Sustaining futures by monitoring our climate footprint

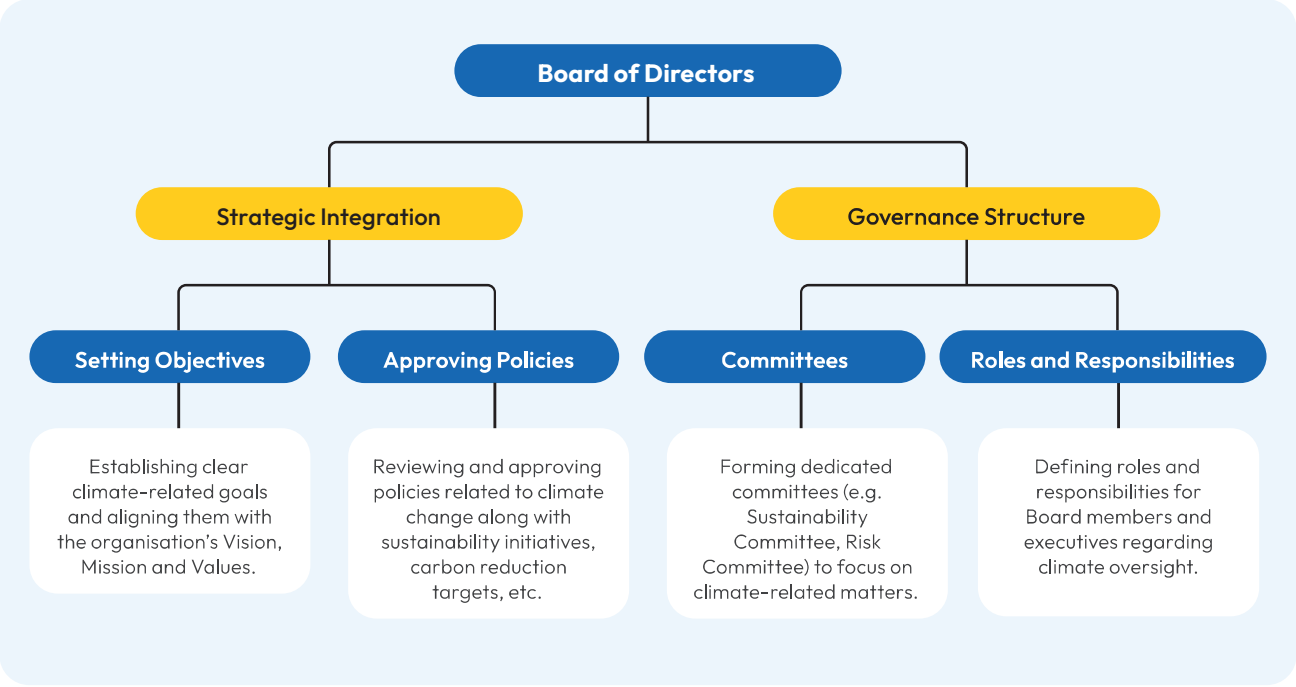
As one of India's largest integrated power companies, we gained a leadership position in the sector by committing to Net Zero by 2045, aligned with India's ambition to attain Net Zero by 2070. By implementing TCFD recommendations into our operations, we are well-positioned to navigate climate-related challenges and capitalise on opportunities, driving progress towards a low-carbon economy.

Climate-related risk and opportunity governance

Our governance around climate-related risks and opportunities involves a combination of policies, procedures and oversight mechanisms that enable us to address the potential impacts of climate change on our business.

