



# CLIMATE CHANGE and CARBON MANAGEMENT STRATEGIC PLAN

Version 1/2026 VNG-ENV-CCCM-SP-01  
Effective Date: 25 February 2026

## **Climate Change and Carbon Management Strategic Plan Vanachai Group Public Company Limited and Subsidiaries**

Over the past decade, climate change has emerged as a structural global challenge with far-reaching impacts on economic systems, the environment, and society at large. As a result, the business sector worldwide plays a critical role in accelerating the reduction of greenhouse gas (GHG) emissions, while simultaneously adapting and transforming business models to align with sustainable development pathways and international efforts to limit global temperature rise under relevant global agreements.

Vanachai Group Public Company Limited and its subsidiaries (the “Company”) recognize the role and responsibility of the wood and wood-based products industry as a renewable resource-based sector with inherent potential to naturally absorb and store carbon throughout the wood life cycle, from tree growth and production processes to end-use in finished products. Wood-based materials therefore function both as a carbon sink and as a fundamental resource base of the bioeconomy, supporting a tangible transition toward a low-carbon society.

In response to these challenges, the Company has established the Climate Change and Carbon Management Strategic Plan to define an integrated framework for greenhouse gas emission reduction, energy efficiency enhancement, increased use of renewable energy, and carbon management across the value chain. The strategy also aims to strengthen the Company’s long-term readiness to address climate-related risks and opportunities.

This Strategic Plan serves as the Company’s umbrella Climate Action policy framework and forms an integral part of the Vanachai Sustainability Framework 2025. It is designed to embed carbon management as a core component of business operations, corporate target-setting, and strategic decision-making at all levels of the organization.

Under this Climate Change and Carbon Management Strategic Plan, the Company has developed the Vanachai Carbon Capture and Storage Roadmap 2025–2035 as an enabling strategy, elevating carbon management from emission reduction toward a systematic approach to carbon capture, utilization, and storage. This approach places particular emphasis on biogenic carbon dioxide (Biogenic CO<sub>2</sub>) derived from production processes and biomass energy, which represents a core element of the Company’s business model.

The risks, impacts, and dependencies associated with climate change and carbon management addressed in this strategy are identified, analyzed, and prioritized through the Company’s Vanachai Integrated Materiality and Risk Assessment (V-IMRA) process. V-IMRA is an internal assessment framework that considers both impact materiality and financial materiality across the value chain.

The results of V-IMRA are integrated into the Enterprise Risk Management (ERM) system to support strategy formulation, strategic decision-making, the setting of risk appetite, and the creation of long-term sustainable value

The Company remains firmly committed to its vision, **“Forest | Future | Together – for a Sustainable Living,”** and its principle of Growing with Nature, by linking long-term business value creation with climate impact mitigation, natural resource conservation, and the development of low-carbon technologies. Through these efforts, Vanachai aims to support the achievement of its Net Zero 2050 target and contribute to the country’s sustainable development over the long term.

## 1) Objectives of the Strategic Plan

- To establish an overarching framework for climate change and carbon management across the organization, ensuring consistent direction and alignment among all business units.
- To achieve tangible reductions in greenhouse gas emissions from organizational operations, covering both direct and indirect emissions (Scope 1 and Scope 2), while strengthening preparedness for managing emissions across the value chain (Scope 3).
- To promote energy efficiency and increase the use of renewable energy, thereby reducing reliance on fossil fuels and mitigating long-term energy cost risks.
- To integrate carbon management into business strategy, investment decisions, and strategic decision-making processes in support of sustainable growth.
- To develop and support advanced carbon management mechanisms, including carbon capture, utilization, and storage, through the Carbon Capture and Storage Roadmap (CCS Roadmap) as an enabling strategy.
- To enhance the organization’s capability to respond effectively to climate-related risks, as well as evolving policies, regulations, and international standards.
- To support the achievement of the Company’s Net Zero 2050 target and contribute to national and global climate objectives.

## 2) Alignment with Policies and International Standards

The Company’s Climate Change and Carbon Management Strategic Plan has been designed to align with internal corporate policies, internationally recognized standards, and sustainability frameworks at both national and global levels. This alignment ensures that the Company’s climate-related actions are transparent, verifiable, and comparable in an international context.

### 2.1 Alignment with Corporate Policies and Strategic Plans

- This Strategic Plan is aligned with and supports the implementation of the Company's key policies and strategic initiatives, including:
  - The Company's Environmental Policy
  - Vanachai Sustainability Framework 2025
  - The Company's Net Zero 2050 Roadmap
- The Carbon Capture and Storage Roadmap (CCS Roadmap), serving as an enabling strategy for advanced carbon management industry.

