

PLANET POSITIVE

Addressing climate change issues is essential for de-risking the business and building resilient communities. JSW Energy's climate philosophy is extended to all facets of business drawing utmost attention from all stakeholders for taking responsibility in acting towards the climate urgency. JSW Energy being an active contributor in strengthening the economy, society is also committed to continuously work individually and in partnership through concerted and accelerated efforts for preserving the natural balance of ecosystems.



The organization proactively addresses global environmental issues through robust systems for monitoring and managing the key material issues such as climate change, water, emissions, waste and biodiversity. The material issues are mapped to KPIs, which aid in evaluating the performance across each area of concern while elucidating planned strategies catalyzing the progress for meeting the long-term targets.

JSW Energy as a part of the global energy industry has set ambitious carbon reduction targets that span across our operations, value chain, and platform ecosystem. The prime focus will be on identifying the physical & transition climate risks and subsequently working towards mitigating the impacts of these risks on business assets and disseminating the expertise for resilient communities. To achieve this, JSW Energy has committed to becoming a Net-Zero Business by 2050 and endorsed various initiatives like SBTi, Global Framework for Decarbonising Heavy Industries, UN Energy Compact and Responsible Energy Initiative India. JSW Energy is also in the process of obtaining the membership of UN Global Compact, which would be completed within 2023 enabling access to global best practices, tools, trainings etc enhancing the company's commitment to Sustainability. Climate Risk Assessments based on the TCFD framework are in progress across all the major power plants (Barmer, Ratnagiri, Vijayanagar, Hydro-Sholtu, Solar-Vijayanagar, Nandyal & Salboni) as well as at the under construction Renewable projects at Tuticorin, Dharapuram, Sandur-Vijayanagar. Eco-Systems study



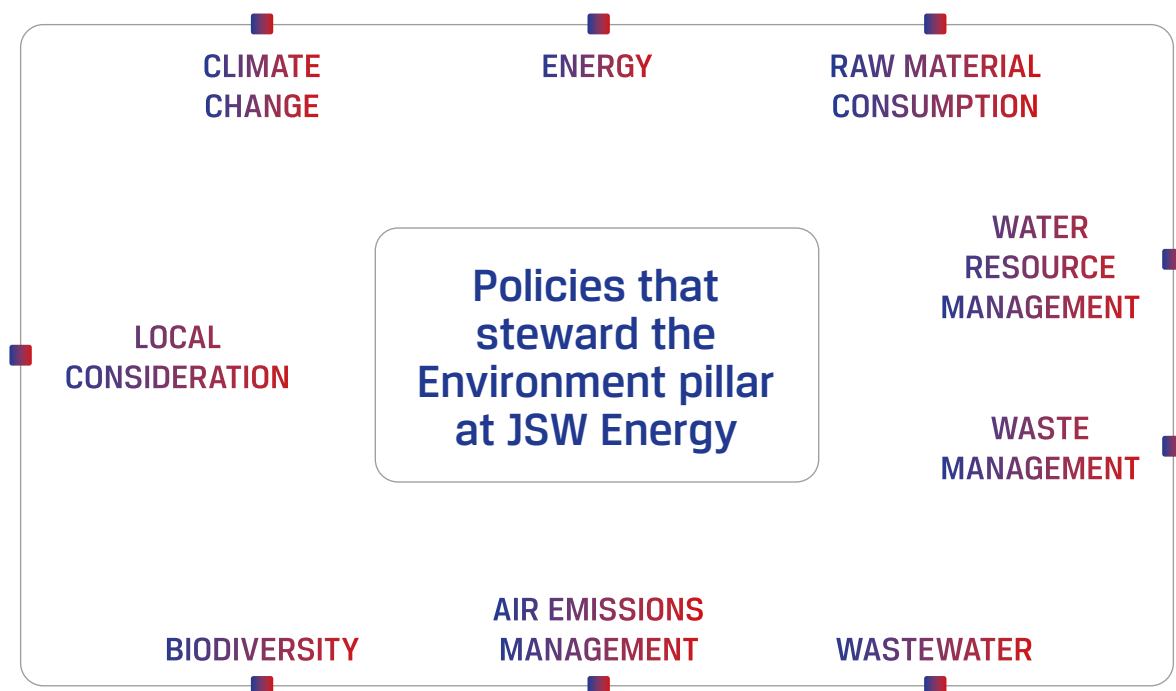
for Biodiversity Risk assessment under the TNFD framework is also in progress at operational plants as well as the ongoing projects. The organization's efforts towards combating climate change have been acknowledged by the United Nations Energy Compact.

