

# Delivering Promises Realising True Potential

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Corporate Presentation  
November 2023



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# JSW Group Overview



Amongst India's leading  
Conglomerates with a  
turnover of US\$23 Bn<sup>1</sup>



## JSW Energy

- Power producer with 9.8 GW of generation portfolio,
- Targeting 20GW generation + 40GWh of Storage by FY30
- Market Cap: ~US\$ 7.6 Bn



## Infrastructure

- Second largest port operator in India with 158.4 mtpa capacity
- Operates environmental-friendly seaports & terminals
- Equity listing in Oct 2023, Market Cap: ~US\$ 5.1 Bn



## 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 largest steel producer
- Capacity of 29.7 mtpa, growing to 38.5 mtpa by FY25
- Targeting 50 mtpa capacity by FY31
- Market Cap: ~US\$ 22.2 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 : Transitioning towards green energy

## Mission

Providing Reliable, Affordable and Sustainable power

## Vision

To be a leading integrated power company with presence across value chain

**FY2030** To become a 20 GW company and 40GWh Energy Storage

**FY2050** To become carbon neutral by 2050

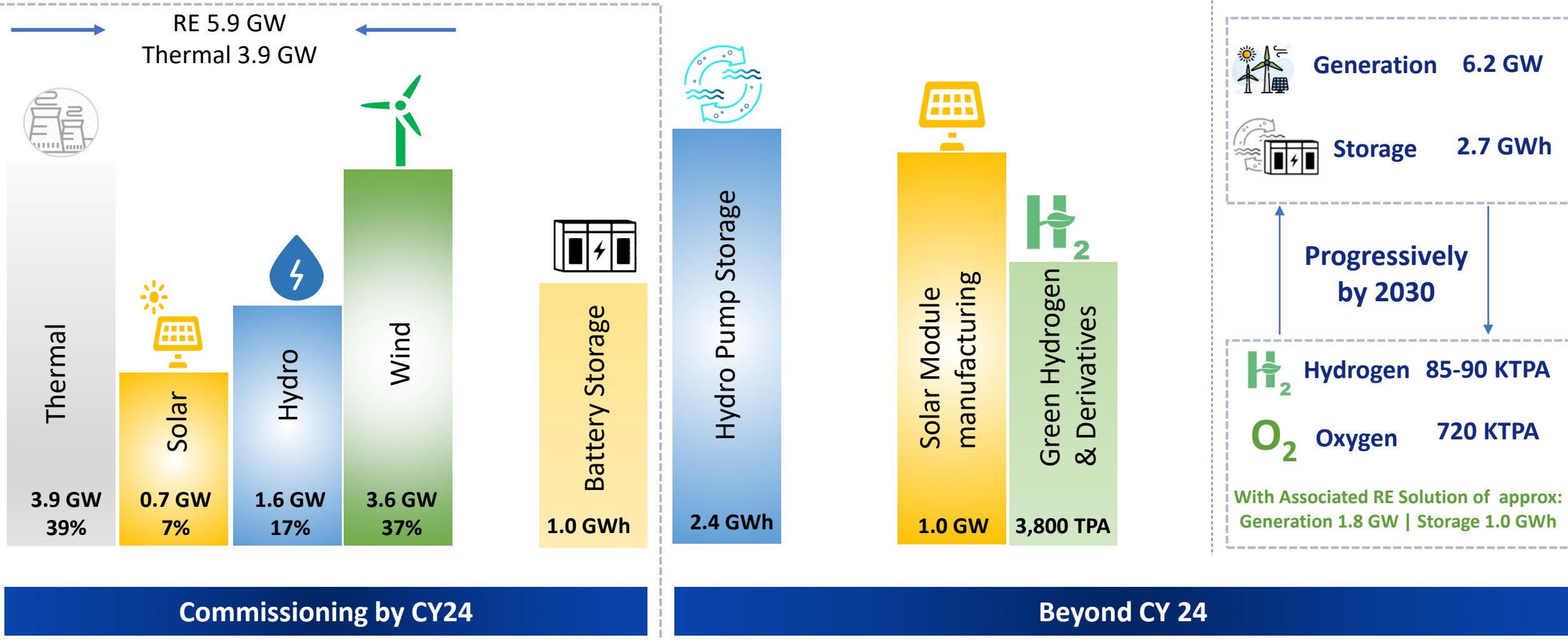
# JSW Energy – Presence across the value chain

