TCFD ALIGNMENT

We, at JSW Energy, are dedicated to confronting the challenges and opportunities posed by climate change head-on. Acknowledging the profound implications climate-related factors can have on our business and financial outcomes, we are committed to embracing the TCFD framework. This framework, encompassing governance, strategy, risk management, and metrics/ targets, provides a structured approach for evaluating and divulging climate-related risks and opportunities in a consistent and comparable manner.

Power Plant, Barmer

By adhering to the TCFD guidelines, we aim to gain a deeper understanding of our climate-related impacts and enhance transparency and accountability to our investors and stakeholders. Through rigorous assessments and disclosures aligned with TCFD recommendations, we aspire to communicate our climate-related risks and opportunities effectively.

As we go by this journey to align with TCFD principles, we are conducting comprehensive studies to reassess our risks and opportunities associated with climate change. These efforts reflect our unwavering commitment to responsible environmental stewardship and sustainable business practices.

Governance

Board Oversight

To ensure momentum and accountability, we've established board-level committees* dedicated to assessing and managing climate-related risks. Our sustainability achievements and initiatives undergo thorough review and discussion at the bi-annual gatherings of the Board Level Sustainability Committee. This collaborative approach facilitates the seamless institutionalisation of climate strategies throughout the organisation.

* Read more → Pg 236

Management Oversight

At the management level, the Executive Committee (JMD & CEO, CFO, COO, Section Heads and Special Invitees) and corporate functions teams play pivotal roles in overseeing climate-related matters:

Executive Committee: Monthly meetings include discussions on climate change and sustainability KPIs, ensuring a comprehensive review of the company's performance.

Corporate Functions Teams: The corporate risk, sustainability, and strategy teams collaborate closely to support the Executive Committee in addressing climate-related challenges. The team maintains regular communication with each site on a monthly basis and engage with cross-functional teams as necessary.

In our strategic approach, we prioritise assessing the potential transition and physical risks associated with climate change to ensure the resilience of our operations. This encompasses evaluating challenges like extreme weather events and fluctuations in water availability.

BY ADHERING TO THE TCFD GUIDELINES, WE AIM TO GAIN A DEEPER UNDERSTANDING OF OUR CLIMATE-RELATED IMPACTS AND ENHANCE TRANSPARENCY AND ACCOUNTABILITY TO OUR INVESTORS AND STAKEHOLDERS.

To achieve this, we rely on internationally recognised scenarios from two primary sources:

The Intergovernmental Panel on Climate Change (IPCC)	Provides pathways for assessing the physical impacts of climate change, considering varying concentrations of greenhouse gas emissions in the atmosphere.
The International Energy Agency (IEA)	Models the implications of climate-related policies and technologies on energy systems globally.

For evaluating location-specific physical risks, we utilise the IPCC Representative Concentration Pathways (RCP) 8.5 and 4.5. Additionally, we leverage the IEA World Energy Outlook (WEO) 2020, specifically the Stated Policies Scenarios (STEPS) and Sustainable Development Scenario (SDS), to assess transition risks. This comprehensive approach enables us to effectively identify and address climate-related risks across our operations, ensuring our continued success and resilience.

Physical and Transition Climate Change Scenarios

1. Business-as-Usual Scenario

- **IPCC Scenarios (Physical Risks)**

  RCP 8.5 Scenario:

  This scenario represents an extremely high emissions trajectory, where global mean temperature is projected to increase by approximately 3.7°C (with a range of 2.6°C - 4.9°C) by the end of the century (2100). It assumes heavy reliance on fossil fuels with minimal policy-driven mitigation efforts.

- **WEO-2020 Scenarios (Transition Risks)**

  Stated Policies Scenario:
  This scenario integrates existing and announced climate policies up to mid-2022, including Nationally Determined Contributions from governments worldwide. It serves as a baseline against which additional actions are necessary to achieve Sustainable Development Scenario (SDS) climate objectives.

2. Optimistic Scenario

- **IPCC Scenarios (Physical Risks)**

  RCP 4.5 Scenario:

  Representing an intermediate emissions trajectory, this scenario forecasts a global mean temperature increase of approximately 1.8°C (with a range of 1.1°C - 2.6°C) by the end of the century (2100). It anticipates greater adoption of renewable energy and robust policy-driven mitigation measures.

- **WEO-2020 Scenarios (Transition Risks)**

  Sustainable Development Scenario:
  This scenario outlines an energy sector pathway aligned with achieving global net-zero CO_2 emissions from the energy system by around 2070, alongside universal energy access and reduced air pollution.

