

Climate Related Disclosure Report 2025

Tipco Asphalt PCL



Climate change is a major challenge for all countries with economic and social impacts that has led to nations and businesses making pledges to reduce greenhouse gas (GHG) emissions through mitigation and adaptation measures. As the effects of climate change will directly impact Tipco Asphalt Public Company Limited and its subsidiaries (the Group)' sustainable development initiatives, disclosure of its climate-related risk, opportunities, and mitigation efforts will provide transparency and confidence to internal and external stakeholders.

The Group has a target to reduce 36% of GHG emissions (Scope 1 and 2) by 2030 from 2020 base year for the asphalt business in Thailand. The following report provides information on the Group's governance structure, strategic initiatives, risk assessments, and metrics and targets with regard to climate-related information.

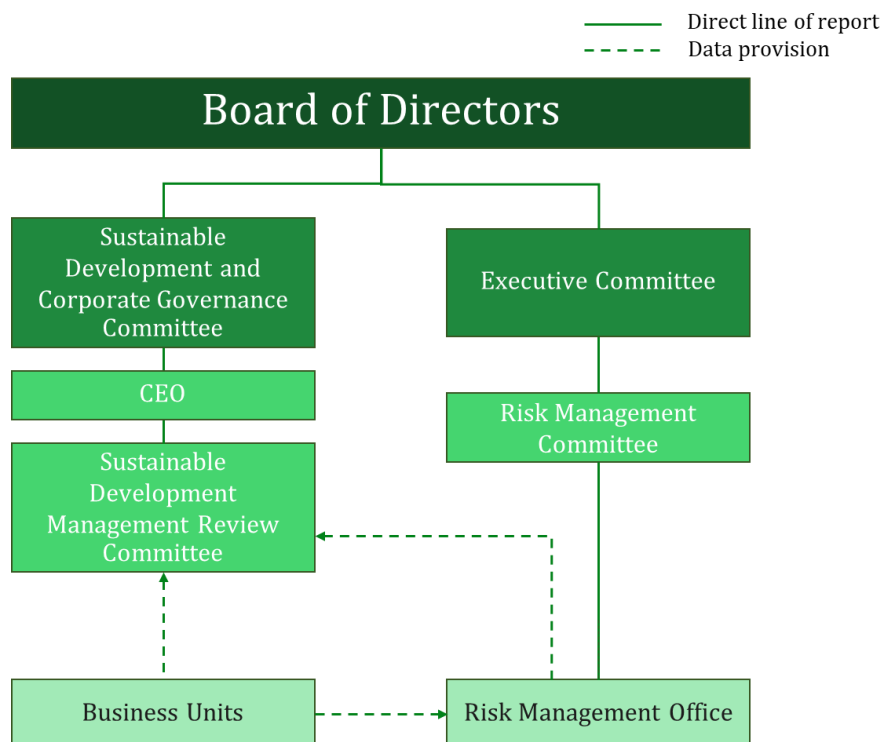
This report is aligned to the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD).

1. GOVERNANCE

The Group's Climate Governance structure provides Board of Directors (BoD) oversight on Sustainability Development and Climate Change policies, targets, and climate strategies, which are cascaded down towards sub-committees of the BoD, management, business unit directors, and staff as indicated in the figure below.

This structure allows the Group to deploy and monitor policy execution and have a timely response towards climate-related program progress, risk and opportunities.

FIGURE 1 TIPCO ASPHALT'S CLIMATE GOVERNANCE STRUCTURE



1.1 OVERSIGHT OF CLIMATE CHANGE

Functions	Level	Roles and Responsibilities	Meeting Frequency
Board of Directors (BoD)	Governance (Board)	The BoD is responsible for approving policies, strategies, and targets related to climate change that will support sustainable business growth in the short, medium, and long-term. This is with due consideration to the findings and financial implications of the climate risk assessment process, allowing the BoD to allocate funds and resources for the effective and timely implementation of climate mitigation and adaptation measures. The BoD meets at least five times per year and on an annual basis, discusses agendas on sustainability and climate. In 2025, the BoD was informed about climate-related issues at least quarterly by the Sustainable Development and Corporate Governance Committee (SD & CG). The Board of Directors Charter(https://www.tipcoasphalt.com/wp-content/uploads/2025/09/Board-Charter-Eng-11-Sep-25-1.pdf) provides additional details on roles and responsibilities of the BoD.	Quarterly
Sustainable Development and Corporate Governance Committee (SD & CG)	Governance (Sub-committee)	The SD & CG is responsible for overseeing policies, strategies, and direction of Tipco Asphalt's business operation to ensure it is in-line to achieve sustainability and Corporate Governance objectives. These objectives are derived from climate strategies, GHG emissions reduction targets, and outcomes of response measures to climate-related risks and opportunities. For additional details on Tipco Asphalt's climate-related targets and progress, please refer to section 4 of the report. The SD & CG meets on a quarterly basis to discuss climate-related matters, and reports those to the BoD.	Quarterly
Executive Committee (EC)	Governance (Sub-committee)	The EC is responsible for establishing policies and operating procedures of the Group's Enterprise Risk Management (ERM) objectives and targets. Through the ERM process, the EC is able to review and monitor potential Climate Change related risks and assessments conducted by each business unit (and respective strategies) and make recommendations for further action to the BoD. The EC meets at least five times per year and reports directly to the BoD.	Quarterly

Functions	Level	Roles and Responsibilities	Meeting Frequency
Chief Executive Officer (CEO)	Management	The CEO is responsible for driving Tipco Asphalt's implementation of climate strategic projects and achieving its climate-related targets. As a member of the SD & CG committee and Chairman of the EC, the CEO oversees monitoring, assessment, and response towards climate-related risks and opportunities.	On regular basis
Sustainable Development Management Review Committee (SDC)	Management	The SDC is responsible for the development and execution of climate-related strategic projects that meet or exceed the established policies and targets of Tipco Asphalt. The SDC is represented by senior management from various business units to provide recommendation and resources to the SDC and vice versa. Application of the ERM framework is conducted on all projects and initiatives to assess potential risks and opportunities that may arise to ensure that the SDC, with representation from the Risk Management Office (RMO), makes due consideration to climate-related risks. Once the Group's climate targets have been approved by the BoD, the SDC will implement its climate strategic projects and provide a report to the SD & CG and the CEO on a quarterly basis.	Twice a year
Risk Management Committee (RMC)	Management	The RMC is responsible for ensuring that the ERM process is integrated into the climate-based activities and initiatives of the Group, reviewing associated risk assessments, and reporting mitigation plans and procedures to the EC and the BoD. Upon recommendation of the RMC (and RMO) to the EC, implementation of additional control measures is to be implemented at the operational-level to ensure risk exposure are within acceptable levels. The RMC consists of business unit heads, c-suite executive management, and executive directors with the Chief Executive Officer (CEO) as Chairman of the committee. The RMC meets on an annual basis and provides a Risk Report to the EC.	At least once a year
Risk Management Office (RMO)	Management	The RMO is responsible for ensuring that all related business units utilize, integrate, and receive training on the ERM framework for risk assessment on climate-based initiatives and projects. This allows for the RMO to monitor and provide appropriate response measures and controls on all climate-based activities of the Group. RMO operates as a hybrid model which consists of management "Champions" that are embedded in each business unit to ensure open communication and the exchange of knowledge and information and head by senior management of the CEO's Office.	On regular basis

Climate-related performance metrics are included in remuneration considerations for management personnel responsible for sustainability and operational performance to support alignment with the Company's climate-related objectives.

