

Taskforce on Climate-related Financial Disclosures (TCFD) Report 2025



VA TECH WABAG LIMITED

Table of content

INTRODUCTION TO VA TECH WABAG LTD.....	3
PURPOSE	4
AT A GLANCE	4
1. GOVERNANCE.....	4
1.1 COMMITTEE(S) WITH RESPONSIBILITY OF CLIMATE-RELATED ISSUES	5
1.2 INCENTIVES FOR THE MANAGEMENT OF CLIMATE-RELATED ISSUES	6
2. STRATEGY.....	7
2.1 SCENARIO ANALYSIS	7
2.2 IDENTIFIED RISK AND OPPORTUNITY	7
2.2.1 <i>Scenario Analysis used for physical risk:</i>	8
2.2.2 <i>Scenario Analysis used for Transition Risk</i>	10
2.3 CLIMATE TRANSITION PLAN.....	11
2.4 IMPACT OF TRANSITION PLAN ON BUSINESS STRATEGY	13
3. RISK MANAGEMENT.....	15
3.1 TIME HORIZONS FOR CLIMATE RISK AND OPPORTUNITY.....	15
3.2 CLIMATE RISK AND OPPORTUNITY IDENTIFICATION FRAMEWORK.....	15
3.3 INTEGRATED PROCESSES FOR CLIMATE RISK MANAGEMENT	18
3.3.1 <i>Transition Risks</i>	18
3.3.2 <i>Physical Risks</i>	20
3.4 INTEGRATION OF CLIMATE RISKS INTO RISK MANAGEMENT	20
4. METRICS AND TARGETS.....	21
4.1 SCOPE 1, SCOPE 2, AND SCOPE 3 GREENHOUSE GAS (GHG) EMISSIONS	21
4.2 TARGETS	22

Introduction to VA TECH WABAG LTD

VA TECH WABAG Limited, a century-old multinational company headquartered in India, is a pioneer in water and wastewater treatment. With a global footprint over 25 countries across four continents, WABAG has evolved from a local start up to a respected international corporation. Recognized as the world's third-largest private water operator and third-largest global desalination player, WABAG is synonymous with water security. Our extensive portfolio of over 125 intellectual property rights underscores our commitment to innovation and excellence.

Wabag offer comprehensive services, including design, engineering, procurement, erection, commissioning, operation, and maintenance of water treatment projects for both municipal and industrial sectors. Our focus is on implementing clean, green technologies, superior design and operational practices, and energy-efficient solutions to conserve the environment and optimize costs.

Our Business Water Solution includes:

- Drinking water treatment
- Industrial and Process water treatment
- Sea & Brackish water Treatment
- Municipal Waste water / Used Water Treatment
- Industrial Effluent treatment
- Sludge treatment and Power Generation

WABAG is a respected one-stop desalination solution provider, marked by growing scale and reduced delivery cost per unit of water. We design complete plants around existing and prospective needs. WABAG's desalination plants have improved life quality by providing reliable, affordable and sustainable alternative water sources for domestic and industrial consumption.

WABAG is pioneering the One City, One Operation (OCOO) model in India, where a single operator manages, operates, and maintains multiple sewage treatment plants (STPs), pumping stations, and sewer networks within a city. This centralized approach ensures uninterrupted sewage treatment, preventing water pollution and contributing to the revitalization of rivers.

WABAG actively contribute to several Sustainable Development Goals including SDG 3 Good Health and Well Being, SDG 6 Clean Water and Sanitation, SDG 7 Affordable and Clean Energy, SDG 9 Industry Innovation and Infrastructure, SDG 11 Sustainable Cities and Communities, SDG 13 Climate Action, SDG 14 Life below water and SDG 15 Life on Land.

WABAG is a global leader in sustainable water solutions, committed to a circular economy approach. Our innovative wastewater treatment processes transform organic waste into valuable resources like biogas, Bio energy and nutrients recovery as bio fertilizer, creating a closed-loop system that minimizes waste and maximizes resource efficiency. This circular approach not only reduces our environmental footprint but also provides economic benefits for communities and industries

PURPOSE

This TCFD report aims to provide a transparent and comprehensive overview of VA Tech Wabag's approach to addressing climate-related risks and opportunities. By outlining our strategies, risk management practices, and performance metrics, we seek to enhance our stakeholders' understanding of how climate factors are integrated into our operations, business strategy, and decision-making processes. This report provides insights into the climate-related performance of Company, as determined through a comprehensive materiality assessment exercise. The climate-related financial disclosures in this report are consistent with the TCFD recommendations, ensuring transparency and alignment with global standards. It contains summaries on governance, strategy, risk management and targets & metrics

At a Glance

WABAG's Adoption of TCFD:

WABAG's adoption of the TCFD framework demonstrates its commitment to transparency, accountability, and proactive climate risk management in the water solutions industry. By disclosing its climate-related risks and opportunities, the company provides stakeholders with valuable information to assess its financial resilience in a changing climate.