## 2.2 Alignment with International Climate and Sustainability Standards

- **Global Reporting Initiative (GRI) Standards:**

GRI 2-23: Policy Commitments

GRI 2-24: Embedding Policy Commitments

GRI 2-27: Compliance with Laws and Regulations

GRI 3-3: Management of Material Topics 2021

GRI 201-2: Financial Implications and Other Risks and Opportunities Due to Climate Change

GRI 302: Energy 2016

GRI 305: Emissions 2016, and, where relevant

GRI 308: Supplier Environmental Assessment 2016. The Company also prepares for future alignment with GRI 102 Climate Change 2025 and GRI 103 Energy 2025 from 1 January 2027.

- **FTSE Russell ESG Indicators:**

**Climate Change and Carbon Management:** ECC01, ECC08, ECC14, ECC15, ECC31, ECC38, ECC39, ECC41, ECC42, ECC43, ECC44, ECC45, ECC49, ECC50, ECC76, ECC77 and ECC78, where applicable.

**Internal Carbon Pricing and Climate Finance:** ECC51, where an internal carbon price is applied or disclosed.

**Climate-related Stakeholder Engagement and Policy Alignment:** ECC03, ECC73 and ECC74, where relevant memberships, public policy positions, or trade association alignment are disclosed.

**Supply Chain Climate and Environmental Management:** ESC02, ESC08, ESC09, ESC10, ESC11 and ESC12, where supplier energy use, GHG emissions, supplier carbon data, audits, training, or impact reduction programmes are included.

**Pollution, Resources and Environmental Data Assurance:** EPR03, EPR12, EPR15, EPR16 and EPR28, where applicable to resource efficiency, environmental data verification, climate-related R&D investment, LCA / EPD readiness, or ISO 14001 coverage.

- **IFRS S2 Climate-related Disclosures and TCFD Recommendations:**  
Applied as the investor-grade climate disclosure baseline for climate governance, strategy, risk management, metrics and targets, scenario analysis, financial planning, and capital allocation.
- **ISO 14064 Series:**  
ISO 14064-1 for organizational greenhouse gas quantification and reporting, ISO 14064-2 for project-level greenhouse gas reductions or removals, and ISO 14064-3 for verification and validation of greenhouse gas statements.
- **GHG Protocol and IPCC Guidelines:**  
Applied where relevant for greenhouse gas inventory preparation, Scope 1, Scope 2 and Scope 3 accounting, emission factors, and methodological consistency.
- **ISO 14001 Environmental Management System and ISO 50001 Energy Management System.**
- **Thailand Greenhouse Gas Management Organization frameworks:**  
Thailand Voluntary Emission Reduction Program (T-VER), organizational carbon footprint, product carbon footprint, carbon credit certification mechanisms, and related MRV requirements.
- **United Nations Sustainable Development Goals:**  
SDG 7 Affordable and Clean Energy  
SDG 9 Industry, Innovation and Infrastructure  
SDG 12 Responsible Consumption and Production  
SDG 13 Climate Action  
SDG 15 Life on Land.

### 2.3 Alignment with National Policies and Targets

- This Strategic Plan supports and is aligned with Thailand's climate-related policies and national targets, including:
  - The Bio-Circular-Green (BCG) Economy Model
  - Thailand's Nationally Determined Contribution (NDC)
  - National targets toward carbon neutrality and Net Zero
- Thailand's Voluntary Emission Reduction Program (T-VER) for the certification of greenhouse gas reduction and removal projects.

### 3) Scope of Implementation

The Climate Change and Carbon Management Strategic Plan defines the scope of application as an overarching policy framework for the systematic management of greenhouse gas emissions and organizational responses to climate change. The scope

covers the organizational level, operations across the value chain, energy use, low-carbon technologies, and long-term carbon management mechanisms.

### **3.1 Operational Boundary**

- Covers the operations of Vanachai Group Public Company Limited and all subsidiaries in Thailand
- Includes all functions related to production, energy use, resource management, and business operations
- Serves as a policy framework for target-setting, planning, and climate-related decision-making at all levels of the organization

### **3.2 Greenhouse Gas Emission Boundary**

- Covers direct greenhouse gas emissions (Scope 1) arising from the Company's operations
- Covers indirect emissions (Scope 2) associated with purchased electricity, heat, or steam
- Includes preparedness for managing value chain emissions (Scope 3), based on materiality and business relevance.

### **3.3 Energy and Resource Boundary**

- Enhancement of energy efficiency across production processes and operational activities
- Increase in the use of renewable energy and biomass energy
- Reduction of reliance on fossil fuel-based energy sources and long-term energy risk management

### **3.4 Carbon Management Strategies and Instruments**

- Measures to reduce greenhouse gas emissions and improve process efficiency
- Appropriate carbon offsetting and carbon management mechanisms
- Development and implementation of the Carbon Capture and Storage (CCS) Roadmap as an enabling strategy under this Strategic Plan.

