

NSL Leads to Net-Zero 2050



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Near-Term

● 2026

● 2028

● 2030

● 2050

Long-Term



OUR PATHWAY

Assess the **CFO** in accordance with the defined boundaries, and initiate **CFP** assessment for NSL-branded products starting **in 2027**.

Obtain **Net Zero target validation under TGO** Thailand by 2028.

Achieve a **20% reduction** in GHG emissions in Scope 1, 2, and 3 **by 2030** (base year 2023).

Commit to achieving **Carbon Neutrality by 2045** and **Net Zero Emissions by 2050** (base year 2023).



OUR OPERATION

Register at least one carbon credit project under the **T-VER** program and obtain Green Industry Level 4 certification by 2027.

Achieve a 50% reduction of waste to landfill and a **15% improvement in water use efficiency** by 2028.

Improve **energy efficiency by 15%** through the integration of technology and AI, and install **20% renewable energy** by 2030.

Explore opportunities to **promote renewable energy** in significant business operations **by 2050**.



VALUE CHAIN MANAGEMENT

Announce **NSL's Net-Zero target** and **deliver 100% of sustainability policies** to key suppliers by 2028.

Implement the **Sustainable Sourcing Policy** and encourage key suppliers to optimize resource efficiency for maximum benefit.

Conduct ESG assessments for 100% of key suppliers by 2030 and perform periodic verifications.

Key Partners Promote ESG in Tier-2 Value Chain or Expand Collaboration per Targets.



PARTNERSHIP & ADVOCACY

Join the TCNN network and develop into a '**Climate Action Leading Organization (CALO)**' by 2026.

Collaborative activities within the network and achieve **TCNN CALO Silver badge** by 2028.

Achieve **TCNN CALO Gold badge** and become a model organization within the climate network by 2030.

Develop Partners to **Drive Model Organizations** for Climate Action in the **Value Chain**.



GOVERNANCE & TRANSPARENCY

Establish a **Corporate Governance and Climate Change Committee** by 2026.

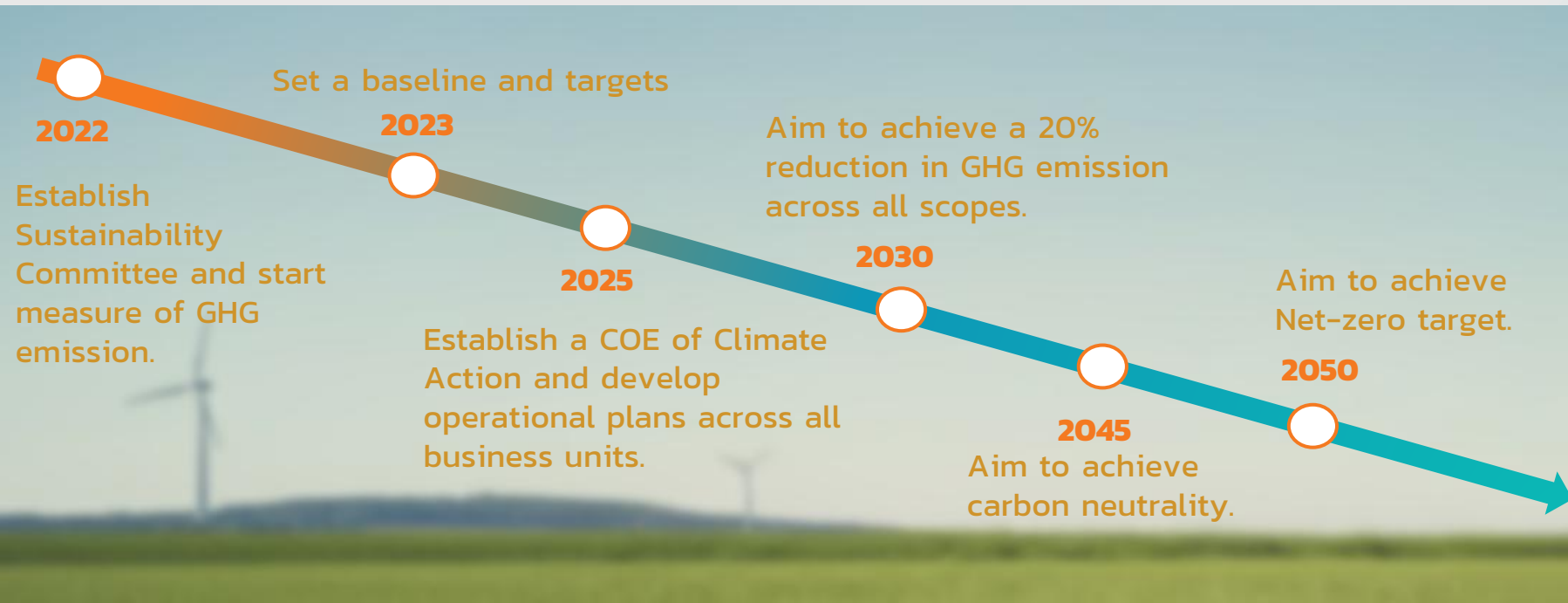
Expand data collection to align with **GRI, FTSE Russell, and IFRS S2** standards across the organization by 2028.

