NATURAL CAPITAL

As a leading energy services company, we are acutely aware of our environmental footprint and the need to harmonise growth ambitions with environmental conservation through sustainable production and consumption of natural resources.

With Net Zero by 2050 being one of our strategic priorities, our sustainability journey strives to ensure the well-being of our natural surroundings. It encompasses efficient utilisation of natural resources, initiatives on waste reduction, emissions reduction and the adoption of cutting-edge technologies to sustain operational excellence and improve the performance of our plants.

Turbine Floor, Baspa-II Power House

Description

Our Natural Capital reflects our commitment to become Net Zero by 2050. It encompasses the renewable and non-renewable natural resources and processes that helps us create a positive impact on the environment. It also includes our commitment to resource efficiency assessing intensity of consumption to prioritise sustainability and to combat climate change.

Management Approach

We combine energy conservation practices and the transition to clean energy across all our plant locations to build a more sustainable and resilient energy system – one that benefits the present and the future generations. To achieve this, we are benchmarking the indicators of our GHG emissions, water consumption, waste management, and air emissions to gradually create a cleaner, greener future for the planet.

Significant Aspects

- Climate
- Preservation of biodiversity
- Management of environmental footprint
- Energy efficiency
- Preservation of natural resources

Key Performance Indicators	Material Topics	Strategy Linkage
• GHG emissions • Energy consumed • Energy saved • Water consumed • Water recycled • Waste generated and disposed	• Managing carbon emissions • Waste management • Water management • Biodiversity • Energy efficiency	**S02, S04, S05**

Sustainability Strategy

The sustainability strategy of JSW Energy is anchored in a clear vision to deliver long-term value through environmental stewardship, social responsibility, and strong governance. Deeply embedded in the organisational culture, the strategy is driven by key enablers, robust policies, and performance systems that ensure accountability and measurable outcomes.

Aligned with global sustainability goals, it fosters innovation, ethical conduct, and proactive stakeholder engagement across the value chain. By integrating material priorities with international benchmarks, we are building a resilient, low-carbon future while reinforcing its leadership in responsible energy.

Key Initiatives FY2025

Environment Protection

Waste Management

Zero Waste to Landfill

Being a responsible organisation, JSW Energy strives to dispose the waste generated at all its plant locations through authorised agencies, thus leading to effective recycling or reuse of waste. Ash, the major waste generated by our thermal power plants, is picked up and utilised by cement manufacturers and construction companies for its onward utilisation as a raw material, ensuring effective waste management by the company.

Based on good environmental practices, the Company has commenced getting plant locations certified through reputed agencies for 'Zero Waste to Landfill' (ZWTL). This is an environmental goal where the Company strives to ensure that no waste generated by its plants is moved to the landfills. Instead, all of this waste is diverted by way of reuse, recycling, composting, and other environmental practices.

Our internal teams at every plant ensures that waste segregation is done in on optimal manner. We also engage in tie-ups with authorised waste management agencies to dispose the waste effectively, reflecting our commitment to sustainability, resource conservation, and reduced environmental impact.

In FY2025, our power plants at Barmer, Ratnagiri and Vijayanagar have been certified as ZWTL. We are working further to get more of our plants certified in this category during the next financial year i.e. FY2026.

Sewage waste management

Sewage Treatment Plants (STPs) have been established at multiple locations around our hydro power plants. The treated effluent is regularly monitored by the Himachal Pradesh State Pollution Control Board and third-party agencies, with all discharge parameters consistently maintained within the prescribed regulatory limits. Some of these locations where STEPs have been set up are – Sholtu Township (600 KLD), Wangtoo Power House (15 KLD), Baspa Power House (15 KLD), Kuppa Camp (36 KLD), Kilba Camp (45 KLD), and Kaksthal Workshop Site (two units with 15 KLD and 30 KLD capacities).

Mass Plantation near Barmer Plant

Solid waste management

Solid waste generated from colonies and mess facilities is segregated at source into biodegradable and non-biodegradable categories. Biodegradable domestic waste is processed into manure/compost using composters installed at each location, with capacities suited to site-specific needs. Non-biodegradable waste is systematically collected, stored, and sent to authorised vendors for appropriate disposal and recycling.