These climate scenarios serve as crucial decision-making tools, allowing us to assess potential climate risks while making informed business decisions. To identify and evaluate climate-related physical risks effectively, we will develop location-specific climate profiles for each asset, analysing climate change impacts across all regions of our operations. Assessment of these risks will be based on two key parameters: the probability of occurrence, which indicates the likelihood of a given risk due to projected changes in regional climatic parameters, and the expected impact, representing the extent of impact JSW Energy is likely to experience from each identified risk, considering our climate resilience at the plant/facility level.

Transformer Yard, Barmer

Risks	Description
Physical risks Physical risks resulting from climate change can be event driven (acute) or longer-term shifts (chronic) in climate patterns.	**Chronic:** Water scarcity is resulting in notable operational challenges for our plants situated in regions experiencing high water stress. Additionally, extreme heatwaves, triggered by temperature fluctuations, are causing disruptions to our operations.
	Acute: Intense rainfall and cyclones are triggering flooding, potentially leading to operational shutdowns or service disruptions. These events create instability in raw material procurement.
	Mitigation Strategy: • **Diversification across India:** We are expanding our operations widely in renewable energy (RE) sectors, which do not require raw materials during operational phases. • **Zero liquid discharge plants:** All our plants adhere to zero liquid discharge standards, ensuring responsible water management. • **Reduction of fresh water consumption:** We are committed to reducing specific fresh water consumption in the coming years. • **Water conservation efforts:** We are evaluating methods to enhance water conservation, including the construction of additional storage facilities to mitigate the impact of water scarcity on operations. • **Resilience enhancement:** These measures aim to increase the resilience of our operations against water-related risks. • **Weather pattern monitoring:** We are implementing systems to monitor weather patterns, particularly rainfall, to assess the likelihood of risks in the near future.
Transition risks Transitioning to a lower-carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change.	**Policy:** The implementation of stricter environmental regulations, including initiatives like the Perform, Achieve, and Trade (PAT) mechanism, Carbon tax imposition, and heightened Coal Cess, may collectively elevate production costs and reduce profit margins.
	Market: Consumer preferences are shifting towards renewable energy, driven by a growing demand to replace thermal energy sources. This transition poses risks linked to the fluctuating prices and quality of coal.
	Technology: The financial feasibility of capital-intensive low-carbon technologies poses challenges, as does the adoption of these innovative solutions.
	Reputation: The adverse effects of our business decisions on our social licence to operate are closely linked to our contributions to the well-being of the broader community and environment. These impacts can influence our reputation with both investors and society as a whole.
	Mitigation Strategy: • **Substitution of coal-based boilers:** Transitioning from coal-based boilers to utilising waste gases from our Group company, JSW Steel, at one of our locations. • **Reduction of fossil fuel dependency:** This substitution eliminates the need for fossil fuels, mitigating policy and market risks associated with their use. • **Carbon pricing mechanism:** Our Internal Carbon Price (ICP) of 12 USD/tCO_2e allows for a balanced assessment of the feasibility of proposed low-carbon initiatives in the near and medium term. • **Sustaining competitiveness:** Ensuring our low-carbon journey continues while maintaining our competitive edge in the market.
Opportunities	• **Expanding renewable energy (RE) presence:** Capitalising on the rising demand for renewable energy alongside India's commitment to achieving 500 GW of fossil-free energy by 2030. We are striving to achieve 20 GW capacity before 2030 from the current 7.2 GW with incremental capacity coming mainly from renewable sources. • **Policy and regulatory support:** Leveraging the increasing policy and regulatory support for low-carbon growth to advance our expansion plans, aiming for 20 GW capacity by 2030. • **Net-Zero commitment:** Committed to becoming a Net-Zero company by 2050 or earlier. • **Investment in ultra-low carbon technologies:** Exploring ultra-low carbon technologies such as green hydrogen and carbon circularity to facilitate the decarbonisation. • **Continuous monitoring:** Actively monitoring the landscape to seize opportunities as they arise, ensuring that we remain at the forefront of sustainable energy initiatives.