Enhance performance disclosure through GRI or equivalent standards, covering the entire organization by 2030.

Encourage suppliers to **disclose climate-related performance** in alignment with international standards.

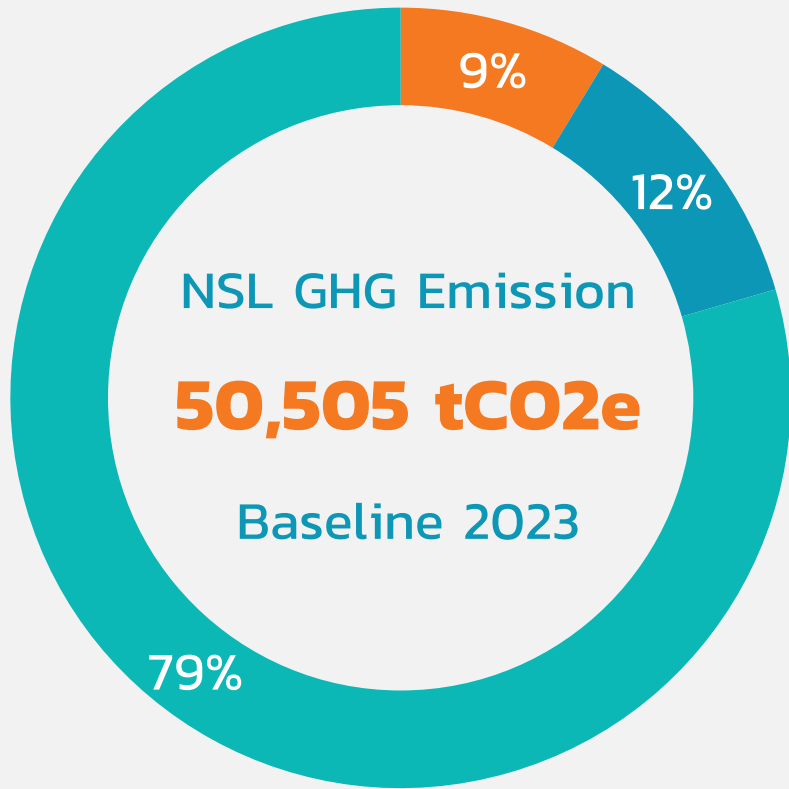
Net-Zero 2050 Commitment

At NSL, we believe that the business sector plays a crucial role in addressing the global climate crisis. As a Happy Taste Creator and one of the contributors to GHG emissions within the value chain, we are pleased to present our Net Zero Roadmap toward achieving net-zero greenhouse gas emissions by 2050. This represents a bold and necessary step to reduce emissions from our operations and value chain. Our strategy focuses on the following key milestones:



Achieving these targets requires collaboration, innovation, and a strong commitment to sustainability. We will transition to renewable energy, enhance energy efficiency integrated with innovation development, and work closely with key partners to reduce greenhouse gas emissions across the value chain. While this journey is full of challenges, we are confident in our ability to succeed, together with our employees, partners, alliances, and all stakeholders.