### **3.5 Applicability and Limitations**

- This Strategic Plan serves as a policy-level and strategic framework for climate change and carbon management across the organization
- It does not constitute a detailed technical implementation plan or a project-specific investment plan
- Any measures or projects implemented under this Strategic Plan shall be subject to appropriate technical, economic, environmental, and legal assessments prior to execution.

## 4) Definitions and References

### 4.1 Definitions

- **Climate Change:**

Long-term changes in climate patterns resulting primarily from human activities, particularly greenhouse gas emissions, which have significant impacts on ecosystems, economies, and societies.

- **Greenhouse Gases (GHG):**

Gases that absorb and retain heat in the atmosphere, including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated gases (HFCs, PFCs, SF<sub>6</sub>, and NF<sub>3</sub>).

- **Carbon Management:**

A systematic approach to managing an organization's greenhouse gas emissions, encompassing measurement, reporting, emission reduction, carbon capture, utilization, storage, and carbon offsetting.

- **Direct Greenhouse Gas Emissions (Scope 1 Emissions):**

Greenhouse gas emissions generated directly from activities under the organization's control, such as fuel combustion in production processes.

- **Indirect Energy-Related Greenhouse Gas Emissions (Scope 2 Emissions):**

Indirect greenhouse gas emissions associated with the consumption of purchased electricity, heat, or steam.

- **Other Indirect Greenhouse Gas Emissions in the Value Chain (Scope 3 Emissions):**

Indirect greenhouse gas emissions occurring across the organization's value chain, such as raw material sourcing, transportation, and product use.

- **Biogenic CO<sub>2</sub>:**

Carbon dioxide generated from biomass or biological processes, forming part of the natural carbon cycle.

- **Carbon Capture and Storage (CCS):**

The process of capturing carbon dioxide from emission sources and permanently storing it to prevent its release into the atmosphere.

- **Bio-Carbon Capture and Storage (Bio-CCS / BECCS):**

The production of energy from biomass combined with carbon capture and storage, which can result in net negative carbon emissions.

- **Net Zero:**

A condition in which an organization's net greenhouse gas emissions are reduced to zero through a combination of emission reductions, carbon capture, and carbon offsetting.

- **Renewable Energy:**  
Energy derived from naturally replenishing sources, such as solar energy, biomass energy, and wind energy.
- **Vanachai Integrated Materiality and Risk Assessment (V-IMRA):**  
An internal assessment framework used by the Company to identify, assess, and prioritize sustainability-related impacts, risks, and opportunities across its operations and value chain. V-IMRA integrates both impact materiality and financial materiality considerations and provides structured inputs to the Enterprise Risk Management (ERM) system, strategic planning, and management decision-making.

#### 4.2 References and Relevant Frameworks

- Vanachai Sustainability Framework 2025
- Vanachai Carbon Capture and Storage Roadmap 2025–2035 (CCS Roadmap)
- FTSE Russell ESG Ratings Methodology, Environment Pillar, including Climate Change, Pollution & Resources, and Biodiversity indicators  
FTSE Russell ESG Indicators: ECC01, ECC08, ECC14, ECC15, ECC31, ECC38, ECC39, ECC41, ECC42, ECC43, ECC44, ECC45, ECC49, ECC50, ECC76, ECC77 and ECC78; together with ESC02, ESC08, ESC09, ESC10, ESC11 and ESC12, and EPR12 and EPR16, where applicable.
- Global Reporting Initiative (GRI) Standards, including:
  - GRI 102: Emissions
  - GRI 103: Energy
 GRI 305: Emissions 2016; GRI 302: Energy 2016; and future alignment with GRI 102: Climate Change 2025 and GRI 103: Energy 2025 from 1 January 2027.
- ISO 14064 Series:
  - ISO 14064-1: Specification and guidance for the quantification and reporting of greenhouse gas emissions and removals at the organizational level
  - ISO 14064-2: Specification and guidance for the quantification, monitoring, and reporting of greenhouse gas emission reductions or removals at the project level
  - ISO 14064-3: Specification and guidance for the verification and validation of greenhouse gas statements
- United Nations Sustainable Development Goals (UN SDGs): SDGs 7, 9, 12, 13, and 15
- Thailand’s Bio-Circular-Green (BCG) Economy Model:
- A national economic model integrating the bioeconomy, circular economy, and green economy to support sustainable economic growth

- Guidelines and publications of the Thailand Greenhouse Gas Management Organization (Public Organization):
- Including project certification mechanisms (e.g., T-VER), organizational and product carbon footprint programs, and other greenhouse gas reduction initiatives (e.g., LESS)
- **IFRS S2 Climate-related Disclosures and TCFD Recommendations** for climate governance, strategy, risk management, scenario analysis, metrics and targets, and climate-related financial disclosure.
- **GHG Protocol**  
The plan already uses Scope 1, Scope 2 and Scope 3, so adding the GHG Protocol Corporate Standard and Scope 3 Standard would make the standards alignment more complete and technically defensible.

