



# Accelerating for a Better Tomorrow

Corporate Presentation  
November 2022

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# JSW Group Overview



Amongst India's leading  
Conglomerates with a  
turnover of US\$22 Bn



## JSW Energy

- Power producer with 9.9 GW locked-in portfolio,
- Targeting 20GW by 2030 (81% renewable capacity)
- Market Cap: ~US\$ 6.4 Bn



## Infrastructure

- Amongst **Top 5** Indian port companies
- Operates environment-friendly seaports & terminals
- Targeting 200mtpa cargo handling capacity in next few years



## Paints

- India's new age Paints company offering a path-breaking Any Colour at One Price
- State-of-the-art Facilities in Maharashtra and Karnataka
- Ranks Number 1 in Industrial Coil Coatings



## Sports

- Supporting Indian sports ecosystem
- Teams Owned: Bengaluru FC, Delhi Capitals, Haryana Steelers



## Steel

- India's leading integrated steel producer
- Installed crude steel capacity of 29.2mtpa, growing to 38.5mtpa
- Market Cap: ~US\$ 21.4 Bn



## Cement

- India's leading Green cement company
- Current capacity of 17mtpa, with a medium term target of 25mtpa
- Product range includes PSC, GGBS, Concrete & Construction Chemicals



## Ventures

- Early-stage, tech-focused, VC fund
- Portfolio: Purple, LimeTray, Homelane, CureSkin and Zvlov




## Foundation

- Social development arm of JSW Group
- Footprint across 11 states and 15 districts
- Positively impacts more than a million lives across India



# JSW Energy : Our Vision

A wide-angle photograph of a solar farm at sunset. The rows of solar panels stretch across the foreground and middle ground, leading towards a range of dark mountains in the distance. The sky is filled with dramatic, golden-orange clouds, with the sun's glow breaking through near the horizon.

**Bringing positive transformation to  
every life we touch**

# JSW Energy : Transitioning towards green energy

**FY2025**

To become a 10 GW company

**FY2030**

To become a 20 GW company

**FY2050**

To become carbon neutral by 2050

**Electrons to Molecules**

Foraying into products and services through energy storage solutions, green hydrogen and its derivatives

# Agenda

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**JSW Energy at a Glance**

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**Sustainability**

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**Asset Overview**

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**Why JSW Energy?**

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**Risk Mitigation**

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**Annexures**

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# JSW Energy – At a Glance

The company is well placed to achieve its capacity growth target of 10 GW much ahead of the stated timeline of FY25 and being future-ready with increased share of renewables and new energy solutions.

**9.9 GW**

=

**4.8 GW**

+

**2.6 GW**

+

**2.5 GW**

Diversified Asset  
Portfolio  
(61% Renewable)

**Installed Capacity**

Thermal – 3,158 MW  
Renewable – 1,626 MW

**Under Construction**

-Entirely Renewable – 2,233 MW

**In Pipeline**

-Entirely Renewable – 426 MW

**Under Acquisition**

-1,753 MW Mytrah Energy  
RE assets  
-700 MW Thermal Power  
Ind-Barath

# Healthy Operations and Financials (4.8 GW Operational)

**85%**

Capacity under LT PPA<sup>1</sup>

**~95%**

EBITDA contribution from LT

**21BUs**

Net Generation

**₹ 2,395 Cr**

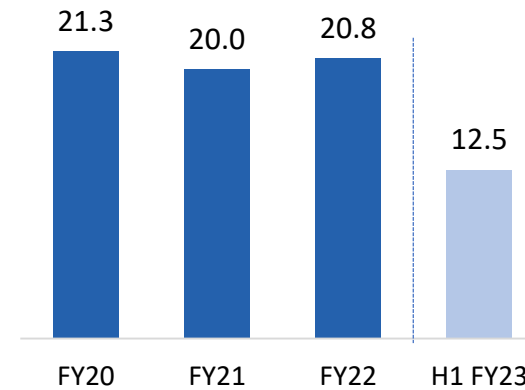
Cash PAT<sup>2</sup>

Figures are for FY22

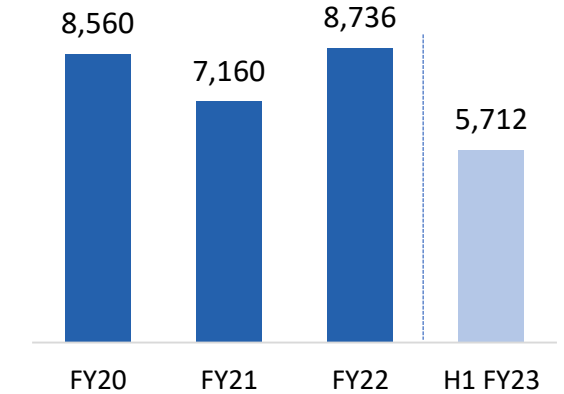
- Steady operations and robust financial: Track record of strong yearly cash profits of ~₹2,300 Crores.
- High LT PPA tie-up rendering high cash flow visibility
  - Almost all LT PPA under two-part tariff (imported/domestic fuel cost/forex pass through)
  - Remaining Avg. Life of PPA: ~20 years
  - Remaining Avg. Life of Assets: ~30 years
- Diversified off-takers
  - All plants placed favorably in Merit Order Despatch
  - Hydro projects under 'must-run' status
  - Consolidated Trade receivables at ₹ 1,769 Cr equaling to 66 receivable days as on Sep 30, 2022

Business model resilient with steady cashflow generation despite several sectoral headwinds

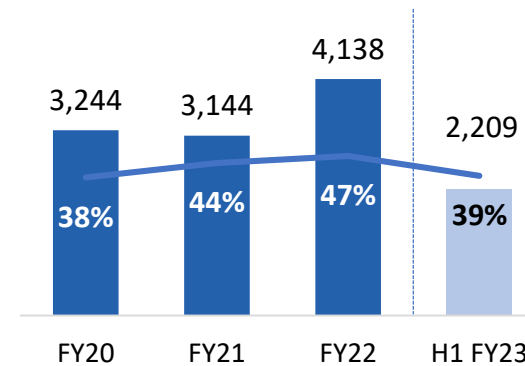
Net Generation (BUs)



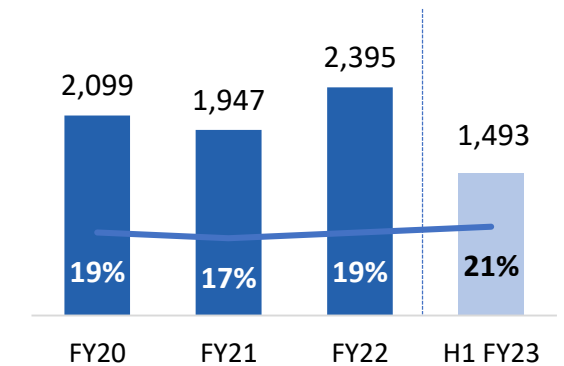
Total Income<sup>3</sup> (₹ Crore)



EBITDA & EBITDA Margin (₹ Crore)



Cash PAT<sup>2</sup> (₹ Crore) and Return on Adj.Net Worth



# Robust balance sheet to support renewable-led growth

**1.77x**

Net Debt/EBITDA

**0.45x**

Net Debt/Equity

**7.94%**

Wt. average cost of debt

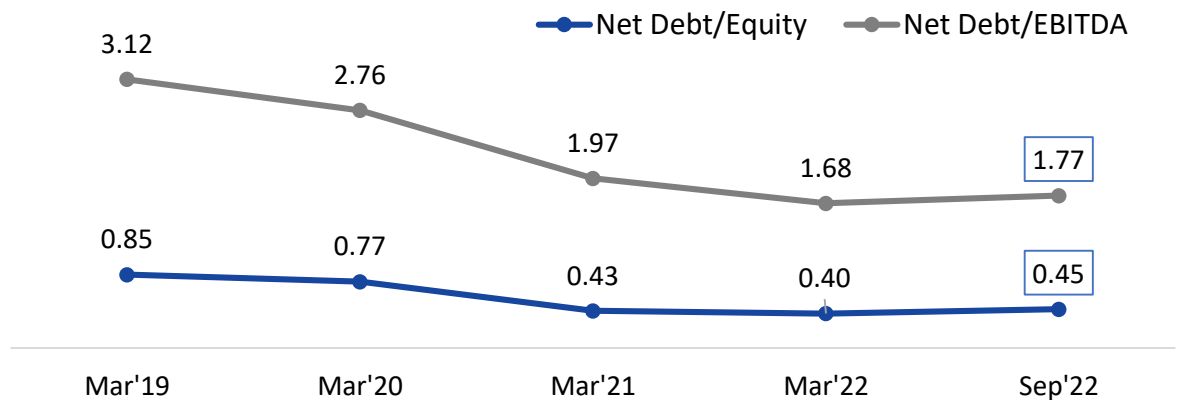
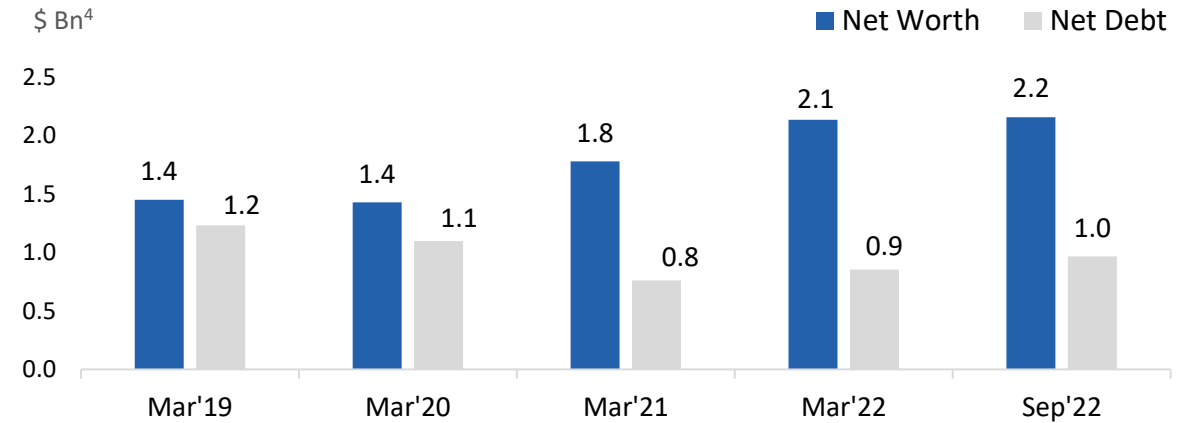
**66**

Receivable Days

Figures as of Sep 30, 2022

- ✓ Strong Liquidity with healthy cash balances: ₹ 3,327 Crore (**\$ 408 Mn<sup>3</sup>**)
- ✓ Financial flexibility enhanced by equity investments:
  - Holding 7Cr (70mn) JSW Steel shares (Value<sup>1</sup>: **~\$542 Mn<sup>3</sup>**)
- ✓ Healthy Credit Ratings:
  - India Rating & Research: AA (Stable outlook)
- ✓ Access to diverse pools of liquidity
- ✓ Existing portfolio of 4.8 GW generating healthy CF & mid-teen equity IRR<sup>2</sup>
- ✓ Weighted average cost of debt is 7.94% as of Sep 30, 2022

## Large balance sheet headroom & strong cashflow available to pursue growth



<sup>1</sup> Value of JSW Steel Share holdings as on Sep 30, 2022. Net Worth is impacted by change in value of listed equity investments through Other Comprehensive Income, <sup>2</sup>. Calculated as FCFE Yield on Adj. NW is ~14%; Adj NW : Net worth adjusted for non-strategic equity investments held <sup>3</sup>. 1 USD =81.6 INR

# Sustainability at JSW Energy



# Continuing our Health & Safety Excellence Journey



**Zero** severe injuries/fatalities (Q2 FY23 & YTD)



**89%** of contractors covered by JSW CARES audit

9 Contractors achieve 5 Star rating & 3 contractors achieve 4 Star in a stringent Internal Safety Assessment



**43,000+** Cumulative Safety Observations Resolved YTD

Influencing 'positive safety behavior' of our workforce by reporting smallest of the safety considerations thereby avoiding any major / minor incident



**Strengthening of Safety systems by initiating the Internal Safety Audits conducted by inter-location safety professionals**

Internal Safety Audit of 3 plants completed by JSW Safety professionals of other locations. Audit of all remaining plants shall be completed in Q3 FY23. The audit aims to strengthen Safety Governance, statutory compliances, Risk assessments and safety monitoring systems



**Enhancing Safety Systems & Response**

- JSW Hydro Energy – Conducted Mock Drills with NDRF (National Disaster Response Force) and administration teams for 'Flash Floods & Rescue' Scenario
- Barmer Thermal Power Plants – Mock Drill Conducted on Fire Safety Response for 'Fire in Main Oil Tank' Scenario

## Awards & Recognitions



# Sustainability: Framework and Policies

## 17 Focus Areas with 2030 Targets from 2020 as Base Year

<p><b>Climate Change:</b> Committed to being carbon neutral by 2050 Reduce our carbon emissions by more than 50%</p>	<p><b>Renewable Power:</b> Enhance the renewable power to 2/3rd of our Total Installed Capacity</p>	<p><b>Biodiversity:</b> No Net Loss for Biodiversity</p>
<p><b>Waste Water:</b> Zero Liquid Discharge</p>	<p><b>Waste:</b> 100% Ash (Waste) utilization</p>	<p><b>Water Resources:</b> Reduce our water consumption per unit of energy produced by 50%</p>

Operational Health & Safety	Resources	Social Sustainability	Local Considerations	Indigenous People	Human Rights
Supply Chain Sustainability	Employee Wellbeing	Air Emissions	Business Ethics	Cultural Heritage	Energy

**Aligned to National & International Frameworks**



## Governance & Oversight by Sustainability Committee

<b>2</b> Independent Directors	Mr. Sunil Goyal
	Ms. Rupa Devi Singh
<b>1</b> Executive Director	Mr. Prashant Jain

## ESG Ratings – best amongst peers

MSCI : BB

CDP : A- (Leadership Level)