- Scope 1 : 4,388 tCO₂e (9%)
- Scope 2 : 5,975 tCO₂e (12%)
- Scope 3 : 40,142 tCO₂e (79%)

NSL Emission Baseline



Scope 1

GHG emissions associated with activities and sources that the reporting organization owns or directly controls, such as fuel use and refrigerant leakage.



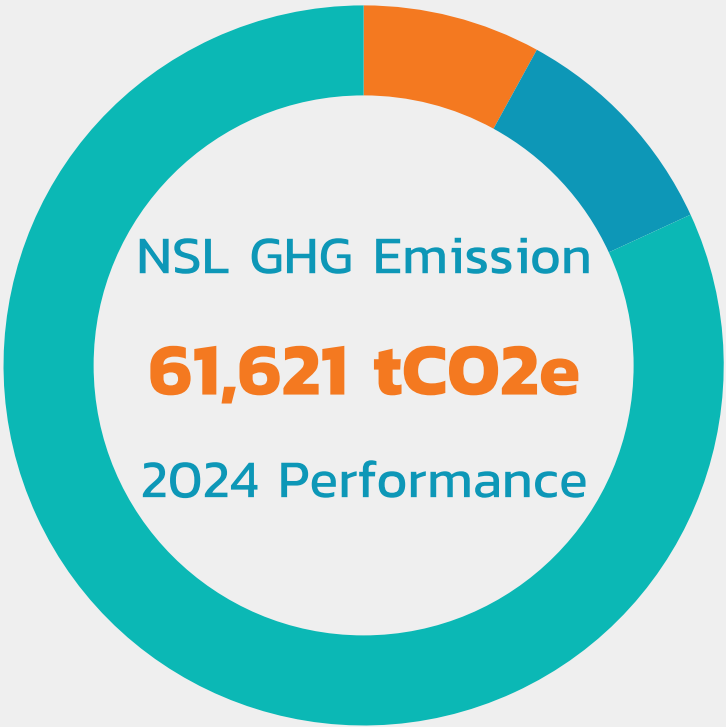
Scope 2

Indirect greenhouse gas emissions from purchased electricity used within the organization.