## 5) Governance and Accountability

The Company has established a clear governance structure and defined responsibilities for climate change and carbon management to ensure that implementation is effective, transparent, verifiable, and aligned with corporate strategy and relevant international standards.

The governance structure and roles of key bodies and functions are as follows:

### 5.1 Board of Directors:

- Approves the Company's policies and strategic plans on climate change and carbon management.
- Oversees compliance with applicable laws, international standards, and sustainable business management frameworks, taking into account Environmental, Social, and Governance (ESG) considerations.
- Reviews and monitors the Company's climate and carbon performance at least annually.

### 5.2 Audit Committee:

- Oversees the accuracy, completeness, and reliability of greenhouse gas emissions data and carbon management information.
- Reviews the results of external verification and assurance processes.
- Provides recommendations to the Board of Directors regarding climate-related disclosures and climate risk management.

### 5.3 Sustainability Committee:

- Defines the strategic framework, targets, and implementation plans for climate change and carbon management.
- Oversees, monitors, and evaluates progress against the approved strategic plans.

- Integrates climate-related strategies into the Company's overall business strategy and Net Zero roadmap.

**5.4 Climate Change and Carbon Management Working Group:**

- Serves as the central coordinating body for climate change and carbon management across the organization.
- Develops and maintains databases on greenhouse gas emissions, energy consumption, and emission reduction measures.
- Coordinates with relevant functions on the development and implementation of advanced carbon management initiatives, including Bio-CCS and BECCS projects.

**5.5 Energy, Environment, and Operations Functions:**

- Implements greenhouse gas emission reduction measures and energy efficiency improvements across operational processes.
- Supports the adoption of renewable energy and low-carbon technologies.
- Collects and reports greenhouse gas emissions data in accordance with organizational guidelines and applicable standards.

**5.6 Plants and Subsidiaries:**

- Implements the Climate Change and Carbon Management Strategic Plan at the operational and plant levels.
- Monitors, measures, and reports carbon management performance consistently across the organization.
- Supports pilot projects and the scaling up of carbon management initiatives.

**5.7 External Partners and Stakeholders:**

- Collaborates with relevant external organizations to support the development of knowledge, technologies, and best practices in carbon management.
- Supports external verification, certification, and climate-related disclosures in accordance with applicable standards.

**6) Strategic Roadmap and Time-Bound Targets**

The Climate Change and Carbon Management Strategic Plan defines the Company's implementation roadmap for greenhouse gas reduction, energy efficiency improvement, renewable energy transition, product carbon data readiness, and advanced carbon management. The roadmap uses 2024 as the baseline year and is implemented across three-time horizons: Short Term 2025-2029, Medium Term 2030-2037, and Long Term 2038-2050.

The roadmap supports Vanachai's Net Zero 2050 ambition by prioritizing at-source emissions reduction, strengthening Scope 1 and Scope 2 data and controls, expanding relevant Scope 3 data coverage, improving MRV readiness, and developing Bio-

CCS/BECCS and other verified carbon removal mechanisms for residual emissions that are technically difficult to eliminate.

Implementation under this Strategic Plan is structured into three key phases, as outlined below.

**Short term plan 2025-2029: Build the carbon management foundation, strengthen data quality, improve Scope 1 and Scope 2 controls, establish the initial Scope 3 dataset, and deliver verifiable at-source emissions reduction.**

**Strategic Focus:**

Build the carbon management foundation, improve Scope 1 and Scope 2 data, build the initial Scope 3 dataset, complete plant-level GHG Mapping, separate biogenic and fossil carbon, improve MRV readiness, optimize boilers and heat systems, reduce electricity intensity, strengthen logistics efficiency, and prepare ISO 14064 and T-VER MRV readiness

**Objectives:**

Systematically identify organizational greenhouse gas emission sources and develop site level GHG source mapping that distinguishes biogenic emissions from fossil energy related emissions. Assess the mitigation potential of priority abatement measures and evaluate the future feasibility of biomass-based carbon capture and storage solutions, including Bio CCS and BECCS (bioenergy with carbon capture and storage).

**Key Implementation Actions:**

- Develop greenhouse gas emissions inventories and maps for each facility (GHG Mapping).
- Differentiate between biogenic and fossil carbon emissions to inform carbon management strategies.
- Accelerate the reduction of fossil energy use and continuously increase renewable energy through renewable energy potential studies and energy efficiency improvement opportunities.
- Assess renewable energy potential and opportunities for energy efficiency improvements.
- Collaborate with research institutions, universities, and partners to conduct feasibility studies on low-carbon technologies and BECCS.
- Develop a carbon capture opportunity map and conduct preliminary cost–benefit analyses.
- Register relevant projects under appropriate programmes or registries and begin generating carbon credits from projects with measurable, transparent, and verifiable outcomes.