In terms of environmental awareness, the Group conducted awareness sessions for both employees at asphalt plants and the head office with the aim to

- Understand energy impact on climate change,
- Optimize energy behavior and lead to a culture that aims to reduce energy consumption

2. STRATEGY

2.1 CLIMATE RISK ASSESSMENT

The Group is the leading manufacturer and distributor of asphalt products for the repair, maintenance and construction of road pavements, highways and airport runways in Thailand and the Southeast Asia countries. Its asphalt products are export to Australia, New Zealand countries in Africa, and North America. In addition, the Group also sells non-asphalt products, such as naphtha, gas oil and fuel oil, from its asphalt crude refining process to oil traders and refineries in Thailand, Singapore, and Malaysia.

The Group's business consists of 4 main business: refinery business, domestic and international asphalt business, marine business, and construction business.

2.1.1 PHYSICAL RISKS

Tipco Asphalt conducted a physical risk assessment that covered acute and chronic hazards from the effects of long-term changes in climate patterns. The physical risk assessment covered the Group's asphalt operations in Thailand consisting of (1) The Head Office in Bangkok, (2) Nakhon Ratchasima plant, (3) Phitsanulok plant, (4) Prapadang plant, (5) Rayong plant, (6) Surat Thani plant, and (7) Laem Chabang Logistic Hub.

2.1.1.1 CLIMATE SCENARIOS

Tipco Asphalt utilized three Shared Socioeconomic Pathways (SSPs) climate scenarios from the Intergovernmental Panel on Climate Change (IPCC) Assessment Report 6, including **SSP 1-2.6**, **SSP3-7.0** and **SSP5-8.5**, in its physical risk assessment. The SSPs are built upon the latest climate science, combining qualitative forecasts of societal features, quantitative measures of economic development and climate data to reflect potential changes in global GHG emissions, energy use, air pollution control, land use, etc.

In terms of the future time horizons applied in the assessment, We have evaluated climate-related risks in time horizon: short-(0-2 years), medium-(2-10 years) and long term (more than 10 years). **The short term (2025) risk** was assessed by using the **historical baseline climate data**. **The medium-term** and **long-term time horizons** are defined as **2030** and **2050** respectively, in alignment with the key milestones for managing climate change as internationally recognized. These timeframes have been integrated into the ERM and strategy formulation processes.

TABLE 1 CLIMATE SCENARIOS USED IN PHYSICAL RISK ASSESSMENT

Climate Scenarios	Description	Estimated Increase in Temperature by 2100
SSP1-2.6	A low emissions scenario that shows global efforts in alignment to current commitments under the Paris Agreement.	1.8°C
SSP3-7.0	A medium-high scenario that represents a realistic worst-case outcome. It implies difficulties in mitigating physical risks due to increasing regional rivalry.	3.6°C
SSP5-8.5	A high emissions scenario following a 'business as usual' trajectory, assuming no additional climate policy and seeing GHG emissions triple by 2100.	4.4°C

The assessment applied scenario indicators to assess present-day conditions and future projected trends for eight climate hazards. Figure 2 details each of these climate-related hazards alongside their associated indicators and units.

FIGURE 2 CLIMATE HAZARDS AND ASSOCIATED INDICATORS AND UNITS

Hazard	Extreme heat	Coastal flooding	Extreme Rainfall Flooding	River Flooding	Extreme wind & storms	Water stress & drought	Rainfall induced landslides	Wildfires
Indicators	Warm Spell Duration Index (WSDI)	Coastal flooding inundation depth	Pluvial flooding inundation depth	River flooding inundation depth	Maximum tropical cyclone wind speed	Water stress*	Rainfall-Induced Landslides Index	Forest Fire Danger Index (future)/Maximum burned area (historical)
Units	Days	Metres	Metres	Metres	Knots	By category	Days	Days/square kilometers
Methodology	Scenario analysis using Global Climate Models (GCM)							
Scenarios	The Intergovernmental Panel on Climate Change (IPCC) AR6 Scenarios: SSP1-2.6, SSP3-7.0 and SSP5-8.5							

*Definition of water stress based on WRI Aqueduct 2019: Baseline water stress measures the ratio of total water withdrawals to available renewable surface and groundwater supplies. Water withdrawals include domestic, industrial, irrigation, and livestock consumptive and no-consumptive uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability. Higher values indicate more competition among users.

2.1.1.2 PHYSICAL RISK ASSESSMENT METHODOLOGY

1. **Asset Data Collection:** Data on location and business activities in each asset is collected.
2. **Climate Hazard Data:** Indicators for climate-related hazards at each asset location is obtained and normalized based on the same scale.
3. **Exposure Rating:** Assets hosting different business activities that are exposed to climate-related hazards are determined. An asset with a high exposure rating represents how susceptible that asset is to a particular climate-related hazard.
4. **Risk Scores:** Climate hazard data and exposure ratings are combined to calculate the risk score for each asset and for individual climate-related hazards, or aggregated risk scores. A high-risk score indicates high exposure to a climate-related hazard for a particular type of asset. In addition, the risk scores are also calculated across multiple timeframes to show changes over time.

2.1.1.3 KEY FINDINGS-PHYSICAL RISK ASSESSMENT

Key findings of the physical risk assessment are demonstrated as the baseline risk scores for each asset which are expected to remain the same in the short-term timeframe (2025) and the corresponding projected risk scores based on the SSP1-2.6, SSP3-7.0 and SSP5-8.5 climate scenarios in the medium-term (2030) and long-term (2050) timeframes. Risk scores for each asset are calculated as the average risk scores for hazards applicable to that particular assets. The key findings are shown and summarized below. Additional details on the risk scores for each hazard can be found in Appendix 1.

Risk Scores Legend:

Minimal	Low	Moderate	High	Very High
---------	-----	----------	------	-----------

FIGURE 3 SUMMARY HEATMAP OF PROJECTED RISK SCORES UNDER DIFFERENT SCENARIOS

Assets	Baseline Risk Scores	Projected Risk Scores Averaged for All Hazards					
	Short-term (2025)	Medium-term (2030)			Long-term (2050)		
		SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP1-2.6	SSP3-7.0	SSP5-8.5
Head Office							
Nakhon Ratchasima Plant							
Phitsanulok Plant							
Prapadang Plant							
Rayong Plant							
Surat Thani Plant							
Laem Chabang Logistic Hub							

Note 1: Coastal flooding and rainfall-induced landslides are excluded from the average risk scores in the above heatmap as they are found to be not applicable to all the above assets.

Note 2: Water stress and drought is excluded from the average risk scores in the above heatmap due to it being assessed with a different scoring system used by Word Resources Institute (WRI).