Risk Management Framework*

We employ a comprehensive climate change risk assessment framework, structured to identify and assess risks at two distinct levels:

*Read more → Pg 106

Asset/Plant Level

- Identification and assessment of climate-related physical risks are conducted at the asset/plant level
- Risks are categorised into high, medium, and low levels using a 3X3 risk matrix based on the probability of occurrence and the expected impact of risks

Corporate Level

- Identification and assessment of climate-related transition risks and opportunities arising from changes in climate policies, market landscape, and operating environment are conducted at the corporate level
- Transition risks are classified into high, medium, and low levels based on their potential impact on our operations

Risk Management Process

Key risks and opportunities identified at both asset/plant and corporate levels undergo regular review, monitoring, and evaluation to develop effective risk mitigation strategies. Strategy formulation to address and manage identified climate-related risks and opportunities occurs at both corporate and asset/plant levels, ensuring a proactive approach to risk management and adaptation.

Metrics and Targets

We have implemented key performance indicators (KPIs) and targets to gauge our effectiveness in managing climate-related risks and opportunities. These encompass metrics concerning greenhouse gas emissions, energy usage, and the expansion of renewable energy capacity. We consistently monitor and report on these metrics, ensuring transparency and accountability to our stakeholders regarding our performance.

Way Forward

The TCFD phase – 1 risk assessments for all plants has been completed. Under the next phase, we are doing a deep dive physical risk assessments at all our Hydropower plants in FY 2025 which will include our under construction power plant as well. Already work is in progress to finalise the third party agency to carry out and complete this assessment within H1 FY 2025.

As we proceed with our TCFD journey, our commitment to enhancing climate-related disclosures and actions remains steadfast. We will persist in evaluating and disclosing climate-related risks and opportunities, enhancing our risk management practices, setting ambitious targets, and investing in low-carbon technologies. Through these endeavours, we aim to generate sustainable long-term value for our shareholders while actively contributing to a sustainable future.

Wind Project, Tuticorin

Energy

Key Highlights

- Addition of 331 MW (FY 2024) renewable portfolio mix, a step towards our "Net Zero" commitment by 2050 or earlier.
- Increase in renewable energy capacity by 9.7% as compared to previous year

Strategic Approach

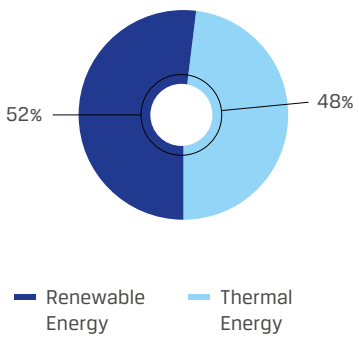
As a leading player in the energy sector, JSW Energy actively contributes to the nation's economic growth by meeting escalating energy demands. Embracing renewable energy as a catalyst for sustainable development, JSW Energy prioritises operational efficiency and energy optimisation across its value chain. By adhering to industry-leading energy management practices and integrating cutting-edge technologies, the organisation maximises asset utilisation while minimising environmental impact. With diversified investments in Solar, Wind, Hydro, and green hydrogen projects, JSW Energy aligns its energy portfolio with national climate goals, advancing towards deeper decarbonisation. Committed to innovation and sustainability, JSW Energy stands at the forefront of driving positive change in the energy landscape, fostering a greener and more resilient future for all.

Targets

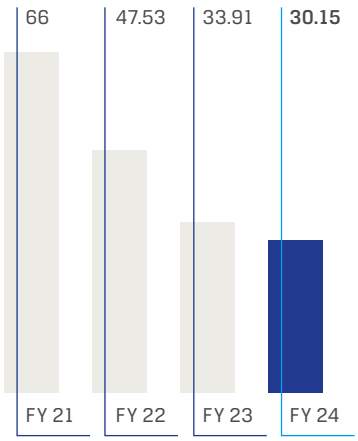
- Enhance the Renewable Power share in our Total Installed Capacity by 2030
- Reduce our Energy Intensity and Auxiliary Power Consumption by more than 50% by 2030

Solar & Wind Plant, Acquired RE

Share of Renewable/Thermal in Energy Mix, FY 2024



Energy Savings (MU)



Energy consumed (JSW Energy Consolidated)*:

1,59,172 GJ

Renewable sources fuel consumed

Non-Renewable sources fuel consumed*:

19,46,34,625 GJ

Total electricity consumption

9,42,80,562 GJ#

Total Energy consumption within organisation

1,27,830 GJ

Electricity, heating, cooling, steam consumed

10,06,41,065 GJ

(Minus) Electricity, heating, cooling, steam sold

Calculation as per GRI-302-1 Indicator

* Rounded off to nearest integer

Clean Energy

JSW Energy is taking strides to tackle climate change as a responsible business. We are committed to reach Net Zero emissions by 2050, by progressively increasing the clean energy capacity. This move will help the nation reduce its carbon footprint. JSW Energy is also finding new ways to optimise use of water and manage waste more sustainably. We are following global goals for a better world and making their energy sources cleaner and greener. With these efforts, JSW Energy is leading the charge for a healthier planet, making sure our future is bright and sustainable.