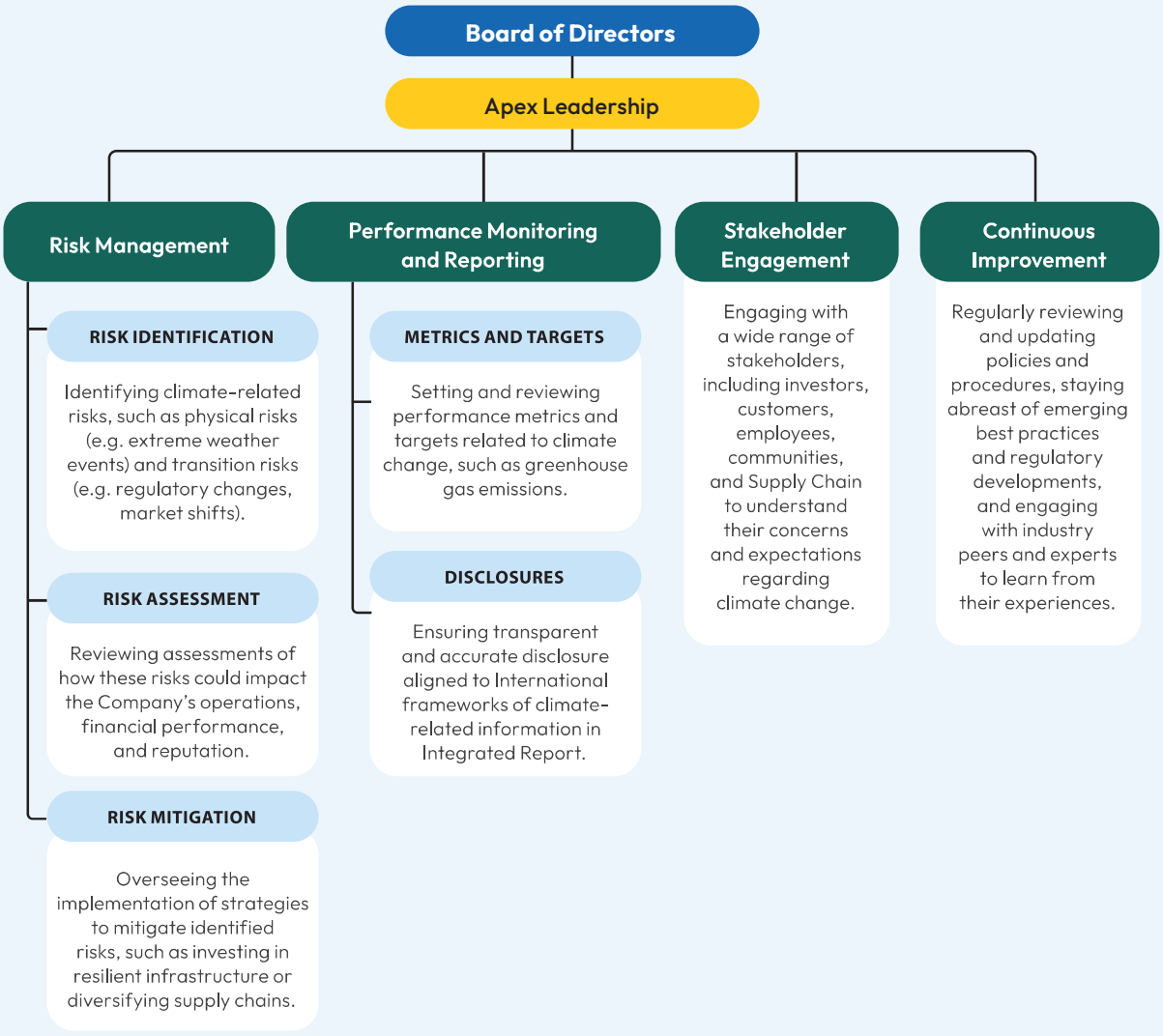
Board oversight

Our governance framework for climate-related risks and opportunities involves rigorous oversight by the Board of Directors. Through semi-annual and quarterly meetings respectively, the Risk Management Committee and the CSR & Sustainability Committee, assess and oversee these risks and opportunities, ensuring that climate considerations are integrated into our strategic direction.



Management's role

Our management team plays a crucial role in identifying, assessing, and managing climate-related risks and opportunities. It is responsible for implementing strategies that align with our commitment to sustainability and climate resilience. This involves integrating climate considerations into operational practices, financial planning and long-term strategic goals.



Strategy and business planning

At Tata Power, we are committed to energy efficiency, renewable technology, and enabling electric mobility aligning with our strategy to transition to 100% clean and green generation by 2045. Our strategy includes robust risk assessments and mitigation plans to address climate-related risks and seize opportunities, promoting sustainable business practices. Our comprehensive approach ensures that all upstream and downstream activities in the value chain contribute to decarbonisation.

In the Business Planning process, due consideration is taken to identify targets as per material issues for enterprise value creation and this is tracked through a comprehensive review mechanism along with inclusion into Key Responsibility Areas of the executives.

Our march towards 100% clean and green energy by 2045

- Emphasising energy efficiency and renewable technology advancements
- Reducing reliance on thermal power operations and focusing investments on renewable and pumped hydro projects
- Developing smart grid solutions and energy management services within the Transmission and Distribution cluster
- Achieving net zero and managing water and waste judiciously

Identified climate-related opportunities and risks for short, medium and long-term

We identified various climate-related risks and opportunities across short, medium and long-term horizons.

- Short-term: 3-5 years
- Medium-term: 6-10 years
- Long-term: >10 years

Opportunities

Energy-efficiency initiatives
Implementing energy-saving measures

Impact

Energy source
Providing round-the-clock green energy

Impact

Products/services
Scaling up green solutions like solar rooftops and EV charging

Impact

Markets – Green financing
Accessing green bonds and sustainable finance instruments for growth

Impact

Resilience
Developing resilient infrastructure and operations

Impact

Physical risks

Acute
Cyclones, hurricanes or floods

Impact

Scenario sensitivity: Tata Power has carried out scenario sensitivity for water risks for Pessimistic, Business-As-Usual and Optimistic Scenario

Chronic
Heatwaves

Impact

Scenario sensitivity: Tata Power has carried out scenario sensitivity for water risks for Pessimistic, Business-As-Usual and Optimistic Scenario

Transition risks

Policy and legal
Regulatory changes and increased GHG emissions pricing

Impact

Technology
Advancements in solar PV technology and battery energy storage systems

Impact

Market
Shifts in customer behaviour and energy costs

Impact

Reputation
Changes in consumer preferences, stigmatisation of conventional generation and stakeholder concerns

Impact

Negative financial impact Positive financial impact

Short-term Medium-term Long-term Renewables and New-age Energy Solutions Transmission & Distribution Thermal & Hydro

Climate-related scenario analysis

Tata Power has carried out baseline assessment of all our operating assets by using ThinkHazard tool to assess potential baseline physical risks. Since, ThinkHazard tool provides details at "District" level, disclosure of physical risks at District level has been used for compilation at operating asset level.

Note – Physical Risk Assessment has been carried out for all material operational assets within Indian geography and also covers large scale utility assets in Renewables Cluster.