Governance

- Board's Oversight
- Management's Role

Strategy

- Climate-related risks and opportunities
- Impact on the organization's businesses, strategy and financial planning
- Resilience of the organization's strategy

Risk Management

- Risk identification and assessment processes
- Risk management process
- Integration into overall risk management

Targets and Metrics

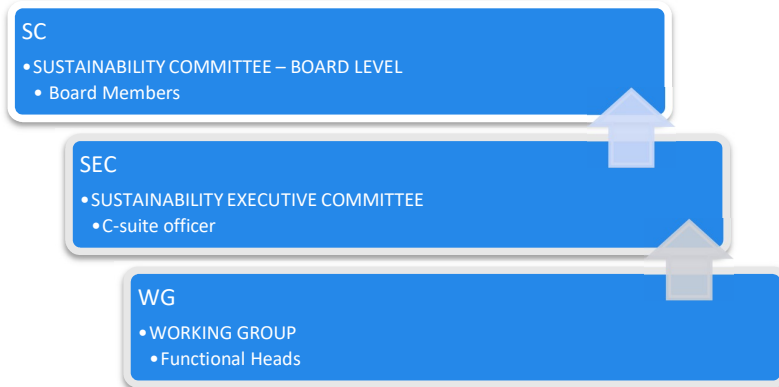
- Climate-related metrics with strategy and risk management process
- GHG metrics and the related risks
- Climate-related targets and performance against target

1. GOVERNANCE

The Board of Directors and executive leadership team at WABAG acknowledge the importance of responsible operations, encompassing the management of climate-related risks and the reduction of our environmental footprint, as integral to our sustained success. We are committed to embedding climate considerations into our organizational, making them a standard aspect of our business practices. Specialized teams of professionals, overseeing various facets of our operations, play a crucial role in seamlessly integrating climate considerations into our strategic and operational decision-making. This

facilitates robust communication between WABAG management and the Board, enhancing the transparency of our ESG disclosures.

1.1 Committee(s) with responsibility of climate-related issues



The board's oversight of climate-related risks and opportunities.

Steering Committee	Advisors	Key Responsibilities	Session Frequency
Sustainability Committee – Board Level	Board members	The Apex level body dealing with issues relating to Climate change is the Sustainability Committee constitute the board of directors. The committee has oversight over monitoring ESG risk and management performance of the company, including climate change, water management and biodiversity, through quarterly reviews. The committee ensures implementation of the risk management framework, assesses risk, and reviews company policy and strategy for risk mitigation.	Quarterly

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

Steering Committee	Advisors	Key Responsibilities	Session Frequency
Sustainability Executive Committee	C-Suite Officers	The Sustainability Executive Committee comprising executive management as its members, takes on the task of identifying, assessing and monitoring of climate change initiatives at the project level. The committee is headed by the Chief Growth Officer of WABAG and comprises of Chief Executive officers (CEOs), Chief Finance Officer (CFO), CEOs handles the responsibility to designate responsibilities and goals related to the projects and operations, including the addition of climate related goals into the KRAs of project leads. The KRAs	Quarterly

Steering Committee	Advisors	Key Responsibilities	Session Frequency
		trickle down from the CEO through their reporting line down to the personnel responsible for implementation. The CEO monitors the implementation of initiatives through the Sustainability Executive Committee on a quarterly basis and through other means on a more frequent basis for significant projects. CFO play as a key contributor to the company's financial stability and its alignment with sustainable growth. The CFO oversees financial planning and ensures that all initiatives, including sustainability projects, are supported by sound financial management.	
Working Group	Functional Heads	The sustainability working group is formed of individuals from across the organization working with a dedicated responsibility of identifying ESG and climate related risks, assessing impacts and creating action plans. The working group meets on a Quarterly basis to ensure smooth operation of ESG initiatives and presents the performance to the Sustainability Executive Committee on at least a quarterly basis. The committee forms a support mechanism to the overall ESG framework of the organization, enabling the ground implementation of ESG and climate related initiatives at the ground level, formed of individuals who are passionate about sustainability and climate and have the appropriate competence to ensure WABAG goes well beyond compliance and gains a competitive edge through its sustainability strategy. The committee also identifies best practices and presents them to the Sustainability Executive Committee for inclusion into the company's ESG strategy.	Quarterly

1.2 Incentives for the Management of Climate-Related issues

Our executives have certain annual objectives in their KRAs aligned to the strategic sustainability agenda including climate related objectives. The selection of objectives is tailored to the functional requirements of their respective roles and scope of responsibilities. The achievement of said goals becomes a criterion for determination of the annual incentive pay out, both from individual performance and business performance perspective. Similar method is followed through the reporting lines having direct or value chain linked climate related responsibilities

2. STRATEGY

2.1 Scenario Analysis

In an era defined by unprecedented environmental challenges, understanding and mitigating climate risks are imperative for businesses to thrive in a rapidly changing world.

Scenario analysis is a powerful tool that allows organizations to navigate the complex landscape of climate risks and uncertainties. By exploring various future scenarios, we aim to gain insights into potential climate impacts on our operations, supply chains, and overall business resilience.

Climate change presents multifaceted risks that transcend traditional forecasting methods. With uncertainty surrounding factors such as regulatory changes, technological advancements, and shifting consumer preferences, traditional risk assessments may fall short in capturing the full spectrum of climate-related risks.

Scenario analysis offers a dynamic approach to risk assessment by considering multiple plausible future scenarios, each characterized by different climate outcomes and associated impacts. By exploring a range of scenarios, organizations can better understand the potential implications of climate change on their business and develop robust strategies to adapt and thrive in any future environment.