Sustainalytics: 27.8 (Medium Risk)

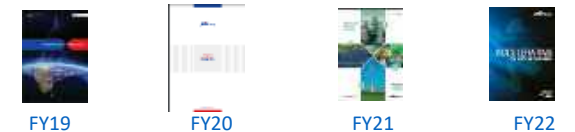
FTSE4Good Index constituent

## Carbon Neutrality by 2050



Committed to set science based targets to keep global warming to 1.5°C under SBTi

## Integrated Reporting since FY19



# Sustainability: Targets and Strategy

SD Targets		FY20 Actuals	FY30 Targets	Improvement	Strategic Initiatives and Approach
<b>Climate Change</b>	<ul style="list-style-type: none"> <li>GHG Emissions tCO<sub>2</sub>e/ MWh</li> </ul>	0.76	<b>0.304</b>	60%	<ul style="list-style-type: none"> <li>Increased share of renewable energy for deep decarbonization</li> <li>Process efficiency improvements</li> <li>Replacement of condenser tubes with graphene coatings</li> </ul>
	<hr/>				
<b>Water Security</b>	<ul style="list-style-type: none"> <li>Specific fresh water intake (m<sup>3</sup>/MWh)</li> </ul>	1.10	<b>0.591</b>	46%	<ul style="list-style-type: none"> <li>Maintaining zero liquid discharge across operations</li> <li>Optimising utilisation of rain water harvesting system</li> <li>Installation of technology for operating cooling towers with higher Cycles of Concentration with modified chemical regime</li> <li>Reuse of treated effluent of Sewage Treatment Plan for horticulture</li> </ul>
	<hr/>				
<b>Waste</b>	<ul style="list-style-type: none"> <li>Specific Waste (Ash) Generation (t/MWh)</li> </ul>	0.070	<b>0.032</b>	54%	<ul style="list-style-type: none"> <li>Integrated Strategy towards efficient waste management</li> <li>Optimizing utilisation of low ash coal</li> </ul>
	<ul style="list-style-type: none"> <li>Waste Recycled - Ash (%)</li> </ul>	100	<b>100</b>	-	
<hr/>					
<b>Air Emissions</b>	Specific process emissions(Kg/MWh)				<ul style="list-style-type: none"> <li>Ensuring ESP (Electrostatic Precipitator) Fields availability</li> <li>Optimising Lime dozing system efficiency</li> <li>Process efficiency improvements</li> </ul>
	<ul style="list-style-type: none"> <li>PM</li> </ul>	0.16	<b>0.053</b>	67%	
	<ul style="list-style-type: none"> <li>SOx</li> </ul>	1.78	<b>0.683</b>	61%	
	<ul style="list-style-type: none"> <li>NOx</li> </ul>	1.01	<b>0.373</b>	63%	
<hr/>					
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>Biodiversity at our operating sites</li> </ul>	-	Achieve <b>'no net loss'</b> of biodiversity		<ul style="list-style-type: none"> <li>Continue to enhance Biodiversity at all our locations and operations to achieve 'no net loss'</li> <li>Increase green cover across operations</li> <li>Eco-system studies (all seasons) in progress for finalising a Bio-diversity management plan at Barmer location.</li> </ul>

# Sustainability: Q2 FY23 Performance

## Key Highlights



### Climate Change

- Increased share of renewable energy for deep decarbonization
- Solar 225 MW project at Vijayanagar: Generation started resulting in low GHG, CO<sub>2</sub>, SO<sub>x</sub> and NO<sub>x</sub> emissions
- Biomass feeding (*trials done*) to reduce coal consumption at Ratnagiri Plant
- Installation in progress for Wind Projects at Tuticorin



### Water Security

- Maintain zero liquid discharge across operations
- Rain harvesting at Ratnagiri and Vijayanagar plants resulting in rain water utilization of 236,910 m<sup>3</sup> and 185,891 m<sup>3</sup> respectively
- Utilization of PTP sludge in Horticulture & Gardening in the form of fertilizer at Barmer Plant



### Waste

- 100% Ash utilization initiatives at all plants through tie-ups with cement factories & other industrial businesses
- Phase 1 trials completed for the 45kt Silo for ash export from Ratnagiri plant



### Air Emissions

- Ensuring ESP (Electrostatic Precipitator) Fields availability
- Process efficiency improvements
- Lime Dozing system availability and parameters optimization at Barmer for reduced air emissions

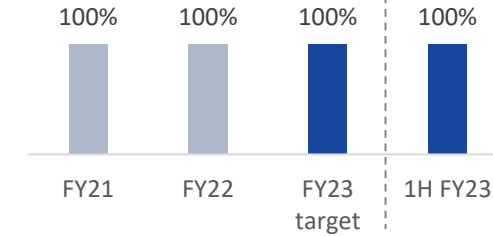


### Biodiversity

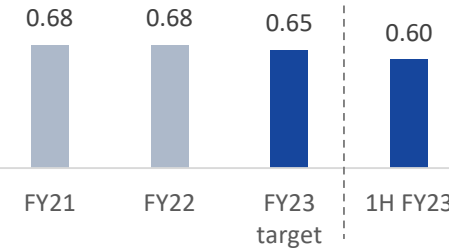
- Eco-System Study at Barmer: Summer season site report submitted & Monsoon season data collected by Confederation of Indian Industry (CII)
- New Mango plantations (2,478 nos) around Ratnagiri plant, different species plantation around Vijayanagar Plant (3,145 nos) and Hydro Power Plant (500 nos)

## Performance

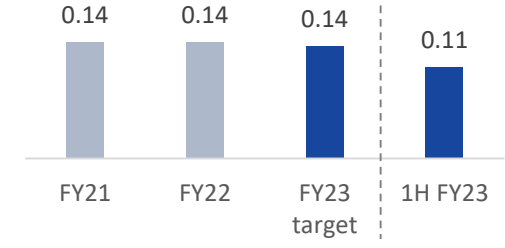
Ash Utilisation (%)



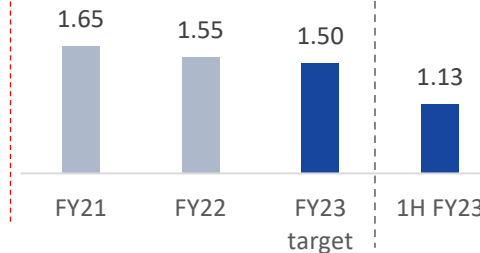
CO<sub>2</sub> intensity (tCO<sub>2</sub>e/MWh)



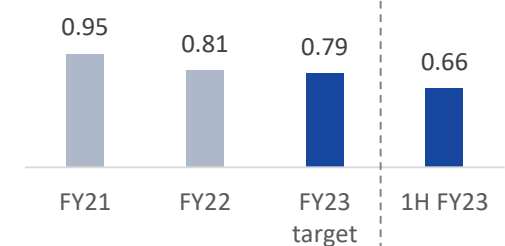
PM Emissions (kg/MWh)



SO<sub>x</sub> Emissions (kg/MWh)



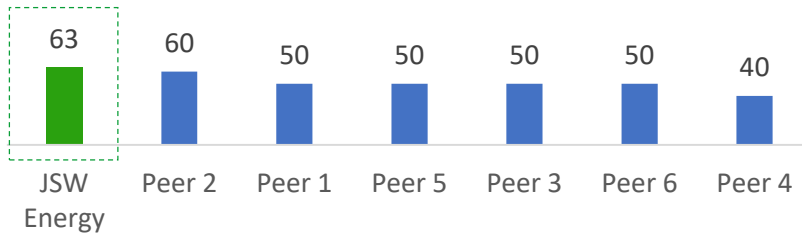
NO<sub>x</sub> Emissions (kg/MWh)



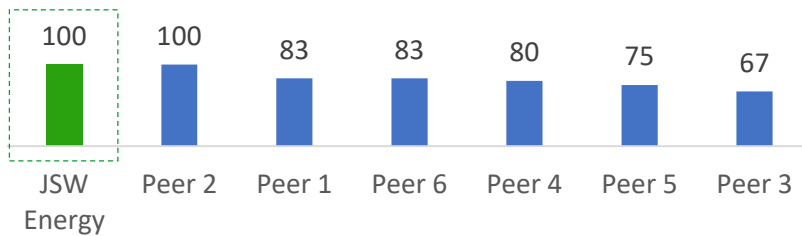
# Advantage JSW: Superior ESG Profile

## Board & Governance

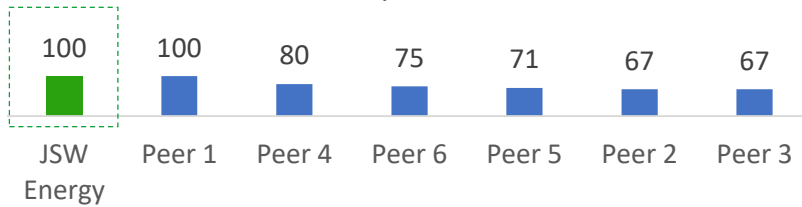
% Board Independent



% Audit Committee Independent

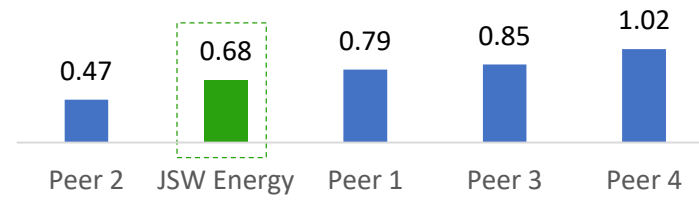


% Nomination & Remuneration Committee Independent

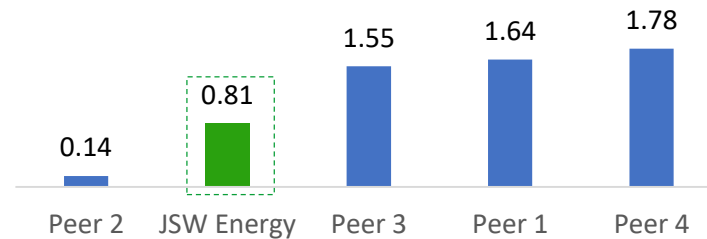


## Air Emissions

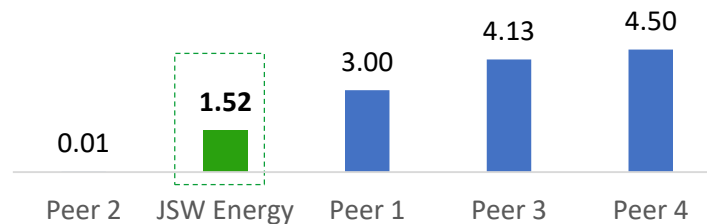
CO2 Intensity (t CO2e/MWh)



Specific NOx Emissions(Kg/MWh)



Specific SOx Emissions(Kg/MWh)

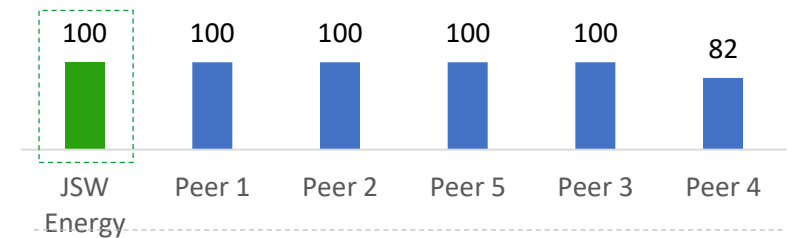


## Water & Waste Management

Specific Fresh Water Consumption (m3/MWh)



Ash Utilisation (%)



## ESG Ratings\*



Entity	CDP Rating
JSW Energy	A-
Peer 6	B
Peer 1	C
Peer 3	C
Peer 4	D
Peer 2	F
Peer 5	F



Entity	MSCI Rating
JSW Energy	BB
Peer 6	A
Peer 1	BBB
Peer 3	CCC
Peer 4	CCC

# Sustainability: Initiatives and Disclosures



Plantation drives spanning across Ratnagiri, Vijayanagar & Hydro Power Plants



Green Belt & Plantation near Barmer Power Plant



Watershed Development at Barmer

Comprehensive ESG Data profile with **~300 factors across 15 sustainability frameworks**

[JSW Energy](#)



[JSW Hydro Energy](#)





## Sports Promotion & Development

- Project Shikhar: Organised inter-Shikhar boxing championship with a participation of 60 boxers.
- Participation in State Boxing Boys Junior Championship at Nagrota Bagwan in July. (8 medals won in Q2)



## Health & Nutrition

- Strengthening public health infrastructure by supporting a Government hospital in Barmer.
- Total 44 vision screening camps were organized at Tuticorin and Jaigad which benefitted 5,044 individuals



## Skill Development & Livelihoods

- Under Project Charkha, the artisans participated in an exhibition organised by NABARD at Mandi, Himachal Pradesh on National Handloom Day where artisans showcased their products
- Mobilisation of artisans is ongoing for 'Off-farm Producer Organisations' in partnership with NABARD



## Community Development & Support

- Project Margdarshak: To empower rural India with access to applicable welfare schemes of central and state governments and enable it through awareness generation and technological support.
- Solar Street Lights: Installed 175 solar street lights in remote location of 13 Gram Panchayats of Barmer District



[Health & Nutrition](#)



[Water & Environment](#)



[Waste Management](#)



[Agri-livelihoods](#)



[Education](#)



[Women's BPO & Livelihoods](#)



[Skill Enhancement](#)



[Art, Culture & Heritage](#)



[Sports](#)

# Strong Board Oversight and Leadership



**Mr. Sajjan Jindal**  
Chairman & Managing Director



**Mr. Prashant Jain**  
Joint Managing Director & CEO



**Mr. Pritesh Vinay**  
Director (Finance)



**Mr. Parth Jindal**  
Non-Executive, Non-Independent Director



**Ms. Rupa Devi Singh**  
Independent Director



**Mr. Sunil Goyal**  
Independent Director



**Mr. Munesh Khanna**  
Independent Director



**Mr. Rajeev Sharma**  
Independent Director



**Mr. Desh Deepak Verma**  
Independent Director

- **Majority Independent Board: 5/9 Directors are Independent**
- **Fully Independent Audit and Remuneration Committees**