FIGURE 4 HEATMAP OF MAXIMUM RISK SCORES FROM ALL CLIMATE SCENARIOS AND TIME FRAMES

Assets	Maximum Risk Scores Among All Timeframes and Scenarios							
	Coastal flooding	Extreme heat	Extreme rainfall flooding	Extreme winds and storms	Rainfall-induced landslides	River flooding	Wildfires	Water stress and drought
Head Office								
Nakhon Ratchasima Plant								
Phitsanulok Plant								
Prapadang Plant								
Rayong Plant								

Assets	Maximum Risk Scores Among All Timeframes and Scenarios							
	Coastal flooding	Extreme heat	Extreme rainfall flooding	Extreme winds and storms	Rainfall-induced landslides	River flooding	Wildfires	Water stress and drought
Surat Thani Plant								
Laem Chabang Logistic Hub								

Note: Water stress and drought is excluded from the average risk scores in the above heatmap due to it being assessed with a different scoring system used by Word Resources Institute (WRI).

Summary of Key Findings

- The risks from extreme heat are projected to have the most significant increase for all seven assets in the medium to long-term timeframes, reaching high to very high levels by 2050.
- The risks from wildfires are projected to increase considerably for all assets; there is a significant increase projected for Nakhon Ratchasima and Phitsanulok plants. The risk from wildfire is non-applicable for the Head Office in Bangkok due to its urban location.
- The risks from water stress and drought are already high in the baseline/short-term for most assets and are projected to maintain at a high level by 2030 and 2050. More details in Table 2.
- The risks from extreme rainfall flooding are already high at the baseline in Nakhon Ratchasima plant and is projected to maintain at a high level by all timeframes.
- The risk from river flooding is already high at the baseline in Phitsanulok plant and is projected to maintain at a high level for all timeframes.

TABLE 2 KEY FINDINGS OF THE MOST SIGNIFICANT PHYSICAL RISKS BY TIMEFRAMES AND SCENARIOS

Baseline/Short-term (2025)	Scenario	Medium-term (2030)	Long-term (2050)
Water stress and drought exhibits the highest baseline risk, whereas extreme heat is identified to be the most common climate hazard across the seven assets.	SSP1-2.6	Extreme heat and wildfires show the most substantial risk increase. Water stress and drought remain having high to extremely high risk to most sites.	Extreme heat significantly increases across most assets, followed by wildfires posing elevated risks in several assets. Water stress and drought remain having high to extremely high risk for most sites.
	SSP3-7.0	Extreme heat presents a higher risk in SSP3-7.0 compared to SSP1-2.6. Other hazards remain at similar risk levels.	By 2050, most of the risks identified are projected to intensify under SSP3-7.0, compared to SSP1-2.6
	SSP5-8.5	Most hazards remain at similar risk levels compared to SSP3-7.0.	Extreme heat is projected to continue intensifying by 2050 under SSP5-8.5, while other hazards remain at similar risk levels compared to SSP3-7.0.

Key Findings for the Nakhon Ratchasima Plant

- The risk from extreme heat is moderate in the baseline and is projected to become very high by 2050 in all climate scenarios.
- The risk from heavy rainfall flooding is very high in the baseline and is projected to maintain at a very high level by 2030 and 2050 in all climate scenarios.
- The risk from wildfires is moderate in the baseline and is projected to become high by 2030 and very high by 2050 under the SSP5-8.5 scenario.
- The risk from water stress and drought is very high by 2030 and 2050 in all climate scenarios.

Key Findings for the Phitsanulok Plant

- The risk from extreme heat is low in the baseline and is projected to significantly increase to very high in SSP3-7.0 and SSP5-8.5 by 2030 and in all climate scenarios by 2050.
- The risk from river flooding is very high in the baseline and is projected to maintain at a very high level by 2030 and 2050 in all scenarios.
- The risk from wildfires is high in the baseline is projected to become very high in SSP1-2.5 by 2030 and in all scenarios by 2050.
- The risk from water stress and drought is very high by 2030 and 2050 in all climate scenarios.

2.1.1.4 PHYSICAL RISK: BUSINESS IMPLICATIONS AND RESPONSE MEASURES

Tipco Asphalt has analyzed the business implications of the physical risk for its own operations that include upstream and downstream activities. The Group has also developed corresponding response measures and adaptation strategies.

Hazards	Business Implications	Response Measures
Extreme heat	Own Operations - Decrease in efficiency of cooling systems as well as turbines and compressors due to higher temperatures during extreme heat - Increase in energy costs due to higher energy demand for cooling of indoor areas for both personnel and equipment during extreme heat - Decrease in productivity of personnel when working during extreme heat	- Install energy-efficient cooling systems and ventilation to reduce temperature in buildings / working areas. - Evaluate and improve, if needed, existing operational temperature ranges of the cooling systems for the projected extreme temperature ranges - Provide training to employees to identify symptoms of heat stress, implement heat stress prevention measures and provide first aid - Provide a rest area for employees and provide cold drinking water / mineral water for employees - Adjust work & rest schedules for outdoor workers
Extreme rainfall & riverine flooding	Own Operations - Increase in operating costs due to flood-related disruption, emergency	- Conduct flood risk assessment to identify and prioritize areas prone to flooding for all

Hazards	Business Implications	Response Measures
	response, clean-up, and temporary interruption of operations. - Flooding causes operational disruptions by blocking key access routes for site personnel and logistics, resulting in delay or temporary suspension of operations. - Water treatment facilities may reach full capacity and be unable to process wastewater further onsite - Increase in capital expenditure to restore or replace any damaged physical infrastructure - Decrease in market value of real estate, and increase in insurance premiums for assets located in an area with high risks of flooding Upstream: Sourcing - Delay in shipments of raw materials due to heavy rains or off-season rains - Land transportation of raw materials will be delayed due to severe flooding on the travel route	key locations, including periodic reassessment - Design and implement suitable flood mitigation and/or protection measures e.g. increase the capacity of water drainage or pumping systems, construction of flood barriers where needed. - Implement flood early-warning systems at high-risk sites and conduct training on safety measures during floods for employees, including trigger-based shutdown, site-protection procedures, inventory and equipment protection actions, and emergency communication protocols. - Collaborate with other stakeholders such as government agencies, local authorities and neighboring in surrounding areas on flood risk management and emergency response plan - Develop contingency planning for alternative access, logistics rerouting, or business continuity planning for flood disruption. - Enhance wastewater management capacity during flood events, or establish contingency procedures for wastewater overflow and wastewater treatment disruption. - Routine inspection and maintenance of drains, pumps, barriers, and site runoff systems before peak rainy seasons.
Extreme Winds & Storms	Own Operations - Increase in operating costs due to storm-related disruption, emergency response, repair activities, clean-up, and temporary interruption of operations. - Extreme winds and storms may disrupt business operations by damaging infrastructure such as power supply, resulting in delay or temporary suspension of operations. - Decrease in revenue from operational disruptions due to extreme winds and storms (e.g. key access routes for site personnel and logistics may be blocked) - Decrease in market value of real estate, and increase in insurance premiums for assets located in an area with high risks of extreme winds and storms - Increase in capital expenditure to restore any damaged physical infrastructure	- Develop an extreme-weather response plan with defined triggers for planned shutdowns or schedule adjustments and take preventive actions to reduce impacts e.g. damage and downtime. - Establish an emergency communication protocol, including a call tree diagram and clear roles/responsibilities to contact all staffs and coordinate response before, during, and after emergency events.