Afforestation

Afforestation is a key component of our Natural Capital and plays a vital role in providing ecosystem services and economic and social benefits to the society. Through our afforestation activities, we aim at enhancing the Earth's capacity to absorb carbon dioxide, combat climate change, and conserve biodiversity. Through our afforestation activities, we restore degraded ecosystems and improve water management by regulating hydrological cycles and reducing soil erosion.

The total plantations achieved collectively at JSW Energy stood at 34,859 in 2025 considering all operating plants and under construction projects. At our Sholtu plant, we successfully achieved our plantation target for FY 2025, carried out in collaboration with the State Forest Department. During the year, at Sholtu we planted a total of 3,050 saplings of various species, predominantly native to the region. Of these, 2,550 saplings were planted at the Karcham Wangtoo Hydroelectric Power Plant (HEP), while the remaining 500 were planted at the Baspa-II HEP. At our JSW Energy Utkal thermal power plant a comprehensive plantation effort was conducted all throughout the year within and around the project resulting in the plantation of 24,091 saplings. Similarly, our team at the Barmer, Ratnagiri, Vijayanagar and Nandyal thermal power plants were able to achieve 4343, 715, 934 and 50 plantations respectively in their locations. These plantations are done on a monthly basis to celebrate birthdays, visits of senior leadership teams and special occasions like World Environment day.

A similar effort is taken at all our Renewable Energy locations covering Wind and Solar power projects. A total of 1676 plantations were completed collectively by our various RE project locations covering Vijayanagar, Sandur, Dharapuram, JSW NEO acquired RE plants, Nandyal and Tuticorin.

Ratnagiri Plant

Bio-Diversity

Biodiversity refers to the variety of life around the operational plants, i.e., the flora and fauna, including different species of plants, animals and micro-organisms, and the eco-systems formed by them. It plays a vital role in maintaining and sustaining the ecological balance of the region the plant is located in, and also in supporting human well-being. The concept of No Net Loss (NNL) of biodiversity aims to ensure that any biodiversity lost due to any kind of development or human activity is balanced by measures that will restore or conserve biodiversity elsewhere, so that the overall biodiversity value either remains stable or even improves. This approach aligns the region's economic development with environment sustainability.

JSW Energy is committed to maintain biodiversity around all its existing operational plants and the upcoming projects. For this, the Company has conducted biodiversity risk assessments at most of its operational locations and is targeting to achieve a No Net Loss of biodiversity by FY 2030 in all the locations that the Company operates within.

Under its biodiversity initiative, the Company has undertaken the below steps.

Stage I:

Gap Assessment and Risk Mapping

Gap assessment process was based on desk assessment of the datasets provided by each site in the form of biodiversity mapping (indicators developed by the consultant and shared with sites in excel format). Documents such as EIA reports, site specific past biodiversity study reports, and secondary data sources are reviewed and assessed for developing impacts and dependencies matrix.

Stage II:

NNL Action Plan

A specified biodiversity action plan was developed to meet the "No Net Loss" commitment based on IUCN Mitigation Hierarchy, i.e., Avoid, Minimise, Restore and Offset and implemented at the plant sites.

Subsequent to the above actions, all our plant locations are now working towards the NNL Action plan over the next few years to achieve the NNL target in or before FY2030.

Ratnagiri Plant

JSW Energy has initiated a detailed water assessment with an overall long-term target of achieving Water Neutrality / Water Positivity at the Barmer power plant.

Water Stewardship

Aiming for Water Neutrality in our operations

The 21st century characterises itself with rising environmental concerns such as water scarcity, water pollution, increasing waste generation, and a universal drive for attaining sustainable development pathways. Apart from following the United Nations' Sustainable Development Goals (UNSDGs), the struggle to repair the damage and give back to the Earth is fast gaining momentum. One of the reasons why the term "sustainability" is the key, is because the resources are limited whereas demand for water is ever growing. Water scarcity and pollution have been identified as one of the top global risks to businesses today (World Economic Forum, 2017).

JSW Energy has initiated a detailed water assessment with an overall long-term target of achieving Water Neutrality / Water Positivity at the Barmer power plant. Water Neutrality Scope 1 assessment was conducted in accordance with NITI Aayog guidelines, and the Scope 1 certification included a site visit to evaluate water status of the plant.