- Audit Committee
- Compensation & nomination & remuneration Committee
- Risk management Committee
- Stakeholder's relationship Committee
- Corporate social responsibility Committee
- Sustainability Committee
- Permanent invitees to Sustainability Committee

## Our Core Principles



Accountability



Social Responsibility



Transparency



Environment



Integrity



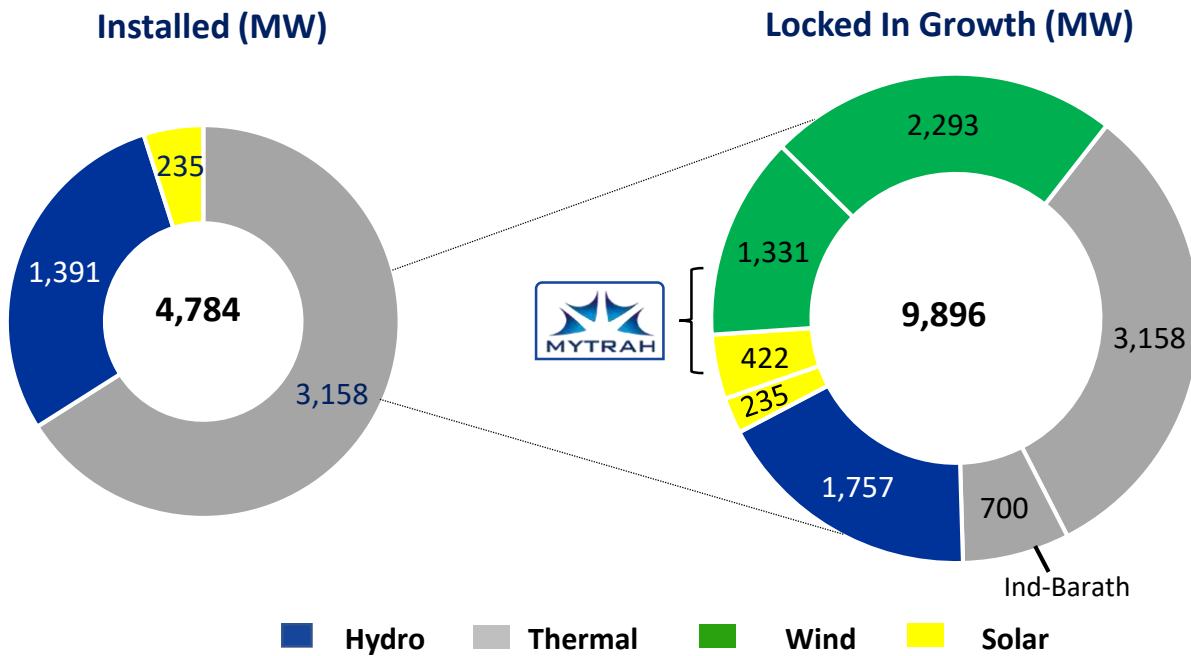
Regulatory Compliance

# Asset Overview



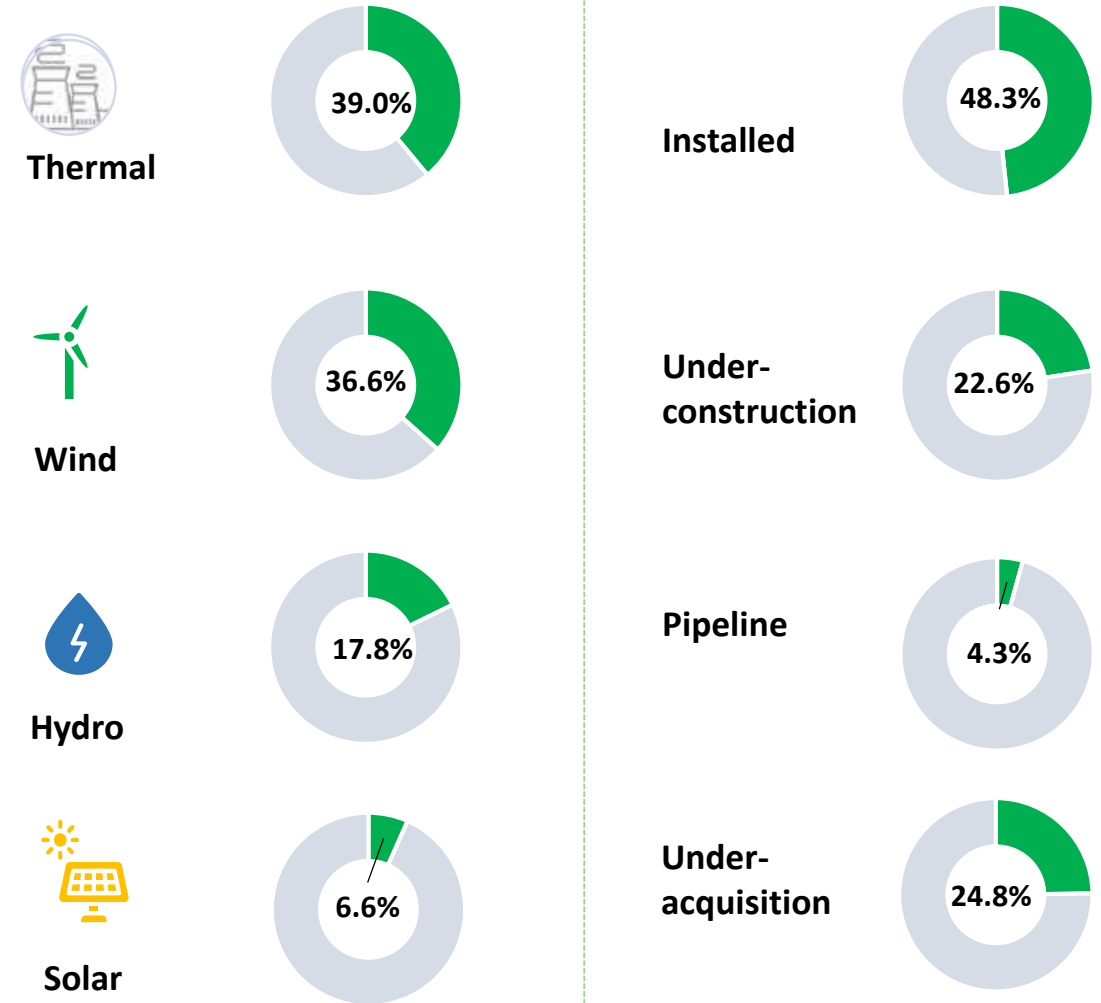
# Asset Overview – 9.9 GW Locked-In

## Green portfolio driving capacity growth



**Total locked-in capacity (9,896) MW**  
Renewable constitutes 61% of total locked-in capacity

### Division of locked-in capacity (9,896) MW



Locked In 9.9 GW

Installed Capacity 4.8 GW

Under construction & Pipeline 2.6 GW

Under Acquisition 2.5 GW

# Installed Portfolio – 4.8 GW

## Barmer: 1,080MW

- **Configuration:** 8 X 135MW
- **Units operating:** since 2009<sup>3</sup>
- **Technology:** Sub-critical pithead Lignite based TPP
- **Fuel Source:** Captive Lignite mines of BLMCL<sup>1</sup>
- **Power Offtake:** Long Term PPA : 100%
- **Project Cost:** INR 7,165 Crore/ \$879mn<sup>2</sup>

## Ratnagiri: 1,200MW

- **Configuration:** 4 X 300MW
- **Units operating:** since 2010<sup>3</sup>
- **Technology:** Sub-critical TPP
- **Fuel Source:** Imported Thermal Coal
- **Power Offtake:** Long Term PPA: 96%
- **Project Cost:** INR 5,516 Crore/ \$676mn<sup>2</sup>

## Nandyal: 18 MW

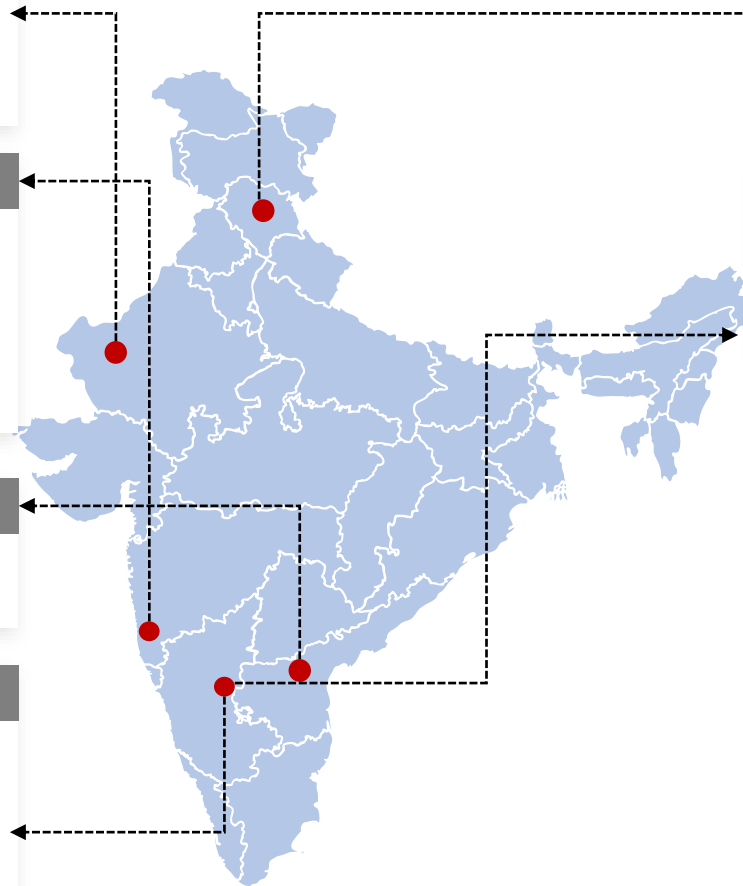
- 1x18MW Thermal Power Plant
- 100% LT PPA under Group Captive scheme

## Vijayanagar: 860 MW

- **Configuration:** 2 X 130MW and 2 X 300MW
- **Units operating:** since 2000<sup>3</sup>
- **Technology:** Sub-critical TPP
- **Fuel Source:** Imported Thermal Coal & Gas
- **Power Offtake:** Long Term PPA : 35%
- **Project Cost:** INR 3,096 Crore/ \$379mn<sup>2</sup>

## 4.8 GW installed

34% Renewable  
66% Thermal



Map for illustrative purposes, showing project locations

## Baspa II: 300MW & Karcham Wangtoo: 1,091MW<sup>4</sup>

- **Configuration:** 3x100MW (Baspa II) ; 4x272.75MW (Karcham)
- **Units operating:** Baspa II since 2003<sup>3</sup> and Karcham Wangtoo since 2011<sup>3</sup>
- **Technology & Fuel Source:** Hydro
- **Power Offtake:** Long Term(1300MW), Short Term(45MW)
- **Asset Value to JSW Energy:** INR 9,275 Crore/\$1,137mn<sup>2</sup>

## Solar: 10 MW

- Ground based and rooftop solar power projects across various locations with captive power tie-up within JSW Group

## Vijayanagar Solar: 225 MW

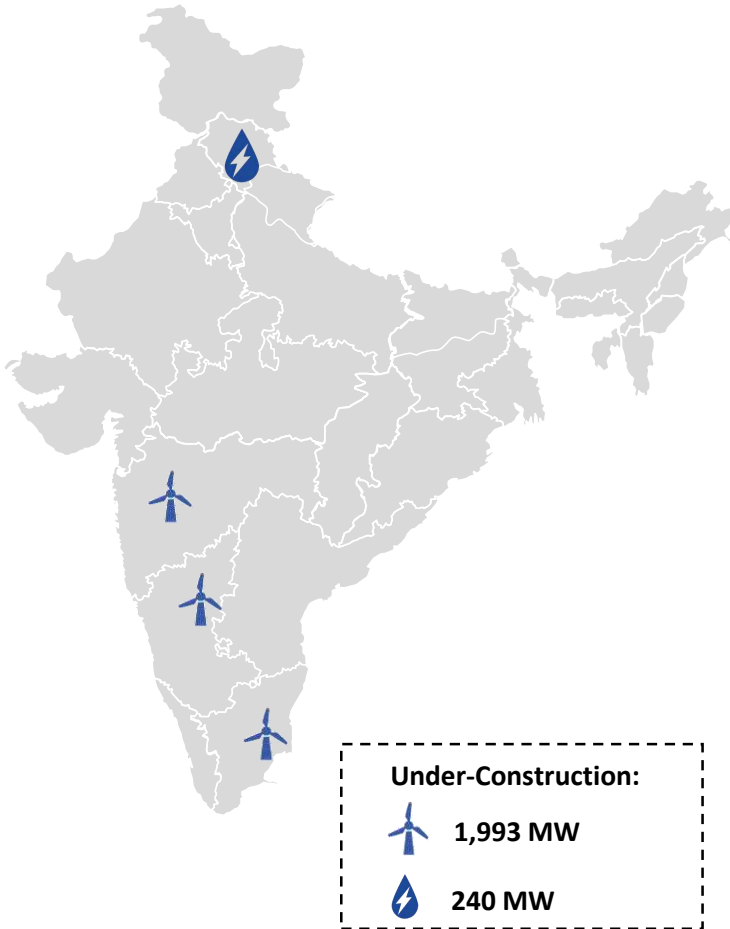
- **Configuration:** 225 MW AC
- **Power Offtake:** PPA with JSW Steel

Remaining Avg. Life of PPA: ~20 years  
Remaining Avg. Life of Assets: ~30 year

1. Long term FSA with BLMCL for supply of lignite from its captive mines 2.USD/ INR = 81.6 3.Denotes start of first unit in respective calendar year; TPP – Thermal Power Plan 4.Current approved operational capacity at 1,045 MW. CEA approval received for uprating from 1,000 MW to 1,091 MW, in a phased manner over CY21 and CY22

