

# Climate Action and TCFD Alignment

## Strategic Approach

At JSW Energy, we are committed to proactively addressing the risks and opportunities associated with climate change. Recognizing its significant implications for our business and financial performance, we have adopted the TCFD to guide our climate strategy.

These standards focusing on governance, strategy, risk management, and metrics/targets—provide a globally consistent and comparable framework for identifying, managing, and disclosing sustainability and climate-related risks and opportunities. By aligning with TCFD, we aim to strengthen our understanding of climate impacts, enhance transparency, and build greater accountability with investors and stakeholders.

We are currently conducting comprehensive assessments to identify material sustainability and climate risks and opportunities, reinforcing our commitment to responsible environmental stewardship and long-term business resilience.





Ratnagiri Plant

## Governance of Climate-Related Issues

### Board Oversight

Climate action is integrated at the highest level of corporate governance. Board-level committees, including the Sustainability Committee, oversee climate-related risks and opportunities. Sustainability performance and strategic initiatives are reviewed bi-annually, ensuring strong leadership accountability and organizational alignment.

### Management Oversight

**At the management level, oversight is driven by structured collaboration:**

- **Executive Committee:** Comprising the JMD & CEO, CFO, COO, Section Heads, and special invitees, the committee meets monthly to review sustainability performance and integrate climate-related KPIs into decision-making.
- **Corporate Functions Teams:** Cross-functional collaboration between the risk, sustainability, and strategy teams ensures climate considerations are embedded into business planning. These teams maintain active engagement with plant sites and facilitate ongoing risk reviews.

### Strategic Focus on Climate Risks

Our climate strategy prioritizes the identification and management of both transition risks (e.g., policy changes, technology shifts) and physical risks (e.g., extreme weather events, water scarcity). These efforts ensure our operations remain resilient in a changing climate and support our broader goals of sustainability and stakeholder value creation.

Source	Purpose
<a href="#">Intergovernmental Panel on Climate Change (IPCC)</a>	Assesses physical climate risks by modeling various greenhouse gas concentration pathways.
<a href="#">International Energy Agency (IEA)</a>	Evaluates implications of climate-related policies and technologies on global energy systems.

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## Climate Risk Modelling Framework

JSW Energy adopts a dual-pronged approach to assess both physical and transition risks using scenario analysis. This framework allows us to make informed decisions by evaluating risk exposures across locations and incorporating resilience measures into strategic planning.

### 1. Business-as-Usual Scenario

#### IPCC RCP 8.5 (Physical Risks)

This scenario assumes no major climate action and forecasts extremely high greenhouse gas emissions. Key features:

- Projected global mean temperature rise of ~3.7°C (with a range of 2.6°C to 4.8°C) by 2100.
- Higher probability of severe climate impacts like heatwaves, droughts, and extreme weather.
- Assumes continued reliance on fossil fuels with limited mitigation policies.

### IEA WEO-2020 Stated Policies Scenario (STEPS)

- Reflects existing and announced policy commitments without additional decarbonization efforts.
- Used as a benchmark for current trajectory against future risks.

### 2. Optimistic Scenario

#### IPCC RCP 4.5 (Physical Risks)

This intermediate scenario assumes moderate climate action:

- Predicts a global temperature rise of ~1.8°C (range: 1.1°C to 2.6°C) by 2100.
- Envisions the implementation of targeted emission reductions and adaptive measures.

#### IEA WEO-2020 Sustainable Development Scenario (SDS) (Transition Risks)

- Outlines a future aligned with the Paris Agreement, targeting net-zero CO<sub>2</sub> emissions from the energy sector by ~2070.

- Includes widespread clean energy adoption and reduced air pollution.