Initiatives undertaken to increase the share of Renewable Energy

- **Increased Renewable Energy Capacity:** Added 331 MW of renewable energy.
- **Renewable Energy Projects Under Construction:** Currently building projects totalling 2.2 GW.
- **Battery Energy Storage System (BESS):** Initiated construction of a new battery storage project.
- **Hydro Pumped Storage Project:** Pre-development activity on a pumped storage project.

Sustainable Financing Through Green Bonds

JSW Hydro Energy has implemented a comprehensive Green Bond Framework. This framework, meticulously crafted, serves as a robust methodology guiding all future green bond instruments issued by the company. It establishes clear guidelines and principles to uphold transparency, disclosure, and integrity in the development of a sustainable finance market. These Green Bonds serve as a vital financial instrument, facilitating investments in the company's renewable energy projects. To ensure consistency and adherence to best practices in its green bond issuances.

Aligned with the International Capital Market Association (ICMA) Green Bond Principles (GBP) of 2018, JSW Hydro Energy's Green Bond Framework adheres to globally recognised standards in sustainable finance. By embracing the GBP, the company aims to foster responsible investment and bolster the growth of the clean energy sector.

The issuance of green bonds has proven instrumental for JSW Hydro Energy in securing investments for its clean energy projects. These funds play a pivotal role in supporting the development and expansion of hydro-based power plants, contributing significantly to the reduction of carbon emissions and the mitigation of climate change impacts. By harnessing the potential of green bonds and aligning with international standards, JSW Hydro Energy underscores its unwavering commitment to sustainable finance and environmental stewardship. The company's proactive approach in raising funds through green bonds

JSW ENERGY ALIGNS ITS ENERGY PORTFOLIO WITH NATIONAL CLIMATE GOALS, ADVANCING TOWARDS DEEPER DECARBONISATION. COMMITTED TO INNOVATION AND SUSTAINABILITY, JSW ENERGY STANDS AT THE FOREFRONT OF DRIVING POSITIVE CHANGE IN THE ENERGY LANDSCAPE, FOSTERING A GREENER AND MORE RESILIENT FUTURE FOR ALL.

propels the transition towards a greener and more sustainable energy future.

The Green Bond Framework comprises five foundational pillars: Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds, Reporting, and External Review. These pillars form the cornerstone of JSW Hydro Energy's green bond initiatives, delineating the principles and guidelines essential for transparency, accountability, and effective management of funds raised through green bond issuances. Through these concerted efforts, JSW Hydro Energy continues to lead the charge towards a brighter and more sustainable future for generations to come.

Internal Carbon Pricing

JSW Energy is committed to combating climate change and has implemented an Internal Carbon Pricing (ICP) mechanism as part of its sustainability efforts. This approach is pivotal in reducing greenhouse gas emissions and transitioning towards a low-carbon economy. Adopting the shadow pricing method, JSW Energy has established an ICP range of 10-12 USD per tonne of CO_2e through extensive analysis of global carbon pricing data.

The incorporation of ICP allows the company to integrate the costs of carbon emissions into decision-making processes, encouraging the adoption of cleaner technologies. Investments in energy-efficient equipment, such as Variable Feed Drives (VFDs), have been initiated based on ROI analysis using shadow pricing. This not only enhances operational efficiency but also reduces emissions.

By embracing Internal Carbon Pricing, JSW Energy incentivises emission reduction efforts, optimises energy use, and fosters innovation. It enables informed decision-making by assessing financial implications associated with emission scenarios. Through these measures, JSW Energy aims to lead the energy sector towards a sustainable future while creating long-term value for stakeholders and addressing climate change challenges proactively.

Hydro Plant, Sholtu

Water

Key Highlights

- Maintained zero liquid discharge across operations
- Optimising utilisation of rainwater harvesting system
- Reuse of treated effluent of Sewage Treatment Plant for horticulture
- Dry cleaning adopted instead of wet module cleaning resulted in significant saving of ground water (approx.: 2,400 m^3 per month)

Strategic Approach

JSW Energy places significant emphasis on responsible water management due to its critical role in various operations like cooling, ash disposal, and firefighting. We understand the necessity of water for sustaining life and supporting business functions, and the Company implements structured processes to identify, manage, and mitigate water-related risks effectively.