**Expected Outcomes:**

- Verified greenhouse gas emissions databases aligned with international standards.
- Feasibility study reports identifying potential pilot sites or facilities.
- Establishment of organizational mechanisms and assigned responsibilities for carbon management.
- Implement a pilot carbon capture system to capture 1,000 to 3,000 tCO<sub>2</sub> per year from the pilot facility.

**Medium term plan 2030-2037: Integrate carbon management into ERM, CAPEX, supplier engagement, product carbon data, LCA/EPD readiness, and Bio-CCS/BECCS feasibility, while scaling carbon management toward commercial readiness.**

**Strategic Focus:**

Integrate carbon into ERM and CAPEX, expand renewable energy options, improve supplier carbon data, develop low-carbon product evidence, advance LCA and EPD readiness, pilot Bio-CCS and BECCS feasibility, assess BECCS economics, strengthen climate scenario planning, and scale CCS toward the 2035 milestone

**Objectives:**

To demonstrate the potential of advanced carbon management measures, particularly biomass-based carbon capture and utilization, at pilot-scale facilities.

**Key Implementation Actions:**

- Integrate carbon capture and storage (CCS) with renewable energy systems and plant operations management to improve overall efficiency and decarbonization performance.
- Develop technical and commercial partnerships.
- Register greenhouse gas reduction projects under relevant certification mechanisms.
- Prepare organizational readiness for participation in carbon markets.
- Strengthen low carbon product data for market access and customer requirements, including life cycle assessment (LCA) and Type III environmental declarations (EPD).
- Enhance disclosure credibility through transparent reporting and independent third party verification of key performance data.

**Expected Outcomes:**

- Pilot systems capable of measurable emission reductions or carbon capture.
- Initial certification of carbon credits.
- Empirical data to support cost analysis and scaling decisions in subsequent phases.
- Achieve approximately 50% reduction by 2030 and progress toward more than 65% reduction by 2035-2038, using 2024 as the baseline year. The operational

reduction pathway shall cover Scope 1 and Scope 2, while the broader Net Zero Roadmap shall also track relevant Scope 3 emissions across raw materials, logistics, travel, commuting, product packaging, and other material value-chain categories.

- Scale carbon capture readiness from Bio-CCS/BECCS pilot activities of approximately 1,000-3,000 tCO<sub>2</sub>/year toward CCS scale-up of at least 20,000 tCO<sub>2</sub>/year by the 2035 milestone, subject to technical, financial, environmental, and verification feasibility.

#### **Key Performance Indicators (KPIs):**

- Proportion of emission reductions or captured carbon from pilot projects.
- Track and disclose carbon capture and storage volumes as a core performance indicator.
- Number of participating technical and commercial partners.
- At least one certified greenhouse gas reduction project.

#### **Long term plan 2038–2050: Scale low-carbon transformation, verified carbon removals, Bio-CCS/BECCS, and carbon value creation to deliver Net Zero 2050.**

##### **Strategic Focus:**

Achieve Net Zero 2050, decarbonize hard-to-abate emissions, scale Bio-CCS or BECCS where feasible, create verified carbon value, maintain high renewable energy share, lead in low-carbon wood-based products, align disclosure with global expectations, and support climate-resilient value chains.

##### **Objectives:**

To scale carbon management measures and technologies across core operations, and to integrate performance data into sustainability management and reporting systems.

##### **Key Implementation Actions:**

- Manage residual greenhouse gas emissions through low carbon technologies, including BECCS (bioenergy with carbon capture and storage) and Bio CCS (biogenic carbon capture and storage), supported by high integrity carbon removals where required within core operations.
- Expand the deployment of low-carbon technologies and BECCS across core operations.
- Reduce Scope 3 greenhouse gas emissions through supplier engagement, lower carbon logistics and distribution, and sustainable procurement across the value chain.
- Utilize or trade carbon credits through relevant markets.
- Establish systematic carbon monitoring and reporting systems

**Expected Outcomes:**

- Organization-wide capacity to achieve significant emission reductions or carbon capture.
- Certification for low-carbon or carbon-negative production systems.
- Recognition as a leading organization in carbon management within the industry.
- Achieve zero Scope 1 and Scope 2 greenhouse gas emissions.
- Deliver Net Zero by 2050 in line with an accelerated timeline compared with the previous plan.

**Key Performance Indicators (KPIs):**

- Annual volume of emission reductions or captured carbon.
- Proportion of renewable energy use.
- Number of products assessed through LCA and EPD.
- Economic value generated from carbon-related mechanisms.

