilities and investing in energy-solutions projects and emission-reductions projects makes up 59% of Meridian's total FY24 property, plant and equipment capital spend (FY23: 85%, FY22 80%). The lower percentage in FY24 is due to capital spend on reconsenting in relation to the Waitaki hydro scheme.

Beyond business planning to FY26, Meridian does not currently set longer-term specific climate-related targets around capital deployment spend. Meridian's planned capital deployment spend for the two years to FY26 is disclosed in the table below, including a longer-term planned spend on delivering new development projects. Generally, Meridian's climate-related targets are based on actions or initiatives being delivered, rather than focusing on the associated capital spend.

Table 12. Climate-related capital deployment.

Category	Metric	Methods/Assumptions	Planned Spend	Planned Spend Detail	Link to climate risks and opportunities
Increasing renewable development/storage capacity projects	FY24: $215M (FY23: $273M[11], FY22: $113M)	This metric calculates capital spend on new renewable development projects. The majority of the spend relates to development work on the Harapaki wind farm and Ruakākā BESS. This metric also includes capital spend on smaller miscellaneous development projects, land purchases and distinct projects increasing capacity from existing assets. The metric does not include spend on increasing the generation capacity from existing generation assets if this spend is operational in nature or is unable to be separated from business-as-usual asset-replacement capital spend. This metric also does not include capitalised interest costs associated with development projects. **Metric trend:** Capital deployed was highest in FY23 when the Harapaki wind farm was in its peak construction period. Harapaki construction is lower in FY24 as the project comes to a close. Spend relating to Ruakākā BESS has increased in the past three years as the project ramps up. Harapaki and Ruakākā BESS/solar make up 91% of this total spend in FY24 (FY23: 97%, FY22: 89%).	$350M–$370M capital deployed towards renewable/storage projects by FY26 (62% of total planned spend). Further $3.0–$3.5 billion capital to be deployed by FY30 to deliver on remaining projects relating to 'Seven new renewable generation projects underway by 2030'. Refer Table 15 for further detail.	The interim planned spend to FY26 is based on Meridian's business plan, which sets out the budgeted new development spend for the next two upcoming years. **Sources of uncertainty:** The intended interim capital spend is a 'best estimate' based on current project plan timelines and budgets. The timing of expenditure is likely to change as projects progress. This spend also includes future non-specific 'pipeline' spend. Pipeline spend is by its nature uncertain in timing and quantity.	This spend supports Meridian to increase its renewable generation capacity and increase flexibility in the power system. This supports climate-related risks and opportunities: PR 2, TR 1, TR 2, TR 4 and TO 1.
Investment in energy solutions projects	FY24: $1M (FY23: $3M[11], FY22: $0M)	The majority of this capital spend relates to the roll-out of the EV charging network and the installation of commercial solar undertaken by the retail business unit. A significant amount of Meridian's spend on retail energy innovation is operational in nature, and not included in this metric. Additionally, as a portion of the spend on EV charging components is treated as inventory rather than capex, this has been excluded from the metric calculation. **Metric trend:** The EV charging network project commenced in FY22 and ramped up in number of chargers installed in FY23 and FY24. In FY23 there were several significant commercial solar projects, leading to higher spend.	$25M–$30M capital deployed towards retail energy solutions projects by FY26 (5% of total planned spend).	The planned spend to FY26 is based on Meridian's business plan, which sets out budgeted retail capital project spend over the next two years. **Sources of uncertainty:** The intended capital spend is a 'best estimate' based on forecasted timelines. The timing of expenditure is likely to change as projects progress.	This spend supports Meridian in helping its customers to decarbonise and contributing to power system flexibility through customer demand-response flexibility initiatives. This supports climate-related risks and opportunities: TO 1, TR 1, TR 5.

11 Restatement of comparatives: the FY23 comparatives for some metrics have been re-stated from previous disclosures. We have re-assessed relevant capital spend categories and changed the scope of what is included/excluded. For example, in FY24 we only included spend on the Harapaki and Ruakākā projects in the Increasing Renewable Development category. In FY24 we have included additional spend on smaller new development projects and on capital projects to increase the capacity of existing generation assets.

Metrics and Targets continued

Table 12. Climate-related capital deployment continued.