# Under Construction Projects – 2.6 GW (1/3)

## 2.2 GW Renewable Projects



Map for illustrative purposes, showing project locations

Under Construction Portfolio						
Plant	Capacity (MW)	Segment	Location	PPA/Offtaker	Scheduled Commissioning	Target Commissioning
SECI - IX	810	Wind	Tamil Nadu	25-Year; SECI	Dec-23	progressively from Q3 FY23
SECI - X	450	Wind	Tamil Nadu	25-Year; SECI	Jun-23	
Group Captive – JSW Steel	733	Wind	Karnataka, Maharashtra & Tamil Nadu	25-Year; JSW Steel	NA	progressively from Q1 FY24
Kutehr	240	Hydro	Himachal Pradesh	35-Year; Haryana Discom	-	Sep-24

### Metrics for RE projects (Incl. 225 MW of solar projects commissioned at Vijayanagar)

**Blended tariff** ₹ 3.08/unit (excl. hydro)

**PPA** PPAs Signed

**Capex**

- Total : ~ ₹ 16,660 Crore
- Spent: ~ ₹ 4,700 Crore
- Committed: ~ ₹ 10,720 Crore

## 426 MW Pipeline Projects

- SECI XII - Letter of Award received in Jul-22 for 300 MW ISTS connected Wind power capacity
- Letter of Intent received in Oct-22 for allotment of 126 MW Chhatru HEP

# Update on Under Construction Projects (2/3)

## SECI-IX & X Wind, Tamil Nadu (1,260 MW)



Nacelle and WTG erection

## Kutehr HEP, Himachal Pradesh (240MW)



Steel Cantilever Bridge



HRT Gantry Concrete Lining



Kutehr HEP

- Completed ~84% (17.7 km) tunneling work (up from ~75% in Q1) well ahead of timelines

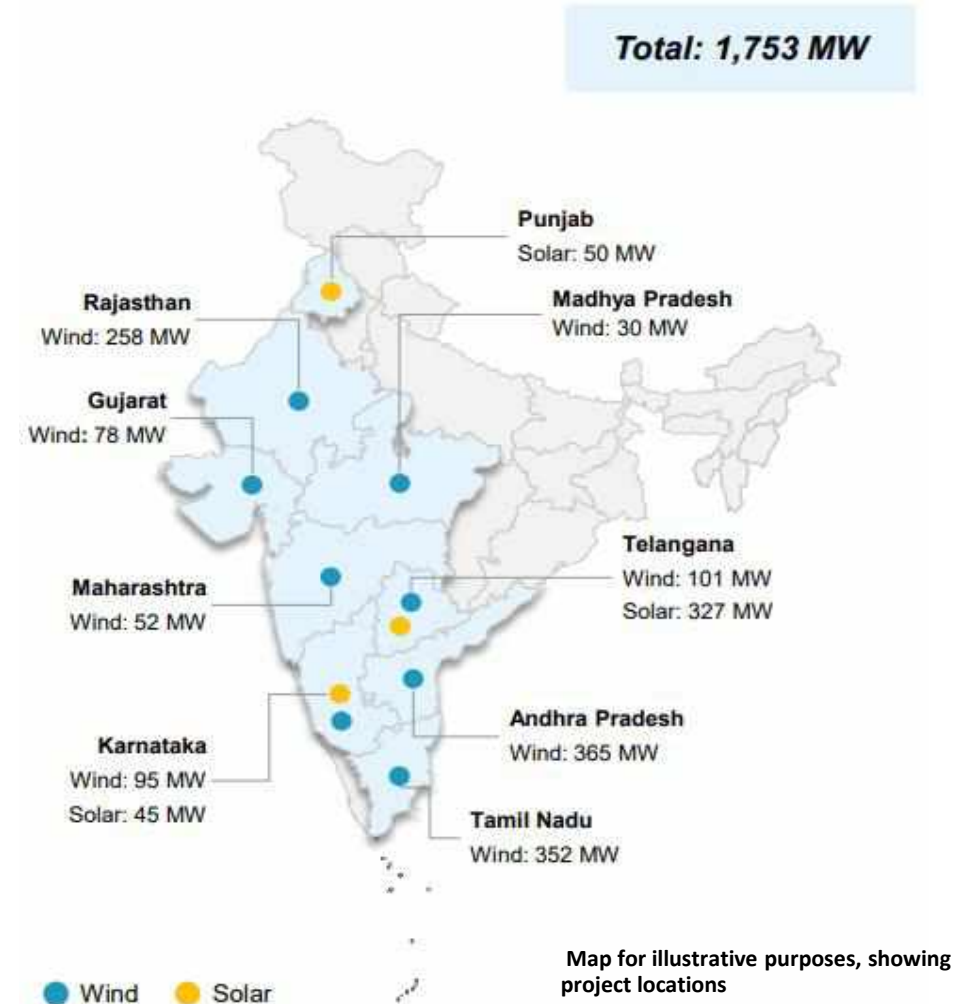
## Value Accretive Deal

- ✓ Acquired portfolio consists of 422 MW solar and 1,331 MW wind
- ✓ The assets were acquired at an EV of approximately ₹ 10,530 Cr after adjusting for net current assets implying a EV/EBITDA multiple of 6.4x on a normalized EBITDA of ₹ 1,650 Cr

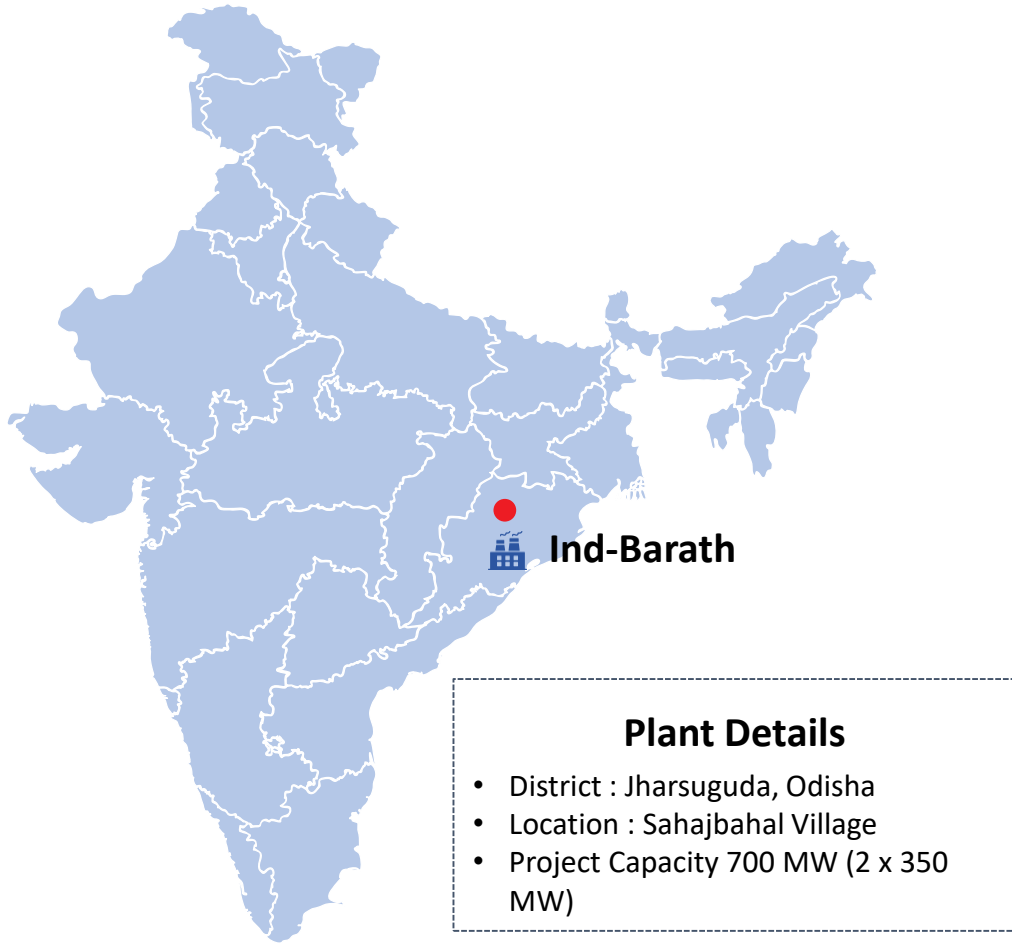
## Progress Update on Acquisition

- ✓ Received CCI approval for acquisition
- ✓ Progressing towards completion of other conditions precedent and expect consummation of the deal in Q3FY23.

## Mytrah RE Assets: Geographically diverse



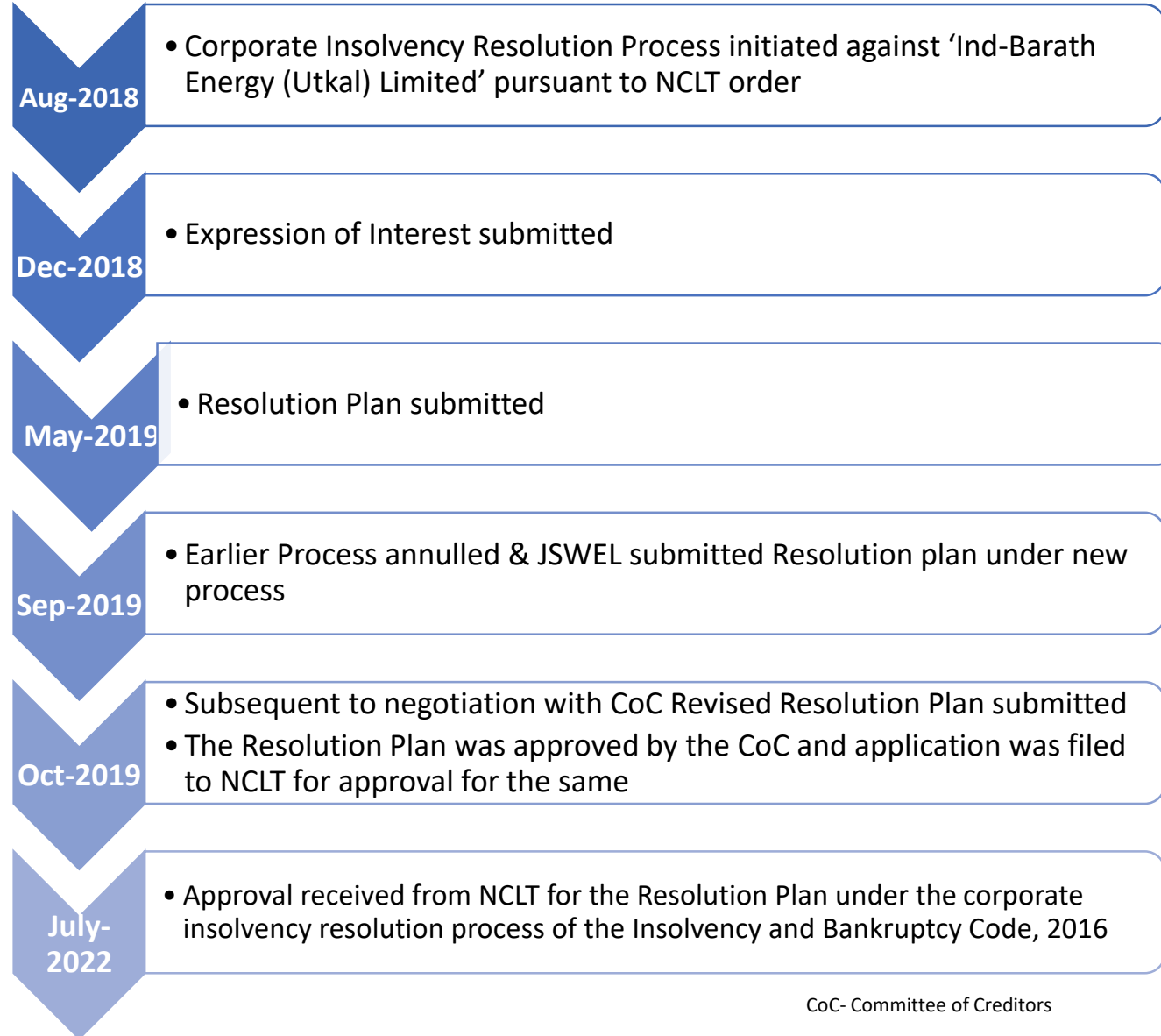
# Under Acquisition 2.5 GW - Ind-Barath



**Plant Details**

- District : Jharsuguda, Odisha
- Location : Sahajbahal Village
- Project Capacity 700 MW (2 x 350 MW)