2.2 Identified Risk and opportunity

Risk and Opportunities			
Type of Risk / Opportunity	Risk / Opportunity	Time Horizon	Effect
Physical Risk	Flood	Short term	Substantive
Physical Risk	Cyclone	Short term	Non substantive
Physical Risk	Extreme Heat	Short term	Non substantive
Transition risk	Transition towards low carbon technology	Short term, Medium term, Long term	Substantive
Product and service Opportunities	Ability to diversify the business	Short term, Medium term, Long term	Substantive
Product and service Opportunities	Increase in Sales of existing Product and service	Short term, Medium term, Long term	Substantive

2.2.1 Scenario Analysis used for physical risk:

S.No	RCP Scenario	Scenario Description	Outcome	Impact	Radiative Forcing by 2100 (W/m ²)
1	RCP 2.6 (Low Emission)	Aggressive mitigation efforts, with net-zero emissions achieved around the second half of the century. Heavy reliance on renewable energy, energy efficiency, and carbon sequestration techniques.	Global warming limited to 1.5–2°C above pre-industrial levels, meeting the Paris Agreement target.	Moderate changes in weather patterns and sea-level rise. Reduced risks of extreme weather events. Biodiversity and ecosystems are less severely impacted.	2.6 W/m ²
2	RCP 7.0 (Intermediate Emission)	Emissions peak after 2080, with slow technological advancements and moderate reliance on fossil fuels throughout the century.	Warming of around 3–4°C by 2100.	Severe and frequent extreme weather events. Significant sea-level rise. Negative impacts on global agriculture, water resources, and ecosystems. Vulnerable regions face higher risks.	7.0 W/m ²
3	RCP 8.5 (High Emission)	Business-as-usual scenario with no significant efforts to curb emissions. Continued reliance on fossil fuels and rising emissions throughout the century.	Global temperature increases by 4–5°C or more by 2100.	Catastrophic climate changes. Severe heatwaves, widespread droughts, intense storms, and rapid sea-level rise. Significant impacts on agriculture, health, biodiversity, and infrastructure. Potential ecosystem collapse. Severe displacement and challenges to food and water security, especially in low-lying areas.	8.5 W/m ²

Physical Risk Assessment: Aligning with Climate Change Scenarios

Scenario	Acute Physical Risks	Chronic Physical Risks
RCP 2.6 (Low Emission)	- Fewer severe weather events.	- Gradual changes in average temperature and precipitation patterns.
	- Reduced incidence of heatwaves and flooding due to proactive measures.	- Rising sea levels affecting coastal infrastructure over decades.
RCP 7.0 (Intermediate Emission)	- Significant severe weather events become more common, leading to potential disruptions in operations.	- Accelerated sea-level rise posing risks to coastal facilities and communities.
		- Long-term agricultural viability under stress from climate change.
RCP 8.5 (High Emission)	- Frequent and intense extreme weather events (hurricanes, wildfires, floods) causing immediate damage.	- Severe disruptions to ecosystems, increasing the likelihood of resource shortages.
		- Long-term habitat loss and species extinction affecting biodiversity and natural resources.

Scenario Analysis details on physical risk

Physical risk	Risk Description	Existing or anticipated	RCP2.6	RCP7.0	RCP8.5
Flood	The occurrence of flooding poses a significant risk to the project, potentially leading to material loss and disruptions in work activities. Such adverse conditions may halt operations for several days, resulting in delays to the project completion timeline. These delays can affect overall project delivery, increase costs, and impact stakeholder satisfaction.	Existing risk	Low	High	Severe
Cyclone	The moderate likelihood of a cyclone presents a risk to project execution, with the potential for significant material loss due to adverse weather conditions. Cyclone-related disruptions may temporarily halt operations, leading to project delays and increased costs. The material damage and work stoppage could also hinder timely project completion, affecting project schedules and stakeholder expectations.	Existing risk	Low	High	Severe
Extreme heat	The occurrence of extreme heat presents a risk to project operations, necessitating the rescheduling of work hours to avoid high-temperature periods and protect worker safety. The rescheduling, combined with potential heat-related health risks, could lead to increased costs.	Existing risk	Low	High	Severe

2.2.2 Scenario Analysis used for Transition Risk

Scenario	Scenario Description	Outcome	Mitigation measures
Net Zero Emissions (NZE)	Achieving net-zero emissions by 2050, involving significant reductions in GHG emissions across all sectors. Emphasis on renewable energy, energy efficiency, and advanced technologies like carbon capture and storage (CCS).	Global warming is limited to 1.5°C, meeting the Paris Agreement goals.	Substantial transformation in energy systems, transportation, and industry. Investment in green technologies and infrastructure.
Below 2°C Scenario (B2CS)	Pathway aimed at limiting global warming to well below 2°C, requiring significant emission reductions and adoption of sustainable practices across various sectors.	Global temperature rise limited to 1.5–2°C, facilitating more resilient climate systems.	Moderate changes in weather patterns, enhanced efforts for sustainability across industries. Potential for innovation in clean technologies and sustainable practices.