Category	Metric	Methods/Assumptions	Planned Spend	Planned Spend Detail	Link to climate risks and opportunities
Investment in emissions reduction or offsets	FY24: $7M (FY23: $2M[11], FY22: $5M)	This metric includes capital spend related to Meridian internally reducing or offsetting its emissions. Most of this spend relates to Meridian's Forever Forests project. The disclosed figure does not include spend on Voluntary Emission Reduction credits. The majority of Meridian's spend on initiatives to reduce GHG emissions is operational in nature, and not included in this metric. **Metric trend:** The spend on Forever Forests fluctuates from year to year mainly due to timing of land purchase settlements. The FY24 spend includes new costs associated with the electric ferry at Manapōuri. This will replace the existing diesel ferry and help Meridian reduce GHG emissions in transporting staff to work.	$2M–$4M capital deployed towards emission reduction capital projects by FY26 (<1% of total planned spend).	The planned spend to FY26 is based on Meridian's business plan, which sets out budgeted emission reduction/ offsets capital project spend in the two upcoming years. **Sources of uncertainty:** The intended capital spend is a 'best estimate' based on forecasted timelines.	This spend supports Meridian in pursuit of its targets in reducing and offsetting emissions. This supports climate-related risks and opportunities: TO 2.
Community decarbonisation funding – from Renewable Energy Certificates	FY24: $1M (FY23: $0M[11], FY22: $0M)	This metric includes the distributions spend on community decarbonisation initiatives, using the ring-fenced profits from Meridian's certified Renewable Energy Certificates (RECs). While this spend does not result in capital assets owned by Meridian, it has been disclosed here to show the wider financing spend towards climate-related initiatives, and for comparability with the prior year's report. **Metric trend:** Funding has increased year on year for the past three years. This is a relatively new initiative from Meridian, and is growing in size both in terms of customers buying RECs and in community groups applying for funding.	$1.5M funding spend on community decarbonisation initiatives in FY25.	The planned spend is to distribute $1.5M by the end of FY25 to support community decarbonisation initiatives. **Sources of uncertainty:** Meridian sets this planned spend annually as the available spend is dependent on the volume of RECs sold and the profits associated with these certificates.	This spend supports Meridian in helping its customers decarbonise, and in showing performance in ESG initiatives. This supports climate-related risks and opportunities: TO 1, TO 2.

Meridian also incurs other costs in addressing climate-related risks and opportunities, not included in the above Table 12. This spend is not included in the capital deployment metric as it is either operational in nature or capital spend that is immaterial or unable to be disentangled from wider spend, which has both climate- and non climate-related purposes. An example of the kinds of expenditure is detailed below. The most significant of these is asset maintenance. Most asset maintenance costs that build resilience to climate change will be drawn from operational budgets.

- Spend on maintaining existing generation assets. Includes spend on assessing what future impacts of climate change may look like, and ensuring assets are resilient to these impacts. Supports climate-related risks and opportunities PR 1, PR 3.
- Spend on energy innovation initiatives to help customers decarbonise, grow its customer base and develop flexible retail demand responses, e.g. securing process heat conversions. Supports climate-related risks and opportunities PR 2, TR 1, TR 2, TR 4, TO 1.
- Spend on internal emission-reduction projects. Supports climate-related risks and opportunities TO 2.
- Spend on improving supply-chain information gaps. Supports climate-related risks and opportunities PR 4, TR 3.
- Spend on maintaining sufficient insurance in place in case of damage to assets or business interruption from climate events. Supports climate-related risks and opportunities PR 1, PR 3.

11 Restatement of comparatives: the FY23 comparatives for some metrics have been re-stated from previous disclosures. We have re-assessed relevant capital spend categories and changed the scope of what is included/excluded. For example, in FY24 we only included spend on the Harapaki and Ruakākā projects in the Increasing Renewable Development category. In FY24 we have included additional spend on smaller new development projects and on capital projects to increase the capacity of existing generation assets.

Metrics and Targets continued

Internal emissions price

In FY24 Meridian established the framework for an internal emissions price to catalyse delivery against our Half by 30 target.

Table 13. Internal emissions price metric and target.