Map for illustrative purposes, showing project locations

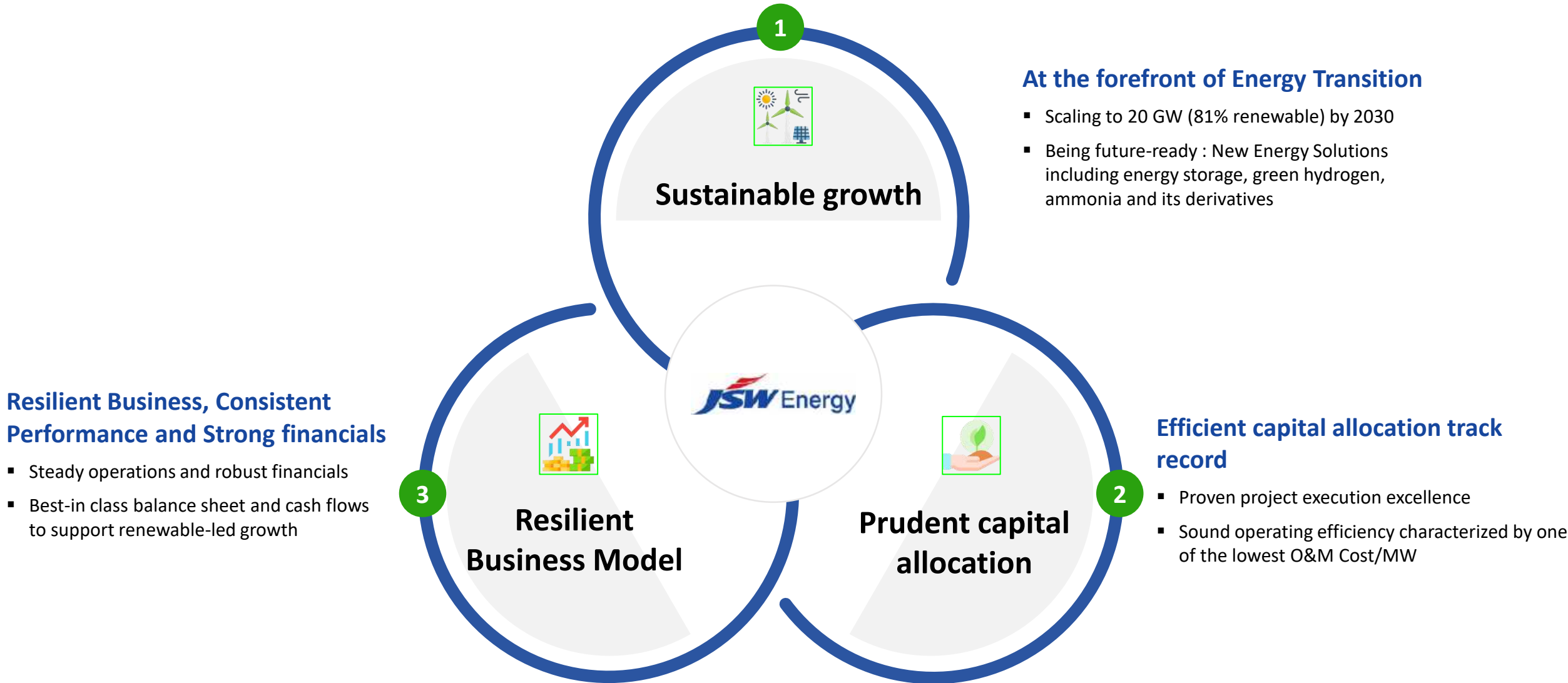


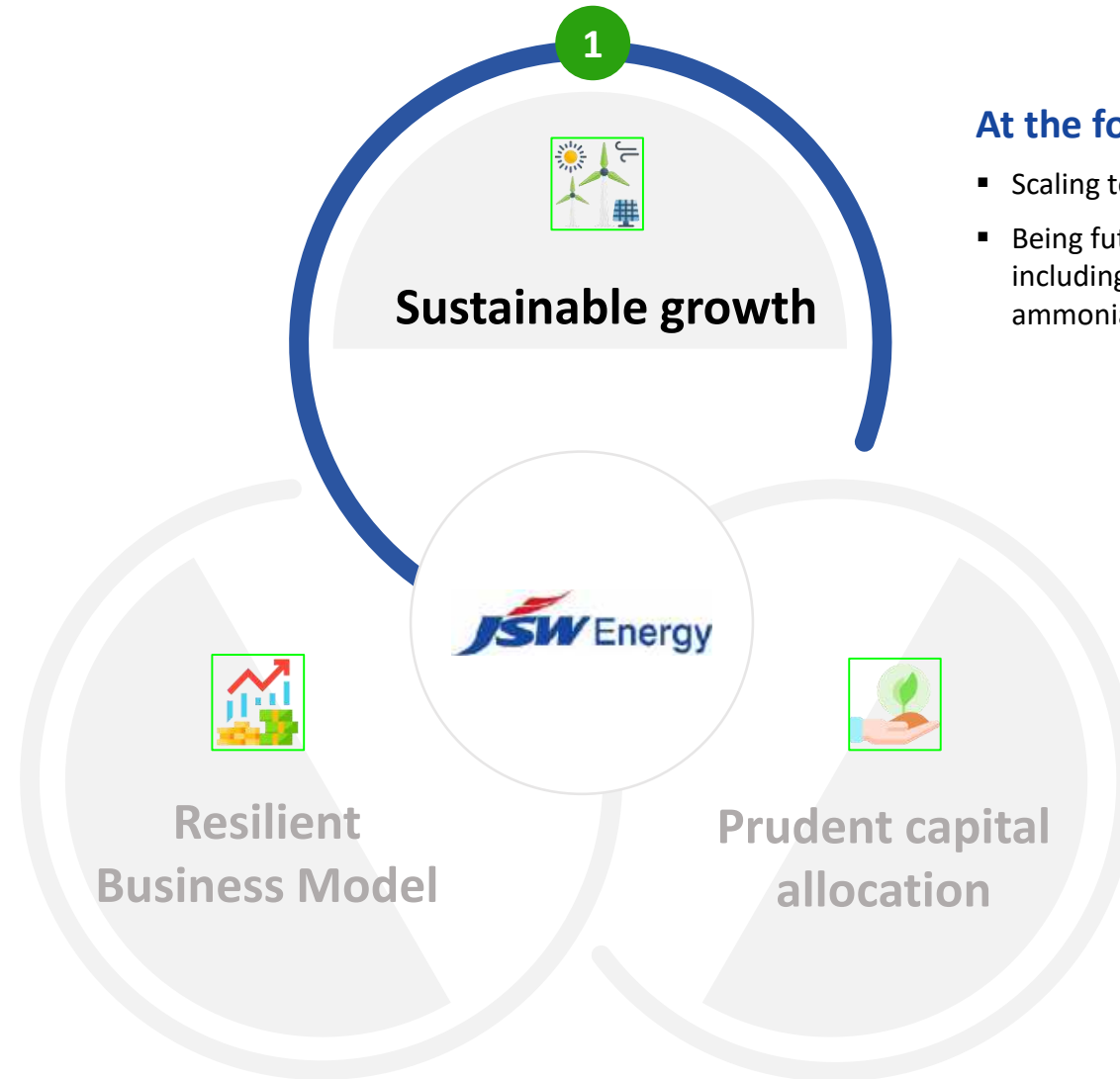
CoC- Committee of Creditors

# Why JSW Energy ?

An aerial photograph of a large dam and reservoir. The dam is a long, concrete structure with several spillways. The reservoir is a large body of water, appearing greenish-brown. The surrounding area is hilly and forested. A prominent blue diagonal line runs across the image from the bottom left towards the top right.

Committed to reaching  
Net Zero emissions by 2050





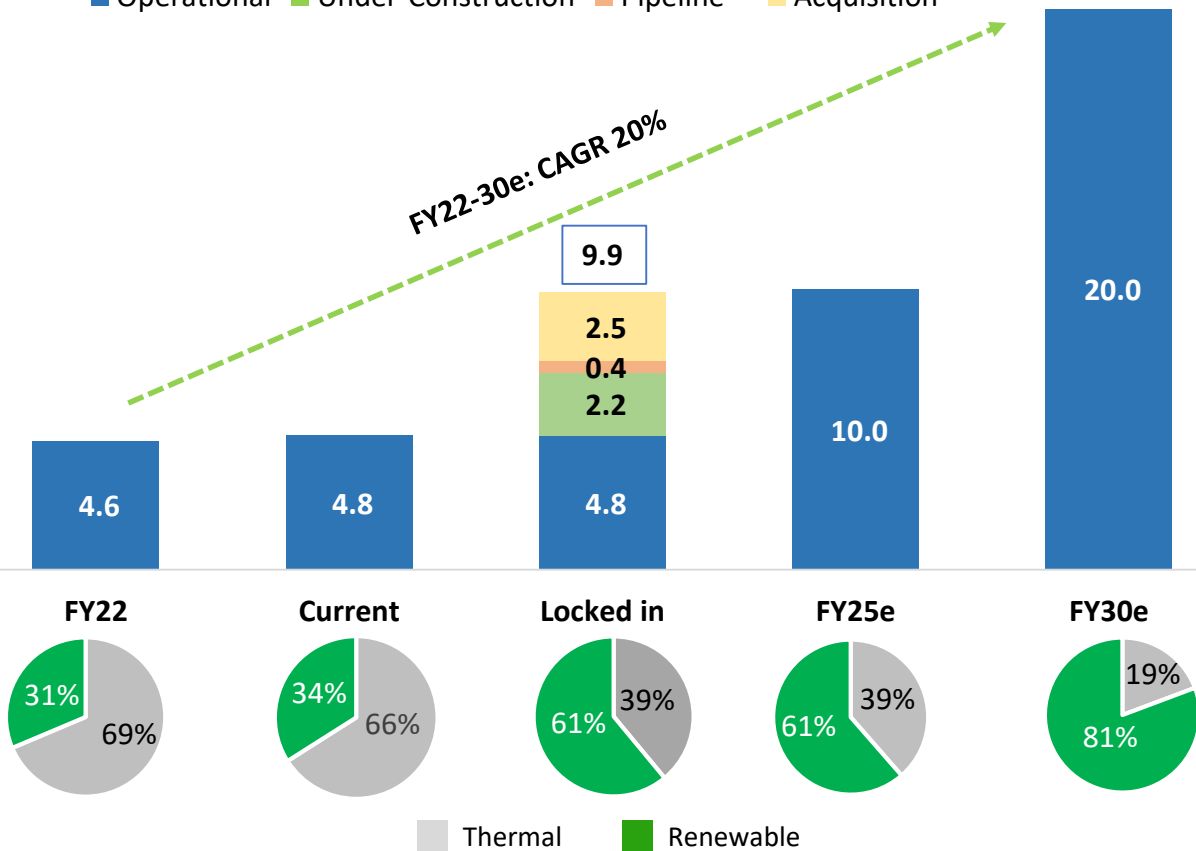
## At the forefront of Energy Transition

- Scaling to 20 GW (81% renewable) by 2030
- Being future-ready : New Energy Solutions including energy storage, green hydrogen, ammonia and its derivatives

# Twin Engines of Growth for significant value creation

## Scaling towards 20 GW installed capacity by 2030

■ Operational ■ Under-Construction ■ Pipeline \* ■ Acquisition\*\*



- Mytrah RE Assets: CCI Approval received for acquisition

## Transitioning towards Energy Products and Services



### Energy Storage



#### Hydro Pumped Storage (PSP) - Targeting 10 GW

- Resources tied-up for ~6 GW PSP with various states



#### Battery Energy Storage System (BESS)

- Participated in SECI bid for the largest utility scale pilot BESS project (500MW/1000MWh)



### Green Hydrogen /Ammonia

- Intend to foray into production of Green Hydrogen and its derivatives

- ✓ No equity dilution envisaged for growth
- ✓ Diverse Sources of Capacity addition: Solar and Wind bids, RTC power bids, Storage bids, C&I customers, RE Power for Green Hydrogen

**Current locked-in capacity of 9.9 GW ; Comprising of 61% Renewable capacity**

**Net-zero by 2050**

## India's Market Potential



### Only 3.3 GWh operational out of 97 GWh potential

- Hydro Power Obligations to bolster development of PSPs
- Waiver of ISTS charges also allowed for Hydro PSP



### Supporting 50% energy requirement from renewable sources by 2030

Hydro PSP to provide adequate peaking reserves, reliable grid operation and integration of variable renewable energy sources

#### Key Highlights:

- Long Project Life
- Low construction cost and better PLF vis-à-vis conventional hydro projects
- Supports Grid Stability
- High tariffs with attractive returns

## JSW's Plans

### ✓ In Advanced Stages for 6 GW PSP

- Signed **MoUs** with Govt. of Maharashtra for 2.5 GW, Govt. of Telangana for 1.5 GW, Govt. of Chhattisgarh for 1 GW for Hydro Pumped Storage Projects and a **Letter of Intent** with Govt. of Rajasthan for 1 GW Hydro Pumped Storage projects
- Applied for Environmental clearance
- Techno economical feasibility studies are being done

✓ Benefit of JSW's proven experience with managing the largest hydro portfolio in the private sector

✓ PSPs integrated with RE power can provide firm despatchable RE power

#### Expected Timeline:

- Project Clearances : 3 Years (in progress since FY21)
- Project Construction: 3 Years (expected from early FY24)

First project will be a captive PSP at Vijayanagar, construction expected to commence in next calendar year

## India's Market Potential



### 52GW/258GWh<sup>1</sup> installed capacity by 2032

- Facilitate RE capacity integration by addressing intermittency
- Balancing grid against load fluctuations
- Better utilization of transmission infrastructure



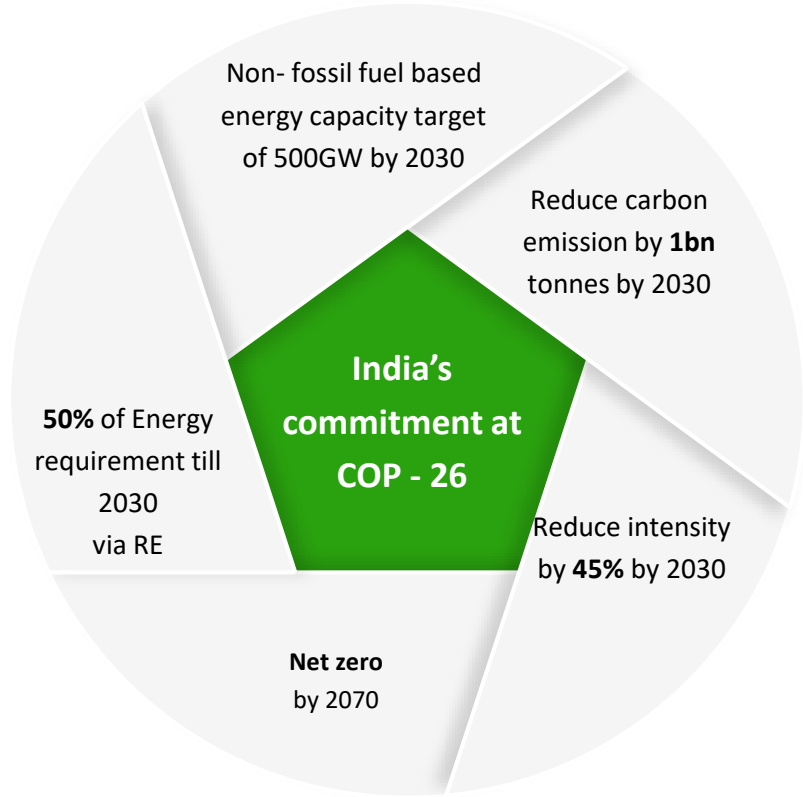
### Supporting India's Clean Energy commitments