Moreover, JSW Energy actively works towards maximising water usage efficiency across its operational sites and surrounding areas. Around our Ratnagiri plant we have devised robust long-term watershed management strategies aimed at ensuring sustainable water usage and preserving water resources for host communities. These strategies are meticulously designed to address the diverse needs of both the organisation and its stakeholders while promoting environmental sustainability.

By prioritising water stewardship, we strive to minimise environmental footprint, optimise resource utilisation, and contribute positively to the communities in which we operate. Through proactive water management initiatives, the Company demonstrates its commitment to environmental conservation and sustainable development, aligning with its broader corporate responsibility goals.

Targets Undertaken

Reduce our water consumption per unit of energy produced by 50% by 2030

Water Withdrawal (KL)*

FY 2022	FY 2023	FY 2024
Groundwater	Groundwater	Groundwater
0 KL	28,017 KL	6,14,920 KL
Surface water	Surface water	Surface water
2,48,24,795 KL	2,88,27,036 KL	2,81,78,602 KL
Third-party water	Third-party water	Third-party water
0 KL	0 KL	43,059.57 KL
Seawater	Seawater	Seawater
6,53,25,454 KL	5,84,11,696 KL	8,09,71,172 KL
Total	Total	Total
9,41,88,905 KL	8,72,66,750 KL	10,98,07,754 KL

* Rounded off to nearest integer

Water Stewardship Case Study

Improvement of RO to DM Plant line reliability – Vijayanagar Plant	
Problem Faced	The selection of UPVC pipes for a 1,400-metre long pipeline to transport RO permeate water aimed at cost-effectiveness. However, this choice led to joint dislocation and jerking under back pressure, causing frequent failures and preventing the commissioning of the DM Plant for service. Despite short-term operations, the design flow of 120 m^3/hr has not been attained.
Work Undertaken	Based on the Root Cause Analysis (RCA) findings regarding frequent failures in the UPVC pipeline and insufficient flow, the following measures were implemented: 1. Installation of an internally developed SS Bellow Hose to mitigate back pressure and prevent dislocation in the UPVC pipeline. 2. Removal of the Non-Return Valve (NRV) in the DM Feed pump line, which had a smaller bore than the pipe, causing flow restrictions. 3. Replacement of the isolation valve in the raw feed water line to address the issue of pressure exceeding that of the RO permeate water pressure at the Demineralisation Plant (DMP).
Result Achieved	After implementing our strategy, we achieved a flow improvement to 120 m^3/hr, ensuring a reliable UPVC pipeline with 100% reliability. Additionally, this modification resulted in significant water savings, reducing UF waste water by 50% (equivalent to 10500 m^3/month) and decreasing DMF, SAC, and SBA backwash water consumption by 50%, saving 1500 m^3/month.

Initiatives Undertaken for Water Efficiency – Ratnagiri Plant

Water Audit Mechanism

Central to our water conservation efforts is a robust water audit mechanism. Through quarterly walk-throughs and the strategic installation of flow meters, we meticulously monitor and optimise water consumption across our operations. This proactive approach enables us to identify inefficiencies, detect leakages, and implement targeted interventions to minimise water wastage, ensuring every drop is utilised judiciously.

Rainwater Harvesting

Recognising the paramount importance of rainwater as a renewable resource, JSW Energy has invested in comprehensive rainwater harvesting infrastructure. By constructing a dam near Vinayakwadi township and augmenting our water storage capacity, we harness nature's bounty to supplement our water supply. This sustainable practice not only reduces our reliance on external water sources but also mitigates the impact of water scarcity on local communities, fostering resilience and self-sufficiency.

Increased Water Consumption Efficiency

Through relentless innovation and efficiency optimisation, JSW Energy has achieved significant reductions in water consumption at Ratnagiri and Barmer thermal power plants. From implementing active water saving O&M strategies to streamlining operational processes, every effort is geared towards maximising water efficiency and minimising waste. As a result, our annual water consumption intensity has significantly improved from 1.11 m^3/MWh to 0.95 m^3/MWh, showcasing the tangible impact of our conservation initiatives on the ground.

Waste Water Management

Key Highlights

Successfully recycled and reused an impressive 4,161.33 million litres of water

Strategic Approach

JSW Energy strives to drive 'Zero Liquid Discharge' policy across its plants, internally managing process wastewater through recycling and reuse. This strategy eliminates the need for effluent discharge outside the plant, aligning seamlessly with our sustainability objectives. Wastewater treatment and recycling are integral components of this approach, ensuring water is either reintegrated into the water use cycle or repurposed for horticultural purposes. In FY 2024 alone, JSW Energy, underscoring our steadfast dedication to sustainability and responsible resource management, has successfully recycled and reused an impressive 4,161.33 million litres of water.