State/UT	Locations	Cluster								Physical Risks									
		Generation			Renewables			T&D											
		Thermal	Hydro	WHRB/BFG/COG	Solar	Wind	Manufacturing	Transmission	Distribution	Coastal Flood	Cyclone	Extreme Heat	Wildfire	Earthquake	Landslide	Tsunami	Urban Flood	Water Scarcity	River Flood
Maharashtra	12	■	■		■	■		■	■	Not Applicable → High	Low → High	High	High	Medium	Very Low → High	Not Applicable → Medium	Low → High	Low → Medium	Very Low → Medium
Jharkhand	2	■		■	■					-	High	High	High	Medium	Very Low → Low	Not Applicable	Low	Medium	Low → Medium
West Bengal	1			■						High	High	High	High	Medium	Very Low	Medium	High	Medium	High
Gujarat	8	■			■	■				Medium → High	Medium → High	High	High	Medium	Very Low → Low	Medium	Very Low → Low	High	Very Low → Medium
Uttar Pradesh	4	■			■	■				-	Very Low → Low	High	High	Medium	Very Low	-	Low → High	High	High
Odisha	30			■					■	Medium → High	High	High	High	Medium	Very Low → Medium	Not Applicable → Medium	Low → High	Low → Medium	Very Low → High
Rajasthan	5				■	■			■	-	Very Low → Low	High	High	Medium	Very Low → Low	-	Low	High	Low
Tamil Nadu	5				■	■	■			Not Applicable → Medium	High	High	High	Medium	Very Low → Medium	Not Applicable → Medium	Low → Medium	Low → High	Low → High
Karnataka	5				■	■	■			-	Medium → High	Medium → High	High	Medium	Very Low	-	Low	Medium → High	Very Low → Medium
Madhya Pradesh	2				■	■				-	Low	High	High	Medium	Very Low	-	Low	High	Very Low → Low
Andhra Pradesh	3				■	■				-	High	High	High	Medium	Very Low → Low	-	Low	Medium → High	Low → Medium
Punjab	1				■					-	Very Low	High	High	Medium	Very Low	-	Low	High	High
Bihar	1				■					-	Low	High	High	Medium	Very Low	-	Low	High	Medium
Telangana	1				■					-	High	High	High	Medium	Very Low	-	Low	High	Medium
Delhi	1								■	-	Very Low	High	High	Medium	Very Low	-	High	High	High

Tata Power has carried out baseline water risk assessment for its operating assets, through WRI Aqueduct's – Water Risk Atlas

State/UT	Locations	Cluster								Water Risks							
		Generation			Renewables			T&D									
		Thermal	Hydro	WHRB/BFG/COG	Solar	Wind	Manufacturing	Transmission	Distribution	Water Stress	Water Depletion	Interannual Variability	Seasonal Variability	Groundwater table decline	Riverine Flood Risk	Coastal Flood Risk	Drought Risk
Maharashtra	12	■	■		■	■		■	■	Low → Extremely High	Low → Extremely High	Low → Extremely High	Medium-High → High	-	Medium-High → Extremely High	Low → High	Medium-High → High
Jharkhand	2	■		■	■					High	Low-Medium	Low-Medium → Medium-High	Low-Medium → Medium-High	-	Medium-High	Low → Low-Medium	Medium-High
West Bengal	1			■						Extremely High	Extremely High	Low-Medium	Medium-High	Medium-High	Extremely High	Extremely High	Medium-High
Gujarat	8	■			■	■				Extremely High	Extremely High	Medium-High → Extremely High	Medium-High → High	Not Applicable → Extremely High	Low-Medium → Extremely High	Low → High	Not Applicable → High
Uttar Pradesh	4	■			■	■				Extremely High	Medium-High → Extremely High	Low-Medium → Medium-High	High	Medium-High → Extremely High	Medium-High → High	Low	Medium-High → High
Odisha	30			■					■	Low → Extremely High	Low → High	Low-Medium	Low-Medium	Not Applicable → Medium-High	Low-Medium → Extremely High	Low → Extremely High	Medium-High
Rajasthan	5				■	■			■	Extremely High	High → Extremely High	Medium-High → High	Medium-High → High	Not Applicable → Medium-High	Low-Medium → High	Low	High
Tamil Nadu	5				■	■	■			Medium-High → Extremely High	Low-Medium → Extremely High	Low → Low-Medium	Low → Low-Medium	-	Low-Medium → High	Low → Low-Medium	High
Karnataka	5				■	■	■			Medium-High → Extremely High	Low-Medium → Extremely High	Low → Medium-High	Low → Low-Medium	-	Low-Medium → Medium-High	Low	High
Madhya Pradesh	2				■	■				Extremely High	High → Extremely High	Medium-High → High	High	-	Low-Medium → Medium-High	Low	Medium-High
Andhra Pradesh	3				■	■				Low → Extremely High	Low → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	-	Low-Medium → High	Low	High
Punjab	1				■					Extremely High	Extremely High	High	Medium-High	Low-Medium	High	Low	High
Bihar	1				■					High	Medium-High	Low-Medium	High	Medium-High	High	Low	Medium-High
Telangana	1				■					Extremely High	Extremely High	Medium-High	Low-Medium	-	Low	Low	Medium-High
Delhi	1								■	Extremely High	Extremely High	Medium-High	High	Extremely High	High	Low	High

Scenario analysis for 2030 and 2050

Tata Power has carried out scenario analysis based on IPCC Representative Concentration Pathways (RCP). We have used WRI Aqueduct's future predictions based on Pessimistic, Business-As-Usual and Optimistic Scenario for the years 2030 and 2050.