- Waiver of ISTS charges allowed for BESS
- Integral to RTC power infrastructure for clean energy

## JSW's Plans

- ✓ Participated in SECI bid for the largest utility scale pilot BESS project (500MW/1000MWh)
  - Winning bidder; Letter of Intent yet to be received
  - Pilot project is Build Own Operate Transfer (BOOT) with tenure of 12 years
  - Battery Storage Purchase Agreement for 60% of the capacity with SECI and balance is open for sale
  - Identified site is at Fatehgarh, Rajasthan
  - Participate in ancillary market with the open capacity

# Being Future Ready : Green Hydrogen Potential



## Advantage India

### Significant Hydrogen demand

Current demand ~6 MMT expected to grow to ~24 MMT by 2050

### Huge RE potential

Existing RE capacity of ~165 GW (incl. Hydro)  
Target – 50% of energy requirement from RE by 2030

### Low Tariffs

RE tariffs in India (INR ~ 2-2.5)

### India's Import Bill

India is 3<sup>rd</sup> largest consumer of oil & gas, imports ~85% of oil and ~50% of Gas

### Clean energy Commitment

GH adoption contributes to emission reduction & meet energy demand

### Infrastructure build

Large part of India's infrastructure needs to be built out, allows better integration

**Grey Hydrogen:** Currently, more than 95% of hydrogen is produced from fossil fuels via carbon intensive processes.

**Blue Hydrogen:** Grey hydrogen whose CO<sub>2</sub> emitted during production is sequestered via carbon capture and storage (CCS)

**Green Hydrogen:** Low or zero-emission hydrogen produced using clean energy sources

### Main production route

Steam Methane Reforming (SMR)

Coal Gasification

### Characteristics



Intense CO<sub>2</sub>



Low Cost

### Main production route

SMR + CCS

Coal Gasification + CCS

### Characteristics



Low CO<sub>2</sub>



High Cost

### Main production route

Electrolysis using renewables

### Characteristics



Zero CO<sub>2</sub>



High Cost

## India's Market Potential

# H<sub>2</sub>

### Significant H<sub>2</sub> demand

- India - 2<sup>nd</sup> largest hydrogen demand base in the world
- H<sub>2</sub> demand expected to grow to ~24 MMT by 2050; can spur USD 65-70 Bn investments in incremental RE capacity



### National Hydrogen Mission

- Announced in the Union Budget 2021 for making a hydrogen roadmap for the country
- Government announced Green hydrogen obligation for Fertilizers and Refinery sector



### India's Clean Energy commitments

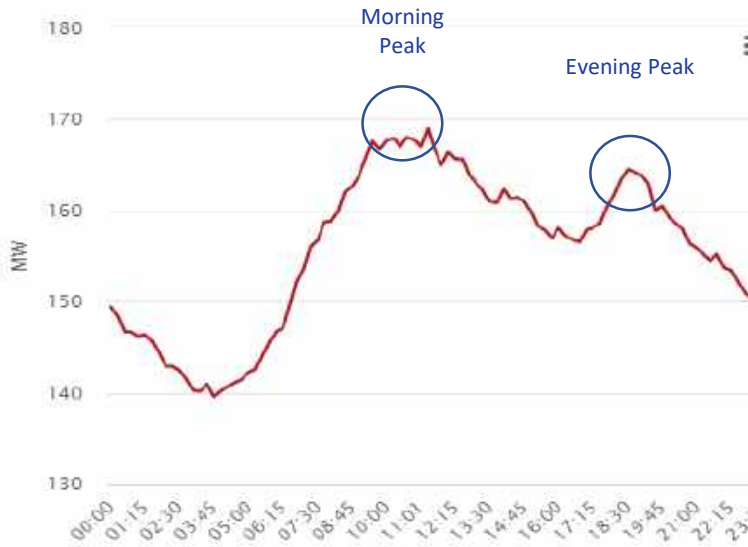
- Green H<sub>2</sub> adoption can contribute to emission reduction in allied sectors
- India has low RE tariff's: Electricity is ~80% of Cost of Green H<sub>2</sub>

## JSW's Plans

- ✓ To tap significant clean energy market opportunity in India and become a front-runner in a future hydrogen economy
- ✓ Utilisation potential across:
  - green steel making
  - green ammonia
  - chemical derivatives
  - hydrogen mobility
  - other industrial applications

# Being Future Ready : Energy Products & Services - Value Unlocking

All India Peak Demand Pattern (2021)<sup>1</sup>



- All India power demand shows a peaking upward trend during morning & evening hours
- Demand of **16-20 GW** during these peaks vs a base demand of ~150 GW
- **Generation resources needed to effectively meet** base load and **varying incremental load** during multiple daily duration period(s)

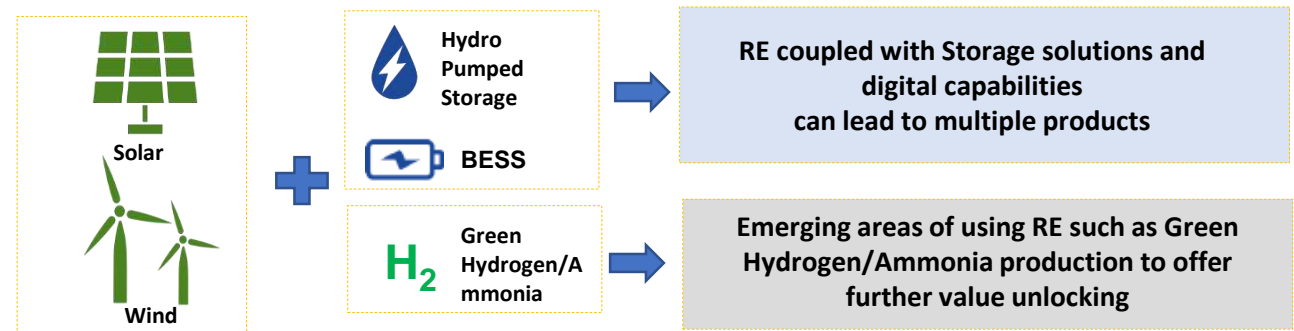
Varying power demand requirements and rise of utility scale renewable projects is leading to innovative approaches that encourage pairing solar/wind with storage technologies to offer “round the clock” (RTC) and on-demand power supply

## 1. Discoms:

- To incrementally secure energy from renewable energy + energy storage sources to meet peak and off-peak power demand for RTC requirements
- Evolution of Renewable tenders from plain vanilla solar/wind to Hybrid & RTC tenders

## 2. Commercial & Industrial (C&I) Users:

- Innovative PPAs & tariffs with C&I customers (such as Metro, Large Offices) to meet varying power demand requirements





## Efficient capital allocation track record

- Proven project execution excellence
- Sound operating efficiency characterized by one of the lowest O&M Cost/MW

# Proven project execution and operational excellence...

Prudent and consistent capital allocation strategy for growth over a 25 year history

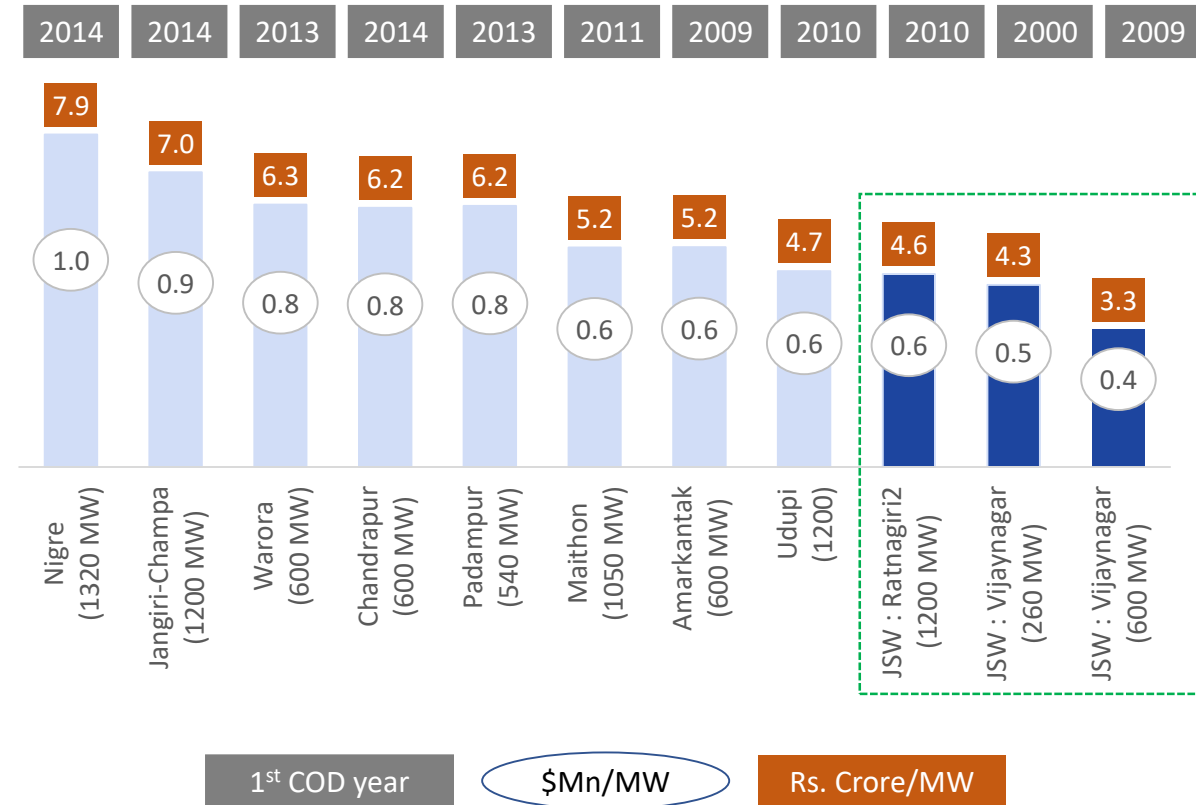
Business model resilient despite several sectoral headwinds over the last decade

Sound operating efficiency characterized by one of the lowest O&M Cost/MW

O&M Expenses (Rs Mn/MW)



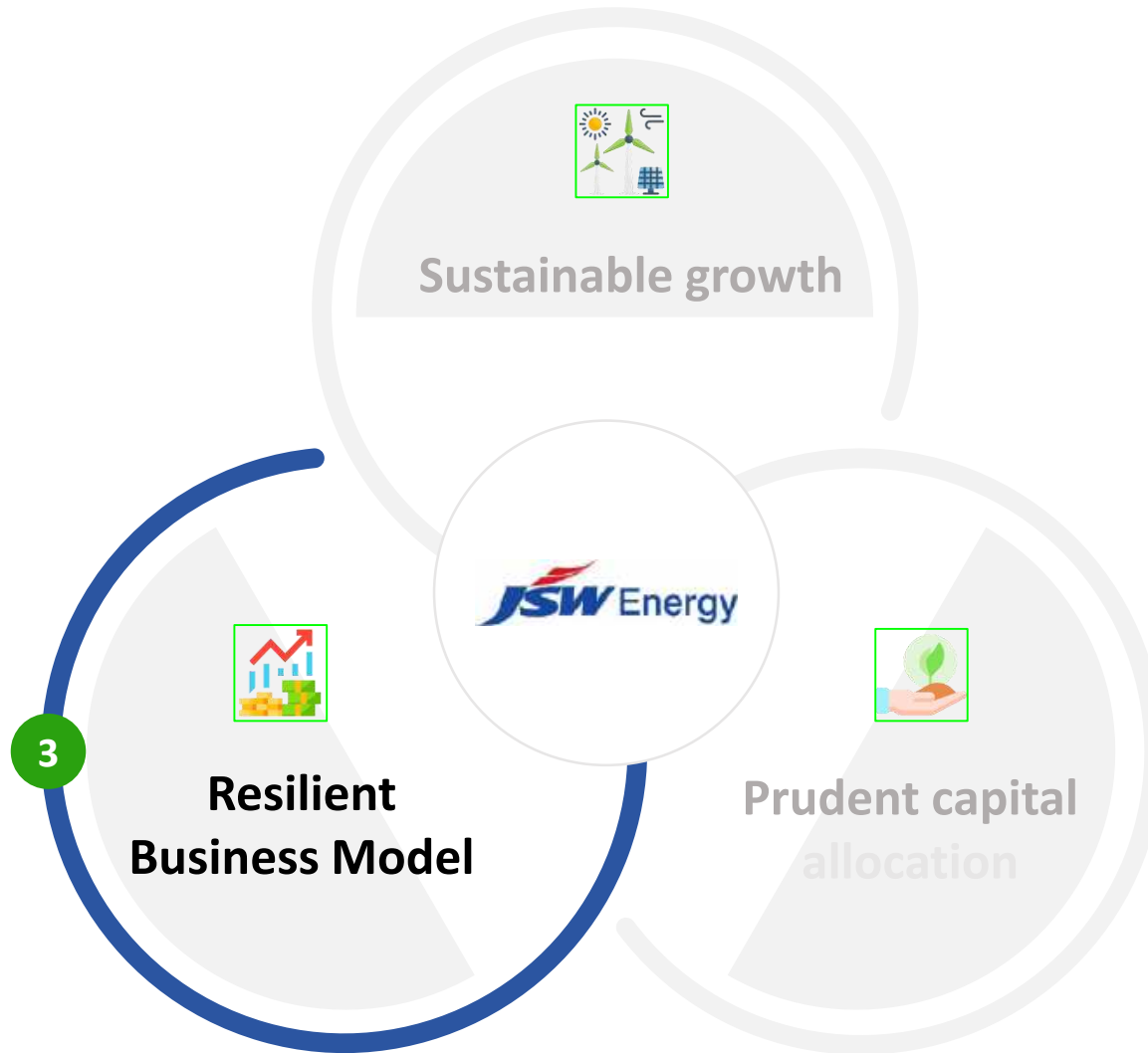
## One of the lowest project execution cost in the industry