Hazards	Business Implications	Response Measures
Wildfires	Own Operations - Increase in operating costs due to wildfire-related disruption, emergency response, fire suppression measures, and temporary interruption of operations. - Wildfires may disrupt outdoor operations due to enforced shutdowns (e.g., stop-work measures triggered by direct fire exposure or smoke dispersion), leading to delays or temporary suspension of operations. - Decrease in revenue from operational disruptions due to wildfires (e.g. key access routes for site personnel and logistics may be blocked)	- Strengthen preparation through awareness and regular training for site personnel on wildfire and smoke-related safety measures. - Implement an emergency response and evacuation plan for the workers and employees in case of wildfire - Check local emergency broadcast radio for updated information regarding the path of the wildfire - Establish an emergency communication protocol, including a call tree diagram and clear roles/responsibilities to contact all staffs and coordinate response before, during, and after emergency events.
Water stress & drought	Own Operations - Increase in operating costs due to water stress & drought affecting the availability of surface and underground water for asphalt emulsion production - Increase in operating costs due to inadequate water supply e.g. production delays, additional water procurement/transport.	- Explore opportunities for recycling and reuse of wastewater - Explore opportunities for rainwater harvesting at the site and within the wider watershed area - Adopt water-efficient/saving technologies to reduce water usage - An alternate water source/supply should be identified for the site, either externally or internally through the water storage infrastructure

2.1.2 TRANSITION RISKS AND OPPORTUNITIES

The transition risk assessment includes drivers associated with the transition towards a low-carbon economy that are relevant and may impact on the Group at the corporate-level and its value chain.

2.1.2.1 TRANSITION RISK ASSESSMENT

The Group conducts assessment of climate-related transition risks by systematically evaluating potential impacts across four key transition drivers: Legal & Policy, Market, Reputation, and Technology. These categories are aligned with IFRS S2 guidance to ensure comprehensive identification of risks arising from the transition to a low-carbon economy.

1. **Legal & Policy:** National Climate Change Legislation: The framework established by upcoming national Climate Change Acts requires businesses to institutionalize carbon accounting practices, implement structured emission reduction workflows, and align corporate targets with national decarbonization pathways and potential statutory carbon pricing mechanisms.

2. **Market:** Market dynamics are shifting toward sustainability, driven by government and regulator.

Green Public Procurement (GPP) Framework: The transition to a unified GPP Framework—administered by the Comptroller General's Department via the e-GP electronic platform—establishes clear, objective environmental criteria for state supplier selection. To qualify for public sector tenders, the framework requires:

- Provision of goods and services certified under verified eco-labeling schemes (such as the Pollution Control Department's *Green Basket* or the Federation of Thai Industries' *Thai Eco-Products Directory*).
- Compliance with lifecycle assessment (LCA) criteria, prioritizing products with low carbon footprints, high circular resource utilization, and certified energy efficiency standards.

Mandatory GHG Emissions Assurance: Financial market regulations set by the Securities and Exchange Commission (SEC) require listed organizations to deliver climate disclosures fully aligned with IFRS S2. This mandates independent, third-party assurance of Greenhouse Gas (GHG) inventory data (Scopes 1, 2, and 3) to ensure data accuracy, comparability, and institutional-grade transparency for market participants.

3. **Reputation:** Domestic and international asset management firms require comprehensive, verifiable ESG datasets. Capital allocation criteria increasingly demand that corporate strategies explicitly align with the Task Force on Climate-related Financial Disclosures (TCFD) core pillars.
4. **Technology:** Achieving industry alignment with carbon neutrality goals requires continuous capital investment in technological modernization. This driver requires the adoption of energy-efficient industrial systems, low-carbon alternative energy integration (such as solar roof infrastructure), and the scaling of clean production technologies across the manufacturing and logistics footprint.

2.1.2.2 TRANSITION RISK BUSINESS IMPLICATIONS AND RESPONSE MEASURES

Tipco Asphalt has analyzed the business implications of the transition risks and opportunities across its own operations as well as upstream and downstream activities. The Group has also developed corresponding/mitigation measures and adaptation strategies.

Drivers	Implications	Response Measures
Climate Change Act (Risk and Opportunity)	- Organizational Level (Cap-and-Trade / ETS): Failure to meet absolute emission caps will force the organization to purchase high-cost carbon allowances or compliance credits in the market to cover its operational footprint. - Product Level (Carbon Tax): High product carbon footprints will trigger direct statutory carbon taxation levied	- Leverage "Climate strategic projects" to reduce Scope 1 and Scope 2 GHG emissions. Early reductions can lower compliance costs, and potentially generate surplus credits (where permitted).

Drivers	Implications	Response Measures
	on specific manufactured goods, driving up the retail cost of our products and undermining commercial competitiveness. - Failure to align with mandatory national decarbonization pathways may result in statutory penalties.	- Develop low-carbon products to reduce product carbon footprints and exposure to carbon taxes. This can strengthen competitiveness and support market access.
Green Public Procurement (GPP) (Risk and Opportunity)	- Failure to comply with the Comptroller General's Department criteria via the e-GP platform may result in a loss of competitive eligibility and disqualification from public sector tenders.	- Conduct comprehensive Life Cycle Analysis (LCA) for key products in our portfolio. - Plan to obtain certifications required for registration under the Pollution Control Department's eco-friendly product and service directory, establishing a distinct competitive advantage in public sector bidding.
Mandatory GHG Emissions Assurance	- Failure to have a third-party assurance may lead to non-compliance with SEC regulations	- Ensure that GHG emissions are calculated in accordance with internationally recognized standards and methodologies - Plan to obtain independent third-party assurance for GHG emissions data to enhance credibility and transparency.
Demand of climate disclosure from Asset Management (Opportunity)	- Decision making of investment may be subject to quality of climate disclosure according to relevant standards	- Implement climate change adaptation and mitigation measures, and improve disclosures to be in line with relevant regulatory frameworks, such as IFRS S2.

2.2 CLIMATE STRATEGIC PROJECTS

The Group has established both annual and 2030 targets for the reduction of GHG emissions for asphalt business in Thailand. To achieve its GHG emission reduction targets, the Group has developed climate strategies to effectively reduce GHG emissions from its asphalt business in Thailand, while also aiming to expand its coverage in the future. There are key climate strategic projects under the climate strategies, as follows:

Specialized Logistic Partners

As part of the supply chain optimization initiative, the Group will be able to reduce part of its Scope 1 and 2 GHG emissions by leveraging specialized logistic partners to effectively and efficiently manage product deliveries and associated emissions.

The Group recognizes that logistic-related emissions of the partners will fall under the Group's indirect Scope 3 GHG emissions, and confirms that the Group will do everything possible to reduce such emissions by means under its control, e.g. by selecting logistic partners that can service with electric or fuel-efficient trucks.

In 2025, the proportion of outsourced trucks by Specialized Logistic Partners increased from 62% in 2024 to 76% in 2025.

Solar Roof

The Group plans to make substantial investments in renewable energy through the installation of solar rooftops at its manufacturing plants in Thailand. This project not only supports the Group's climate strategies but also serves as a step towards achieving energy independence and reducing energy costs. The solar rooftops will harness sunlight to generate electricity, reducing reliance on conventional power sources and contributing to a more sustainable energy mix.