State/UT	Locations	Cluster								Pessimistic Scenario							
		Generation			Renewables			T&D		Water Stress		Water Depletion		Interannual Variability		Seasonal Variability	
		Thermal	Hydro	WHRB/BFG/COG	Solar	Wind	Manufacturing	Transmission	Distribution	2030	2050	2030	2050	2030	2050	2030	2050
Maharashtra	12	■	■		■	■		■	■	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Medium-High → High	Medium-High → Extremely High
Jharkhand	2	■		■	■					Medium-High → High	Medium-High → High	Low-Medium	Low-Medium	Medium-High	Medium-High	Low-Medium → Medium-High	Medium-High
West Bengal	1			■						Extremely High	Extremely High	Extremely High	Extremely High	Medium-High	Medium-High	Medium-High	Medium-High
Gujarat	8	■			■	■				Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	High	High
Uttar Pradesh	4	■			■	■				High → Extremely High	Extremely High	Medium-High → Extremely High	High → Extremely High	Medium-High → High	Medium-High	High	High
Odisha	30			■					■	Low → Extremely High	Low → Extremely High	Low → High	Low → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low-Medium	Low-Medium → Medium-High
Rajasthan	5				■	■			■	Extremely High	Extremely High	High → Extremely High	High → Extremely High	Extremely High	Medium-High → Extremely High	Low-Medium → High	Low-Medium → High
Tamil Nadu	5				■	■	■			Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low → Low-Medium	Low → Low-Medium
Karnataka	5				■	■	■			Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → High	Low → Low-Medium	Low → Low-Medium
Madhya Pradesh	2				■	■				Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	High	High
Andhra Pradesh	3				■					Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low-Medium	Low-Medium
Punjab	1				■					Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	High	Medium-High	Medium-High
Bihar	1				■					High	Extremely High	Medium-High	High	Medium-High	Low-Medium	High	High
Telangana	1				■					Extremely High	Extremely High	Extremely High	Extremely High	Medium-High	Medium-High	Medium-High	Medium-High
Delhi	1								■	High	Extremely High	Medium-High	High	Medium-High	Medium-High	High	High

Business-As-Usual Scenario

State/UT	Locations	Cluster								Business-As-Usual Scenario							
		Generation			Renewables			T&D		Water Stress		Water Depletion		Interannual Variability		Seasonal Variability	
		Thermal	Hydro	WHRB/BFG/COG	Solar	Wind	Manufacturing	Transmission	Distribution	2030	2050	2030	2050	2030	2050	2030	2050
Maharashtra	12	■	■		■	■		■	■	Low-Medium → Extremely High	Low-Medium → Extremely High	Low → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Medium-High → Extremely High	Medium-High → High
Jharkhand	2	■		■	■					Medium-High → High	High	Low-Medium	Low-Medium	Medium-High → High	Medium-High → High	Low-Medium	Low-Medium → Medium-High
West Bengal	1			■						Extremely High	Extremely High	Extremely High	Extremely High	Medium-High	Medium-High	Medium-High	Medium-High
Gujarat	8	■			■	■				Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	High → Extremely High	High
Uttar Pradesh	4	■			■	■				High → Extremely High	Extremely High	Medium-High → Extremely High	High → Extremely High	Medium-High → High	Medium-High → High	High	High
Odisha	30			■					■	Low → Extremely High	Low → Extremely High	Low → High	Low → High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low-Medium → Medium-High
Rajasthan	5				■	■			■	Extremely High	Extremely High	High → Extremely High	Extremely High	Extremely High	Extremely High	Low-Medium → High	Low-Medium → High
Tamil Nadu	5				■	■	■			Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low → Low-Medium	Low → Low-Medium
Karnataka	5				■	■	■			Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → High	Low → Low-Medium	Low → Medium-High
Madhya Pradesh	2				■	■				Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	High	High
Andhra Pradesh	3				■	■				Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low-Medium	Low-Medium → Medium-High
Punjab	1				■					Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Medium-High	Medium-High
Bihar	1				■					High	High	Low-Medium	Medium-High	Medium-High	Medium-High	High	High
Telangana	1				■					Extremely High	Extremely High	Extremely High	Extremely High	Medium-High	High	Medium-High	Low-Medium
Delhi	1								■	High	Extremely High	Medium-High	High	High	High	High	High

Optimistic Scenario

State/UT	Locations	Cluster								Pessimistic Scenario							
		Generation			Renewables			T&D		Water Stress		Water Depletion		Interannual Variability		Seasonal Variability	
		Thermal	Hydro	WHRB/BFG/COG	Solar	Wind	Manufacturing	Transmission	Distribution	2030	2050	2030	2050	2030	2050	2030	2050
Maharashtra	12	■	■		■	■		■	■	Low-Medium → Extremely High	Low-Medium → Extremely High	Low → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Medium-High → Extremely High	Medium-High → High
Jharkhand	2	■		■	■					Medium-High → High	High	Low-Medium → Medium-High	Low-Medium	Low-Medium → Medium-High	High	Low-Medium	Medium-High
West Bengal	1			■						Extremely High	Extremely High	Extremely High	Extremely High	Medium-High	High	Medium-High	Medium-High
Gujarat	8	■			■	■				Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	High	High
Uttar Pradesh	4	■			■	■				High → Extremely High	High → Extremely High	High → Extremely High	High → Extremely High	Medium-High → High	Medium-High → High	High	High
Odisha	30			■					■	Low → Extremely High	Low → Extremely High	Low → High	Low → High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low-Medium → Medium-High
Rajasthan	5				■	■			■	Extremely High	Extremely High	High → Extremely High	Medium-High → Extremely High	High → Extremely High	High → Extremely High	Low-Medium → High	Low-Medium → High
Tamil Nadu	5				■	■	■			Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low → Low-Medium	Low → Low-Medium
Karnataka	5				■	■	■			Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low → Low-Medium	Low → Low-Medium
Madhya Pradesh	2				■	■				Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	Extremely High	High	High
Andhra Pradesh	3				■	■				Medium-High → Extremely High	Medium-High → Extremely High	Low-Medium → Extremely High	Low-Medium → Extremely High	Low-Medium → Medium-High	Low-Medium → Medium-High	Low-Medium	Low-Medium
Punjab	1				■					Extremely High	Extremely High	Extremely High	Extremely High	High	Medium-High	Medium-High	Extremely High
Bihar	1				■					Extremely High	High	High	Medium-High	Medium-High	Medium-High	High	High
Telangana	1				■					Extremely High	Extremely High	Extremely High	Extremely High	Medium-High	High	Low-Medium	Low-Medium
Delhi	1								■	High	High	High	Medium-High	High	Medium-High	High	High