CDP Leadership

The company received a leadership band rating of 'A-' in the CDP Climate Change Disclosures which showcases its commitment towards environmental stewardship. As the only energy company in India to achieve such a distinction from CDP, this accomplishment propels the champions to make greater strides towards combating global climate crisis.

Our key Business Prerogatives

- Rapid and enduring expansion towards sustainability
- Establish a forward-thinking company that leverages advanced technology and innovation
- Strengthening ESG practices and generating appealing returns.

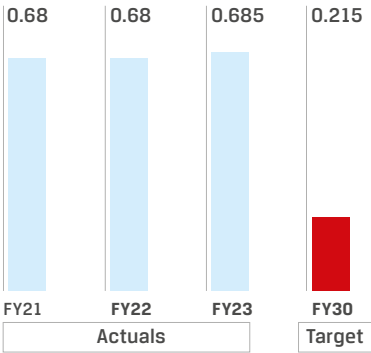


Performance Against Targets

Environmental Parameter	KPI	Actuals			Target
		FY 2021	FY 2022	FY 2023	FY 2030
Climate Change	GHG Emissions (Scope 1+2) - tCO ₂ e / MWh	0.68	0.68	0.685	0.215
Water Security	Sp. Freshwater intake (m ³ / MWh) (Power Production)	1.11	1.11	1.116	0.591
Waste	Waste - Ash Utilisation (%)	100%	96.9%	100%	100%
Air Emissions	Sp. PM (Kg / MWh)	0.14	0.14	0.12	0.05
	Sp. Sox (Kg / MWh)	1.65	1.52	1.24	0.68
	Sp. NOx (Kg / MWh)	0.95	0.81	0.70	0.37
Biodiversity	Biodiversity at our Operating sites	Great focus on plantations across all power plants	Biodiversity Eco-systems study initiated at Barmer plant	Biodiversity Eco-systems study in progress at 5 plant/project locations. Completed at Barmer.	Achieve No-Net loss of Bio-diversity

GHG Emissions (Scope 1 + 2)

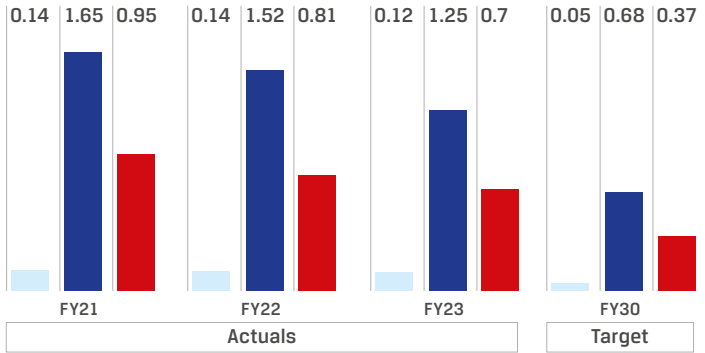
tCO₂e/MWh



Climate Change GHG Emissions
 Climate Change (Scope 1+2) – tCO₂e/MWh
 FY30 Target = 0.215 is aligned with SBTi

Air Emissions

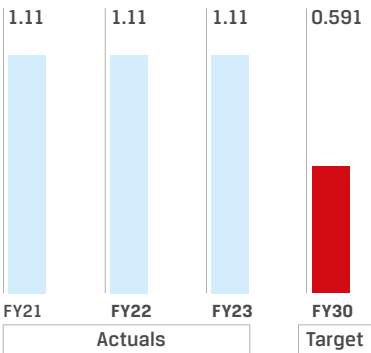
Kg/MWh



Air Emissions Sp. PM (Kg/MWh) Air Emissions Sp. SOx (Kg/MWh)
 Air Emissions Sp. NOx (Kg/MWh)

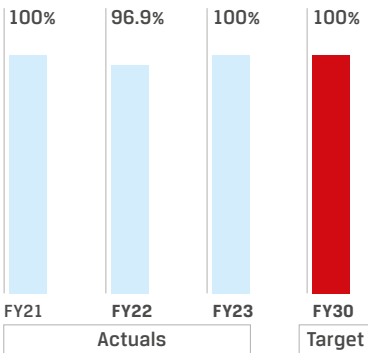
Sp. Freshwater (power production)

(m³ /MWh)



Waste Ash Recycled

(%)