In 2025, two out of the five solar rooftop projects at asphalt plants were successfully commissioned. The solar rooftop installations at the Surat Thani and Phra Pradaeng plants have been in operation for nine months and one month, respectively. These initiatives contributed to an increase in the share of renewable electricity consumption from 0% in 2024 to 4.2% in 2025. Additionally, the projects contributed to a reduction in Scope 2 GHG emissions by approximately 63 tCO₂e.



In addition to these climate strategic projects, several projects under the material topic of innovation for sustainable growth were also implemented, such as

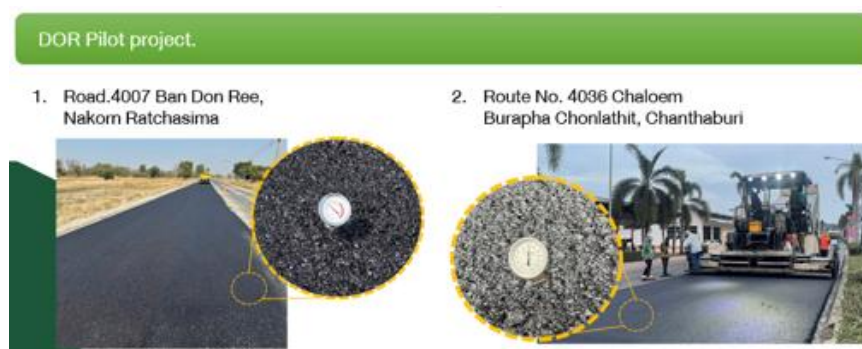
- Modification of the heat pipes project to improve facility efficiency. At the Surat Thani plant, the pipes that heat the asphalt storage tanks were successfully reengineered to reduce energy loss, resulting in faster times for the asphalt storage tanks to reach optimal temperatures.
- Delivery process adjustment project: to improve the efficiency of work processes. At the logistic hub, the Group has optimized routes and product delivery to minimize energy consumption. The stacking configuration on the trucks has been optimized from a single layer to a double layer, with minor structural enhancements implemented while ensuring safety standards are maintained.

2.3 GREEN PRODUCTS

The Group is proactively addressing transition risks by transforming its core portfolio. While currently Thailand has not mandated specific carbon regulations for the asphalt industry, the Group recognizes that the shift toward a low-carbon economy is inevitable.

To stay ahead of future policy shifts and mitigate market risk, we have prioritized the development of low-carbon asphalt products. We have conducted Life Cycle Assessment (LCA) for key products to determine their greenhouse gas (GHG) emissions and plans to obtain certification in the future.

Our strategy is already in motion through high-profile showcase projects with national authorities, deploying our sustainable solutions on specific strategic routes. The Company has proactively advanced the development and application of "Warm mix asphalt" (environmentally friendly asphalt products) through close collaboration with the Department of Rural Roads (DRR). As part of this initiative, a pilot project has been successfully implemented at selected locations, including Road 4007 (Ban Don Ree, Nakhon Ratchasima) and Route 4036 (Chaloem Burapha Chonlathit, Chanthaburi), to demonstrate the performance and scalability of the product under real operating conditions.



This environmentally enhanced asphalt solution is designed to improve resource efficiency and reduce environmental impact compared to conventional hot-mix asphalt. The pilot applications have shown promising results in terms of material performance while supporting lower energy consumption and contributing to reduced greenhouse gas emissions during production and paving processes.

Through this collaboration, the Group reinforces its commitment to driving sustainable infrastructure development by working closely with relevant authorities to test, validate, and promote innovative solutions. The project is currently under evaluation, with outcomes to support broader adoption and integration into national road construction standards in the future.

3. RISK MANAGEMENT

Tipco Asphalt's ERM process follows the Committee of Sponsoring Organization of Treadway Commission (COSO) ERM framework and the ISO 31000:2018 Risk Management guideline. The ERM process enables the Group to systematically identify, assess, and prioritize and monitor risks across all business operations related to climate-based risk and opportunities.



3.1 IDENTIFICATION

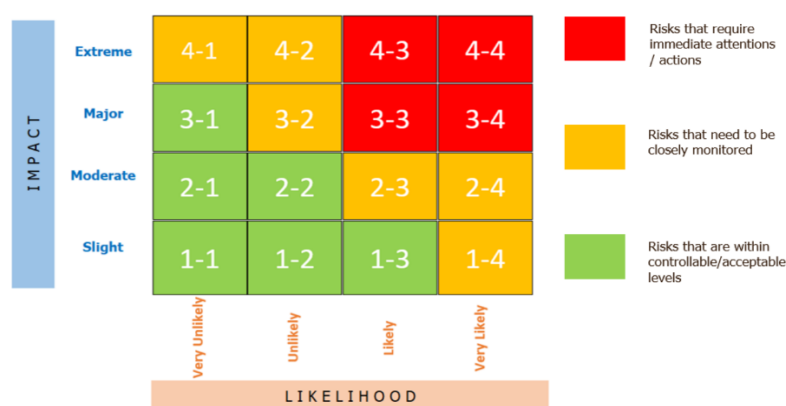
Tipco Asphalt routinely identifies and updates the corporate risk register to account for emerging business trends and changes in regulations. The Group considers five distinct risk types as follows:

- Compliance risk;
- Operational/Financial risk;
- Reporting risk;
- Strategic risk; and
- Sustainability-related risk.

3.2 ASSESSMENT

Tipco Asphalt reviews and refines its risk criteria as a function of impact and likelihood as shown in the risk heatmap. This risk criteria and heatmap provides the framework that is adjusted and defined for various financial and non-financial sustainability-related risks. Each risk is then assessed based on the risk criteria and heatmap to be prioritized into three levels (Green, Yellow and Red). Each risk level is required respective action.

FIGURE 5 TIPCO ASPHALT RISK HEATMAP



Climate-related risks (a sub-set of sustainability-related risk) are cross-cutting issues that encompass all risk types and can be integrated into the overall ERM process.

Physical risks like natural hazards/disasters are continuously assessed by scenario analysis as shown in the above section.

In contrast, transition risks such as policy risk from carbon pricing are closely associated with compliance risk, while market risk from low carbon products is closely associated with strategic risk. Among transition risks, the Group also identifies any potential opportunities. Finally, significant physical and transition risks (and opportunities) per prioritization process are communicated to relevant Risk Management committee, SD&CG committee, and Board of Directors and business units to serve as inputs for conducting the overall ERM process.

3.3 MONITORING AND REVIEW

Significant risks will be monitored based on Key Risk Indicators (KRIs) so that they can be mitigated and controlled within their respective risk tolerance as established by the Group. Risk monitoring is the responsibility of all business units to continuously track and update the KRIs, which are compiled by the RMO and reported to the RMC, EC and the BoD on a quarterly basis

or immediately, should there be an urgent situation that warrants a quick response. Risk Champions will directly discuss with corresponding business units on risks that show a worsening KRI trend or have become severe beyond the risk appetite threshold to determine whether existing controls are effective or new control measures are required.