Scenario Analysis details on Transition risk

Transition Risk	Risk description	Impact
Risk of energy consumption from conventional power sources	Technologies such as solar-powered desalination, bio-electrochemical systems and advanced filtration using renewable resources like hydrogen, offer sustainable solutions that could significantly reduce carbon footprints and improve energy efficiency in water treatment processes. However, they also carry risks related to technology maturity, reliability, and scalability. Many green technologies are still in the early stages of development and may not yet be fully proven in large-scale, real-world applications. Additionally, they could introduce unforeseen environmental impacts or operational challenges, such as volatile supply chains, maintenance complexity and higher initial costs. But when these technologies do come into scale, Wabag needs to be ready with engineering competence and technical capabilities to cater to the demand, while competing with other existing and potential players in the market.	-Increase the GHG emission from the plant which will be accounted in the Scope 3 of Wabag. - The loss of business opportunities, as clients increasingly prioritize sustainability

Opportunities:

Transition opportunity	Description	Benefit
Ability to diversify the business activity	Diversification into green energy business through developing and operating biogas based power generation, and compressed biogas (CBG) plants for automobile fuel across India.	-This opportunity will result in lower greenhouse gas emissions in the environment. -Compressed Biogas (CBG) will serve as an alternative to fossil fuels. -Revenue will rise as customers increasingly prefer sustainable and low-emission products.
Increase in the sales of existing product and service	Increased demand for water from desalination, Wastewater treatment for municipal and industrial purpose including Recycle and Reuse due to increased water stress and regulatory pressure.	-Freshwater extraction from the environment is minimized. -Wastewater treatment plants rejuvenate rivers, thereby supporting local ecosystems. -Desalination plants and water treatment facilities contribute to reducing water scarcity. -The implementation of sustainable water management practices enhances our business growth and opens new opportunities.

2.3 Climate Transition Plan

WABAG aims to achieve net-zero greenhouse gas (GHG) emissions by 2050 while ensuring sustainable water management practices globally. The transition plan aligns with the Paris Agreement, United Nations Global Compact (UNGC), Kunming-Montreal Protocol, and Sustainable Development Goals (SDG), particularly SDG 6 (Clean Water and Sanitation). The climate transition plan was developed based on thorough scenario analysis of both risks and opportunities. This analysis allowed us to anticipate potential climate-related challenges while identifying key areas for sustainable growth and innovation, ensuring a comprehensive and resilient approach to addressing climate change.

1. Decarbonisation of Operations

The company aims to significantly reduce its greenhouse gas (GHG) emissions and achieve net-zero emissions by 2050. A key target is a 20% reduction in Scope 1 and 2 emissions across all operations by 2035. This will be achieved through several initiatives across WABAG's operational locations, including enhancing the energy efficiency of equipment, transitioning to renewable energy sources, and reducing the reliance on fossil fuel-powered vehicles by adopting green fuel alternatives in future. Success depends on the availability and affordability of renewable energy, advancements in energy-efficient technologies, and government incentives for green energy adoption.

2. Sustainable Water Management

Sustainable water management is crucial for building resilient and inclusive cities. WABAG's solutions contribute to SDG 11 by fostering water security in urban environment, enabling sustainable development and improved living conditions. WABAG will scale greater heights, create innovative solutions, and lead the way in sustainable water management. The company will focus on adopting water-efficient technologies, expanding its desalination operations to increase market share. Achieving these goals relies on the availability of advanced water-saving technologies and close collaboration with local water authorities to ensure sustainable water management practices.

3. Innovation and Technology Adoption

To drive sustainability in water treatment, the company will embrace innovation and cutting-edge technologies. Increased investment in research and development of sustainable technologies, partnerships with tech companies, start-ups, and academic institutions, and a digital transformation involving IoT, AI, and data analytics will help optimize operational efficiencies. This progress is contingent on securing adequate funding for R&D, continued technological innovation, and the formation of robust technology partnerships.

4. Stakeholder Engagement and Collaboration

Engaging stakeholders is a crucial element of the climate transition plan. The company will promote transparency, encourage stakeholder feedback, and work closely with governments, NGOs, and communities on sustainability projects. Internally, green lifestyle practices will be fostered among employees, including creating awareness on green transportation options to reduce travel-related emissions. The success of these initiatives hinges on stakeholders' willingness to collaborate and the availability of effective communication channels and platforms for engagement.

5. Resilience and Adaptation

Recognizing the growing impacts of climate change, the company will enhance the resilience of its operations by conducting regular climate risk assessments and developing adaptation strategies. These strategies include establishing emergency response plans for extreme weather events, ensuring the continuity of critical water treatment operations. Resilience measures will require access to reliable climate risk data, collaboration with experts, and investment in climate-adaptive infrastructure to mitigate potential risks.

6. Value Chain and Beyond

To address Scope 3 emissions, the company will focus on decarbonizing its value chain by prioritizing sustainable procurement practices and collaborating with suppliers on reducing carbon and water footprints. The company will also help customers adopt sustainable technologies and utilities. Additionally, green logistics, including low-impact vehicles for transportation, will be encouraged throughout the supply chain. Ecosystem restoration projects, such as tree planting and biodiversity enhancement with local communities and NGOs, will help create carbon sinks to offset residual emissions. Success depends on decarbonisation efforts across the value chain, client demand for sustainable solutions, and the expansion of electric and alternative fuel-based logistics.

2.4 Impact of Transition plan on Business Strategy

Products and Services

WABAG has been a sustainable water treatment company, as a water solutions provider. Over the years we have seen an increase in demand for more and more efficient technologies. Off late we have also observed a demand for low carbon technologies across all markets. Non ability to cater to this demand can be a risk for us leading to loss of market share in the near future. This has led us to take up water treatment projects powered with green energy sources. We have also decided seize the opportunity to get into the domain of bioenergy generation services which is a testament to the impact of global decarbonisation's high impact on our offerings.