# Compelling Investment Story

## Resilient Business, Consistent Performance and Strong financials

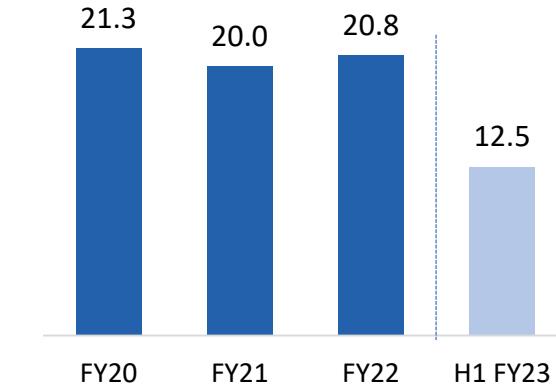
- Steady operations and robust financials
- Best-in class balance sheet and cash flows to support renewable-led growth



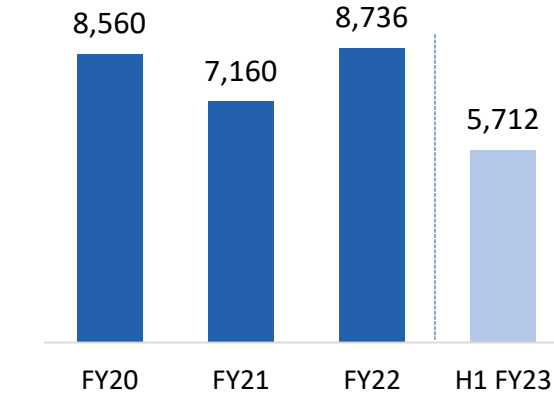
# Steady Operations and Robust Financials

## Consistent Asset Performance

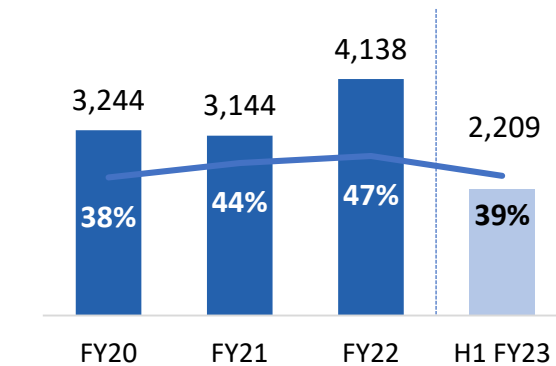
### Net Generation (BUs)



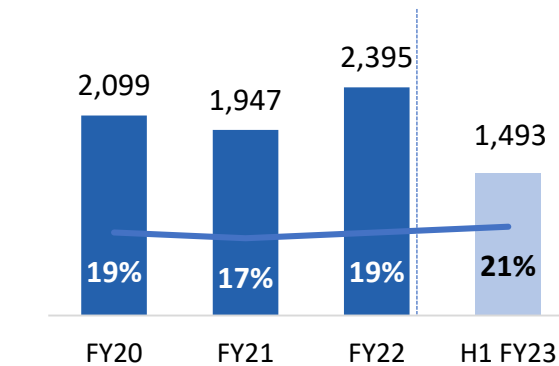
### Total Income<sup>3</sup> (₹ Crore)



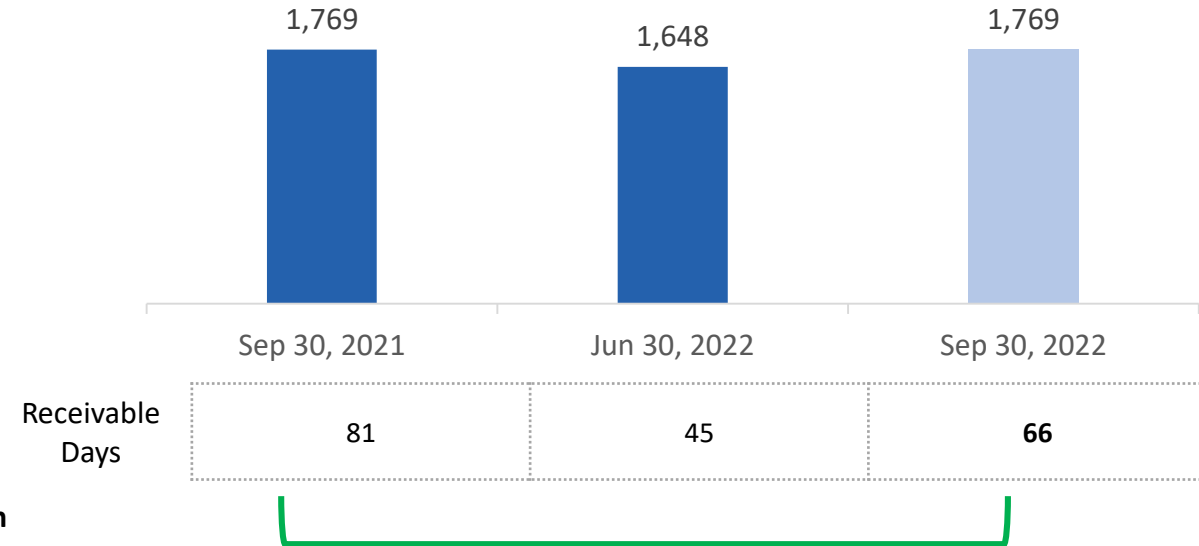
### EBITDA & EBITDA Margin (₹ Crore)



### Cash PAT<sup>2</sup> (₹ Crore) and Return on Adj.Net Worth



## Low Trade Receivables



- ✓ All plants placed favourably in States' Merit Order Dispatch
  - Further, Hydro plants under 'Must-run status' with no scheduling risk
- ✓ No history of any bad debts from routine long term trade receivables
- ✓ Payment security mechanism in force for power tied under long term PPA with discoms
- ✓ Recovery of late payment surcharge in case of delayed payments from discoms

# Best-in class balance sheet & cash flows to support renewable-led growth

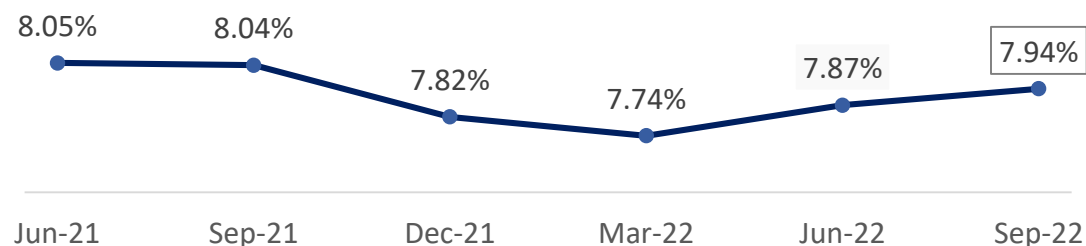
## Large balance sheet headroom to pursue growth opportunities

### Strong credit metrics :

Figures in ₹ Crore	As on Sep 30, 2022
Networth	17,593
Net Debt	7,874
Net Debt/EBITDA	1.77
Net Debt/Equity	0.45
Wtd. Average Cost of Debt	7.94%

- **Healthy Credit Ratings and access to diverse pools of liquidity**
  - ✓ India Rating & Research: AA (Stable outlook)

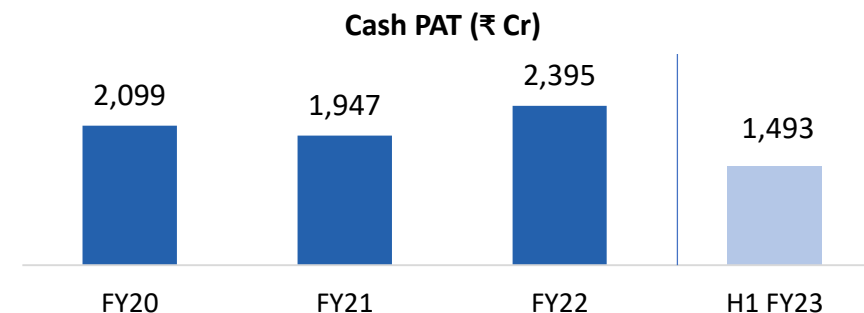
## Wt. Average Cost of Debt



## Healthy internal accruals to support growth

### Operational Portfolio (4.8 GW):

- **Steady operations and robust financial:** Track record of strong yearly cash profits of ~₹2,300 Crores<sup>1</sup>



- **Generating healthy CF & mid-teen equity returns**
- 85% of portfolio tied-up under Long Term PPA
  - ✓ Remaining Avg. Life of PPA: ~20 years
  - ✓ Remaining Avg. Life of Assets: ~30 years
- **Strong Liquidity with healthy cash balances<sup>2</sup>:** ₹3,327 Crore
- **Financial flexibility** enhanced by equity investments:
  - ✓ JSW Steel shares: 7 crore shares held (Value as on Sep 30, 2022: ~ ₹4,424 Crore)

1. Applying the average return of 18% on current adjusted net worth 2. Includes unencumbered bank balances, FDs, and liquid mutual funds

# Risk Mitigation










# Adequately addressing key risks and concerns (1/2)

Key Risks/Concerns	Favourable Policy Support and Market Interventions	Mitigation Strategy by JSW Energy
<b>Demand risk (Clearing of PPA Backlogs)</b>	<ul style="list-style-type: none"> <li>▪ Well established central agencies (SECI, NTPC) for managing PPAs</li> <li>▪ Discoms/offtakers entering into new renewable long-term PPAs at commercially attractive tariff given pick-up in economic activity resulting in strong spot electricity prices</li> <li>▪ Renewable Power Obligation for RE and Hydro Projects, energy storage obligations also introduced thereby promoting energy storage projects</li> </ul>	<ul style="list-style-type: none"> <li>▪ Existing portfolio: 85 % PPA signed which forms about 95% of EBITDA</li> <li>▪ U/C portfolio: All renewable projects PPA signed</li> <li>▪ Mix of Discoms and C&amp;I customer base</li> <li>▪ Targeting new areas of demand through Green Hydrogen and Energy storage</li> </ul>
<b>Receivable risk</b>	<ul style="list-style-type: none"> <li>▪ Payment security through mandatory provision of LCs before power off-take</li> <li>▪ Late payment surcharge fees are charged for delays US\$41bn reforms based, results linked scheme for Discoms</li> <li>▪ Defined framework for recovery of costs due to 'Change in Law'</li> </ul>	<ul style="list-style-type: none"> <li>▪ All plants placed favorably in States' Merit Order Dispatch</li> <li>▪ Portfolio diversified across multiple off-takers</li> <li>▪ No history of any bad debts from routine LT trade receivables</li> <li>▪ Recovery of late payment surcharge in case of delayed payments from discoms</li> </ul>
<b>Domestic industry for capacity addition</b>	<ul style="list-style-type: none"> <li>▪ ~\$600mm production linked incentive scheme for high efficiency PV modules</li> <li>▪ ~\$2,400mm scheme for ACC batteries</li> </ul>	<ul style="list-style-type: none"> <li>▪ Technology agnostic approach</li> <li>▪ To benefit from domestic capacity addition</li> </ul>

# Adequately addressing key risks and concerns (2/2)

Key Risks/Concerns	Favourable Policy Support and Market Interventions	Mitigation Strategy by JSW Energy
<b>Offtake Risk (revenue/volume)</b>	<ul style="list-style-type: none"> <li>Must-run status for renewable; Rule notified to provide regulatory support towards 'Must-run' status - Electricity (Promotion of generation from renewable sources of energy by addressing Must Run and other matters) Rules, 2021</li> </ul>	<ul style="list-style-type: none"> <li>Hydro plants under 'Must-run status' with no scheduling risk</li> <li>~98% of LTPPA under two-part tariff; Plant Availability maintained above normative across locations to recover fixed charge; fluctuations in fuel cost and forex are completely pass through</li> </ul>
<b>Soundness of Auction framework</b>	<ul style="list-style-type: none"> <li>Efficient and Transparent competitive bidding process</li> <li>Innovative models emerging: Hybrid solar, Renewable-plus-storage , Round-the-clock (RTC) renewable power</li> </ul>	<ul style="list-style-type: none"> <li>Highest ever single bid capacity secured under any of the Indian renewable auction – 810 MW blended wind capacity awarded under SECI IX</li> <li>Participating in RTC bids</li> </ul>
<b>Grid Infrastructure capability</b>	<ul style="list-style-type: none"> <li>Development of dedicated Green Energy Corridors for evacuating RE capacity</li> </ul>	<ul style="list-style-type: none"> <li>Pump Storage and battery storage solutions offer opportunity to address grid balancing issues</li> </ul>

# JSW Energy : Key Highlights

 <b>Proven Execution Excellence</b>	<ul style="list-style-type: none"><li>✓ Superior project execution skills: Projects set-up in lowest cost &amp; time</li><li>✓ Differentiated business strategy for growth to 20 GW, driven by Renewable</li><li>✓ Foraying in New Energy Platforms: Green Hydrogen, Energy Storage, Energy Products &amp; Services</li></ul>
 <b>Focus on Sustainability</b>	<ul style="list-style-type: none"><li>✓ Strong Focus on ESG – Leadership band with ‘A-’ score in the 2021 CDP Climate Change assessment</li><li>✓ Amongst the Highest rated power generation company in India by various independent ESG rating agencies</li><li>✓ To be Carbon Neutral by 2050; Committed to set science based emission reduction targets (SBTi)</li></ul>
 <b>Efficient O&amp;M</b>	<ul style="list-style-type: none"><li>✓ Sound operating efficiency characterized by one of the lowest O&amp;M costs in the sector</li><li>✓ Global best practices &amp; recognition in Safety: Barmer and Ratnagiri Plants awarded ‘SWORD OF HONOUR’ by British Safety Council</li></ul>
 <b>Steady EBITDA and Cash accruals</b>	<ul style="list-style-type: none"><li>✓ 85% of total portfolio tied up with LT PPA providing steady EBITDA and Cashflow generation</li><li>✓ Two-part tariff structure mitigating fuel and forex risk</li></ul>
 <b>Healthy Receivables</b>	<ul style="list-style-type: none"><li>✓ Receivables days at low levels in DSO terms.</li><li>✓ Favorable placement in Merit Order Despatch &amp; diversified off-takers mitigate Receivable risk</li></ul>
 <b>Strong Balance Sheet</b>	<ul style="list-style-type: none"><li>✓ Amongst the Strongest Balance Sheet in the sector: 1.77x Net Debt/EBITDA; 0.45x Net Debt/Equity</li><li>✓ Healthy debt metrics to be maintained while pursuing value accretive growth</li><li>✓ A healthy cash balance of ₹3,327 Cr and financial flexibility with JSW Steel equity shareholding</li></ul>
 <b>Low Cost of Funding</b>	<ul style="list-style-type: none"><li>✓ Proactive Debt Management: Weighted average cost of debt at 7.94%</li><li>✓ Raised a US\$ 707 million green bond to refinance debt for hydro entity in May’21</li></ul>