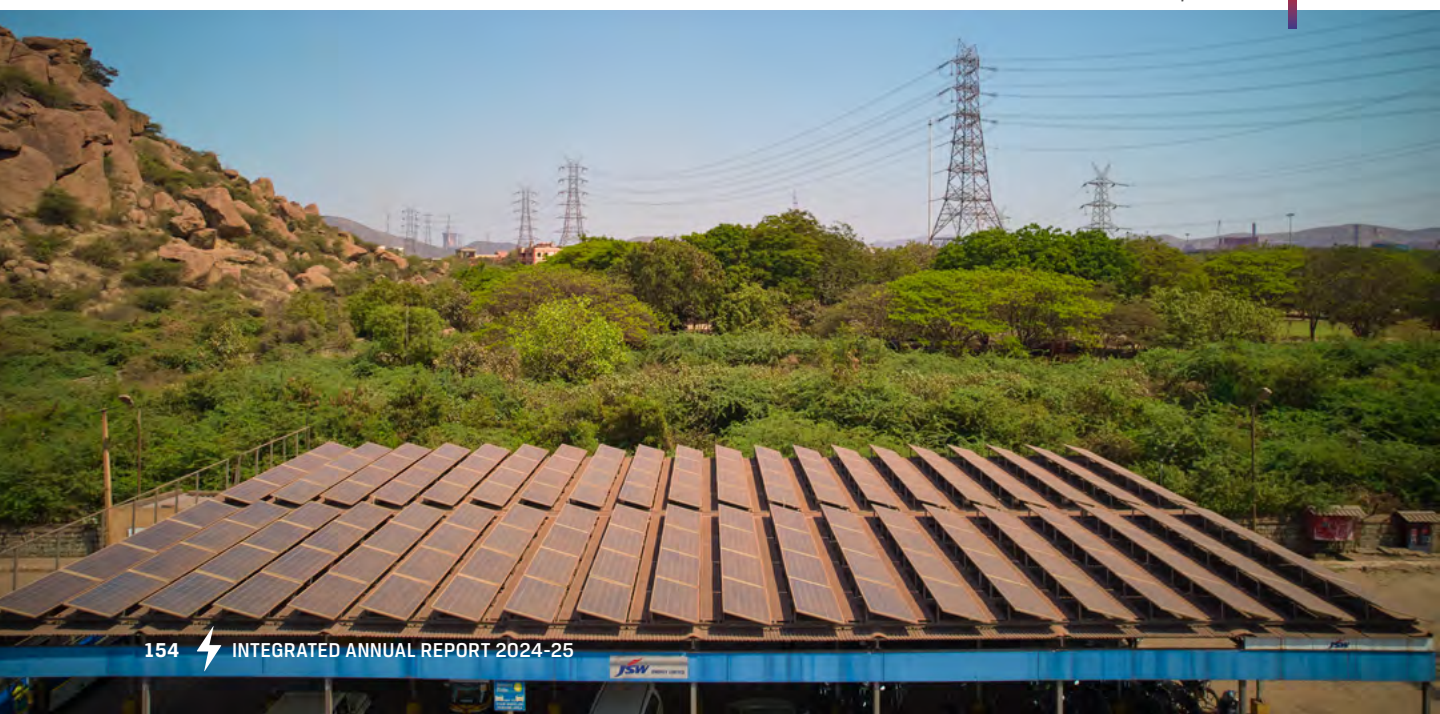
### Scenarios Shaping Our Decision Making

These scenarios are integrated into our risk assessments to:

- Evaluate location-specific exposure to climate risks.
- Identify high-risk assets based on physical vulnerability and policy sensitivity.
- Guide mitigation planning and investment decisions for greater climate resilience.

JSW Energy is conducting detailed site-level assessments to evaluate and quantify the likelihood and impact of identified risks at the plant/facility level, enabling more robust and climate-resilient infrastructure planning.

Solar Plant, JSW Neo



## Physical and Transition Risks

At JSW Energy, we have identified both transitional and physical risks across our operations. Transitional risks have been assessed under two distinct scenarios, while physical risks have been evaluated under scenario-based analyses for our hydro assets—Karcham, Baspa, and Kuther, as well as thermal plants.