Supply Chain and/or Value Chain

WABAG operates across the globe in a very decentralized manner, with a value chain which is highly diverse and dynamic in nature. With each added site, our value chain grows. This corresponds to a higher exposure to business continuity events, especially the physical impacts of climate change. We have adapted our procedures on procurement, inventory and logistics in order to address these risks, hence making value chain impacts relevant to the company. Example-keeping vendors at sparse locations to avoid discontinuity issues when a particular region's logistics gets blocked off.

A major chunk of WABAG's GHG emissions are also originating from Category 1 of Scope 3 which deals with purchased goods and services. In line with WABAG's transition pathway, we are aiming for a large reduction in embedded carbon in the materials that we use, primarily cement and steel. Thus, it can be conclusively said that climate change has influenced our sourcing strategy, wherein we are now monitoring the carbon footprint of suppliers and focusing on procurement from relatively low carbon suppliers.

Although the climate adaptation has also resulted in opportunities such as more resilient supply chains, strengthened logistics, increasing market size due to scarcity, aware and motivated clients and more.

Investment in R&D

WABAG is investing in several domains to reduce its emissions at the level of corporate offices, improving treatment methods with greater energy efficiency and use of cleaner alternatives as fuels. For example, production of electricity from captive biogas plants to reduce the dependency on electricity produced from fossil fuel, promoting alternative sources for water security and economic development. Enabling Resource Recovery from wastewater, generating over 30 MW of Green Energy every day from bio sludge, WABAG has promoted the concepts of desalination, power neutrality and resource recovery from wastewater in projects globally. Being a pure-play water technology company, WABAG has been involved in the R&D of water technologies from its 3 R&D centres in India, Switzerland and Austria. Innovating in the entire portfolio and technology range of water solutions, WABAG to its credit holds 125+ IP Rights, including technologies for lower energy factor, sludge treatment for Green Energy production among several others. We have recently signed an agreement with Peak Sustainability for installation of 100 bioenergy plants, wherein Peak will provide technological expertise. The establishment of 100 Bio-CNG plants is anticipated to generate over 70 million kilograms of Bio-CNG annually, showcasing substantial business potential.

Operations

WABAG operates in client sites across the globe. These sites are in highly diverse geographies, from coastal areas to dry arid lands. Each geography and project type has its own set of challenges during extreme weather events and our strategy covers safety of our professionals, safety of assets, safety of material, changes in operational efficiency of process caused by external weather events.

For example, erratic rainfalls can lead to increased level of total suspended solids (TSS) in our desalination operations due to disturbances in the ocean floor causing dirt to get mixed with water. This leads to additional loads on the pre filtration system leading to increased costs. We plan our operations in such a way that we avoid using the process at peak capacity at such times to avoid these issues.

Concurrently we are seeing opportunities as well, such as a more physically and financially consistent Energy supply from renewables, efficient operations through new technologies, increased head space for cost savings and increasing profitability among others.

Financial Impacts

S.No	Financial Element	Impact Description
1	Revenue	1. Additional revenue from installation & operation of green energy-generating facilities in existing water treatment installations. 2. Expected additional revenue from planned installation & operation of 100 biogas plants. 3. Increased market size of water recycling and desalination. 4. Increasing cost of freshwater making water recycling a feasible option for a larger segment of the market.
2	Direct/ Indirect Costs	1. Reduced variability in electricity/fuel cost due to introduction of green energy leading to more stable water treatment costs. 2. Increased cost of grid energy due to increase in coal prices, stemming from higher coal taxes and global emphasis on decarbonisation. 3. Better weather proofing and process planning leading to increased resilience against erratic weather events causing process inefficiencies. 4. Requirement of a higher inventory to tackle supply disruptions, increasing inventory carrying costs.
3	Access to Capital	Leveraging its experience and know-how in implementing sustainable solutions, WABAG will serve as the technology partner, overseeing the execution, commissioning, and operation & maintenance (O&M) of the Bio-CNG plants. PEAK, on the other hand, will provide expertise in energy-related areas and assist in raising capital for financing projects at scale.

3. Risk MANAGEMENT

3.1 Time Horizons for Climate Risk and Opportunity

The following outlines WABAG's strategic planning approach across short, medium, and long-term horizons, integrating sustainability and risk management into its operations.

Time horizons	Years	Description
Short term	0 – 3	This aligns with WABAG's immediate operational and financial planning, where risks are monitored closely to ensure they do not disrupt short-term objectives and operations. This includes monitoring liquidity needs, credit risks, and compliance with existing regulations.
Medium term	4 – 7	Medium-term planning is guided by alignment with 2030 IPCC scenarios. This involves strategic initiatives like investment in renewable technologies, enhancing operational efficiencies, and adapting to emerging regulations. WABAG anticipates and prepares for medium-term changes by investing in R&D, diversifying into bioenergy, and implementing energy-efficient technologies.
Long Term	8 – 30	Long-term strategic and financial planning aligns with 2050 IPCC scenarios. WABAG focuses on extensive scenario analysis to assess potential impacts of climate change on its operations and supply chains. This includes infrastructure investments to mitigate chronic physical risks such as sea-level rise and temperature increases, ensuring the sustainability of operations over the long term.