Risk management

Climate-related risks are integrated into our overall risk management framework through the Enterprise Risk Management process, influencing strategy formulation at the Annual Strategy Workshop.

Identification and assessment of climate-related risks

The Board-level Risk Management Committee at Tata Power evaluates climate-related risks annually, with quarterly reviews by cluster-wise committees. Risk owners and champions develop mitigation strategies aligned with our renewable energy goals and Science-Based Targets initiative (SBTi) commitments.

This process includes creating risk maps and presenting them to the CEO & MD and the Risk Management Committee.

Managing climate-related risks

The Board-level Risk Management Committee conducts thorough reviews of high-impact risks, developing and overseeing mitigation strategies. The internal audit department ensures the sustained effectiveness of these strategies. Sub-committees focus on sustainability initiatives, aiming to achieve carbon neutrality, enhance sustainability efforts and promote circularity in business practices.

Integration into overall risk management

Climate-related risks are integrated into our overall risk management framework through the Enterprise Risk Management (ERM) process. The Risk Management team ensures regular reviews with the risk owners from the business and functional aspect and is reported to Board-level Risk Management Committee.

To raise our clean and green portfolio percentage to 70% by

2030

Progress

- We are at 44% clean and green capacity
- We will achieve 65% of clean and green capacity post completion of projects-in-pipeline

Net zero by

2045

Progress

- We are SBTi-validated

Metrics for assessing risks and opportunities

Greenhouse Gas (GHG) emissions

Metric	Unit	FY24	FY25
Scope 1, 2 and 3 emissions	Million tCO_2e	**40.202*** Scope 1 emissions **2.886** Scope 2 emissions **24.934** Scope 3 emissions	**41.352** Scope 1 emissions **3.202** Scope 2 emissions **25.348** Scope 3 emissions

Carbon intensity

Total Scope 1 and Scope 2 emission intensity per rupee of turnover	Metric tonnes of CO_2 equivalent / Revenue (₹)	**0.0000700****	**0.0000690**
Total Scope 1 and Scope 2 emission intensity in terms of physical output (Total Scope 1 and Scope 2 GHG emissions / Total Power Generation Units (kWh)	Metric tonnes of CO_2 equivalent / kWh	**0.0008820*****	**0.0008425**

Energy usage

Total energy consumption	GJ	**50,56,70,834**	**51,22,59,954**

Energy intensity

Energy intensity per rupee of turnover	Total energy consumed (GJ)/ Revenue from operations (₹)	**0.000821**	**0.000794**
Energy intensity in terms of physical output	Total energy consumed (GJ)/ Total Power Generation Units (kWh)	**0.0080439 ********	**0.0076394********

Water usage and management

Total water withdrawal	Kl	**6,09,77,30,174**	**6,62,57,28,495**

Waste management

Total waste generated	MT	**67,30,595***	**62,32,871**

*FY24 numbers have been restated due to inclusion of Investments form S3C15 to Scope 1 in alignment with equity accounting of GHG protocol
**FY24 numbers have been restated
***FY24 numbers have been restated due to equity accounting of Generation MUs in alignment with GHG protocol
****Generation units excludes units from International assets as submitted for exclusions during BRSR

Nature-related disclosures

We are aligned to the Taskforce on Nature-related Financial Disclosures (TNFD), a global framework guiding organisations to identify, assess, manage, and disclose nature-related risks and opportunities. This initiative supports the transition towards nature-positive outcomes by integrating environmental considerations into business and financial decision-making processes. By adopting the TNFD framework, we ensure that our operations align with global biodiversity goals and contribute to a sustainable future. The alignment to the TNFD underscores our dedication to environmental stewardship and sustainable development. The findings from this approach will help integrate nature considerations into our broader sustainability strategy, supporting our commitments to water, waste and emissions.

Biodiversity and nature conservation at Tata Power

At Tata Power, biodiversity is recognised as a critical enabler for long-term sustainable economic growth and environmental responsibility. As part of our commitment to the Tata Code of Conduct, we ensure that in the production and sale of our products and services, we strive for environmental sustainability and comply with all applicable laws and regulations. As part of Tata Group's Project Aalingana, Tata Power is actively working towards achieving No Net Loss of Biodiversity by 2030 and integrating nature considerations into financial planning, operations, and corporate strategy.