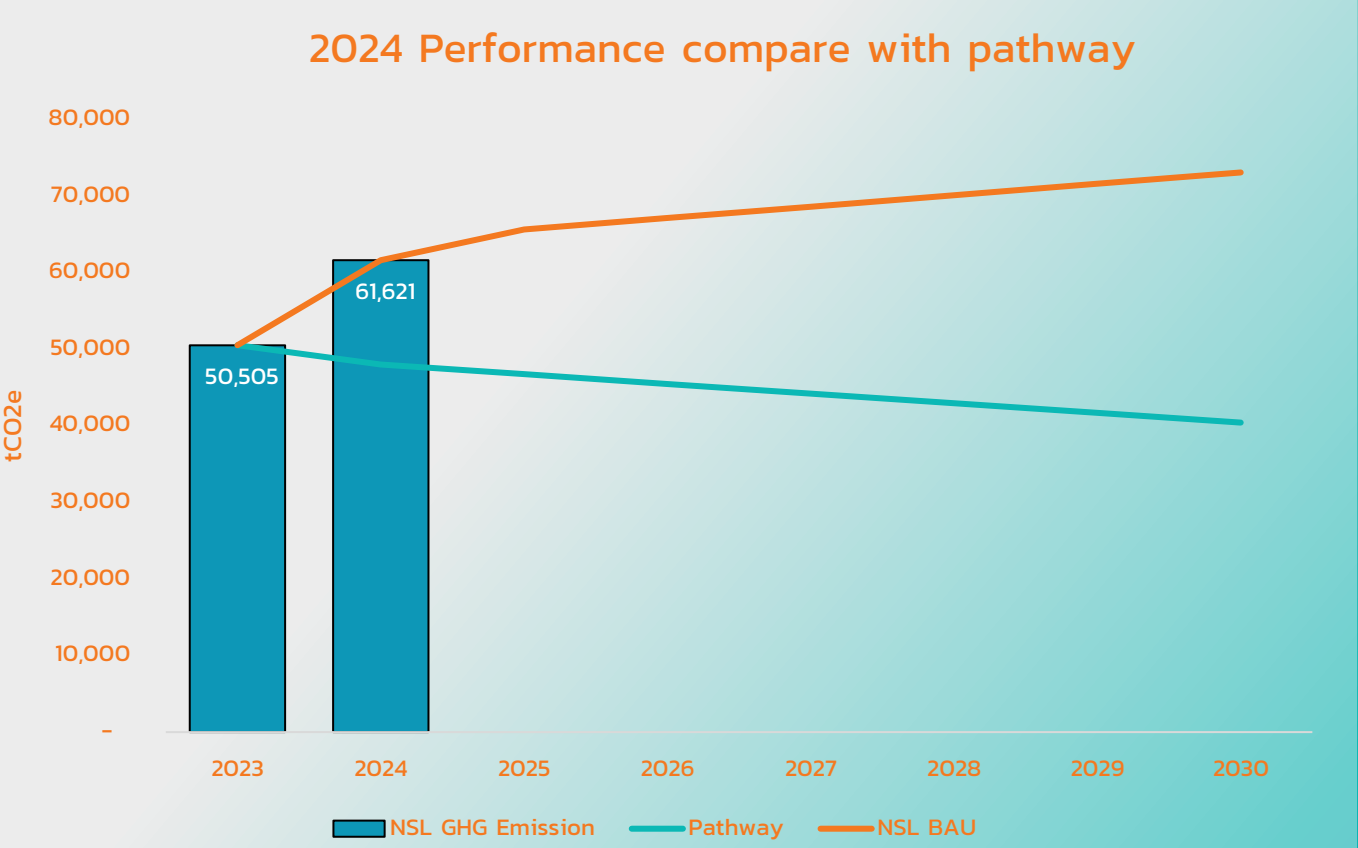
Scope 3

Other indirect greenhouse gas emissions resulting from activities across the entire value chain, both upstream and downstream, such as raw material procurement and product delivery.



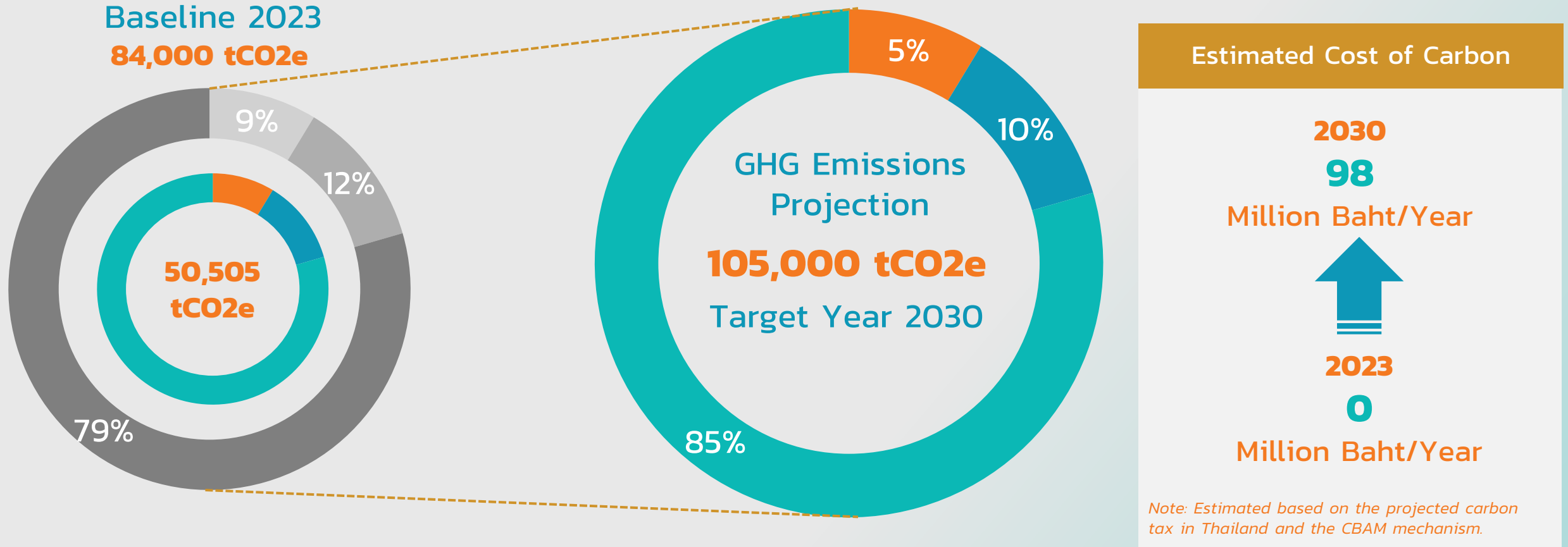
- Scope 1 : 4,923 tCO₂e (8%)
- Scope 2 : 6,246 tCO₂e (10%)
- Scope 3 : 50,452 tCO₂e (82%)