CLIMATE CHANGE

Climate Strategy – Advancing for Deeper Decarbonization

Strategic Approach

JSW Energy is committed to burgeoning its efforts in propagating the sustainable development for all with innovative products and services. Being an energy provider, the company recognises the role it plays in low-carbon economy transition and contribution to Net-Zero goals of the country. Robust infrastructure developments and greater integration of mitigation and adaptation plans remains the central fulcrum in JSW Energy's climate action programmes. The plan to diversify the energy

resources will continue to drive business sustainably and increase the operational capacity to 20 GW by FY 2030, and help JSW Energy evolve as a leader in renewable energy technologies. The organization realizes the intensified momentum of climate change risks and is determined to progress further in its climate stewardship plans in alignment with SDG 13 "Climate Action". The company conducts detailed studies to systematically identify the threats of climate change on the business and adopts strategic plans to perform reliably under wide range of conditions with periodic oversight of board members. The governance for

climate change related issues vests with the Board while the Sustainability Committee coordinates actions at the plant level for the implementation of effective management plans. JSW Energy has made good progress in the direction of moving towards its 2030 KPI's with a 10.5% reduction in carbon emissions compared to the baseline year 2020 figure of 0.76 TCO₂/MWh. The company remains committed to its path of combating climate change and working towards becoming a Net-Zero Company by 2050 in alignment with global sentiment of limiting the average temperature rise of 1.5 °C.

Targets

REDUCE OUR CARBON EMISSIONS BY MORE THAN 50% (BASELINE 2020) BY 2030.

SDG's Impacted



ESG Governance Structure at JSW Energy



GHG Emissions (tCO₂e)

Scope 1	Scope 2	Scope 3
FY 2023	FY 2023	FY 2023
1,60,62,495.59	26,293.23	16,34,696.75
FY 2022	FY 2022	FY 2022
1,50,86,661.31	33,292.43	12,19,298.14
FY 2021	FY 2021	FY 2021
1,44,81,410.36	30,183.23	17,18,776.72

Categories Considered under Scope 3 Emissions

Scope 3* - Category Details	Total Emissions
Categories	
1. Purchased goods and services	15,521.47
2. Capital goods	5,731.34
3. Fuel and Energy	16,11,646.53
4. Upstream Transportation and distribution	210.60
5. Waste generated in operations	607.27
6. Business travel	228.66
7. Employee Commuting	750.88
Total	16,34,696.75

All other categories of scope 3 are not relevant to the operations of JSW Energy limited.

* Sources used for calculation of Scope 3 emissions - i) US EPA-Category 1 and Category 2, ii) GaBi database Category 3 and Category 4, iii) DEFRA-Category 5, iv) India GHG Programme-Category 6 and Category 7.

Standard assumptions and calculation methodologies used for all categories; Scope 3 calculations included all major power plants together accounting for 95% installed capacity. 225 MW solar plant and 27 MW wind project commissioned recently excluded due to very few Scope 3 categories. 1753 MW renewable project acquired on 29th March, 2023 also excluded.

ODS Emissions (KG of CFCe11) are 28.39. Emissions associated with reservoir are not covered

Initiatives undertaken to reduce energy consumption and carbon emissions

S. No.	Description of energy reduction initiative	Nature of initiative	Month of incorporating initiative	Energy reductions in GJ (Estimated annual average reductions in energy due to a particular initiative)	GHG emissions saved due to energy saving (MTCO ₂ e)
				FY 2023	FY 2023
Barmer Plant					
1.	<p>APH Tube Plugging done in Unit#3 (Energy savings - 573.21 KW)</p> <p>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.</p> <p>Solution- Unit shutdown was taken and APH tube plugging was done.</p> <p>Benefit- Reduction in Total Fan Power consumption by 580.57 KW.</p>	Energy Saving	May-22	10913.43	1102.26
2.	<p>APH Tube Plugging/Replacement done in Unit#7 (Energy savings - 323.61 KW)</p> <p>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.</p> <p>Solution- Unit tripped on high turbine vib. During this Shutdown Unit 7, RHS APH PA-4 & SA-4 tube replaced.</p> <p>Benefit- Reduction in Total Fan Power consumption by 323.61 KW.</p>	Energy Saving	Jul-22	5218.74	527.09
3.	<p>APH Tube Plugging done in Unit#5 (Energy savings - 1058.14 KW)</p> <p>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.</p> <p>Solution- Unit shutdown was taken and APH tube plugging was done.</p> <p>Benefit- Reduction in Total Fan Power consumption by 1058.14 KW.</p>	Energy Saving	Aug-22	18906.39	1909.54
4.	<p>APH Tube replacement done in Unit#4 RHS SA1 & PA1 (Energy savings - 2276 KW)</p> <p>Problem- Primary Air (PA) fan, secondary Air (SA) fan and Induced draft (ID) fan Energy consumption was increasing progressively in Unit-4 Boiler due to APH leakage.</p> <p>Solution- Unit shutdown was taken and APH tube replacement was done.</p> <p>Benefit- Reduction in Total Fan Power consumption by 2276 KW.</p>	Energy Saving	Oct-22	28850.12	2913.86