Subsequently, in the future years, JSW Energy will conduct similar programmes at all its thermal power plants, where large-scale water utilisation is part of the production operations for power generation. We aim to minimise / optimise water consumption, attain "Water Neutrality, and subsequently, strive to achieve "Water Positive" status by carrying out effective water conservation programs.

Energy Efficiency

JSW Energy integrates advanced technologies and best-in-class energy management systems to boost operational efficiency and optimise performance throughout its value chain. This approach ensures maximum asset productivity while reducing the company's environmental footprint. Through a combination of innovation, responsible practices, and forward-thinking energy solutions, the company is helping shape a more sustainable and resilient energy future.

Clean energy is central to our growth strategy and sustainability commitment. With a growing portfolio spanning hydro, solar, and wind power, we are driving the transition to a low-carbon future. By investing in scalable renewable technologies and enhancing operational excellence, we deliver reliable, affordable, and environmentally responsible energy. Our clean energy efforts contribute to national climate goals and embody our vision of long-term value creation through innovation and stewardship.

30.61 MU*
Total Energy Saving

36,063.81 TCO_2e
Total GHG Emission Saving

Solar Power Plant, Vijayanagar

Emissions Management

JSW Energy is proactively working to reduce its carbon footprint across all assets. It has set mbitious climate targets and is driving innovation across its value chain to accelerate the transition to a net-zero economy. This commitment reflects not only environmental responsibility, but also depicts our future-ready approach to energy leadership, which is resilient, sustainable, and aligned with global climate goals.

Digitisation in Energy Management

In a rapidly evolving energy landscape, JSW Energy leads by embracing digital innovation to optimise operations, enhance sustainability, and deliver superior value. Since launching its Digital Transformation journey in 2022, JSW Energy has committed itself to becoming an insights-driven organisation centred on value focus and operational excellence.

As pioneers in deploying digital technologies across thermal, renewable, hydro, and manufacturing businesses, the Company has implemented advanced platforms such as the JSWE PI System and Integrated Digital Command Centre (IDCC) for real-time data and analytics. Complemented by in-house analytics models and innovative tools, these initiatives have improved operational visibility, asset reliability, and cost efficiency.

Comprehensive Energy Management System (EMS) for Optimised Energy Use

The Company initiated its digital energy management transformation by implementing a comprehensive Power Monitoring System. The JSW Energy Management System (EMS) platform was deployed to monitor over 1,092 energy meters across the Vijayanagar, Ratnagiri, and Barmer power plants. This foundational infrastructure provides real-time energy visibility and enhances operational intelligence across sites.

Reducing Auxiliary Power Consumption at Vijayanagar Plant

The Company continues to drive operational efficiency and emissions reduction by optimising Auxiliary Power Consumption (APC) at the Vijayanagar plant. A series of targeted improvements across SBU1 and SBU2 have led to significant energy and cost savings while lowering the plant's environmental footprint.

Future goals

The Company's future efforts shall focus on accelerating the deployment of carbon-reducing technologies, increasing the share of renewables in the energy mix, and investing in green hydrogen, carbon capture, and energy efficiency solutions. Through proactive policy alignment, cross-functional collaboration, and science-based target setting, JSW Energy remains positioned to lead a resilient, responsible transition to a climate-secure tomorrow.

Electrical Panel Room

Through proactive policy alignment, cross-functional collaboration, and science-based target setting, JSW Energy remains positioned to lead a resilient, responsible transition to a climate-secure tomorrow.

Energy Efficiency in Action: A Case Study

Reducing Auxiliary Power Consumption at Vijayanagar Plant

JSW Energy continues to drive operational efficiency and emissions reduction by optimising Auxiliary Power Consumption (APC) at the Vijayanagar plant. A series of targeted improvements across SBU1 and SBU2 have led to significant energy and cost savings, while lowering the plant's environmental footprint.