Similar to the aforementioned ERM processes, Tipco Asphalt considers climate-related risks and associated metrics, especially metrics on financial implications of climate change as KRIs. The relevant business units must also monitor these climate-related metrics and report to the executive management (e.g., SD&CG, SDC, etc.) for effective oversight of the monitoring and mitigation of climate-related risks.

3.4 REPORTING AND COMMUNICATION

As climate-related risks play an important part in the process, Tipco Asphalt updates its climate-related disclosures annually to communicate key findings of its assessment of climate-related risks and opportunities.

4. METRICS AND TARGETS

4.1 GHG EMISSION METRICS AND TARGETS

The Group measures GHG emissions in line with the GHG Protocol Corporate Accounting and Reporting Standards, using consistent methodologies, data sources, and assumptions based on operational activity and standard emission factors. The Group utilizes the operational control approach to define its organizational boundaries for GHG emissions reporting since the Group has the authority to introduce operating policies and the ability to implement several initiatives as part of climate strategic projects.

Under the operational control approach, the boundary of Scope 1 and Scope 2 GHG emissions covers the asphalt business in Thailand. This approach is consistent with the previous reporting year, ensuring reliable and comparable results over time.

In addition, Scope 1 and Scope 2 GHG emissions of the refinery business in Malaysia and the marine business are also disclosed.

To ensure data integrity and transparency, the Group engages an independent third party to perform limited assurance of its Scope 1 and Scope 2 greenhouse gas (GHG) emissions.

- Asphalt Business in Thailand: Management System Certification Institute: MASCI
- Refinery in Malaysia: EY Office Limited

TABLE 3 SCOPE 1 & SCOPE 2 GHG EMISSIONS

Unit : ton CO ₂ e	2020	2021	2022	2023	2024	2025
Asphalt Business in Thailand^{1/}						
Scope 1	14,746	12,921	10,986	9,919	9,506	8,937
Scope 2 (Location-based)	2011	1,709	1,548	1,522	1,567	1,427
Total	16,757	14,630	12,534	11,441	11,073	10,364
Refinery Business in Malaysia						
Scope 1					25,563	20,064
Scope 2 (Location-based)					5,268	4,465
Total					30,831	24,529
Marine Business						
Scope 1					55,206	55,675
Total^{2/}					55,206	55,675

Note:

1. During the reporting period, the Company adopted the revised Emission Factor (EF) issued by Thailand Greenhouse Gas Management Organization (Public Organization), which has been effective since 1 January 2026, under the category "GHG Emission Factors for Energy Consumption (per unit)." The updated EF was applied retroactively from the base year (2020) through 2025. As the revised EF is lower than the previous version, the reported GHG emissions for historical years, including the base year, have consequently decreased compared with the figures previously disclosed.

2. There are no Scope 2 GHG emissions in the marine business, as electricity is self-generated on board using auxiliary engines.
3. Given that the 2024 and 2025 GHG emissions data for the refinery business in Malaysia and the marines business were validated by a third party, such performance is disclosed accordingly.

Currently, relevant targets are set for only asphalt business in Thailand. In 2025, target and performance of asphalt business in Thailand were summarized as follows:

2025 Target

- $\geq 31\%$ absolute scope 1 and 2 GHG emissions reduction (base year 2020)
- $\geq 32\%$ absolute scope 1 GHG emissions reduction (base year 2020)
- $\geq 27\%$ absolute scope 2 GHG emissions reduction (base year 2020)

Note : The targets of GHG emissions reduction is on gross basis.

2025 Performance

The Group achieved all targets and managed to

- reduce Scope 1 and Scope 2 GHG emissions by 38% against target of $\geq 31\%$
- reduce Scope 1 GHG emissions by 39% against target of $\geq 32\%$
- reduce Scope 2 GHG emissions by 29% against target of $\geq 27\%$

Such achievements are attributable to the ongoing specialized logistic partners project and commissioning of solar roof projects at Surat Thani plant and Phra Pradaeng plant. At Surat Thani plant, the solar roof project reduced Scope 2 GHG emissions by approximately 63 ton CO₂e for a 9-month operation.

In addition to the annual target, the Group has also established a mid-term target for asphalt business in Thailand.

- reduce absolute GHG emissions (Scope 1 and Scope 2) by 36% by 2030 from 2020 base year.

This target was developed with reference to national climate policy direction, including the Nationally Determined Contribution (NDC) of Thailand under the Paris Agreement. This alignment allows the Company to ensure its decarbonization pathway is broadly consistent with national climate transition expectations and regulatory trends.

REMUNERATION LINKAGE TO MANAGEMENT

The Company incorporates climate-related considerations into remuneration assessments for head of sustainability and selected management roles whose responsibilities directly influence climate-related and operational performance.

Climate-related considerations are currently incorporated qualitatively into remuneration assessments for selected management personnel.

TABLE 5 INDUSTRY BASED METRICS

The Group operates across multiple business segments, including refinery, asphalt, marine transportation, and construction businesses. In determining the applicability of industry-based metrics, the Group has assessed its revenue structure as disclosed in the 56-1 (Revenue

structure by product line or business group on page 9: <https://www.tipcoasphalt.com/wp-content/uploads/2026/03/TASCO-56-1-One-Report-2025-EN.pdf>.)

Based on this assessment, the asphalt business represents the only segment with material contribution to the Company's total revenue. Accordingly, asphalt business has been identified as the primary basis for disclosing industry-based metrics aligned with relevant industry standards.

Given that asphalt products fall within the scope of construction materials, the Company has determined that the EM-CM industry standard is the most relevant basis for industry-based metric disclosure. <https://navigator.sasb.ifrs.org/sector/EM/industry/EM-CM>

Topic	Code	Metric (Unit)	2025 Performance
Greenhouse Gas Emissions	EM-CM-110a.1	Gross global Scope 1 emission, percentage covered under emission-limiting regulation (tCO ₂ e)	Not Relevant
	EM-CM-110a.2	A discussion of the following (Yes/No):	Yes
		- long- and short-term strategy or plan to manage Scope 1 emission - emission reduction targets - analysis of performance against those targets	Yes Yes Yes
Air Quality	EM-CM-120a.1	NOx (excluding N ₂ O) (t)	1.37 t
		SOx (t)	2.92 t
		Particulate matter (PM ₁₀) (t)	Not Relevant
		Dioxins/furans (t)	Not Relevant
		Volatile organic compounds (VOCs) (t)	0.06 t
		Polycyclic aromatic hydrocarbons (PAHs) (t)	Not Relevant
		Heavy metals (t)	Not Relevant
Energy Management	EM-CM-130a.1	Total energy consumed (GJ)	129,987 GJ
		Percentage grid electricity (%)	8%
		Percentage alternative (%)	1.1%
		Percentage renewable (%)	0.4%
Water Management	EM-CM-140a.1	Total water withdrawn (thousands of cubic metres), percentage of each in region with extreme high baseline water stress (%)	22.5, (66.2%)
		Total water consumed (thousands of cubic metres), percentage of each in region with extreme high baseline water stress (%)	21.8, (66.4%)
Waste Management	EM-CM-120a.1	Amount of waste generated (t)	128 t
		Percentage hazardous (%)	41%
		Percentage recycled (%)	88%
Biodiversity Impacts	EM-CM-160a.1	Description of environmental management policies and practices for active sites (Yes/No)	*
	EM-CM-160a.2	Terrestrial land area disturbed (ha) Percentage of impacted area restored (%)	Not relevant Not relevant
Workforce Health & Safety	EM-CM-320a.1	Total recordable incident rate (Rate) Near miss frequency (Case)	0.13 1,568
	EM-CM-320a.2	Number of reported cases of silicosis (Number)	Not relevant