Metric	Target	Target Detail and Assumptions
Meridian's IEP in dollars per tonne • FY24: $78.90 • FY23: N/A • FY22: N/A	**Target:** Increase IEP to $123.30/tonne by FY30. **Interim target:** Increase IEP to $96.70/tonne by FY27.	**Target Detail:** The IEP programme and associated targets are owned by the Half by 30 Governance Group and overseen by the S&S. Targets are relative to a baseline year of $78.90/tonne in FY24. **Assumptions and sources of uncertainty:** • We set the IEP based on our WMO Evolution model.[12] • The IEP was introduced towards the end of FY24, and therefore has had limited application within the current reporting year. Carbon pricing does make up part of our WMO modelling, which is presented to the Board annually and used to inform key decision making. In FY24, the IEP has also been used on an ad-hoc basis to inform discussions on construction methods. • In FY25 we plan to run a 'trial year' for the IEP, which will involve setting operational carbon budgets for each business unit. In this trial we intend for the IEP to be a shadow price – with carbon budgets for each business unit tracked but performance will not result in an internal fee. At the end of FY25 there will be a 'hold point' where the outcomes of the trial year will be evaluated, and a decision will be made on whether to introduce an internal fee system in FY26. • Depending on the outcome on the FY25 trial year, we may look to introduce an internal fee system in FY26 to incentivise business units to meet their carbon budgets. • Meridian already uses the Meridian Offset Price (MOP) to calculate offsets for all one-off construction projects. We are considering using the IEP (different from the MOP) as a reference on one-off construction business cases and to compare lower carbon options for construction.
Metric trend: FY24 was the first year that Meridian officially set an IEP. In FY23 and FY22 carbon pricing assumptions ranging from $70/tonne in the short term and up to $250/tonne in the longer term were applied to ad-hoc discussions on options for one-off construction projects	**Performance against target to date:** FY24 is the first year that Meridian has officially set an IEP. It is the baseline year against which progress in achieving the targets will be measured in future reporting years. In future years, progress against targets will be measured by comparing the IEP against the FY23 Evolution model projections for that year[12]. This will indicate whether we are on track to meet our interim FY27 and FY30 targets.	

Industry-based metrics

In FY24 Meridian considered the International Sustainability Standards Board (ISSB) sector metrics for Electric Utilities & Power Generators[13] to identify industry-based metrics. The ISSB industry-based metrics for the Greenhouse Gas Emissions & Energy Resource Planning topic are presented in Table 8, earlier in the Metrics and Targets section. Other ISSB industry-based metrics relevant to and monitored by Meridian are provided in Table 14.

Table 14. Industry-based metrics.

Metric	Analysis of trends
(1) Total fresh surface water withdrawn, (2) total net fresh water consumed • FY24: (1) 73,449Mm^3, (2) 11,534Mm^3 • FY23: (1) 81,671Mm^3, (2) 10,659Mm^3 • FY22: (1) 76,535Mm^3, (2) 10,988Mm^3	Water consumption is directly linked to the prevailing hydrology conditions each year and is subject to inherent variability and climatic trends. This is reflected in the variability of water consumptions across FY22 to FY24.
Number of incidents of non-compliance associated with water quantity and/or quality permits, standards and regulations • FY24: 0 significant incidents; 2 minor incidents • FY23: 0 significant incidents; 6 minor incidents • FY22: 0 significant incidents; 0 minor incidents	There have been no significant instances of non-compliance since FY22 and we've paid no fines during this period. There were 6 minor incidents in FY23 and 2 minor incidents in FY24. Most of these incidents related to delayed reporting. None of the minor incidents in FY23 or FY24 resulted in significant environmental outcomes.
Number of: (1) residential and (2) commercial/industrial/agricultural customers served: measured as number of ICP connections served rounded to nearest thousand. • FY24: (1) 225k, (2) 145k • FY23: (1) 223k, (2) 141k • FY22: (1) 229k, (2) 136k	Total customer connections have remained fairly stable across FY22 to FY24. Commercial connections have been steadily rising, whereas residential tends to fluctuate more from year-to-year.
Percentage of electric load served by smart grid technology: measured as percentage (%) of customer connections with smart meters • FY24: 89% • FY23: 87% • FY22: 86%	The percentage of customer connections with smart meters has been steadily increasing each year since FY22.

Outside of the metrics disclosed in this report, Meridian does not use any additional key performance indicators to measure and manage climate-related risks and opportunities.

12 WMO Evolution projection for emissions pricing is based on Climate Change Commission data and adjusted for current New Zealand emissions unit (NZU) pricing.

13 Available on the International Financial Reporting Standards (IFRS) website. (July 2022) Draft IFRS S2 Climate-related Disclosures Appendix B Industry-based disclosure requirements: Volume B32—Electric Utilities & Power Generators.