Note: Reporting scope: Head office and 2 branch factories 2



Greenhouse gas emissions in 2024 exceeded the levels defined in the reduction pathway due to ongoing development or mitigation projects not yet achieving full effect. Additionally, factors such as business expansion contributed to increased Scope 3 emissions. Nevertheless, NSL remains committed to fully implementing emission reduction initiatives and plans to offset emissions to align with the targets set in the reduction pathway.

2030 GHG Emissions Projection



Based on projected GHG emissions for NSL FOODS, if the carbon footprint is assessed comprehensively within the defined boundaries, emissions could increase from 50,505 tCO₂e to over 84,000 tCO₂e in the 2023 base year. This represents a significant rise in the event of production expansion or new business development in line with the company's strategy, potentially reaching 105,000 tCO₂e by 2030. This reflects rapid business growth and more than a twofold increase in GHG emissions compared to the base year, posing environmental and financial risks that could impact long-term business operations. Therefore, prioritizing the management and mitigation of GHG increases is crucial to enabling sustainable organizational growth.



NSL's Value Chain Emission

Upstream Activities



We are committed to collaborating with our key raw material suppliers and energy providers to reduce emissions in our upstream activities

Our Operations



Our core operations include food and beverage manufacturing, food services, and food import and export. These activities consume resources and energy while generating waste, which we aim to manage responsibly through effective treatment processes.

Downstream Activities



We prioritize sustainability in our downstream activities, focusing on product distribution and the end-of-life treatment of sold products.



Value Chain Emissions



■ Scope 3: Upstream emission ■ Scope 3: Downstream emission

According to the Value Chain Emission charts, over 99% of other indirect greenhouse gas emissions in Scope 3 originate from upstream supply chain activities, primarily the procurement of raw materials. Therefore, collaborating with our key suppliers to reduce GHG emissions in products and services within the supply chain is crucial.

Note: Reporting scope: Head office and 2 branch factories 2

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The relationship between CFO and CFP