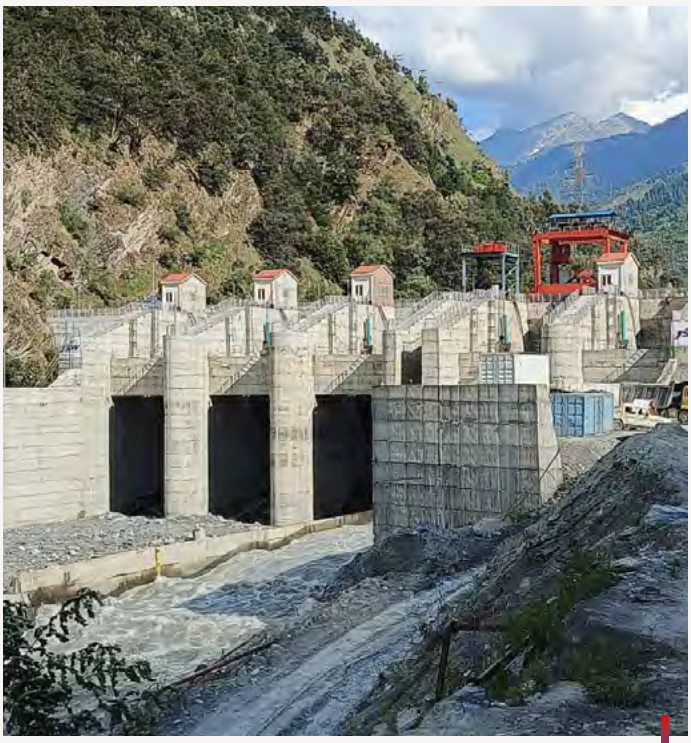
Key Initiatives and Outcomes:

- **Vacuum Pump Optimisation (SBU1, Unit 1):** Eliminating one vacuum pump post-condenser vacuum enhancement saved 560 MWh and reduced costs by ₹ 30.82 lakhs.
- **PA Fan Spacer Coupling Upgrade:** Improved energy efficiency, yielded a saving of 191 MWh and ₹ 10.63 lakhs.
- **High-Efficiency Cooling Pump Replacement:** Delivered savings of 101 MWh and ₹ 5.43 lakhs.
- **BFP Recirculation Valve Leak Fix (SBU2, Unit 1):** Prevented energy loss of 101 MWh, saving ₹ 5.06 lakhs.
- **Installation of Variable Frequency Drives (VFDs):** Condensate extraction pumps in SBU1 Units 1 & 2 save 56 kWh per day, translating to ₹ 2 lakhs monthly savings.

Creating an Impact with Measurable Emission Reduction

- Over 950 MWh of electricity saved
- More than ₹ 54 lakhs saved in cost reduction
- decreased internal power consumption

The initiative highlights how process optimisation and small, focused upgrades can collectively contribute to cleaner operations, cost efficiency, and progress towards the Company's broader decarbonisation goals.

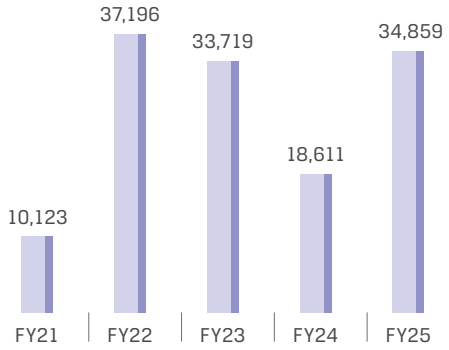


Kutehr Hydro

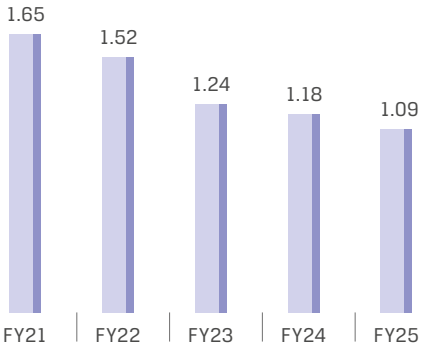
For more details on initiatives taken on environmental protection, please refer to Sustainability Review section on pages 62