**Overall Summary**

Timeframe	Key Strategy	Key Outcomes	Key Indicators
2025–2029	Build the carbon management foundation and strengthen at-source reduction	Plant-level GHG Mapping completed, biogenic and fossil carbon separated, Scope 1 and Scope 2 data improved, initial Scope 3 dataset established, MRV readiness strengthened	Verified GHG inventory, GHG Mapping coverage, Scope 1 and Scope 2 data quality, initial Scope 3 dataset, ISO 14064 / T-VER MRV readiness
2030–2037	Integrate carbon management into ERM, CAPEX, product carbon data, supplier engagement, and CCS readiness	Approximately 50% reduction by 2030, progress toward more than 65% reduction by 2035–2038, LCA/EPD readiness improved, Bio-CCS/BECCS feasibility piloted	Emissions reduction %, renewable energy share, number of LCA/EPD-ready products, supplier carbon data coverage, CCS pilot volume of 1,000–3,000 tCO <sub>2</sub> /year, CCS scale-up readiness toward 20,000 tCO <sub>2</sub> /year
2038–2050	Scale low-carbon transformation, verified removals, and carbon value creation	Net Zero GHG emissions by 2050, approximately 95% gross emissions reduction, residual emissions neutralized through verified high-integrity removals	Total Scope 1, Scope 2 and relevant Scope 3 emissions, residual emissions, verified removals, carbon value created, renewable energy share, carbon-related revenue or avoided cost where measurable

**Strategic Notes**

- This structure clearly links the Climate Strategy with the CCS Roadmap.
- It is applicable for corporate policy, Board-level oversight, and ESG disclosure.
- It provides a clear foundation for developing detailed technical implementation plans under the CCS Roadmap.

**7) Environmental Risk and Impact Management**

The Company manages environmental risks and impacts through a systematic approach to ensure that greenhouse gas reduction efforts and the Net Zero ambition are credible, measurable, and actionable. This covers both risks that may affect business continuity and the impacts our operations may have on the environment and communities across the value chain. We focus on identifying key risks, impacts, and dependencies on natural resources, establishing appropriate prevention and mitigation measures, and regularly monitoring and reviewing performance to support decision making and low carbon investment.

The Group conducts assessments through the V IMRA process and integrates outcomes into enterprise risk management (ERM) to prioritize initiatives and track progress at both policy and operational levels. Key areas include climate and energy, regulatory developments, water resources, pollution and waste, and biodiversity. Assessment results inform management actions to reduce emissions at source, improve efficiency, and increase renewable energy adoption, supported by KPI based reporting with verifiable data and, where appropriate, independent third party verification for material indicators. This approach serves as an enabler across the roadmap, guided by the principle of “at source reduction and verified results” grounded in reliable evidence.

**8) Strategic Targets and Performance Indicators**

The Company’s Climate Change and Carbon Management Strategic Plan establishes strategic targets and performance indicators using 2024 as the baseline year. The Group’s 2024 baseline covers total Scope 1, Scope 2 and relevant Scope 3 emissions of 885,523 tCO<sub>2</sub>e, including Scope 1 emissions of 35,122 tCO<sub>2</sub>e, Scope 2 emissions of 211,027 tCO<sub>2</sub>e, and relevant Scope 3 emissions of 639,374 tCO<sub>2</sub>e.

In 2025, total emissions were 744,822 tCO<sub>2</sub>e, representing a 15.9% reduction from the 2024 baseline. Scope 1 and Scope 2 market-based emissions were 173,299 tCO<sub>2</sub>e, representing a 29.6% reduction from 2024. The Company will

continue to reduce emissions at source, improve energy efficiency, maintain a high share of renewable energy, expand relevant Scope 3 data coverage, and develop verified carbon management mechanisms to support Net Zero greenhouse gas emissions by 2050.

### Strategic Targets and Performance Indicators

Category	2030 / 2035 / 2038 Target	2050 Target	Key indicators / standards
Greenhouse Gas Emission Reduction	Reduce emissions by approximately 50% by 2030 and progress toward more than 65% reduction by 2035-2038, using 2024 as the baseline year. Track both the operational Scope 1 and Scope 2 pathway and the broader Scope 1, Scope 2 and relevant Scope 3 Net Zero Roadmap	Achieve Net Zero GHG emissions by 2050, with approximately 95% gross emissions reduction and residual emissions neutralized through verified high-integrity removals.	GRI 102, GRI 103, GRI 3-3, FTSE Russell Climate Change, ISO 14064-1
Renewable Energy and Energy Efficiency	Maintain a high share of renewable electricity and heat energy, building from 71.6% in 2025, while improving energy intensity and expanding feasible low-carbon electricity options, biomass optimization, and Green Tariff readiness.	Maintain high renewable energy contribution and continuously improve energy productivity to support Net Zero 2050	GRI 103, ISO 50001, FTSE Russell ECC31
Advanced Carbon Management	Pilot Bio-CCS/BECCS at approximately 1,000-3,000 tCO <sub>2</sub> /year and scale CCS readiness toward at least 20,000 tCO <sub>2</sub> /year by the 2035 milestone, subject to feasibility and verification.	Deploy verified carbon removals and advanced carbon management mechanisms for residual emissions that are technically difficult to eliminate.	ISO 14064-2, T-VER, CCS Roadmap KPIs, MRV system

#### Additional Explanatory Notes:

- The base year for comparison is 2024.
- Greenhouse gas quantification and reporting are conducted in accordance with ISO 14064 and IPCC guidelines.
- Verification of carbon management performance and carbon capture outcomes is carried out by independent third-party verifiers in accordance with applicable standards.
- Results and progress are disclosed publicly on an annual basis through the Vanachai Sustainability Move Report, ensuring transparency and verifiability.