Our Biodiversity Policy is guided by the mitigation hierarchy laid upon the framework: Avoid, Minimise, Remediate and Offset, ensuring that biodiversity and nature-based risks are addressed across the entire project lifecycle—from land acquisition and design to construction, operation, and end-of-life.

Governance framework for biodiversity

We have a strong governance structure to oversee and implement biodiversity initiatives across our operations. The CSR and Sustainability Board Committee provides strategic guidance by meeting quarterly, while the Apex Leadership Team reviews to ensure effective delivery. Corporate Sustainability function is the standard keeper and ensures alignment with business priorities as well as Global and National frameworks. At each location, the initiatives are executed by SPOCs and through Business Partners.

Biodiversity Commitment is fully integrated into the organisation's decision making process and is supported by all of its operational and functional units. It is monitored through governance tools like Business Reviews (Integrated Review Management System IRMS), Annual Business Plan (ABP) integration, Risk Mapping (Enterprise Risk Management ERM) and KRA linkage in Performance Management Systems (PMS).

Global and national commitments

United Nations Sustainable Development Goals (UN SDG)

Our commitment is aligned with all UN SDGs relevant to Biodiversity with focus on:

- **SDG 13 -** To take immediate actions to combat climate change and its impacts by promoting nature-based solutions, afforestation and other mitigation strategies
- **SDG 14 -** To protect and promote sustainable use of the oceans, seas and marine resources for sustainable development
- **SDG 15 -** To protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- **SDG 17 -** To strengthen and revitalise partnership for sustainable biodiversity conservation by mobilising resources, sharing knowledge and encouraging multi-stakeholder collaborations

Task Force on Nature-related Financial Disclosures (TNFD)

Tata Power took the leadership w.r.t Biodiversity Commitment in the Energy Utility sector during TNFD launch in India, by participating in a pilot assessment for the Task Force for Nature-Related Financial Disclosures in 2023 to identify ecosystem service interdependencies and create a risk plan.

National Biodiversity Strategy and Action Plan (NBSAP) 2024

India has developed National Biodiversity Strategy and Action Plan (NBSAP), which outlines the implementation of the Convention on Biological Diversity's Global Biodiversity Framework at the country level. The objectives of NBSAP are aligned with the GBF.

Tata Power is committed to the NBSAP 2024 through implementation of Biodiversity Action Plans across locations.

CII India Business & Biodiversity Initiative (IBBI) 2.0

Tata Power was a key stakeholder in the development of CII IBBI 2.0 framework. This framework represents the alignment of business operations with the Global Biodiversity Framework (GBF) and endeavors to operate in harmony with nature through a series of actionable steps.

Our approach to human rights and engagement with indigenous peoples, local communities, and stakeholders in nature-related risks and opportunities

We recognise that respecting human rights is fundamental to achieving sustainable and inclusive growth. Our human rights policy and stakeholder engagement processes are closely aligned with our environmental and social goals, particularly as they relate to nature-related dependencies, impacts, risks, and opportunities.

Human Rights Policy and Governance

We have institutionalised a robust human rights commitment framework, rooted in globally recognised standards such as the UN Global Compact (UNGC) and the International Labour Organisation (ILO) conventions. We maintain a zero-tolerance policy on child labour, forced labour, workplace harassment, and discrimination across all operations and value chains.

Key features of Tata Power's policy and governance framework

- Adherence to the UN Guiding Principles Reporting Framework, which guides due diligence, assessments, and corrective actions
- Strategic guidance by CSR & Sustainability Board Committee and the Apex Leadership Team, ensuring alignment of human rights with environmental and social risk management

Stakeholder engagement and inclusion of indigenous people and local communities

We identify stakeholders—including Indigenous Peoples (IPs), Local Communities (LCs), and affected individuals—through business divisions and functional teams. These groups are mapped based on the actual and perceived impacts of Tata Power's activities on their environment, livelihoods, and cultural resources.

Strategy

We have leveraged globally recognised tools, such as the WWF Biodiversity Risk Filter (BRF) and ENCORE, to gain a comprehensive understanding of how its operations intersect with nature. These advanced tools enable us to assess our environmental dependencies and impacts, while also identifying potential risks and opportunities related to biodiversity.

The WWF Biodiversity Risk Filter (BRF) is an interactive, science-based tool developed by the World Wide Fund for Nature (WWF) to help businesses identify, assess, and respond to biodiversity-related risks across their operations and supply chains. It integrates global environmental datasets with business activity information to evaluate mainly physical and reputational risks linked to biodiversity and ecosystem services.

For this assessment, physical and reputational risks were evaluated across our key operating assets using the BRF tool.

- Physical risks include site-level exposure to ecosystem degradation and environmental hazards (e.g., water scarcity, soil and air degradation, extreme weather events)
- Reputational risks reflect potential stakeholder concerns or public scrutiny linked to biodiversity-sensitive areas, such as proximity to conservation zones or the presence of endangered species

We carried out assessment of risks (Physical and Reputational) along with Impacts and dependencies for 11 operational assets across Thermal, Hydros, Solar and Wind sites which is representative of our operating portfolio.

Physical risks

Physical risks refer to the tangible and measurable environmental changes and hazards that arise from ecological degradation and climate change. These risks can directly impact business operations, supply chains, infrastructure, and community well-being.