Metrics and Targets continued

Metrics and Targets – Climate-related risks and opportunities

Meridian's climate-related risks and opportunities (and corresponding metrics) are outlined on pages 17 to 28 of this report. In addition to the general metrics and targets described in this section of this report, Meridian has developed a number of specific targets relating to the particular climate-related risks and opportunities it has identified. These are set out in Table 15. Meridian has taken a bespoke approach to targets, including developing project-specific targets in order to enable users to understand how climate-related risks and opportunities are managed. A number of targets address multiple risks and opportunities.

Table 15. Climate-related risk and opportunities targets summary.

Target	Performance	Related Risks and Opportunites
Implement the next 10-yearly PMP/PMF review cycles for all hydro catchments by FY28, using the new tool/methodology that considers climate change scenarios.	The target is owned by Meridian management, with progress overseen by the Executive Team. The baseline year is FY24. **Progress against target to date:** Meridian has continued its contribution to work underway by the Dam Safety Hydrology Group. Part of this work has involved reviewing PMP modelling and assessment tools to ensure this is set accurately in the context of potential future climate impacts. **Assumptions, methods and sources of uncertainty:** · The next PMP/PMF reviews are planned for calendar year 2026 for Waitaki valley, and 2027 for Waiau catchment. These reviews will use the new DSHG tool.	**PR 1** – More intense, extreme rainfall events impact hydro catchment flood risk
Complete climate risk assessments (using Climate and Natural Hazards Framework tool) and develop climate adaptation plans for all key operational and new development sites by FY30.	The target is owned by Meridian management, with progress overseen by the Executive Team. This is a new target, with a baseline year of FY24. **Progress against target to date:** Meridian is in the early stages of developing a Climate and Natural Hazards Framework. It intends to use the Framework as a tool to assess sites' vulnerability to the physical impacts of climate change. **Assumptions, methods and sources of uncertainty:** · This target assumes the development of a Climate and Natural Hazards Framework tool to conduct risk assessments. · It is intended that this tool will initially be used for new development sites, with the aim of extending it to existing generation assets. · Following risk assessments, this target assumes climate adaptation plans will be formalised and embedded within asset management planning for generation assets.	**PR 1** – More intense, extreme rainfall events impact hydro catchment flood risk **PR 3** – Increased severe weather events could damage assets and infrastructure
Introduce enterprise Supplier Relationship Management framework in FY25, and include the introduction of Climate Risk in the FY25 Supplier ESG programme update.	The target is owned by Meridian management, with progress overseen by the Executive Team. This is a new target, with a baseline year of FY24. **Progress against target to date:** Meridian has initiated a Supplier ESG programme including setting out foundation details, and commenced planning for the introduction of climate risk screening and assessment steps. **Assumptions, methods and sources of uncertainty:** · The target assumes that the programme will be rolled out in stages, enhancing capability with each phase. · Successful implementation is dependent on system capabilities being suitable for risk screening and assessment.	**PR 4** – Global climate change impacts on supply chain cost and reliability **TR 3** – Global supply chain demand may impact affordability of and timely access to goods and services

Metrics and Targets continued

Table 15. Climate-related risk and opportunities targets summary continued.