CARBON FOOTPRINT
FOR ORGANIZATION

CFO

CARBON FOOTPRINT
OF PRODUCT

CFP

SCOPE 1
Direct Emission

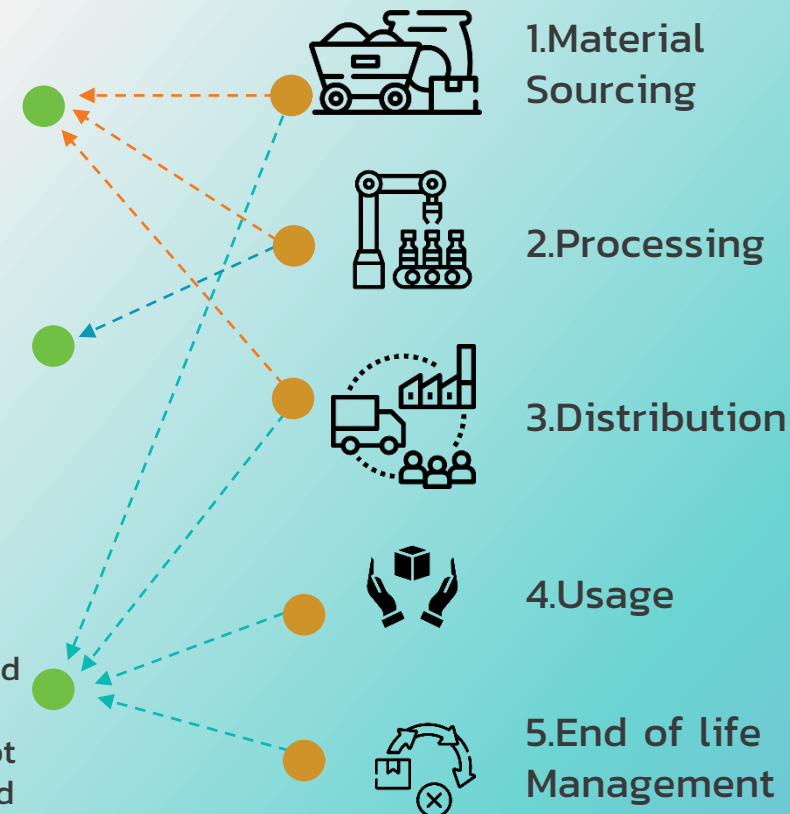
Direct emissions generated onsite from the activities an organization owns or controls

SCOPE 2
Indirect Emission

Indirect emissions generated from purchased energy

SCOPE 3
Other Indirect Emission

Emissions are all other indirect emissions generated up and down the value chain, but not controlled or owned by the organizations



4 Key Driving Themes: 1E & 3C

Energy Efficiency and AI Integrations



Increase the share of renewable energy and improve energy efficiency through innovation and the application of AI.

Circularity and Low Carbon Economy



Develop and design low-carbon products to support growth and comply with sustainability requirements, both domestically and internationally.

Climate Resilience in Supply Chain



Collaborate with suppliers to reduce greenhouse gas emissions and implement sustainable practices across the entire value chain.

Climate Finance Disclosure



Apply financial instruments in investment and financial management to mitigate risks associated with climate change operations.

Energy Efficiency and AI Integrations

❑ **Enhancing Energy Efficiency**

Improve energy efficiency in bakery production processes through machinery performance assessments, fuel usage adjustments, and the application of automation technologies such as inverters and optimizers. Additionally, artificial intelligence (AI) can be applied to repetitive production processes, such as bakery assembly lines, to further enhance energy efficiency. The target is to achieve a 15% improvement in energy efficiency^{*1} by 2030 compared to the 2023 base year.

^{*1} According to the Energy Efficiency Plan (EEP) 2015.

❑ **Renewable Energy Expansion**

Promote the use of renewable energy within the organization by installing rooftop solar panels at all NSL branches and exploring the application of biomass technology. This aims to reduce reliance on grid electricity and fossil fuels, thereby decreasing greenhouse gas emissions from electricity procurement (Scope 2). NSL targets a 20% share of renewable energy² by 2030 compared to the 2023 base year.

² According to the Alternative Energy Development Plan (AEDP) 2015."

❑ **Automation line & AI Adoption**

Implement technology to automate production lines and explore the use of AI for analyzing energy efficiency data and production planning to forecast trends, reduce losses, and enhance energy performance. AI can also support the planning of key raw material procurement, logistics systems, and the collection and recording of data to predict greenhouse gas emissions.