Total physical risk

Asset	Total Physical Risk
Thermal	Medium → High
Hydro	Medium → High
Solar	Low → Medium
Wind	Medium

Provisioning services

Asset	Water Availability	Forest Productivity & Distance to Markets
Thermal	High	Medium → High
Hydro	High	-
Solar	Medium	-
Wind	High	-

"-"represents data "No Dependency or impact" as per output of WWF Biodiversity Risk Filter tool

Regulating & supporting services – Enabling

Asset	Water Condition	Air Condition
Thermal	Low	High
Hydro	Medium	Medium → High
Solar	Low	High
Wind	Low	High

Regulating services – Mitigating

Asset	Landslides	Wildfire Hazard	Extreme Heat	Tropical Cyclones
Thermal	Low → High	Medium → High	Very High	High
Hydro	Low → High	High	High	Medium → High
Solar	Low	Low → High	High	Low
Wind	Low	Medium	High	Low → Medium

Pressures on biodiversity

Asset	Land/Sea Use Change	Forest Canopy Loss	Invasives	Pollution
Thermal	Very Low → Low	Low	-	Very High
Hydro	Medium → High	Low	Low	High
Solar	Medium → High	Very Low	-	High
Wind	Medium → High	Very Low	-	High

Reputational risks

Reputational risk refers to the potential for negative public perception, media attention, or stakeholder concern that can impact an organisation's social license to operate.

The WWF Risk Filter tool was used to assess reputational risk at 11 operational assets. This assessment was broken down into three key dimensions:

- Environmental factors – Includes proximity to protected or key biodiversity areas, ecosystem condition, and range rarity
- Socioeconomic factors – Covers presence of indigenous communities, exposure to resource scarcity, labour/ human rights concerns, and financial inequality
- Additional reputational factors – Considers media scrutiny, political context, sites of international interest, and the site's risk preparedness

Total reputational risk

Asset	Overall Reputational Risk
Thermal	Medium → High
Hydro	Medium → High
Solar	Medium
Wind	Medium

Environmental factors

Asset	Protected/ Conserved Areas	Key Biodiversity Areas	Other Important Areas	Ecosystem Condition	Range Rarity
Thermal	Medium	Medium → High	High	High	Low → High
Hydro	Low	Medium	High	Medium → High	High
Solar	Low	Low → Medium	Very Low	Low	Low
Wind	Low	Low → High	Very Low → Low	Low	Low → High

Socioeconomic factors

Asset	IPs/LCs Lands	Resource Scarcity	Labour/ Human Rights	Financial Inequality
Thermal	Medium	Low → Medium	Medium	Low
Hydro	High	Low → Medium	Medium	Low
Solar	Medium	-	Medium	Low
Wind	Medium	-	Medium	Low

Additional reputational factors

Asset	Media Scrutiny	Political Situation	Sites of International Interest	Risk Preparation
Thermal	High	Medium	Low → High	Very Low
Hydro	High	Medium	Low → High	Very Low
Solar	High	Low	Very Low	Very Low
Wind	High	Low	Very Low	Very Low

Dependencies

ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) is a tool developed by the Natural Capital Finance Alliance to help businesses and financial institutions understand how environmental change can affect economic activities. It identifies the dependencies companies have on natural capital and the potential impacts their operations could have on ecosystems. ENCORE covers a wide range of risk types, including physical risks (such as water scarcity, soil degradation, and biodiversity loss and reputational risks arising from ecosystem damage. We have used the ENCORE tool to map the nature-related dependencies and impacts associated with its operations at various sites. This assessment provided insights into how site-specific environmental factors could influence business continuity, helping to prioritise actions for managing nature-related risks effectively.

Provisioning services – Water supply

Energy Source	Materiality Rating
Hydropower	●
Fossil fuels	●
Solar	●
Wind	●

Regulating and maintenance services

Ecosystem Service	Energy Source	Materiality Rating
Global Climate Regulation Services	Solar	●
	Wind	●
	Fossil fuels	●
	Hydropower	●

● Very High ● High ● Medium ● Very Low ● Low

Ecosystem Service	Energy Source	Materiality Rating
Local Climate Regulation Services	Solar	●
	Wind	●
	Fossil fuels	●
	Hydropower	●
Air Filtration Services	Fossil fuels	●
Soil Erosion Control Services	Hydropower	●
	Fossil fuels	●
	Solar	●
	Wind	●
Solid Waste Remediation	Fossil fuels	●
	Hydropower	●
Water Purification	Fossil fuels	●
	Hydropower	●
Water Flow Maintenance	Hydropower	●
	Fossil fuels	●
	Solar	●
	Wind	●
Flood Mitigation	Hydropower	●
	Wind	●
	Fossil fuels	●
	Solar	●
Storm Mitigation	Hydropower	●
	Solar	●
	Wind	●
	Fossil fuels	●
Noise Attenuation	Wind	●
	Fossil fuels	●
	Solar	●

Impacts

Impact	Energy Source	Materiality Rating
Disturbances (Noise, Light, etc.)	Fossil fuels	●
	Hydropower	●
	Wind	●
	Solar	●
Freshwater Use Impact	Hydropower	●
	Fossil fuels	●
GHG Emissions	Fossil fuels	●
	Hydropower	●
Seabed Use Impact	Wind	●
Non-GHG Emissions	Fossil fuels	●
Solid Waste Generation	Fossil fuels	●
	Hydropower	●
	Solar	●
	Wind	●
Land Use Impact	Wind	●
	Fossil fuels	●
	Hydropower	●
	Solar	●
Toxic Pollutant Emissions to water & soil	Fossil fuels	●
	Solar	●
	Wind	●
Water Consumption	Fossil fuels	●
	Hydropower	●
	Solar	●
	Wind	●

● Very High ● High ● Medium ● Very Low ● Low

We adopted the LEAP approach—an acronym for Locate, Evaluate, Assess, and Prepare—to systematically manage our interactions with nature. This framework, developed by the Taskforce on Nature-related Financial Disclosures (TNFD), enables us to identify and evaluate nature-related risks and opportunities across its operations. By integrating the LEAP approach into its sustainability strategy, we ensure that our environmental impact is minimised, biodiversity is preserved, and its business decisions align with long-term ecological sustainability.