Target	Performance	Related Risks and Opportunites
Deliver 500MW of generation capacity from existing assets by FY28.	The target is owned by the Generation Team, with progress overseen by the Executive Team and ultimately the Meridian Board. The baseline year for this target is FY24. **Progress against target to date:** Progress in FY24 has been challenged by transformer outages at Manapōuri. Initiatives such as work to maximise the available capacity from Benmore turbines and Manapōuri units has helped to offset these losses. Net additional capacity of 20MW was achieved by the end of the year. This is below the original expectation for FY24. **Assumptions, methods and sources of uncertainty:** · This target covers Meridian's existing generation assets from 1 July 2023. · The target's achievement is expected to come from a mix of restoring assets on extended outages, removing generation constraints and enacting a number of growth and flexibility initiatives. It is assumed this will be made up of approximately 200MW returned capacity and 300MW new capacity. · Sources of uncertainty to achieving this target include unexpected outages and project timeline delivery.	**PR 2** – Changing seasonal weather patterns increases hydro inflow volatility **TR 1** – Transitioning to fully renewable generation sources and increasing demand reduces flexibility in the power system **TR 2** – Carbon price uncertainty increases uncertainty in wholesale market **TR 4** – Inadequate market supply due to insufficient phystical firming plant **PO 1** – Annual and seasonal hydro inflow profiles improving generation and demand alignment **TO 1** – Electrification of transport and process heat, and Virtual Power Plants
Seven new renewable generation projects underway by 2030.	This target is owned by the Development Team, with progress overseen by the Executive Team and ultimately the Meridian Board. The baseline year is FY23. **Progress against target to date:** · FY24: First of the seven projects complete, with Harapaki wind farm now operating. Ruakākā BESS is due for commissioning by early 2025 calendar year. Consent applications lodged for three projects – Ruakākā solar farm, Mt Munro wind farm, and Te Rere Hau wind farm (joint venture project). · FY23: Two projects underway – Ruakākā BESS and Harapaki wind farm. Two advanced pipeline options – Ruakākā solar farm (close to lodging consents) and Mt Munro (consent lodged May 2023). **Assumptions, methods and sources of uncertainty:** · Target achievement is dependent on pipeline prospects converting to confirmed projects. The composition of the seven projects will change as the development pipeline evolves. · Detail behind this target assumes a goal of delivering 2,000GWh of renewable generation and 200MW of BESS capacity (by FY31). · Key sources of uncertainty include: cost and time to build (materials, shipping, civil works), regulatory changes, obtaining consents and ability to connect to transmission network in a timely manner. · Meridian also has a longer-term ambition to have 20 grid-scale renewable energy projects underway or delivered within 28 years.	**PR 2** – Changing seasonal weather patterns increases hydro inflow volatility **TR 1** – Transitioning to fully renewable generation sources and increasing demand reduces flexibility in the power system **TR 2** – Carbon price uncertainty increases uncertainty in wholesale market **TR 4** – Inadequate market supply due to insufficient physical firming plant **TO 1** – Electrification of transport and process heat, and Virtual Power Plants
Grow retail customer base to 500,000 connections by FY30.	This target is owned by Meridian management, with progress overseen by the Executive Team and ultimately the Meridian Board. The baseline year for this target is FY24. The target is set for completion by FY30. **Progress against target to date:** Target set and agreed in FY24, customer connections (ICPs) at year end were 370K (+6K from FY23). An additional 130K connections required to meet target. **Assumptions, methods and sources of uncertainty:** · Target is a wider Meridian target to grow the total customer base. In doing this, growth may help offset the impacts of the increased number of customers who have private solar. · Achieving target subject to ability to attract and retain new customers.	**TR 5** – Sharp increase in private solar leads to reduced demand, impacting on Meridian's earnings **TO 1** – Electrification of transport and process heat, and Virtual Power Plants

Metrics and Targets continued

Table 15. Climate-related risk and opportunities targets summary continued.