3.2 Climate Risk and Opportunity Identification Framework

WABAG follows a risk management system, which captures sustainability, water and climate change related risks as well. We use a risk matrix to classify risk as per its risk rating score into low, medium and high, spread across short-, medium- and long-term horizons. The risk matrix computes the risk rating through mapping the risk against its impact and likelihood. The calculation of likelihood and impact happens through a pre-defined logic, developed, and streamlined through regular updates during use. The identification of risk happens at the ground level through department level risk registers which then gets collated into a corporate risk register after passing through a significance check. The register contains climate related risks assessed throughout the various verticals and functions in the organization. The sustainability working group supports the compilation of climate related risks by providing the necessary input to the functions and providing appropriate competence for assessment of such risks. The significant risks related to climate change make their way to top management through the Sustainability Executive Committee of executives and then in turn to the board of directors through the risk management and monitoring committee of the board. The committee also oversees the risk

management policy and system for the whole organization. Each committee has rigorous discussions to ensure that no risk remains unidentified, and their inputs help in the continuous review of the risk management process. We have quarterly reviews regarding the mitigation strategy and its performance by comparing the inherent risks to the level of existing risks and the reductions we have been able to achieve. In such an effort to focus on climate related risks, WABAG has conducted TCFD analysis through external agency to identify and develop mitigation strategies for risks identified through climate science.

To categorize risks/opportunities as substantive, the following criteria are considered:

EBIDTA Impact: The risk/opportunity should have a measurable impact on Earnings Before Interest, Taxes, Depreciation and Amortization (EBIDTA), typically a decrease/increase of 25 Million INR annually. The EBIDTA Impact value is update from 2 Million INR to 25 Million INR considering the business growth.

Likelihood: The probability that the risk/opportunity will realize should be either high or very-high as per WABAG's likelihood measurement.

Time horizon: The EBIDTA impact metric for the risks/opportunities are to be measured as an estimated annual value for the next financial year for short term, for the financial year 4 years down the line for medium term and for the financial year 8 years down the line for the long term.

Risks with a high likelihood of causing loss of life of company personnel are also considered as substantive.

Impact Assessment Metric

Impact Number	Impact Scale	Determination Metric
1	Very Low	Up to 0.75% of EBIDTA or 10 Million INR whichever Lower
2	Low	Higher than 1 and up to 1.75% of EBIDTA or 25 Million INR whichever Lower
3	Medium	Higher than 2 and up to 3.5% of EBIDTA or 50 Million INR whichever Lower
4	High	Higher than 3 and up to 5.25% of EBIDTA or 75 Million INR whichever Lower
5	Very High	Over 5.25% of EBIDTA or 75 Million INR whichever Lower

Likelihood Assessment Metric

Likelihood Number	Likelihood Scale	Determination Metric for Existing Events	Determination Metric for Anticipated Events
1	Very Low	Never occurred in the past	Impossible to occur
2	Low	Occurred once or twice	Unlikely to occur
3	Medium	Occurs periodically	May or may not occur
4	High	Occurs frequently	High probability of occurrence
5	Very High	Occurs regularly	Certain to occur

Risk Matrix

Likelihood	Impact					Likelihood
	Very Low	Low	Medium	High	Very High	
Never occurred in the past	1	2	3	4	5	Impossible to occur
Occurred once or twice	2	4	6	8	10	Unlikely to occur
Occurs periodically	3	6	9	12	15	May or may not occur
Occurs frequently	4	8	12	16	20	High probability of occurrence
Occurs regularly	5	10	15	20	25	Certain to occur

To assess interconnections between risks, opportunities, dependencies, and impacts in WABAG's value chain, we follow this structured process:

1. Identify Components: List all risks, opportunities, dependencies, and impacts within the value chain.
2. Map Interconnections: Create a visual map or matrix linking each component, showing how they influence each other.
3. Analyse Dependencies: Evaluate how dependencies affect risks and opportunities. For example, how water scarcity (dependency) impacts operational risks and cost-saving opportunities.
4. Assess Impacts: Determine how interconnections influence overall business performance, focusing on areas like cost, efficiency, and sustainability.
5. Scenario Planning: Use scenario analysis to understand potential future changes and their effects on the interconnections.
6. Prioritize Actions: Based on the analysis, prioritize actions to mitigate risks, exploit opportunities, and manage dependencies effectively.

To identify priority locations for water and climate related risks, opportunities, dependencies, and impacts in WABAG's value chain, we follow this process:

1. Data Collection: Gather data on water usage, availability, and regulatory requirements for all locations in the value chain.
2. Risk Assessment: Evaluate physical risks (e.g., droughts, floods) and transitional risks.
3. Impact Analysis: Assess how water risks affect operations, costs, and supply chain.
4. Dependency Mapping: Identify key dependencies on water resources.
5. Opportunities Identification: Look for opportunities to improve water efficiency and leverage sustainable practices.
6. Prioritization: Rank locations based on the severity of risks and the potential for mitigating impacts or capitalizing on opportunities.
7. Action Plan: Develop and implement action plans for high-priority locations.