In 2024, we had carried out No Net Loss (NNL) study for 82 operation sites including solar and wind across the country. The study involved identification of relevant risks and their respective mitigation action plans.

In 2023, we had undertaken a pilot study at 11 of its sites in collaboration with the Confederation of Indian Industry's India Business & Biodiversity Initiative (CII-IBBI), employing the LEAP approach. This methodology involves identifying and mapping ecological dependencies and impacts. We utilise various biodiversity mapping tools and datasets to assess risks and dependencies, ensuring that its strategies are informed by comprehensive ecological data. The LEAP assessment results are planned to be integrated into site-specific as well as broader Biodiversity Management Plans and policies to prioritise risks and define appropriate mitigation actions. This approach underscores our commitment to integrating environmental considerations into its business operations, aligning with global sustainability standards.

We have already prepared Biodiversity Management Plans (BMPs) and Biodiversity Action Plans (BAPs) for operational thermal and hydro sites within the country. These plans are actively tracked and monitored for progress.

Risk and impact management

We ensure effective management of all nature-related risks and mitigation of negative impacts through our Risk Management framework. Nature-related considerations are integrated into our policies, aligning with our commitment to sustainability and nature-related resilience. The Apex leadership oversees these efforts, ensuring that nature-related risks are effectively managed and aligned with our commitment to sustainability.

Following is the Mitigation Hierarchy Table for Tata Power, prepared as per the TNFD-recommended A3RT approach (Avoid, Reduce, Restore and Regenerate, Transform). The A3RT approach guides organisations to manage nature-related risks and impacts systematically. It prioritises actions in a sequence: first Avoid causing harm to nature wherever possible; then Reducing unavoidable impacts; next Restoring and Regenerating degraded ecosystems; and finally Transforming business models and operations to achieve long-term positive outcomes for nature. This hierarchy highlights that mitigation efforts are strategic, effective, and aligned with global best practices on nature-positive action.

Mitigation level	Actions taken	Potential impacts
Avoid	• We ensure adherence to stringent design parameters to address climate and nature related risks while developing new projects	• Prevent biodiversity loss and ensure strict regulatory compliance • Minimise legal risks and environmental liabilities
Reduce	• We implement Nature-Based Solutions (NbS), including watershed management, afforestation, and greenbelt expansion at thermal and renewable sites • Enhancing water conservation through Zero Liquid Discharge (ZLD) systems, rainwater harvesting ponds, and robotic cleaning for solar panels	• Reduce environmental footprint by lowering water dependency and emissions • Enhance long-term sustainability and operational efficiency
Regenerate	• Engaging employees in afforestation through the Tree Mittra initiative • Conducted GIS-based green cover mapping across five hydro locations to assess carbon footprint and improve biodiversity planning • Carried out plantation under "Project GhanVan" in collaboration with ICICI Foundation with high survival rate	• Strengthens local ecosystems, enhances air and soil quality, and contributes to carbon sequestration
Restore	• In partnership with SNEHA Foundation and the Odisha forest department, TATA Power plans to reduce human-elephant conflicts with a comprehensive five-year action plan. Measures include installation of early warning systems, vaccination to prevent elephant diseases, and community capacity building • Conservation of Mahseer at the Walvan hatchery in Lonavala through captive breeding in close association with government agencies and Fisheries institute	• Supports habitat restoration, species conservation, and climate resilience • Strengthens ecosystem stability and biodiversity preservation • Blue finned Mahseer removed from IUCN red list of Endangered species due to conservation efforts by Tata Power
Transform	• Committed to Net Zero by 2045, Water Neutrality & Zero Waste to Landfill by 2030, and No Net Loss of Biodiversity by 2030 under Project Aalingana • Accelerating renewable energy expansion across solar, wind, and hydro projects • Recognised as the only Indian integrated power entity with SBTi-validated decarbonisation targets, aligning with the well-below 2°C trajectory • Conducted a TNFD pilot study across selected sites with CII-IBBI to assess biodiversity risks and develop mitigation plans • Carried out NNL study for 82 operational solar and wind sites, in addition to BMPs and BAPs for thermal and hydro sites	• Position the Company as a leader in sustainable energy and climate action • Strengthen biodiversity integration and long-term resilience

Metrics and targets

We are actively aligning its "Metrics and Targets" with the TNFD's sector-specific guidance for the electric utilities and power generators sector. This guidance supplements the LEAP (Locate, Evaluate, Assess, Prepare) approach, providing tailored recommendations to help organisations in this sector assess and manage nature-related risks and opportunities. It includes sector-specific metrics and targets relevant to the sector for enhanced transparency in their disclosures.

We are integrating these sector-specific metrics into its reporting framework, ensuring that its strategies and disclosures align with the TNFD's recommendations. By doing so, we aim to enhance our understanding of nature-related dependencies and impacts, supporting our commitments to sustainability and responsible environmental stewardship by making framework coherent disclosures.