Target	Performance	Related Risks and Opportunites
Target: 1,000GWh of process heat under contract by FY30. **Interim target: Convert 200GWh of MoU process heat to contract by FY25.**	The target is owned by the Retail Team, with progress overseen by the Executive Team. This is a new target, which will be baselined to FY24. **Progress against target to date:** At the end of FY24 Meridian had 525GWh under contract. **Assumptions, methods and sources of uncertainty:** · Performance against the main target is calculated by summing total GWh of projects (under contract). The interim target tracks projects that have progressed from MoUs to contracted agreements. · Connecting to electricity networks and the removal of Government support through the Investment in Decarbonising Industry Fund are challenges facing businesses electrifying process heat. These challenges are likely to impact on the speed of project delivery.	**TO 1** – Electrification of transport and process heat, and Virtual Power Plants
420 Zero public charge points (including 125 high-capacity DC charge points) by the end of FY25.	The target is owned by the Retail Team, with progress overseen by the Executive Team. **Progress against target to date:** This is a new target. FY24 is the baseline year against which progress against the target will be measured in future reporting years. 328 charge points available at end of FY24. **Assumptions, methods and sources of uncertainty:** · Sources of uncertainty to reaching this target include: the complexity, cost and timing relating to EV charging electrical connections, the ability to obtain timely procurement of EV chargers, and access to government financial support. · The target is calculated as a lifetime-to-date number. To reach the 125 high-capacity DC charge points ('fast chargers'), Meridian needs to install approximately 75 new chargers in FY25.	**TO 1** – Electrification of transport and process heat, and Virtual Power Plants
20,000 residential customers on demand-flex product by FY26.	The target is owned by the Retail Team, with progress overseen by the Executive Team. This is a new target, with a baseline year of FY24. **Progress against target to date:** New residential flexibility and 'time-of-use' products have been created, with a small number of customers on these products at the end of FY24. **Assumptions, methods and sources of uncertainty:** · The method and amount of network company pass through to promote flexibility. · New digital capability required to connect customers to the flexibility value pools.	**TO 1** – Electrification of transport and process heat, and Virtual Power Plants
Achieve inclusion in the S&P Global Dow Jones World Sustainability Index by FY26 (2025 submission). **Interim target: Achieve inclusion in the S&P Dow Jones Sustainability Asia Pacific Index Upper Quartile – top 25% by FY25 (2024 submission).**	This target is owned by Meridian management, with progress overseen by the Executive Team, S&S and ultimately the Meridian Board. The baseline year is FY24. The target is set for completion by FY26, with the interim target due for completion in FY25. **Progress against target to date:** In FY24 we maintained inclusion in the Dow Jones Asia Pacific index, performing well in terms of environment and governance, but new areas of focus introduced by the index survey reflect that sustainability expectations continue to evolve. Further work is required to meet the requirements of the worldwide index. **Assumptions, methods and sources of uncertainty:** · Meridian's target is based on using the index measure as a proxy for ESG performance. This is a global and independent measurement basis. · Meridian does not set a specific target for increasing the spend aligned to this opportunity, as management does not view higher spend as the pathway to achieving greater ESG performance. · The indices do not have a set inclusion requirement but instead are benchmarked against the performance of all who participate in the survey. To reach World index inclusion Meridian must continue to lift relative ESG performance, aligned to global comparison standards.	**TO 2** – Sustainability leadership and environmental, social and governance (ESG) performance

Appendix A: Climate Scenarios

Climate scenario focal question

The focal question defined for Meridian's climate-related scenarios is: "What could potential futures look like for Meridian, following plausible adaptive or transformative pathways, given biophysical changes to our climate?"

Climate scenario boundaries

Our climate scenarios cover the electricity sector, both globally (to the extent global trends and emissions pathways are relevant to Meridian) and in New Zealand. Our climate scenarios also cover things entering or exiting the electricity sector (e.g. transport modes entering the electricity sector, such as EVs). We have also expanded the boundaries of our climate scenarios to include afforestation, nature-based solutions, and carbon capture and storage in New Zealand, with a particular interest in the way these drivers interact with the electricity system.

Driving forces

Table 16. Driving forces underlying climate scenarios and associated scenario analysis assumptions.