Category	Description
<b>Physical Risks</b> Climate change-related physical risks may arise from sudden, extreme events (acute) or from gradual, long-term changes in climate patterns (chronic).	<p><b>Chronic Risks :</b> Water scarcity poses significant operational challenges for our facilities located in high water-stress regions. Moreover, extreme heat waves driven by temperature fluctuations are further disrupting our operations.</p> <p><b>Acute Risks :</b> Flooding caused by intense rains and cyclones is affecting operations, with the potential for shutdowns and service interruptions. These climate events also challenge the reliability of raw material sourcing.</p> <p><b>Mitigation Strategies :</b></p> <p><b>Pan-India Diversification:</b> We are actively expanding our footprint across India in the renewable energy sector, which has minimal raw material requirements during operations.</p> <p><b>Zero Liquid Discharge Compliance:</b> All our facilities operate as zero liquid discharge (ZLD) plants, demonstrating our commitment to responsible and sustainable water management.</p> <p><b>Reducing Freshwater Usage:</b> We are focused on lowering our specific freshwater consumption in the coming years through targeted initiatives which enhance recycling and re-use of water along with rainwater harvesting initiatives.</p> <p><b>Water Conservation Initiatives:</b> Water assessments are conducted at all sites to identify conservation opportunities and improve efficiency. Efforts include developing storage infrastructure to reduce water scarcity risks, along with regular pipeline maintenance to prevent leaks and water loss.</p> <p><b>Recycling and Rainwater Harvesting:</b> Water recycling, reuse, and rainwater harvesting systems have been implemented across all thermal power plants.</p> <p><b>Enhancing Operational Resilience:</b> These initiatives collectively aim to improve the resilience of our operations to water-related challenges.</p> <p><b>Monitoring Weather Patterns:</b> We are deploying systems to track weather trends, particularly rainfall patterns, to better anticipate and mitigate potential future risks.</p>
<b>Transition Risks</b> Shifting to a low-carbon economy may involve significant changes in policies, laws, technologies, and markets to meet climate change mitigation and adaptation goals.	<p><b>Policy Risks:</b> Stricter environmental regulations—such as the Perform, Achieve, and Trade (PAT) scheme, carbon taxes, and increased coal cess—could lead to higher production costs and narrower profit margins.</p> <p><b>Market Risks :</b> Evolving consumer preferences toward renewable energy, driven by the demand to move away from thermal sources, present risks related to coal price volatility and inconsistent quality.</p> <p><b>Technology Risks :</b> JSW Energy is exploring capital-intensive low-carbon technologies such as battery energy storage, pumped hydro, and green hydrogen (for JSW Steel), though their financial viability and implementation pose significant challenges.</p> <p><b>Consumer Shift Risk: Fossil to Clean Energy:</b> JSW Energy is expanding its renewable capacity while enhancing thermal asset performance through technology upgrades, including boiler modifications to utilize JSW Steel's waste gases.</p> <p><b>Reputational Risk :</b> The potential negative impacts of our business decisions on our social license to operate are strongly connected to how we contribute to the well-being of the broader community and the environment. These effects can significantly shape our reputation among both investors and the wider public.</p> <p><b>Mitigation Strategies</b></p> <p><b>Replacing coal-based boilers:</b> Progressively shifting from coal-fired boilers to using waste gases supplied by our Group company, JSW Steel, at our Vijyanagar plant. The transition is under construction phase presently.</p> <p><b>Reducing reliance on fossil fuels:</b> This change removes dependence on fossil fuels, thereby lowering associated policy and market risks.</p> <p><b>Carbon pricing approach:</b> Our Internal Carbon Price (ICP) set at 12 USD/tCO<sub>2</sub>e helps evaluate the practicality of upcoming low-carbon projects in the short to medium term.</p> <p><b>Maintaining competitiveness:</b> Committing to a low-carbon transition while preserving our market competitiveness through adequate financial and project planning and execution.</p>

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Category	Description
Opportunities	<p><b>Harnessing Growth Opportunities :</b> Building on the growing demand for renewable energy and India's target of achieving 500 GW of fossil-free capacity by 2030, we aim to increase our capacity from 7.2 GW to 30 GW by 2030, with majority of the new capacity coming from renewable sources.</p> <p><b>Policy and Regulatory Advantage :</b> Utilizing supportive policies and regulations that encourage low-carbon development to accelerate our expansion efforts towards the 30 GW goal.</p> <p><b>Net-Zero Ambition :</b> Committed to achieving Net-Zero emissions by 2050 or sooner.</p> <p><b>Investment in Advanced Technologies:</b> Pursuing cutting-edge ultra-low carbon technologies, including green hydrogen, Battery Energy Storage Solutions (BESS) and carbon circularity to drive decarbonization</p> <p><b>Ongoing Vigilance :</b> Continuously monitoring market and policy developments to capitalize on emerging opportunities and maintain leadership in sustainable energy</p>



Wind Turbine Construction at Tuticorin Project



# Physical Risk Assessment for Hydropower Projects

JSW Energy has conducted a comprehensive Climate Risk and Adaptation Assessment (CRA) for its major hydropower assets—Karcham Wangtoo, Baspa, and Kutehr—located in the Himalayan region of Himachal Pradesh. These assets are increasingly exposed to evolving physical climate risks.

## Key Objectives:

- Assess both current and future climate risks to critical hydropower assets.
- Strengthen the climate resilience of infrastructure and operations.

## Identified Physical Climate Risks:

- Cloudbursts and flash floods
- Changing snow and glacier patterns
- Landslides
- High sediment flow
- Water scarcity
- Glacial Lake Outburst Floods (GLOFs)

## Assessment Approach:

- Aligned with the Principles of Climate Risk Management for Climate Proofing Projects (2020).
- Used historical data and downscaled CMIP6 climate models under SSP2-4.5 and SSP5-8.5 scenarios.
- Employed hydrologic modeling, hazard mapping, and geospatial analysis.
- Applied a Likelihood-Consequence (L-C) framework to evaluate and prioritize risks.