### **Strategic Summary**

The targets and performance indicators under this Climate Change and Carbon Management Strategic Plan serve as the primary reference framework for defining technical targets and implementation actions under the Carbon Capture and Storage Roadmap (CCS Roadmap). Together, these frameworks ensure a comprehensive and integrated approach to carbon management, aligned with the Company's Net Zero 2050 ambition and relevant international standards.

## **9) Integration with Corporate Strategy:**

The Climate Change and Carbon Management Strategic Plan has been designed as an integral component of the Company's long-term corporate strategy and serves as a core mechanism for systematically integrating environmental performance, energy management, and carbon management into the Company's core business operations. This Strategic Plan functions as the umbrella policy framework under the Vanachai Sustainability Framework 2025 and provides the primary reference for climate-related sub-strategies, particularly the Carbon Capture and Storage Roadmap (CCS Roadmap).

### **9.1 Alignment with Corporate Growth and Business Strategy**

- Integrate Climate Change and Carbon Management objectives into the Company's overall growth strategy.
- Utilize greenhouse gas emissions and energy consumption data to support investment decisions and operational planning.
- Embed carbon management considerations into core business operations across the organization.

### **9.2 Alignment with Energy Strategy and Low-Carbon Economy Transition**

- Support the increased use of renewable energy and continuous improvement in energy efficiency.
- Reduce reliance on fossil fuels and manage long-term energy-related risks.
- Align energy management measures with the Company's greenhouse gas reduction targets.

### **9.3 Integration of the Carbon Capture and Storage (CCS) Roadmap as an Enabling Strategy**

- Deploy the Carbon Capture and Storage Roadmap (CCS Roadmap) as a key instrument for advanced carbon management.
- Link CCS performance outcomes to the Company's Climate Strategy and Net Zero objectives.
- Support the development of Bio-CCS and BECCS projects to deliver long-term, structural emission reductions.

#### **9.4 Integration into Corporate Management Systems**

- Integrate the Climate Strategy into the Company's ISO 14001 Environmental Management System and ISO 50001 Energy Management System.
- Link climate-related targets to Key Performance Indicators (KPIs) of relevant business units.
- Utilize carbon management data to support Life Cycle Assessment (LCA) and Environmental Product Declaration (EPD) development.

#### **9.5 Alignment with National and International Climate Objectives**

- Support Thailand's Bio-Circular-Green (BCG) Economy Policy.
- Align with national Nationally Determined Contributions (NDC) and Net Zero targets.
- Ensure consistency with international frameworks, including FTSE Russell ESG Ratings, GRI Standards, and the United Nations Sustainable Development Goals (UN SDGs).

### **10) Monitoring, Reporting, and Transparency**

To ensure that the implementation of the Climate Change and Carbon Management Strategic Plan is effective, transparent, and verifiable, the Company has established a structured system for monitoring, reporting, and disclosure, covering operational, management, and Board oversight levels.

#### **10.1 Monitoring System:**

- Establish systems to monitor greenhouse gas emissions, energy consumption, and the implementation of emission reduction measures across all business units.
- Regularly collect and consolidate greenhouse gas emissions data, covering Scope 1, Scope 2, and material Scope 3 emissions.
- Track the progress of advanced carbon management initiatives, including Bio-CCS and BECCS projects under the CCS Roadmap.
- Report monitoring results to the Sustainability Committee at least semi-annually.

#### **10.2 Performance Reporting:**

- Disclose climate change and carbon management performance in the Company's annual Sustainability Report.
- Report key quantitative and qualitative information, including:
  - Total greenhouse gas emissions and emission reduction performance
  - Energy consumption and the share of renewable energy
  - Progress of CCS/BECCS projects and carbon credit mechanisms
- Utilize reported information to support management oversight and strategic decision-making by senior management and the Board.

**10.3 Reporting Standards and Frameworks:**

- Climate-related data are reported in accordance with relevant international standards and frameworks, including:
  - Global Reporting Initiative (GRI) Standards on Climate Change and Energy
  - FTSE Russell ESG Ratings, particularly the Climate Change (ECC), Pollution & Resources (EPR), and Supply Chain (ESC) themes
  - ISO 14064 standards for greenhouse gas quantification and reporting
- Ensure alignment and consistency between disclosures under the Climate Strategy and the CCS Roadmap to provide comprehensive and coherent information.