Topic	Code	Metric (Unit)	2025 Performance
Product Innovation	EM-CM-410a.1	Percentage of products that quality for credits in sustainable building design and construction certifications (% by annual sales revenue)	Not relevant
	EM-CM-410a.2	Total addressable market and share of market for products that reduce energy, water or material impact during usage of production (%)	Not relevant
Pricing Integrity & Transparency	EM-CM-520a.1	Total amount of monetary losses as a result of legal proceedings associated with cartel activities, price fixing, and antitrust activities (Presentation currency)	Not relevant

Note: * Tipco product, Concrete Joint Sealant, has been received the carbon reduction certification from Thailand Greenhouse Gas Management Organization (TGO)

"The Company has identified this metric as relevant; however, data collection methodologies are under development."

4.2 OTHER CLIMATE-RELATED METRICS AND TARGETS

The Group has established other climate-related targets to support its transition toward a lower-carbon business and to strengthen its climate adaptation and mitigation strategy reflected in its climate strategic projects. One of such targets is to "increase the proportion of electricity consumption from renewable energy" in the asphalt business in Thailand.

	Unit	Target	Performance
Electricity consumption from renewable energy / total electricity consumption	%	3.5	4.2

Prior to 2025, 100% electricity consumption was sourced from the national grid. To this end, the solar roof project was installed and commissioned at two asphalt plants in Thailand: Surat Thani and Phra Pradaeng plants (the former operated the solar roof for 9 months and the latter operated one month in 2025). As a result, the 2025 electricity consumption from solar accounted for 4.2% of total electricity consumption against the target of $\geq 3.5\%$. This, in turn, resulted in a reduction in Scope 2 GHG emissions and cost saving from the purchase of electricity from the national grid.

APPENDIX 1

PHYSICAL RISK FINDINGS: ASSET RISK SCORES BY HAZARDS

Change from Baseline Risk Score					
Significant Decrease	Moderate Decrease	Minimal Decrease	Minimal Increase	Moderate Increase	Significant Increase
					

Head Office: Bangkok

Hazards	Baseline/Short-Term (2025)	Medium-Term (2030)			Long-term (2050)		
		SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP1-2.6	SSP3-7.0	SSP5-8.5
Coastal flooding	Minimal						
Extreme heat	Low						
Extreme rainfall flooding	Minimal						
Extreme winds and storms	Minimal						
Rainfall-induced landslides	Minimal						
River flooding	Minimal						
Wildfires	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Water stress and drought	High	High	High	High	High	High	High

Key Trend and Associated Risks

- Extreme Heat risk is "Low" in the baseline and is likely to increase significantly in the future. In 2030, Bangkok is projected to be at "High" risk under both the SSP3-7.0 and SSP5-8.5 scenarios, while by 2050, the risk will become "Very-High". There is also a higher possibility of heat-related illness on site personnels, particularly outdoor workers leading to health and safety concerns. Reduced working hours or time off may be required if working conditions are unsuitable. The circumstances can increase the volume of energy and associated expenses necessary for cooling machines.
- Wildfire is rated "Non-Applicable" (N/A). This is mainly because the Bangkok office is in an urban setting where burnable materials (e.g., woods, forest) are hardly present. There is no record of burned areas either within the buffer zone (30 km²) from the historical dataset. Therefore, the wildfire risk is considered not applicable to this asset.

Nakhon Ratchasima Plant

Hazards	Baseline/Short-Term (2025)	Medium-Term (2030)			Long-term (2050)		
		SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP1-2.6	SSP3-7.0	SSP5-8.5
Coastal flooding	Minimal	☐	☐	☐	☐	☐	☐
Extreme heat	Moderate	⬆	⬆	⬆	⬆	⬆	⬆
Extreme rainfall flooding	Very high	☐	⬆	⬆	⬆	⬆	⬆
Extreme winds and storms	Minimal	☐	☐	☐	☐	☐	☐
Rainfall-induced landslides	Minimal	☐	☐	☐	☐	☐	☐
River flooding	Minimal	☐	☐	☐	☐	⬆	☐
Wildfires	Moderate	⬆	⬆	⬆	⬆	⬆	⬆
Water stress and drought	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High

Key Trend and Associated Risks

- Extreme Heat risk is "Moderate" in the baseline. Under the SSP1-2.6 and SSP3-7.0, the plant is anticipated to face a "High" risk in 2030, and a "Very-High" risk is anticipated to fall under SSP5-8.5 in 2030 and all scenarios in 2050. There is also a higher possibility of heat-related illness on site personnels, particularly outdoor workers leading to health and safety concerns. Reduced working hours or time off may be required if working conditions are unsuitable.
- Heavy Rainfall Flooding risk is "Very High" in the baseline and will remain so in both timeframes under all scenarios. It can cause physical damage to the infrastructure and forced shutdown, resulting in downtime and revenue loss.
- The risk associated with Wildfires is "Moderate" in the baseline but is expected to rise moderately to "High" in 2030 and may become a "Very High" risk in 2050 under high-emissions scenarios. Heat and flame can cause direct physical damage to units, operational equipment, and vehicles. Because of the flammable products present, there is a potential explosion risk at sites.
- Water stress & drought exhibits an "Extremely High" risk to the plant under all the scenarios and timeframes. Lack of water may affect productivity. The cost of water may go up and there may be competition for water resources between sectors which can lead to reputational issues.

Phitsanulok Plant

Hazards	Baseline/Short-Term (2025)	Medium-Term (2030)			Long-term (2050)		
		SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP1-2.6	SSP3-7.0	SSP5-8.5
Coastal flooding	Minimal	☹	☹	☹	☹	☹	☹
Extreme heat	Low	☹☹☹	☹☹☹	☹☹☹	☹☹☹	☹☹☹	☹☹☹
Extreme rainfall flooding	Minimal	☹	☹	☹	☹	☹	☹
Extreme winds and storms	Minimal	☹	☹	☹	☹	☹	☹
Rainfall-induced landslides	Minimal	☹	☹	☹	☹	☹	☹
River flooding	Very high	☹	☹	☹	☹	☹	☹
Wildfires	High	☹☹	☹☹	☹☹	☹☹	☹☹☹	☹☹☹
Water stress and drought	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High

Key Trend and Associated Risks

- Although Extreme Heat is "Low" in the baseline, it is projected significantly increase to "Very High" under SSP3-7.0 and SSP5-8.5 in 2030 and under all scenarios in 2050. There may be a rising cost from energy demand for cooling personnel inside areas. There is also a higher possibility of heat-related illness on site personnels, particularly outdoor workers leading to health and safety concerns. Reduced working hours or time off may be required if working conditions are unsuitable.
- River Flooding risk is "Very High" in the baseline and will remain so in both timeframes under all scenarios. It can cause physical damage to the infrastructure and forced shutdown, resulting in downtime and revenue loss.
- The danger of wildfire is "High" in the baseline and may increase to "Very High" in 2030 under SSP1-2.5. By 2050, the site is expected to face a "Very High" risk under all scenarios. Physical damage from heat and flame can occur to units, operational equipment. Heat, flame, smoke, and dust from wildfires may interrupt operations.
- Water stress & drought exhibits an "Extremely High" risk to the plant under all the scenarios and timeframes. Lack of water may affect productivity. The cost of water may go up and there may be competition for water resources between sectors which can lead to reputational issues.