We employ a process for mapping our tier 1 suppliers in order to compute upstream risks, opportunities, dependencies and impacts having the following steps:

1. Data Collection: Gather information on all current Tier 1 suppliers, including contact details, supplied products/services, and contract terms.
2. Supplier Categorization: Categorize suppliers based on the type of products/services they provide (e.g., raw materials, components, technology). Assess the categories for dependencies and impacts.
3. Risk Assessment: Assess risks associated with each supplier, including financial stability, political risks, and environmental factors. Use risk management tools and frameworks to evaluate supplier vulnerabilities.
4. Performance Evaluation: Evaluate supplier performance based on key metrics such as delivery reliability, quality of products, sustainability performance and compliance with standards.
5. Relationship Mapping: Document the relationship history, including duration, criticality, and past issues.

3.3 Integrated Processes for Climate Risk Management

3.3.1 Transition Risks

Current Regulation

VA Tech WABAG assesses current regulations by staying informed about existing environmental laws and ensuring compliance with emissions standards and reporting requirements. The company monitors changes in regulations that may affect its operations. This is a relevant transition risk and is always included.

For example, Consent to Operate (CTO) Certificate is an NOC given by Pollution Control Board of the state to operate the business after Consent to Establish (CTE) is approved. Although the regulations of CTO & CTE are directly applicable to the client, but these requirements often come as part of the designing of the project, as well as become WABAG's responsibility to comply to these regulations, wherever we manage the operations.

Emerging Regulation

VA Tech WABAG anticipates emerging regulations by actively tracking developments in environmental policy. The company adapts its strategies to align with forthcoming regulations, particularly those addressing climate change & water issues. This is a relevant transition risk and is always included.

As part of India's decarbonisation strategy, there is an increase in Central & State Tax on Petrol and Diesel to discourage consumption of these fuels. Additionally, there are various schemes like Perform, Achieve Trade (PAT) and Renewable Energy Sources (RES) being implemented to promote circular economy, electrification and the adoption of low-carbon fuels. WABAG tries to scan these upcoming regulations and tries to develop products and projects which are inherently capable of complying to them.

For example, we have seen growth in multi-fuel systems and renewable electricity requirements, stemming from the increase in rates of fossil-based energy due to increased charges from the government. The Coal CESS in India has increased from Rs 50 per tonne to Rs 400 per tonne in the span of a decade. Increasing prices of fossil-based energy and reducing prices of green energy has created a conducive atmosphere for WABAG to move into the field of bioenergy. We have recently signed an agreement with Peak Sustainability for installation of 100 bioenergy plants.

Technology Risk

VA Tech WABAG evaluates technology risks by staying up to date with the advancements in water treatment technologies. The company embraces innovative solutions to enhance operational efficiency and reduce its carbon footprint. This is a relevant transition risk and is always included.

Technology is a major cost reduction enabler in our industry sector, leading to lesser operating costs through lesser maintenance requirements, lower material costs, high product durability and better efficiency, all of them having an overall positive impact on the carbon footprint. As VA Tech WABAG is a competing service provider, the contracts are awarded not only based on the pricing but also on the technology offered by the company.

For example, WABAG has partnered with Pani Energy Inc. to implement applied AI to its operational excellence. The new category of digital technology is called Operational Intelligence (OI) and is delivered through Pani ZEDTM. This tool aims to optimize OPEX in the plants by reducing downtime, energy consumption, and chemical usage. Additionally, it will expedite crucial decision-making processes and enhance the longevity of critical equipment.

Legal Risks

VA Tech WABAG is a global organization and has operations in multiple legal jurisdictions. It is a very important task for WABAG to manage legal risks by complying to the obligations relevant to us and implementing measures to mitigate potential issues. We proactively address concerns to minimize the risk of legal actions. This is a relevant transition risk and is always included.

Regulatory agencies possess the authority to initiate legal actions that may result in the revocation or suspension of the company's licences or suspend specific operations. The reputation, operations & financial situations of the organisation could all be significantly harmed by these actions, which could also be followed by fines and criminal or civil penalties.

WABAG maintains a legal register, which is a repository of legal compliances built around the system of responsibility and action.

Market Risk

VA Tech WABAG evaluates market risks by monitoring shifts in demand for water treatment services and staying informed about competitive dynamics. The company adjusts its strategies to maintain competitiveness in the evolving market. This is a relevant transition risk and is always included.

As an example, we have seen a dramatic increase in projects where methane generated from anaerobic treatment of water can be used as an alternate fuel, leading to elimination of fugitive methane emissions, which has a Global Warming Potential (GWP) of 24 times that of CO₂. This shift is due to the changing market climate which is inclining towards low carbon value creation.

Reputation Risk

VA Tech WABAG addresses reputation risks by maintaining a strong commitment to sustainability and transparently communicating its efforts. The company engages with stakeholders to address concerns and enhance its reputation in the face of climate-related challenges. This is a relevant transition risk and is always included.

We are a service providing company in a very competitive market. Every customer identifies potential companies for executing a particular project based on their reputation and clout in the market. Even investors only invest in companies where they see a potential in long-term value creation. Over the years, climate action has emerged as one of the main drivers for creating a good reputation in the market or losing this reputation if you are not part of it. Several ESG agencies evaluate WABAG's sustainability

performance on behalf of clients, investors and other stakeholders and it is imperative to us to meet and exceed their expectations.