Investor Relations Contact:

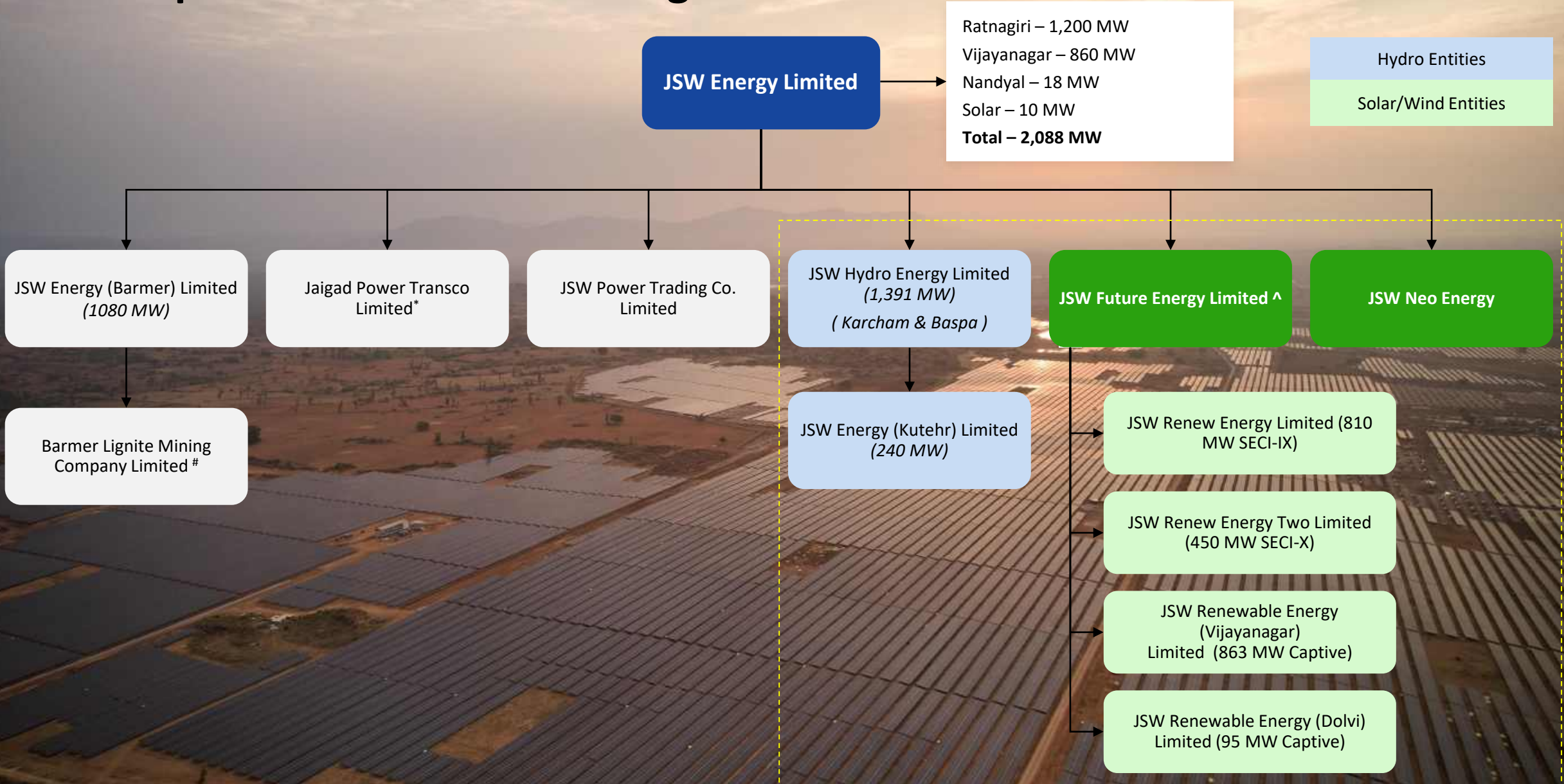
[ir.jswenergy@jsw.in](mailto:ir.jswenergy@jsw.in)

ESG Data Profile: [Link](#)

# Annexures



# Broad Corporate Structure : Existing



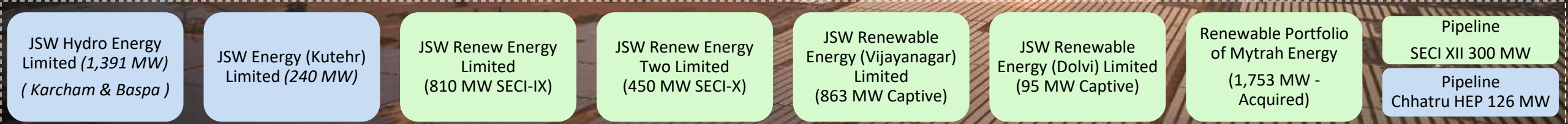
All subsidiaries shown are WOS except the following - \* JPTL is a 74:26 JV between JSWEL and Maharashtra State Electricity Transmission Company Limited (MSETCL) # BLMCL is a 51:49 JV between Rajasthan State Mines and Minerals Limited (RSMML) and JSWE(B)L ^ JSW Future Energy Limited will be merged with JSW Neo Energy Limited under the scheme of Amalgamation wherein all the assets and liabilities of JSW Future Energy Limited will be transferred to JSW Neo Energy Limited. Approved by NCLT subject to certain customary approvals.

# JSW Neo Energy – Green Energy Vehicle of JSW Energy (Post-Restructuring)

JSW Energy Limited

JSW Neo Energy \*  
6,028 MW

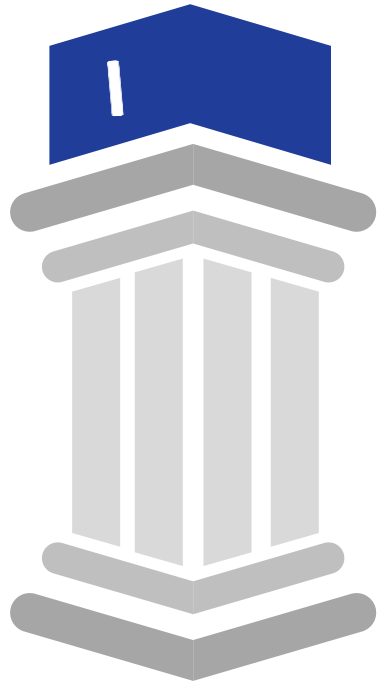
Hydro Entities  
Solar/Wind Entities



**6.0 GW** Diversified Asset Portfolio (100% Renewable)
   
 = **1.6 GW** Installed Capacity Renewable – 1,616 MW
   
 + **1.8 GW** Under Acquisition Renewable Portfolio of Mytrah Energy (1,753 MW)
   
 + **2.7 GW** Under-Construction Entirely renewable - 2,233 MW Pipeline Entirely renewable - 426 MW

\* Corporate structure post Acquisition and restructuring. All subsidiaries shown are wholly owned subsidiaries

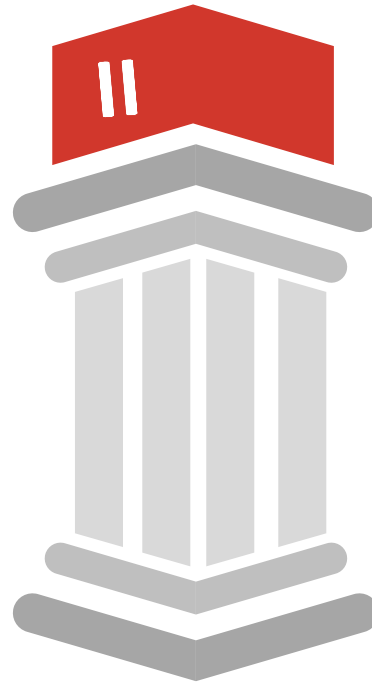
## Value Accretive Business Model



### Prudent selection of growth opportunities

- Bidding based on P90 generation assumption
- Conservative Interest rate assumptions
- Targeted selection- Targeting a niche segment of market offering healthy returns – Mid teen IRRs

## Implementation De-risking



### Life cycle approach

- Land acquisition, De- scoped project construction, power evacuation and O&M
- Power evacuation
- Proactive approach to get the PPA/PSA executed and tariff adoption

## Execution Efficiency



### Group's project execution excellence

- Fast execution (in spite of Covid and supply chain issues) while ensuring all safety guidelines

## Conservative assumptions for business model



Prudent selection of growth opportunities to target a niche segment of market offering healthy returns – **Mid teen IRRs**



**High quality offtakers** - Captive PPAs with JSW Group companies (strong credit ratings) at arm's length pricing



Modular nature of commissioning of projects; potential for early onset of revenues and earnings



Bidding with prudent assumptions and approach backed by strong data backup

- ✓ Bidding based on **P90 generation assumption**
- ✓ Reasonable Interest rate assumptions
- ✓ Targeting **mid-teen post-tax equity IRRs**

## Project Construction and Land Acquisition

## Power Evacuation

- De-scoping of EPC packages to have competitive edge
- Synergies with group businesses (steel, cement, paints, etc.) for better material availability
- Systematic approach of deploying in-house experienced land acquisition team in all resource-rich states
- Deployed experienced legal teams for title search and execution of lease deeds; dedicated team for securing Right-of-Way (RoW)

- Strategic selection of ISTS substations for connectivity with high capacity margins to facilitate future expansions
- Identification of land parcel near to substation in order to reduce transmission line cost
- Effective due diligence & route surveys for risk mitigation
- Futuristic planning & designing to optimize use of evacuation infrastructure



- Robust selection process through competitive route; Award of packages to best-in-class / Tier-I vendors only
- Comprehensive Contracts with strong performance & product warranty and performance bank guarantee provisions
- Developing strong relationships with all major OEMs, EPC contractors, BoP contractors

- Dedicated team for quality assurance
- Standard operating procedure for quality checks
- Special checks on quality & type test certifications
- Implementation of TQM, ISO and other relevant standards

- Skilled in-house O&M team
- Continuous implementation of innovative practices to further optimize O&M cost through TQM
- Operating Stations supported by experienced professionals at corporate office in areas such as Policy, Regulatory, Design & Engineering, Finance, Construction & Maintenance and HR

## Long Term PPA ensuring steady cashflow



### Typical timelines for PPA signing & Tariff adoptions

- ✓ PPA signing – 90 days from LoA issuance
- ✓ Tariff Adoption – 120 days from the Effective date of the PPA

### JSW approach:

- ✓ Proactive approach **to get the PPA/PSA executed and tariff adoption** instead of other competitors to get time extension on above reasons.
- ✓ Faster resolution of proposed changes in PPA in consultation with SECI & Discoms
- ✓ Quick submission of requisite information and performance bank guarantees to cut short timelines
- ✓ Continue follow up with SECI, Discoms & Regulators to fast track tariff adoption process



# DNA: Group's project execution excellence

## Achieved best in the industry project commissioning timeline for solar projects

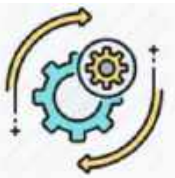


✓ Commenced operations at 225 MW solar power plant at Vijayanagar in Apr'22. The plant is installed on approximately 1000 acres' land.



✓ Construction completed in a record time of less than 12 months despite several headwinds like Covid-19 related disruptions, elevated commodity prices, and global supply chain outages.

✓ Project executed in a safe manner complying to all Environment, Health, and Safety norms of the Group and without any Loss Time Injury.



✓ 25-year PPA under group captive scheme, provides long term and predictable cash flows.

- Achieved commissioning timeline for 225 MW solar project
- **25% faster compared to peers despite Covid related challenges**

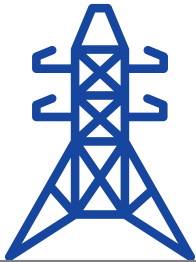
## Kutehr project completion expected well before scheduled timelines



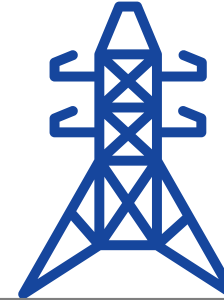
- **84% tunnelling (17.7km) tunnelling work completed at the end of Q2FY23**
- **Expected to be completed by Sept 24 well ahead of scheduled timeline**

# Growth Framework leading to industry-leading returns

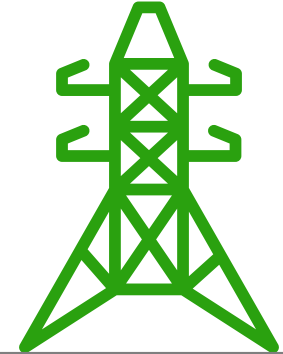
Single digit to lower teen IRR%



Mid-teen IRR %



High-teen Returns Realized



## Equity IRRs

Current market returns due to highly competitive tariffs<sup>1</sup>

## Pre-Bid Preparation

- Bidding with conservative assumptions
- Targeting a niche market segment offering healthy returns
- Pre-bid resources identification to reduce uncertainty on land & connectivity

## Project Execution

- No Turn key EPC contracts: instead creating value with split package approach
- Modular commissioning; Early onset of revenues
- Debt loading coinciding with revenue generation

## JSW Energy Target Returns

Targeting mid-teen post-tax equity IRRs

## Potential Upside Levers Post COD

- Cost reductions due to Self O&M
- Technology Improvement
- Reducing Interest cost via refinancing

## Realized Returns

Enhancement In Returns Realized