Water Water Treatment Plant, Hydro Sholtu

Targets Undertaken

Maintain a 'ZERO LIQUID DISCHARGE' for all our power plants by 2030

Waste Water Recycled and Reused (kL)

	FY 2022	FY 2023	FY 2024
Wastewater Recycled	36,29,999 KL	42,80,818 KL	41,61,333 KL

Waste Management

Key Highlights

- Reutilising pond ash as well as bottom ash in Boiler.
- Continue 100% Ash utilisation initiatives at all plants through tie-ups with cement factories & similar businesses

Strategic Approach

At JSW Energy, reducing our environmental impact is our top priority, influencing every business decision we make. As a leading energy provider, we operate complex systems that produce various waste streams, some of which may be hazardous. That's why we are committed to implementing sustainable waste management practices to ensure safe disposal. Recognising our responsibility, we embrace circularity principles to manage waste sustainably. This includes initiatives like recycling rejected coal and hazardous waste, as well as utilising ash in cement manufacturing. By adopting these practices, we not only minimise our environmental footprint but also contribute to a more sustainable future for generations to come.

Targets Undertaken

Maintain 100% recycling of fly ash and wastes generated from our operations

Waste – Ash Utilisation (%)

	FY 2022	FY 2023	FY 2024
Waste Ash Recycled	96.9%	100%	100.74%*

* Additional quantity of legacy ash utilised over & above 100% as per requirement

Waste Utilisation

	FY 2022	FY 2023	FY 2024
Non-Hazardous Waste (Ash)	14,71,833 MT	13,89,038 MT	13,64,733 MT
Hazardous Waste	243.45 MT	140.6 MT	166.12 MT

Waste management is a top priority at JSW Energy, and our teams are dedicated to ensuring compliance with all regulations for handling both hazardous and non-hazardous materials responsibly.

Across our power plant locations, we have established partnerships with authorised agencies to recycle, reuse, or dispose of waste safely and sustainably.

Hazardous Waste: For hazardous waste like waste oil, e-waste, battery waste, MS scrap, and plastic waste, we have designated storage areas equipped with safety measures.

These materials are handled and disposed of responsibly through authorised recyclers.

Non-Hazardous Waste: Regarding non-hazardous waste, such as ash generated by our thermal power plants, we have structured systems in place for collection, storage, and disposal. Ash is collected in silos and then transported to cement and brick-making companies for reuse in their products. This approach ensures efficient utilisation of resources and minimises environmental impact. At our Ratnagiri plant, we have constructed a 45,000 MT Ash Silo at the adjacent Port facility through which we are able to export the Ash to other countries for utilisation at their end.

Value Creation Story – Sailing Towards Sustainability: JSW Energy's Visionary Ash Management Journey

Overview of JSW Energy Ratnagiri's Operations

- State-of-the-Art Thermal Power Plant
  - Operating a 1,200 MW Thermal Power Plant, JSW Energy is a pivotal player in the region's progress
  - Reliant on imported coal from Mozambique, Colombia, South Africa, and Indonesia

The Challenge of Fly Ash

- Significant Production
  - The plant generates a substantial 1,800 to 2,000 metric tonnes of fly ash daily
  - Historically transported to cement units, RMC plants, and traders in Mumbai, Pune, and Kolhapur
  - Faced logistical disruptions due to local protests, cultural festivals, adverse weather, and competition from new power plants

Initiative Highlights

- Strategic Ash Silo Construction
  - Constructed a state-of-the-art ash silo with a capacity of 45,000 metric tonnes
  - This investment enhanced storage and transportation infrastructure, ensuring efficient ash management and reducing logistical hurdles
- Exploring Export Markets
  - Leveraged the plant's coastal location and proximity to a green field port to explore export opportunities
  - Utilised coastal routes to open new avenues for sustainable fly ash disposal, reducing the environmental footprint and expanding market reach
- Triumphant Bulk Ash Shipments
  - Successfully loaded and despatched two bulk ash shipments to international markets
  - These shipments marked a significant achievement, underscoring JSW Energy's commitment to sustainability and innovation

Conclusion

- Dedication to Sustainability
  - JSW Energy's approach to fly ash management exemplifies our dedication to environmental stewardship
  - By implementing innovative solutions and exploring new markets, we are mitigating environmental impact and driving industry change
  - JSW Energy remains committed to shaping a sustainable future, ensuring a positive legacy for generations to come

Ash Disposal through Sea Route, Ratnagiri

Air Emissions

Key Highlights

- Ensuring ESP (Electrostatic Precipitator) Fields availability
- Process efficiency improvements being done in all plant locations
- Lime Dozing system availability and parameter optimisation at Barmer to reduce air emissions

Strategic Approach

The conventional generation of power remains a significant contributor to greenhouse gas emissions and other pollutants, exacerbating global warming. In response to the urgent need for more environmentally responsible energy production, JSW Energy has implemented cutting-edge technologies to manage and maintain air quality, a cornerstone of the company's sustainability initiatives.