Circularity and Low Carbon Economy

❑ Resource & Efficiency Management

Emphasis is placed on efficient resource management, covering water reduction and water reuse, waste management to reduce landfills, and promotion of recycling or upcycling of waste materials to create added value, reduce costs, and support business operations in a tangible circular economy approach.

❑ Sustainable Products & Packaging

Focus on developing environmentally friendly products and packaging, including low-carbon products, by prioritizing the use of recycled materials, reducing single-use plastics, and increasing the proportion of recyclable or biodegradable materials. Additionally, promote carbon footprint labeling and eco-label certifications to enhance transparency and strengthen competitiveness both domestically and internationally.

❑ Green Growth & Compliance

Drive business growth alongside carbon reduction by designing highly efficient factories and production processes, utilizing clean energy, and strategizing international market expansion in compliance with climate-related regulations such as the EU CBAM and Climate Disclosure. This approach aims to mitigate risks, reduce costs, and maintain long-term competitive advantage.



Climate Resilience in Supply Chain

❑ Upstream Management

Build collaboration with Tier-1 suppliers to deliver goods and services aligned with NSL's procurement policy, emphasizing sustainability and upstream greenhouse gas reduction. NSL plans to enhance these partnerships through activities such as supplier ESG assessments and Supplier Engagement Day events to ensure that procurement processes incorporate environmental and sustainability considerations in a concrete manner. This approach will help reduce Scope 3 Category 1 emissions, which represent the largest proportion of NSL's GHG emission portfolio.

❑ Downstream Management

Promote collaboration with customers by delivering products that emphasize responsible sourcing, improved energy efficiency, and reduced greenhouse gas emissions throughout the product life cycle. Additionally, NSL continuously develops systems to gather feedback from customers and consumers, using the insights to research and develop new products that meet market needs while supporting sustainable carbon reduction goals.

❑ Partnership And Network

Collaborate with business partners to exchange experiences, enhance energy efficiency, expand the use of renewable energy, and promote sustainable sourcing of raw materials. Additionally, build networks with organizations such as the Thailand Carbon Neutral Network (TCNN) to drive progress toward NSL's greenhouse gas reduction and net-zero carbon emission targets.



Climate Finance Disclosure

☐ **Cost of Carbon**

Analyze and plan for the management of carbon taxes and related financial issues using tools such as Internal Carbon Pricing (ICP), TCFD/IFRS S2, ETS, and Carbon Tax, ensuring compliance with regulatory requirements from authorities such as the Securities and Exchange Commission and the Stock Exchange of Thailand. Additionally, prepare for the future implementation of Thailand's Climate Change Act.