Driver	Net Zero Revolution	Adaptive Evolution	Hot House
Consumer preferences	Public opinion recognises the importance of the environment and the role of sustainability. The wider public becomes actively engaged with this political process and people are empowered to transform their lifestyles. Public support for financial assistance is high, and there is a willingness to pay for environmental and social premiums to support a rapid transition (e.g. support for subsidy schemes). In the longer term, falling technology costs mean consumer preferences are eased.	Public opinion is generally onboard with the goal of decarbonising, but most people are not prepared or able to make large lifestyle changes. There is a limited willingness to pay for 'green premiums' in the short term. In the medium term, public willingness grows, and there is increasing consumer preference for decarbonised products as relative prices fall.	Customers and stakeholders largely deprioritise sustainability. Customer and stakeholder willingness to pay 'green premiums' is very low in the short term. In the medium to longer term, competing demands for limited funds affect consumers' ability to afford new technologies.
Availability of skilled workers	Demand for technology and energy roles (e.g. engineers) in the Energy sector increases due to increased decarbonisation and electrification. Demand sometimes outstrips supply of skilled workers, limiting the growth rate of supply and demand projects.	Demand for technology and energy roles in the energy sector increases, although with stiff competition for experienced and skilled workers domestically and offshore. In the short term this limits the ability for development of supply and demand projects.	New Zealand's energy sector struggles to hire and retain skilled workers as 'brain drains' worsen. New Zealand is generally seen as an attractive place to work internationally, but government policies on immigration and housing mean there is great uncertainty as these factors fluctuate unpredictably.
Peak demand	There is rapid consumer uptake of EVs, household batteries, consumer-l evel demand-response as well as grid-scale batteries and grid-scale demand-response. In the medium to long terms, distributed and grid storage become abundant, managing peak demands economically.	Moderate increases in consumer domestic EV and consumer demand-response uptake, with staged industrial conversions. Some grid-scale demand-response. Thermal peakers remain, limiting the development of grid battery as costs only decline slowly.	Consumer EV adoption and electrification of heating are slow. Peak demand does not increase markedly.
Supply chains	Short-term supply-chain constraints due to high demand mean prices are high. Climate impacts in other parts of the world occasionally disrupt global shipping (e.g., drought affecting shipping through the Panama canal) and production (droughts limiting electricity generation leading to factory closures in China and Europe), but supply chains are generally resilient in the medium to long term.	Short-term supply-chain constraints due to high demand mean prices are high. Climate impacts in other parts of the world sometimes disrupt global shipping (e.g. drought affecting shipping through the Panama Canal) and production (droughts limiting electricity generation leading to factory closures in China and Europe), but supply chains are generally resilient enough that there is limited disruption in the medium to long term.	Supply chain constraints persist, and supply chains become increasingly unreliable and disrupted. Climate impacts in other parts of the world disrupt global shipping with some regularity (e.g. droughts affecting shipping through the Panama canal, or droughts limiting electricity generation leading to factory closures in China and Europe). Supply chains are disrupted often, leading to increased costs and project halts.
Hydro	Hydro flexibility is a priority, consents are managed to increase flexibility.	Hydro flexibility continues much as today, with existing consent restraints.	Hydro flexibility continues much as today, with consent restraints.
Wind and solar	Wind and solar prices fall rapidly, and efficiency improves. Consenting becomes much easier.	Prices fall moderately over time, and efficiency improves gradually. Consenting is similar to that of today.	Costs plateau, as civil etc. costs increase. Consenting is more uncertain, and often stalls projects.
Cost of capital	The cost of capital and debt decreases due to access to green loans/bonds. Domestic commercial banks turn sustainability linked loans mainstream, and interest in New Zealand among international funders increases.	The cost of capital remains stable, with trends similar to today's. Some international interest in investing in New Zealand.	Businesses become more vulnerable and greater blame is being put on the energy sector for price rises leading to enhanced risk premiums and increases in the cost of capital.

Appendix A: Climate Scenarios continued

Table 16. Driving forces underlying climate scenarios and associated scenario analysis assumptions continued.

Driver	Net Zero Revolution	Adaptive Evolution	Hot House
Insurance	Insurance costs increase as the effects of climate change intensify. Investments in nature-based solutions pay dividends in terms of co-benefits to help decrease exposures to risk.	Insurance costs increase as acute weather events and chronic climate changes become more prevalent.	Insurance costs increase as acute and chronic events become more prevalent. More self-insurance.
Wholesale electricity prices	Prices decrease in real terms from today, as technology costs fall rapidly after a period of stress.	Prices decrease in real terms from today, as technology costs fall moderately.	Prices stay relatively stable as the effects of climate change are ignored and fossil fuels continue to be used.
Increasing temperatures and hot days	Temperatures trend up. A few severe heat events occur during the decade. Demand for cooling load (particularly in northern regions and central South Island) increases slightly by 2050.	Temperatures noticeably higher than present day, but largely manageable. Demand for cooling load (particularly in northern regions and central South Island) increases moderately by 2050.	Temperatures noticeably higher than present day, with some regions beginning to experience severe effects. Demand for cooling load (particularly in northern regions and central South Island) increases significantly by 2050.
Extreme rainfall and storm events	Trending up, slight annual increases in hydro catchments; dryer on east coasts. One or two extreme rainfall events on the scale of Cyclone Gabrielle occur over a decade.	Moderate annual increases in hydro catchments, some decreases in eastern parts of the North Island. One or two extreme rainfall events on the scale of Cyclone Gabrielle occur over a decade.	Significant annual increases in hydro catchments, some decreases in eastern parts of the North Island. Two or four extreme rainfall events on the scale of Cyclone Gabrielle occur over a decade.
Dry years and drought	Trending up. Demand for agricultural irrigation (especially in Canterbury) increases slightly by 2050.	Moderately worse than present. Demand for agricultural irrigation (especially in Canterbury) increases moderately by 2050.	Significantly worse than present. Dry years significantly drier (in duration or inflow-anomaly). Demand for agricultural irrigation (especially in Canterbury) increases significantly, especially prominently during dry periods in those regions by 2050.
Seasonality	Increasing variability; less snow but more rain.	Significantly more variable than present. Much less snow but more rain in catchments.	Variability significantly increases, and weather is less predictable – i.e. sudden unseasonable cold snaps, longer periods of low wind conditions.
New Zealand policy and regulation changes	A policy of adapting to change is key to New Zealand's wellbeing. Adaptation and mitigation are needed to protect its international reputation and fulfil its moral obligations.	New Zealand lags behind global efforts; adaptation is incremental and usually reactive, influenced by short-term economic needs and vested interests.	In response to increasing severe weather events, policy for adaptation is reactive and poorly managed. Maladaptation increases severe cost burdens on local and central government.
Consenting process	Fast-track consenting is supported by a strong partnership model with the electricity sector and the Government.	Consenting processes look similar to those of today in time and complexity. A range of consenting routes remain open, with different trade-offs.	Consenting policies are highly contested; rules and frameworks are often halted or repealed, leading to disruption and uncertainty.
Policy incentives for decarbonisation	The Government provides financial incentives and subsidies to promote the rapid adoption of renewable energy sources.	There are no subsidies; however, falling costs and industry are the main drivers of decarbonisation.	There are few incentives for decarbonisation, and technology costs and access remain restrictive. Government policy is sporadic, leading to periods of strong policy responses that are removed or delayed soon after. This affects confidence and industry certainty.