S. No.	Description of energy reduction initiative	Nature of initiative	Month of incorporating initiative	Energy reductions in GJ (Estimated annual average reductions in energy due to a particular initiative)	GHG emissions saved due to energy saving (MTCO ₂ e)
				FY 2023	FY 2023
5.	APH Tube replacement done in Unit#3 SA1 &PA1 (Energy savings - 1798 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- Unit shutdown was taken and APH tube replacement was done. Benefit- Reduction in Total Fan Power consumption by 1798 KW.	Energy Saving	Jan-23	10,003.33	1,010.34
Total				73,891.999	7,463.092

S. No.	Description of energy reduction initiative	Nature of initiative	Month of incorporating initiative	Energy reductions in GJ (Estimated annual average reductions in energy due to a particular initiative)	GHG emissions saved due to energy saving (MTCO ₂ e)
				FY 2023	FY 2023
Ratnagiri Plant					
1.	Augmentation of rain water harvesting system resulted in reduced pumping hours for drawing fresh water from MIDC line	Saving of electricity	Jun-22	103	27
2.	Replacement of HP exhaust dump valve to avoid the passing of high energy steam in Unit-4	Saving of Natural Resources	Aug-22	10,273	907
3.	Improvement in Aux. Power Consumption by de-staging of BFP in Unit-1	Saving of Natural Resources	Jan-23	837	205
4.	Sequential Valve Mode of Turbine Governing Valve Operation resulting in lower throttling losses thereby saving coal consumption	Saving of Natural Resources	Dec-22	36,901	5,651
Total				48,114	4,307

The GHG emissions intensity only for thermal power plants is 0.92 tco₂e / MWh.

The air emissions intensity are as follows:

SO_x - 1.68 kg / MWh

NO_x - 0.95 kg / MWh

SPM - 0.16 kg / MWh

Energy consumed (JSW Energy Consolidated):

Renewable sources:	1,24,444 GJ
Non-Renewable sources:	
i) Total electricity consumption	56,70,779 GJ
ii) Total fuel consumption within organisation	8,86,29,496 GJ
Total energy consumed (Non-renewable)	9,43,00,275 GJ
Net electricity generation FY23	21,866 MU

IPCC factors used for energy conversion

S. No.	Description of energy reduction initiative	Nature of initiative	Month of incorporating initiative	Energy reductions in GJ (Estimated annual average reductions in energy due to a particular initiative)	GHG emissions saved due to energy saving (MTCO ₂ e)
				FY 2023	FY 2023
Vijayanagar Plant					
1.	SBU1 BFP recirculation valve logic modification has given a saving of 311 kwh at 90 MW	Energy savings	June-22	12.96	1184.4
2.	SBU1 PA fan auto pressure set point based on coal flow has given a saving of 15 kwh	Energy savings	September-22	0.33	30.2
3.	SBU1 U2 BFP stopping at low load	Energy savings	August-22	21.97	2007.8
4.	SBU2 U1 To reduce slip losses in turn to reduce BFP Power Consumption	Energy savings	May-22	20.05	1832.5
5.	SBU2 U1 Low load CEP VFD locking speed reduced from 700 to 600 to avoid throttling losses	Energy savings	June-22	1.67	152.4
6.	SBU2 U1 Two mill Operation at low <120 MWh & coal flow < 58 TPH	Energy savings	July-22	6.00	548.4
7.	SBU2 U1 Two mil Operation at low <120 MWh & coal flow < 58 TPH & reduced header pressure Up to 5.5 Kpa & 3 mill operation reduced header pressure up to 7.0 Kpa	Energy savings	June-22	23.80	2175.6
8.	SBU2 U1 Rectification of blade pitch mechanism malfunction, Secondary Air Flow reduced to 480 to 440 tph	Energy savings	July-22	1.66	151.4
9.	SBU2 U1 Reducing secondary air Flow & reducing PA flow by two mill operation	Energy savings	June-22	8.26	755.0
10.	SBU2 U1 ESPT Power Consumption Optmization by stopping 4 th & 10 th filed in both passes during Low load operation hours	Energy savings	June-22	1.94	177.5
11.	SBU2 U1 Ash handling Compressor stopping upto max 12 hrs, according to load condition in turn to reduce Power Consumption	Energy savings	July-22	1.82	166.6
12.	SBU2 U1 Switching OFF 2 CT fan's Stopped for power optimization during 90 MWh operation at < 92 Kpa vacuum	Energy savings	July-22	10.02	915.9
13.	Cooling towers blade replacement in SBU1 (6 NOS.)	Energy savings	February-23	0.53	48.5
Total				110.469	10146.120