Key Performance Indicators

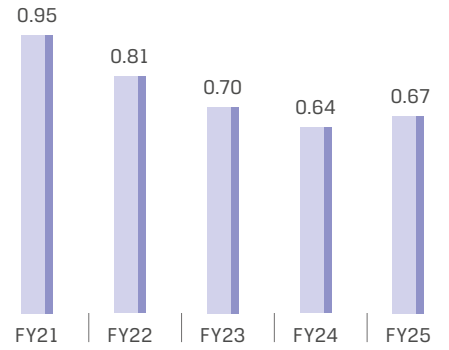
Number of Saplings Planted



SOX (Kg/MWh)



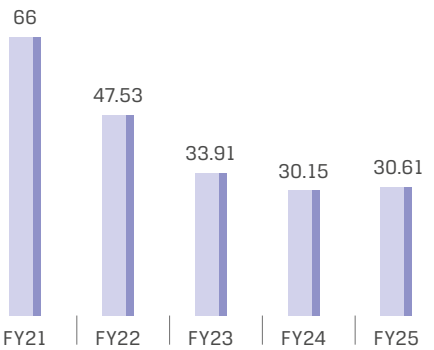
NOX (Kg/MWh)



PM (Kg/MWh)

GHG Emissions Intensity (tCO_2/MWh)

Energy Savings (MU)



9779.4 MT
Coal saving due to energy reduction and process improvement

344,836.9 MT
Estimated coal displacement due to use of waste gases in boiler

Plant-Wise Energy Saving Initiatives

Vijayanagar Plant

No.	Description of initiatives on energy reduction	Nature of initiative	Energy reductions in GJ (Estimated annual average reduction in energy)	GHG emissions saved due to energy saving ($MTCO_2e$)
			FY 2024-25	FY 2024-25
1	SBU1 U1 one Vacuum pump stopped	Energy saving	4,381.7	453.7
2	SBU1 U1 PA FAN Spacer Coupling Savings	Energy saving	1,511.1	156.5
3	SBU1 U1 ACW Pump Replacement Savings	Energy saving	771.8	79.9
4	SBU1 U1 vacuum Improvement After Overhaul	Energy saving	4,281.2	6748.2
5	Dynamic SH & RH Spray set point Logic implementation to avoid temperature exclusions and optimise the Spray	Energy saving	630.1	993.1
6	SBU2 U1 Throttling losses reduction by monitoring through real-time data	Energy saving	112.8	177.8
7	SBU2 U2 Throttling losses reduction by monitoring through real-time data	Energy saving	85.2	134.2
8	SBU2 U1 Makeup Losses reduction by monitoring through real-time data	Energy saving	408.8	644.4
9	SBU2 U2 Makeup Losses reduction by monitoring through real-time data	Energy saving	72.7	114.5
	Total		**12,255.311**	**9,502.455**

Barmer Plant

S. No.	Description of initiatives on energy reduction	Energy reductions in GJ (Estimated annual average reductions in energy)	GHG emissions saved due to energy saving ($MTCO_2e$)
		FY 2024-25	FY 2024-25
1	**APH Tube Plugging done in Unit#1 (Energy savings - 431.01 KW)** **Problem:** Primary Air (PA) fan, Secondary Air (SA) fan and Induced Draft (ID) fan energy consumption was increasing progressively in **Unit1** Boiler due to APH leakage. **Solution:** Unit shutdown was taken and LHS PA2 and SA2 APH tube replaced. **Benefit:** Reduction in Total Fan Power consumption by 431.01 KW.	9,046.08	913.65
2	**APH Tube Plugging/Replacement done in Unit#3 (Energy savings–1,531.06 KW)** **Problem:** Primary Air (PA) fan, Secondary Air (SA) fan and Induced Draft (ID) fan energy consumption was increasing progressively in Unit-3 Boiler due to APH leakage. **Solution:** AOH taken of Unit 8, RHS APH PA-2, SA-2 tube replaced. **Benefit:** Reduction in Total Fan Power consumption by 1531.06 KW.	20,165.84	2,036.75
3	**APH Tube Plugging done in Unit#7 (Energy savings – 1,725.97 KW)** **Problem:** Primary Air (PA) fan, Secondary Air (SA) fan and Induced Draft (ID) fan Energy consumption was increasing progressively in Unit-7 Boiler due to APH leakage. **Solution:** Planned Shutdown taken of Unit 7, and its LHS & RHS APH PA-2, SA-2 tube replaced. **Benefit:** Reduction in Total Fan Power Consumption by 1725.97 KW.	35,283.56	3,563.64
4	**APH Tube Plugging done in Unit#5 (Energy savings – 1,800.35 KW)** **Problem:** Primary Air (PA) fan, Secondary Air (SA) fan and Induced Draft (ID) fan energy consumption was increasing progressively in Unit-5 Boiler due to APH leakage. **Solution:** Planned Shutdown taken of Unit 5, and its RHS SA-1,PA-1 and both side SA-2, PA-2 APH tubes replacement **Benefit:** Reduction in Total Fan Power Consumption by 1,800.35 KW.	17,361.66	1,753.53
5	Unit 1 CT Fan VFD installation (Energy Saving)	431.02	43.53
6	PI Software Utilisation saving (Energy Saving)	3,011.82	304.19
	Total	**85,299.984**	**8,615.298**