Appendix A: Climate Scenarios continued

Climate scenarios: assumptions underlying emission reduction pathways

Table 17. Assumptions underlying emission reduction pathways

Assumptions underlying emission reduction pathways	Net Zero Revolution	Adaptive Evolution	Hot House
Global emissions reduction pathway	Aligns with the global emissions reduction pathway for IPCC SSP1-1.9 out to 2100.	Aligns with the global emissions reduction pathway for IPCC SSP2-4.5 out to 2100.	Aligns with the global emissions reduction pathway for IPCC SSP3-7.0 out to 2100.
Scope of operations covered	Refer to 'Climate scenario boundaries' described above in Appendix A, page 45.		
Policy and socioeconomic assumptions: global	Align with NGFS 'Net Zero 2050' where not otherwise explicitly covered in the scenario narratives or 'STEEP' analysis.	Align with NGFS 'Nationally Determined Contributions' where not otherwise explicitly covered in the scenario narratives or 'STEEP' analysis.	Align with NGFS 'Current Policies' where not otherwise explicitly covered in the scenario narratives or 'STEEP' analysis.
Policy and socioeconomic assumptions and macroeconomic trends: New Zealand	Align with CCC 'Headwinds' where not otherwise explicitly covered in the scenario narratives or 'STEEP' analysis.	Align with CCC 'Current Policies' where not otherwise explicitly covered in the scenario narratives or 'STEEP' analysis.	Align with CCC 'Current Policies' where not otherwise explicitly covered in the scenario narratives or 'STEEP' analysis.
Energy pathways	Align with Meridian's in-house WMO Revolution model. WMO Revolution has the highest forecast electricity demand due to higher rates of electrification.	Align with Meridian's in-house WMO Evolution model. WMO Evolution has a moderate forecast electricity demand compared to the other two models.	Align with Meridian's in-house Devolution model. WMO Devolution has the lowest forecast electricity demand of the three models due to lower rates of electrification.
Carbon sequestration f rom afforestation and nature-based solutions	Narrative consistent with CCC 'Headwinds'.	Narrative consistent with CCC 'Current Policies'.	Narrative consistent with CCC 'Current Policies'.
Technology assumptions including negative emissions technology	Short-medium term: consistent with CCC (2021). *Supporting Evidence for the Draft Advice for Consultation. Chapter 9: Removing carbon from our atmosphere.* Long term: consistent with NGFS 'Net Zero 2050'.	Short-medium term: consistent with CCC (2021). *Supporting Evidence for the Draft Advice for Consultation. Chapter 9: Removing carbon from our atmosphere.* Long term: consistent with NGFS 'Nationally Determined Contributions'.	Short-medium term: consistent with CCC (2021). *Supporting Evidence for the Draft Advice for Consultation. Chapter 9: Removing carbon from our atmosphere.* Long term: consistent with NGFS 'Current Policies'.

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