**10.4 Verification and Assurance:**

- Greenhouse gas emissions data and carbon management performance are subject to independent third-party verification.
- Verification may cover emissions data, emission reduction outcomes, and carbon capture and storage projects, as appropriate.
- Verification results are reported to the Board of Directors and disclosed in the Company's Sustainability Report.

**10.5 Transparency and Stakeholder Communication:**

- Regularly disclose climate change and carbon management information to relevant stakeholders.
- Communicate progress, key initiatives, and best practices through the Sustainability Report, corporate website, and other appropriate communication channels.
- Encourage stakeholder engagement in advancing the Company's Climate Action and Net Zero objectives.

**11) Review and Continuous Improvement**

The Company recognizes that climate change and carbon management is a dynamic process that requires continuous learning, adaptation, and improvement in order to remain aligned with technological advancements, international standards, public policy developments, and evolving business contexts.

**11.1 Periodic Review**

- The Climate Change and Carbon Management Strategic Plan shall be reviewed at least once every two years.
- The review shall be conducted by the Sustainability Committee and reported to the Board of Directors.

- The review shall assess the continued relevance and effectiveness of strategic objectives, targets, KPIs, and implementation approaches in comparison with actual performance and organizational alignment across all operational levels.

#### **11.2 Updates in Response to Changes in Standards, Technology, and Policy**

- The Strategic Plan shall be updated when material changes occur, including but not limited to:
  - Advancements in low-carbon technologies and BECCS
  - Updates to ESG reporting, disclosure, or assessment standards
  - Changes in national or international climate-related policies and regulations
  - Outcomes from such updates shall be used to enhance subsequent action plans and to recalibrate medium- and long-term targets.

#### **11.3 Learning from Performance Outcomes and Pilot Projects**

- Lessons learned from Climate Action initiatives and CCS/BECCS pilot projects shall be systematically analyzed and consolidated.
- Empirical performance data shall be used to refine investment models, technology selection, and implementation approaches.
- High-performing and scalable initiatives shall be supported for expansion across the organization.

#### **11.4 Organization-wide Communication and Implementation**

- Results from reviews and plan updates shall be communicated to all relevant business units.
- Strategic targets and KPIs shall be adjusted to align with the roles and responsibilities of each function.
- Employee engagement at all levels shall be encouraged to support the effective implementation of climate and carbon management objectives.

#### **11.5 Linkage to Long-term Strategic Development**

- Review outcomes shall inform the Company's long-term Climate Action strategic direction.
- The development of this Strategic Plan shall remain aligned with the Company's Net Zero 2050 target and related sub-strategies, including the Carbon Capture and Storage (CCS) Roadmap.
- The process shall continuously enhance the Company's readiness to manage climate-related risks and opportunities in the long term.

## 12) Statement of Commitment

*“Vanachai recognizes the urgency of climate change and its long-term impacts on the global economy, society, and the environment. The Company is therefore committed to advancing a systematic, integrated, and continuous approach to climate change and carbon management, in order to support sustainable business growth while fulfilling its responsibility to the planet and future generations.”*

The Company prioritizes greenhouse gas emission reduction as a primary action, through enhanced energy efficiency, increased use of renewable energy, and continuous improvement of sustainable production processes. In parallel, the Company is committed to developing and integrating advanced carbon management mechanisms, including the capture, utilization, and storage of biogenic carbon, under the framework of the Company’s Carbon Capture and Storage (CCS) Roadmap.

Vanachai is also committed to strengthening climate-related disclosure practices to ensure transparency, credibility, and alignment with internationally recognized standards, thereby reinforcing trust among all stakeholder groups. These efforts support the Company’s transition toward a low-carbon economy and its commitment to achieving net-zero greenhouse gas emissions by 2050.

Guided by the vision “Forest | Future | Together – for a Sustainable Living” and the principle of “Growing with Nature,” the Company integrates business operations with natural resource conservation and clean technology development, working collaboratively to build a sustainable future for all stakeholders.

### 13) Revision and Update History of the Climate Change and Carbon Management Strategic Plan

Version	Date	Policy Owner	Approved by	Key Changes / Remarks
1.0	25 February 2026	Sustainability Committee	Board of Directors	Initial issuance of the Climate Change and Carbon Management Strategic Plan, establishing the overarching climate policy framework of the Company. The Plan defines strategic objectives, governance structure, implementation scope, targets, and performance indicators, and positions the Carbon Capture and Storage (CCS) Roadmap as an enabling strategy under the Vanachai Sustainability Framework 2025.

This strategic plan is approved and issued for acknowledgement and implementation by all relevant parties.