Prapadang Plant

Hazards	Baseline/Short-Term (2025)	Medium-Term (2030)			Long-term (2050)		
		SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP1-2.6	SSP3-7.0	SSP5-8.5
Coastal flooding	Minimal	○	○	○	○	○	○
Extreme heat	Moderate	⬆	⬆	⬆	⬆	⬆	⬆
Extreme rainfall flooding	Minimal	○	○	○	○	○	○
Extreme winds and storms	Minimal	○	○	○	○	○	○
Rainfall-induced landslides	Minimal	○	○	○	○	○	○
River flooding	Minimal	○	○	○	○	○	○
Wildfires	Low	⬆	⬆	⬆	⬆	⬆	⬆
Water stress and drought	High	High	High	High	High	High	High

Key Trend and Associated Risks

- Extreme Heat is "Moderate" in the baseline, it is rapidly increasing to "High" under SSP1-2.6 and "Very High" under SSP3-7.0 and SSP5-8.5 in the 2030s and in all scenarios in the 2050s. Extreme heat can lead to a higher energy demand for air conditioning. There is also a higher possibility of heat-related illness on site personnels, particularly outdoor workers leading to health and safety concerns. Reduced working hours or time off may be required if working conditions are unsuitable.
- Wildfire is rated "Low" in the baseline. In 2030s, Wildfire level is projected to be "Moderate" under all scenarios. In 2050s, the risk is estimated to "High" under SSP3-7.0 and SSP5-8.5. Operations could be disrupted by a wildfire incident. Staff may need to leave their locations of work, which could cause downtime and loss of revenue. Dust and smoke from nearby fires could affect any outdoor activities.
- Water stress & drought is "High" in the baseline and will remain so across all timeframes and scenarios.

Surat Thani Plant

Hazards	Baseline/Short-Term (2025)	Medium-Term (2030)			Long-term (2050)		
		SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP1-2.6	SSP3-7.0	SSP5-8.5
Coastal flooding	Minimal	○	○	○	○	○	○
Extreme heat	Low	⬆️	⬆️	⬆️	⬆️	⬆️	⬆️
Extreme rainfall flooding	Minimal	○	○	○	○	○	○
Extreme winds and storms	Very high	⬆️	⬆️	⬆️	⬆️	⬆️	⬆️
Rainfall-induced landslides	Minimal	○	○	○	○	○	○
River flooding	Minimal	○	○	○	○	○	○
Wildfires	Minimal	○	○	○	○	○	⬆️
Water stress and drought	Medium-High	Medium-High	Medium-High	Medium-High	Medium-High	Medium-High	Medium-High

Key Trend and Associated Risks

- The risk associated with Extreme Heat is "Low" in the baseline. However, the plant is anticipated to be at "Very High" risk under all scenarios in both timeframes. There is also a higher possibility of heat-related illness on site personnels, particularly outdoor workers leading to health and safety concerns. Reduced working hours or time off may be required if working conditions are unsuitable.
- Extreme Winds & Storms risk is "Very High" in the baseline, and the level of risk is projected to increase slightly in all scenarios for both 2030s and 2050s timeframes. High wind speeds can cause physical damage to site structures and processing units, resulting in business interruptions and additional capital expenses to restore the damaged assets.

Rayong Plant

Hazards	Baseline/Short-Term (2025)	Medium-Term (2030)			Long-term (2050)		
		SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP1-2.6	SSP3-7.0	SSP5-8.5
Coastal flooding	Minimal	○	○	○	○	○	○
Extreme heat	Moderate	⬆️	⬆️	⬆️	⬆️	⬆️	⬆️
Extreme rainfall flooding	Minimal	○	○	○	○	○	○
Extreme winds and storms	Low	○	○	○	○	○	○
Rainfall-induced landslides	Minimal	○	○	○	○	○	○
River flooding	Minimal	○	○	○	○	○	○
Wildfires	Low	⬆️	⬆️	⬆️	⬆️	⬆️	⬆️
Water stress and drought	High	High	High	High	High	High	High

Key Trend and Associated Risks

- In the baseline, the risk associated with Extreme Heat is "Moderate" and is projected to substantially increase to "Very High" in the foreseeable future. The Rayong plant is projected to be at "Very High" risk in both future timeframes under all scenarios. There is also a higher possibility of heat-related illness on site personnels, particularly outdoor workers leading to health and safety concerns. Reduced working hours or time off may be required if working conditions are unsuitable.
- Wildfires are rated "Low" in the baseline but will rise to "Moderate" risk in both 2030s- and 2050s- timeframes under all scenarios. This occurrence can cause a temporary stop in activities and increased operating costs. Wildfires can be dangerous to the health and safety of people on the spot.

Laem Chabang Logistic Hub

Hazards	Baseline/Short-Term (2025)	Medium-Term (2030)			Long-term (2050)		
		SSP1-2.6	SSP3-7.0	SSP5-8.5	SSP1-2.6	SSP3-7.0	SSP5-8.5
Coastal flooding	Minimal	⊖	⊖	⊖	⊖	⊖	⊖
Extreme heat	Low	⬆	⬆	⬆	⬆	⬆	⬆
Extreme rainfall flooding	Moderate	⊖	⊖	⊖	⊖	⊖	⊖
Extreme winds and storms	Low	⊖	⊖	⊖	⊖	⊖	⊖
Rainfall-induced landslides	Minimal	⊖	⊖	⊖	⊖	⊖	⊖
River flooding	Minimal	⊖	⊖	⊖	⊖	⊖	⊖
Wildfires	Low	⬆	⬆	⬆	⬆	⬆	⬆
Water stress and drought	High	High	High	High	High	High	High

Key Trend and Associated Risks

- The risk associated with Extreme Heat is "Low" in the baseline. However, the asset is anticipated to be at "Very High" risk under all scenarios in both timeframes. There is also a higher possibility of heat-related illness on site personnels, particularly outdoor workers leading to health and safety concerns. Reduced working hours or time off may be required if working conditions are unsuitable.
- Wildfire risk is "Low" in the baseline, but the level of risk is projected to increase in all scenarios for both 2030 and 2050 timeframes. Wildfires destroy site infrastructure within its vicinity, including roads and warehouses.. This will result in business interruptions and additional capital expenses to restore the damaged assets.
- Extreme Rainfall Flooding has the highest baseline risk score among all the hazards although with a "Moderate" rating. However, the projected risk remains relatively the same under all scenarios across all timeframes. Similar to wildfires, flooding on the roads may cause road blockage, hence delaying transportation of asphalt and resulting in business interruptions.
- Although water stress shows a high risk, it is unlikely to have a material impact on the asset as the operation is not water dependent.