At the Barmer facility, we have upgraded the existing Electrostatic Precipitators (ESPs) with state-of-the-art models, significantly enhancing the plant's ability to remove particulate matter from flue gases. This upgrade not only improves plant efficiency but also contributes to cleaner air. Similarly, at the Ratnagiri plant, we have installed Flue-gas Desulfurisation (FGD) systems to reduce sulphur emissions, effectively curbing one of the major pollutants from exhaust gases.

These proactive measures at our plants reflect our commitment to environmental stewardship and our agility in adapting to advanced, eco-friendly technologies. While mercury and SF6 emissions are not relevant to our operations and therefore not reported, our focus remains steadfast on reducing other critical pollutants. Through these initiatives, JSW Energy continues to lead in sustainable energy production, striving for a greener future.

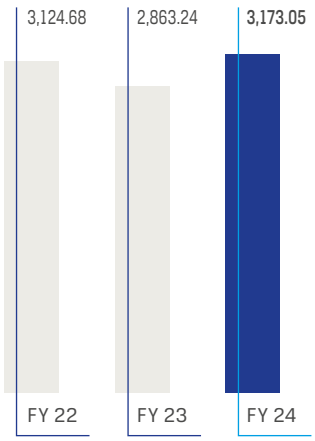
Target

- Reduce the dust emissions, per unit of energy produced, by 2/3rd
- Reduce the emissions of Oxides of Sulphur and Nitrogen, per unit of energy produced, by 60%

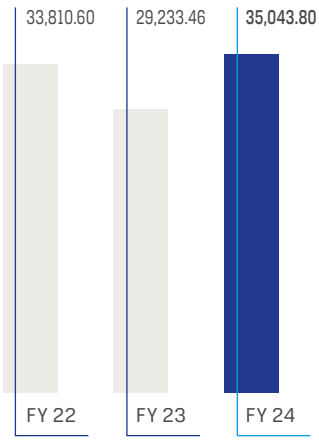
FY 2022	FY 2023	FY 2024
PM	PM	PM
0.14 KG/MWh	0.12 KG/MWh	0.11 KG/MWh
SOx	SOx	SOx
1.52 KG/MWh	1.25 KG/MWh	1.18 KG/MWh
NOx	NOx	NOx
0.81 KG/MWh	0.70 KG/MWh	0.64 KG/MWh

Power Plant, Ratnagiri

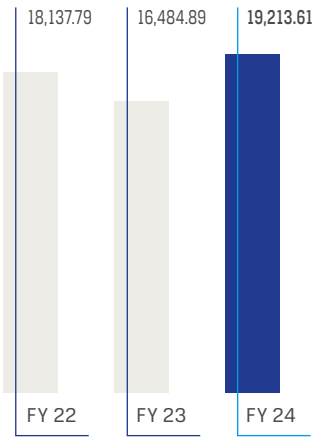
PM (Tonnes)



SOx (Tonnes)



NOx (Tonnes)



The air emissions intensity only for thermal operations are as follows:

1.74 KG / MWh
SOx

0.96 KG / MWh
NOx

0.16 KG / MWh
SPM

Biodiversity

Key Highlights

- Biodiversity Assessment – Phase 2 is completed for Ratnagiri Thermal Power Plant
- Biodiversity Assessment – Phase - 1 for Ind-Barath, Jharsuguda Thermal Power Plant completed
- Increase in green cover at all operations to achieve 'No Net Loss' of Biodiversity by 2030
- Barmer Plant won Prestigious CII-ITC Sustainability Award for Excellence in Biodiversity

Strategic Approach

JSW Energy is deeply committed to preserving biodiversity, proactively identifying and mitigating potential risks to prevent any net loss across its operational sites. Central to our sustainability efforts is reducing the environmental footprint of our business activities.