Karcham Dam at JSW Hydro Sholtu

## Key Outcomes:

- Short-term risks are relatively low; however, long-term risks are identified for landslides and GLOFs.
- Developed a Physical Risk Summary Matrix outlining:
  - Nature of risks
  - Proposed interventions
  - Rationale and benefits
  - Recommended implementation measures

## Next Steps:

- Finalizing phased mitigation plans with experts and site teams:
  - Short-term (0–3 years)
  - Medium-term (3–10 years)
  - Long-term (>10 years)
- Plans will address climate adaptation, operational resilience, and financial impact mitigation.

## Risk Management Framework

We follow a structured and comprehensive climate risk assessment framework to identify and evaluate climate-related risks. This framework operates at two levels:

### 1. Asset/Plant Level

- **Risk Identification and Assessment:** Climate-related risks are assessed at the asset level and categorized as high, medium, or low, based on a 3x3 risk matrix.
- **Evaluation Criteria:** Assessment is based on the probability of occurrence and the expected impact of each risk.

### 2. Corporate Level


- **Holistic Assessment:** Climate-related risks and opportunities resulting from policy, regulatory changes, market dynamics, and emerging technologies are reviewed.
- **Integration:** These are incorporated into overall corporate risk management and strategy.
- **Risk Categorization:** Similar to asset level, risks are classified into high, medium, and low based on potential business impact.

## Risk Management Process

We assess climate-related risks and opportunities at both asset and corporate levels to:

- **Identify Key Risks:** Understand climate vulnerabilities.
- **Develop Mitigation Plans:** Create tailored responses for different risk scenarios
- **Integrate into Decision-Making:** Ensure risks and opportunities influence strategic and operational decisions.

- **Enhance Resilience:** Improve preparedness for climate-related disruptions.

 For more details on risk Management Please refer to pg: 149

## Metrics and Targets

We use Key Performance Indicators (KPIs) and targets to measure and improve our effectiveness in managing climate risks and opportunities, including:

- GHG emissions reduction
- Energy efficiency
- Renewable energy expansion

We regularly monitor and report these metrics to ensure accountability and transparency for our stakeholders.

## Information and Cybersecurity

JSW Energy considers cybersecurity a top priority and has established a comprehensive and well-defined policy to address associated risks. The company adheres to the ISO 27001:2013

framework and holds certifications for both Information Technology (IT) and Operational Technology (OT) compliance. Oversight is maintained through a board-level "Risk Management" committee that periodically reviews and mitigates cybersecurity threats.

Several proactive measures have been implemented to strengthen the company's cyber resilience, including multi-factor authentication for remote VPN access, the creation of a secure alternate disaster recovery VPN, and enhancements to the incident response process through onboarding of incident response retainer services.

To further safeguard operations, JSW Energy employs Google's advanced phishing and malware protection features, conducts regular critical security updates for operating systems on remote endpoints, and runs information security awareness campaigns. The company actively manages system vulnerabilities through comprehensive Vulnerability



Power House, Kutehr Hydro Project



Barrage, Kutehr Hydro Project

Assessment and Penetration Testing (VAPT) of all public-facing assets and enforces firewall hardening rule sets. Additionally, a firewall remediation tool has been deployed to address identified gaps, and JSW Energy has subscribed to a cyber insurance policy as a risk transfer measure. These collective efforts underscore the company's robust and proactive approach to cybersecurity.

In FY 2025, there were no cases of cybersecurity threats or Data breaches.

### Customer Relationship Management

At JSW Energy, fostering strong, transparent, and long-term relationships with our customers is a key strategic priority. We recognize that customer satisfaction and trust are essential to our sustained growth and market relevance. In collaboration with our technology and research partners, we continuously innovate and adapt to evolving market dynamics to

meet changing customer needs. Our focus remains on enhancing production efficiency, cost competitiveness, environmental performance, and upholding the highest safety standards.

Customer feedback plays a pivotal role in shaping our services. We maintain regular engagement with our diverse customer base including distribution utilities, designated nodal agencies, and commercial and industrial enterprises through multiple communication channels. These interactions help us gather valuable insights, identify areas of improvement, and proactively address concerns. By adopting a holistic approach to understanding customer behavior, expectations, and needs, we are able to tailor our strategies and deliver high-quality, reliable, and customer-centric solutions.

### Tax Strategy and Governance

JSW Energy maintains a robust tax strategy and governance framework that aligns with its broader principles of transparency,

compliance, and ethical business conduct. The company ensures full compliance with applicable tax laws and regulations across all jurisdictions in which it operates. By adopting a prudent and responsible approach to tax planning, JSW Energy aims to manage tax risks effectively, support long-term value creation, and contribute fairly to public finances. Oversight is maintained through strong internal controls and periodic reviews, reinforcing accountability and governance at all levels.

### Political Contributions and Spending

The company does not make any financial contributions to political parties, candidates, or related activities. This approach reflects our commitment to ethical governance, transparency, and independence in all our business operations.

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