Ratnagiri Plant

S. No.	Description of initiatives on energy reduction	Nature of Initiative	Month of incorporating initiative WHY THIS COLUMN EXISTS – PLS STANDARDISE FOR ALL PLANTS	Energy reductions in GJ (Estimated annual average reductions in energy)	GHG emissions saved due to energy saving ($MTCO_2e$)
				FY 2024-25	FY 2024-25
1	Improvement in turbine cylinder efficiency of Unit-2 by overhauling	Saving of coal	Aug-24	286,536	13,867.80
2	Improvement in Aux. Power Consumption by de-staging of CEP- 1A in unit-1	Saving of Aux Power	Mar-24	2,180	528.77
3	Improvement in Aux Power Consumption by de-staging of BFP 4A in Unit-4	Saving of Aux Power	Mar-24	4,745	1,156.04
	Total			**298,496.168**	**15,552.620**

Nandyal Thermal Plant

S. No.	Description of initiatives on energy reduction	Nature of Initiative	Energy reductions in GJ (Estimated annual average reductions in energy)	GHG emissions saved due to energy saving ($MTCO_2e$)
			FY 2024-25	FY 2024-25
1	Only one SA fan taken into service at partial load of 4.5 MW to 10 MW and savings are calculated found around 35 KW per hour; further saving is under progress by optimisation of air flow.	APC reduction and energy saving	142.13	102.19
2	02 Nos Drag Chain Feeders kept in service in place of 04 Nos at part load operation of 5 MW to 9 MW, which in turn observed 4.13 KWh to 4.5 KWh power saving	APC reduction and energy saving	18.27	13.14
3	ESP one field was isolated based on SPM and savings are calculated found 25 Kwh	APC reduction and energy saving	304.56	218.98
4	During part load operation; Only one BFP taken in service up to 10 MW which is resulted in saving of 250 KWh	APC reduction and energy saving	1,015.20	729.93
5	VFD installed in CEP	APC reduction and energy saving	365.47	262.77
6	VFD installed in IAC	APC reduction and energy saving	219.28	157.66
7	Optimised the Ash conveying cycle, which resulted in saving of 75 Kwh	APC reduction and energy saving	913.68	656.93
8	In full-load operation maintained bed height of 480mmwc instead of 650mmwc recommended by OEM, which reduced PA fan's and ID Fan's loading from 80% to 70% and observed savings of 500 KWh per day	APC reduction and energy saving	253.80	182.48
9	Instrument air compressor discharge pressure reduced from 7 bar to 5.5 bar. A reduction in the delivery pressure by 1 bar in a compressor will reduce power consumption by 6-10%	APC reduction and energy saving	45.68	32.84
10	VFD installed for CHP vibro feeder motor to regulate coal flow resulted in optimisation of CHP running hours and savings	APC reduction and energy saving	50.76	36.49
11	Coal inching started at bed temperature of 400 Deg C instead of 550 Deg C, as recommended by OEM, which led to reduction in LDO consumption from 3.8 KL to 2.5 KL	LDO consumption reduced	0.00	0
12	Water conservation by utilising RO-2 reject water of 2.5 m^3/hr for make-up of CT basin and RO-I generation, along with raw water	Water conservation	0.00	0
	Total		**3,328.841**	**2,393.437**