At our Ratnagiri and Barmer plants, we have implemented extensive ecological conservation programmes that include year-round plantation activities. These initiatives are tailored to sustain the ecological balance within local communities. Our biodiversity protection efforts encompass the preservation and restoration of ponds and green spaces, as well as creating drinking water spots for wildlife around our operational areas.

To gauge the effectiveness of these activities and inform future biodiversity management strategies, JSW Energy conducted a comprehensive seasonal ecosystem study at the Barmer plant. This study, covering all four seasons, provides crucial insights into the ecological patterns and impacts of our operations.

Recognising the potential environmental impact of our activities, we have also initiated Biodiversity Assessments at five of our operating and project sites. These assessments are instrumental in developing and implementing a robust biodiversity management plan. Our goal is to achieve "No Net Loss to Biodiversity" by 2030, ensuring our operations are aligned with environmental stewardship and sustainability.

Horticulture - Barmer Power Plant

Through these proactive measures, JSW Energy not only addresses immediate ecological concerns but also contributes to the long-term health and resilience of the ecosystems surrounding our operational sites. Our commitment to biodiversity is a testament to our broader vision of creating a sustainable future for all.

Target

Achieve a 'no net loss' of biodiversity at all our operating sites

Initiatives undertaken to conserve and protect biodiversity around operating sites

Number of saplings planted

FY 2022	FY 2023	FY 2024
37,196	33,719	18,611

Value Creation Story

Symphony of Sustainability: A Tale of Biodiversity and Conservation at JSW Energy Limited Ratnagiri

Unveiling the Hidden Biodiversity – Biodiversity dependency and Impact Assessment Study

- Comprehensive Biodiversity Assessment
  - A dedicated team embarked on a journey to uncover the hidden biodiversity around the JSW Energy plant in Ratnagiri
  - Motivated by a deep reverence for nature and a desire to integrate sustainability into industrial operations, they set out to document the local flora and fauna

Exploring the Natural Forest

- Cataloguing Flora and Fauna
  - The team began their exploration in the natural forest area, where ancient trees like Terminalia paniculata stood tall
  - Amidst the dappled sunlight, they meticulously catalogued various species, including the vibrant Chromolaena odorata
  - This effort highlighted the rich ecological diversity surrounding the power plant

Promoting Water Conservation

- Discovery of a Rainwater Harvesting Pond
  - Venturing deeper into the forest, the team discovered a rainwater harvesting pond nestled in the foliage
  - Recognising the importance of water conservation, they proposed the development of similar ponds within the plant premises and surrounding villages
  - This initiative aims to ensure a sustainable water supply for both the ecosystem and local communities

Soil Health Preservation

- Topsoil Management Practices
  - On the plant premises, the team observed effective topsoil management practices in action
  - They recommended adopting similar practices across the plant to minimise soil erosion and maintain soil fertility, crucial for long-term environmental health

Supporting Wildlife Conservation

- Olive Ridley Turtle Conservation
  - The team's journey led them to a group of volunteers engaged in conserving Olive Ridley Turtles
  - Moved by the plight of these endangered creatures, JSW Energy pledged support for raising awareness and protecting their nesting grounds along the coastline

Enhancing Biodiversity

- Mixed Plantation System Proposal
  - To further enhance biodiversity, the team proposed a mixed plantation system blending native and other species
  - This approach aims to strengthen ecosystem resilience and promote diverse plant life
  - They also envisioned developing a Herbal Garden under the high voltage AC transmission towers to showcase the region's rich medicinal flora

Conclusion

- Integration of Sustainability and Industry
  - These initiatives reflect JSW Energy's commitment to preserving biodiversity while maintaining industrial productivity
  - By implementing these proposals, JSW Energy aims to create a harmonious balance between nature conservation and energy production, demonstrating our dedication to a sustainable future

Wildlife Near Ratnagiri Plant

Value Creation Story

Afforestation Activity by JSW Energy

At Vijayanagar Power Plant, JSW Energy Limited is making a significant impact on the environment. By planting 4,789 saplings and maintaining lush gardens with green grass, boundary plants, and hedges, the plant is actively enhancing the greenery on its premises.

In celebration of World Environment Day on June 5, 2023, themed 'Solutions to Plastic Pollution,' the plant organised a mass plantation event. This initiative not only strengthens the existing green cover but also engages and motivates employees. Recognising the 'Best Horticulture Champion' highlights the commitment to a clean and green environment, fostering a culture of care for nature among workers. Through these efforts, Vijayanagar Power Plant is driving positive environmental change and promoting sustainability.

Green Cover at Vijayanagar Power Plant