☐ **Carbon Market Mechanism**

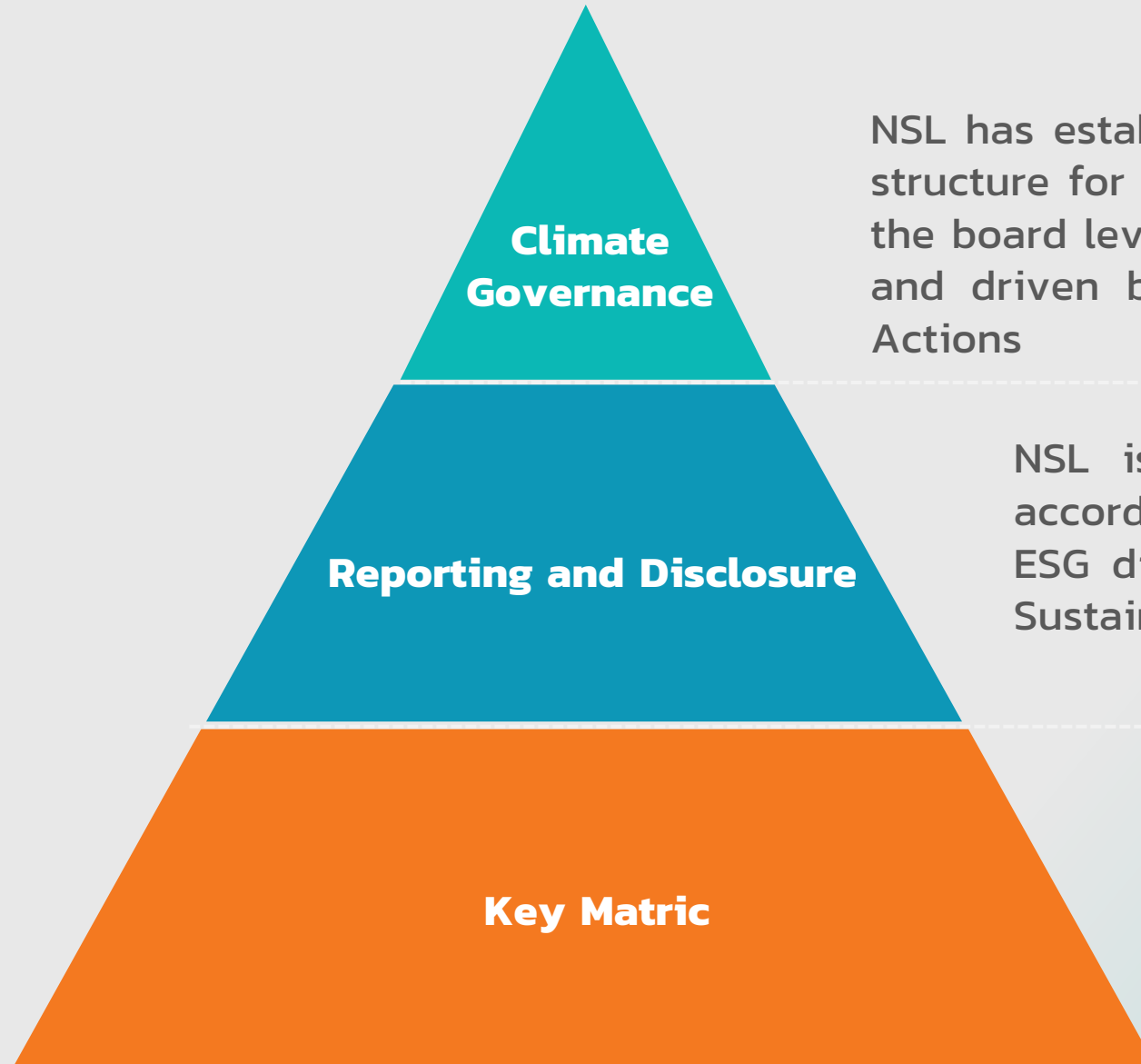
Promote the carbon market mechanism in Thailand by developing greenhouse gas reduction projects and obtaining carbon credit certification. NSL aims to develop and register projects under Thailand's Voluntary Emission Reduction Program (T-VER) in sectors where NSL has potential, such as energy, waste management, and forestry, with the goal of receiving the first carbon credit certification by 2028. Additionally, NSL plans to implement greenhouse gas offset initiatives to achieve the targets set in its roadmap.

☐ **Sustainability Linked Loan/Bond**

Utilize designated financial instruments and monitor sustainability targets to support business expansion, exports, and green projects by leveraging sustainability-linked financial benefits, such as reduced interest rates, to lower financial costs. Additionally, disclose sustainability performance against targets through various channels to enhance the company's reputation with investors and international markets that prioritize climate finance.



Governance and Reporting Hierarchy



NSL has established a strong sustainability governance structure for climate action, with oversight provided at the board level and through a Sustainability Committee and driven by Center of Excellence (CoE) of Climate Actions

NSL is committed to integrating reporting in accordance with GRI, TCFD, IFRS S2, and relevant ESG disclosures on an annual basis through its Sustainability Report and Annual Report.

NSL Foods will disclose the results of its organizational carbon footprint assessment annually, with the assessment results verified by an external agency.



NSL FOODS

The Happy Taste Creator

Scan the QR code to read the 2024 Sustainability Report.



Contact NSL Sustainability Team

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