3.3.2 Physical Risks

Acute Risks

Due to their characteristics and geographic locations, WABAG's operations may be subjected to acute physical climate hazards, which are defined as a rise in the frequency and intensity of extreme weather events such as heatwaves, erratic rainfalls, cyclones, floods and supply disruption. This is a relevant physical risk faced by our clients, employees and the company and is always included.

For example, over and above the tendency of natural disasters leading to the loss of assets, weather events cause a stir in the ocean leading to increase in Total Suspended Solids (TSS) levels which in turn increases the cost of treatment in our desalination operations.

Chronic Risks

VA Tech WABAG addresses chronic physical risks by considering long-term changes in weather patterns and its potential impact on business. The company adapts its strategies to mitigate the effects of gradual sea-level rise on coastal infrastructure and projects. Additionally, increase in temperature leads to uncondusive working conditions for our employees causing a reduction in efficiency and productivity. This is a relevant physical risk and is always included.

WABAG's business model works towards alleviating water stress from high stress areas. Climate science shows evidence for an increase in water stress across the country in various scenarios which we see as an opportunity to expand our business using sustainable technologies such as seawater desalination and efficient wastewater recycling.

3.4 Integration of Climate Risks into Risk Management

As mentioned above, WABAG follows a risk management system, which captures sustainability, water and climate change related risks as well. We use a risk matrix to classify risk as per its risk rating score into low, medium and high, spread across short-, medium- and long-term horizons. The risk matrix computes the risk rating through mapping the risk against its impact and likelihood. The calculation of likelihood and impact happens through a pre-defined logic, developed, and streamlined through regular updates during use. The identification of risk happens at the ground level through department level risk registers which then gets collated into a corporate risk register after passing through a significance check. The register contains climate related risks assessed throughout the various verticals and functions in the organization. The sustainability working group supports the compilation of climate related risks by providing the necessary input to the functions and providing appropriate competence for assessment of such risks. The significant risks related to climate change make their way to top management through the Sustainability Executive Committee of executives and then in turn to the board of directors through the risk management and monitoring committee of the board. The committee also oversees the risk management policy and system for the whole organization. Each committee has rigorous discussions to ensure that no risk remains unidentified, and their inputs help in the continuous review of the risk management process. We have quarterly reviews regarding the mitigation strategy and its performance by comparing the inherent risks to the level of existing risks and the reductions we have been able to achieve.

4. Metrics and Targets

4.1 Scope 1, Scope 2, and Scope 3 greenhouse gas (GHG) emissions

WABAG's carbon footprint for the financial year 2024-25 is **21,90,899 tCO₂e**. Scope 1 accounts for 0.08% (1,764 tCO₂e), Scope 2 accounts for 0.07% (1,552 tCO₂e) and Scope 3 accounts for 99.85% (21,87,613 tCO₂e) of the total emissions.

Total GHG Emissions for FY 2024-25

Scope	GHG Emissions (tCO ₂ e)	% of total Emissions
Scope 1	1,764	0.08%
Scope 2	1,522	0.07%
Scope 3	21,87,613	99.85%
Total Emissions	21,90,899	
Outside of Scope	2,409	

Scope 1 Emission Distribution for FY 2024-25

Sub-category	CO ₂ Emissions (tCO ₂ e)	CH ₄ emissions (tCO ₂ e)	N ₂ O emissions (tCO ₂ e)	HFC emissions (tCO ₂ e)	Total Emissions (tCO ₂ e)
Stationary	1,551	0	19	-	1,570
Mobile	192	1	1	-	194
Fugitive	-	-	-	-	-
Total Scope 1 Emissions	1,743	1	20	-	1,764

Scope 2 Emission for FY 2024-25

S. No	Emission Sources	OM Emissions (tCO ₂ e)	EPF Emissions (tCO ₂ e)	Office Emissions (tCO ₂ e)	Total Emission in (tCO ₂ e)
1	Electricity	-	1190	332	1522

Scope 3 Emission Distribution for FY 2024-25

Category	Total Emissions (tCO ₂ e)
Category 1 - Purchased Goods and Services	2,04,206
Category 2 - Capital goods	264
Category 3 - Fuel- and energy-related activities	645
Category 4 - Upstream transportation and distribution	25,517
Category 5 - Waste generated in operations	5,285
Category 6 - Business Travel	628
Category 7 - Employee commuting	921
Category 8 – Upstream Leased Asset	2,28,504
Category 11 – Use of Sold Products	17,07,885
Category 12 - End-of-Life Treatment of Sold Products	13,760
Total Scope 3 Emissions	21,87,613

4.2 Targets

S. No	Target Scope	Base Year	Target Year	Unit of Target Metric	Base year	Current	Target
1	Scope 1 and 2 emissions	2023-24	2034-35	tCO ₂ e	3,917	3,917	20% reduction
2	Scope 1,2 and 3 emissions- Net zero	2023-24	2049-50	tCO ₂ e	13,54,379	13,54,379	100% reduction (Incl. offsets)
3	Increase in renewable power% at Wabag house	2022-23	2029-30	%	78	82	85
4	Ensuring safe and clean drinking water and sanitation	2023-24	2029-30	Millions of peoples	88.8	95	125 (Upgraded)
5	Treatment of water and wastewater through O&M operation	2023-24	2029-30	Trillion litre of water	1	1	1.5 (Upgraded)
6	Increase in proportion of employee using safely managed sanitation services.	2024-25	2029-30	%	60	60	100