**Power Generation**  
9.8 GW

**Energy Storage**  
3.4 GWh of locked-in

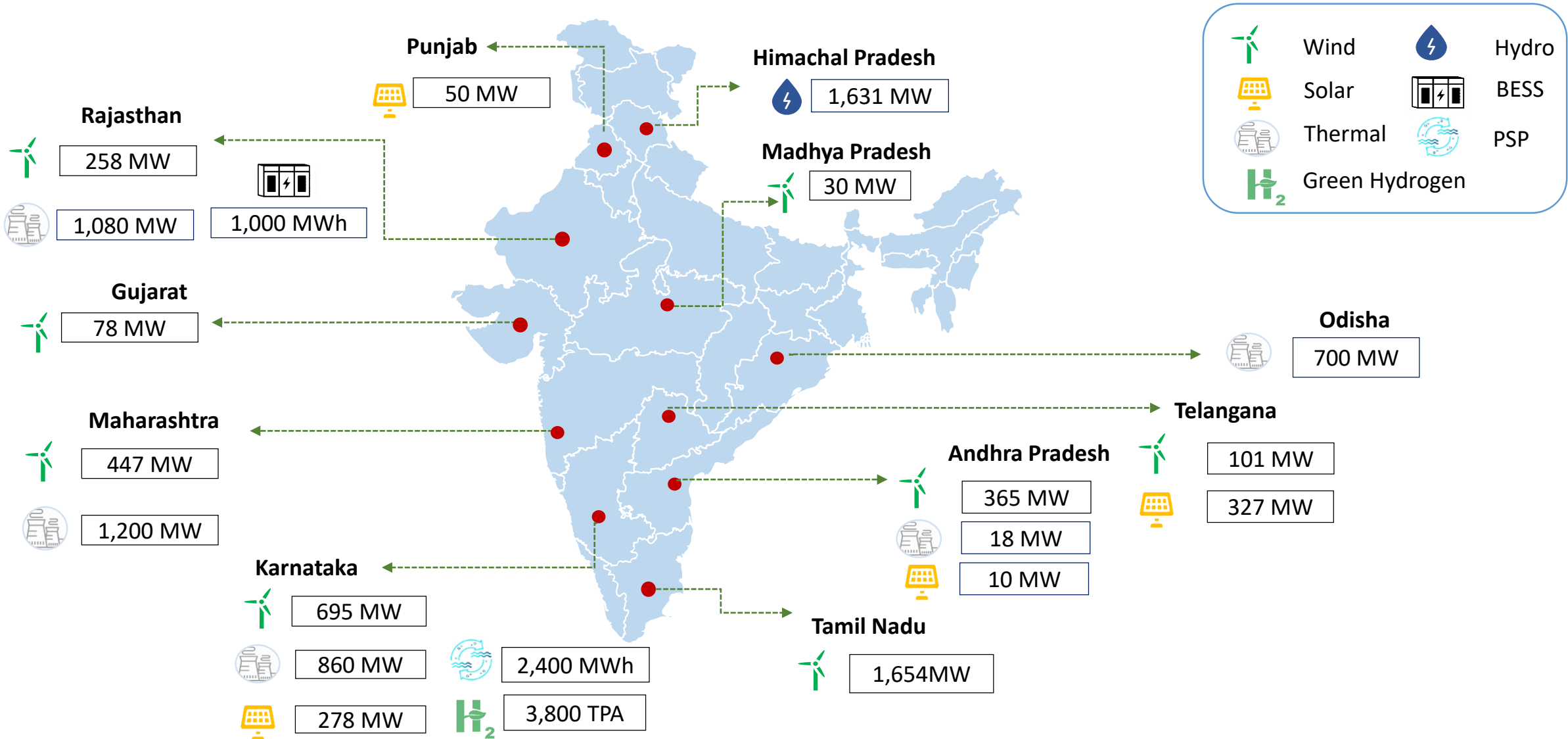
**Energy Products & Services**  
Solar Module & Green H2

**Group Captive**  
Renewables & Green H2



# Developed a Pan India Footprint of Diverse Asset Base

Operational Capacity by CY 24 (9,792 MW)



Presence across 11 states

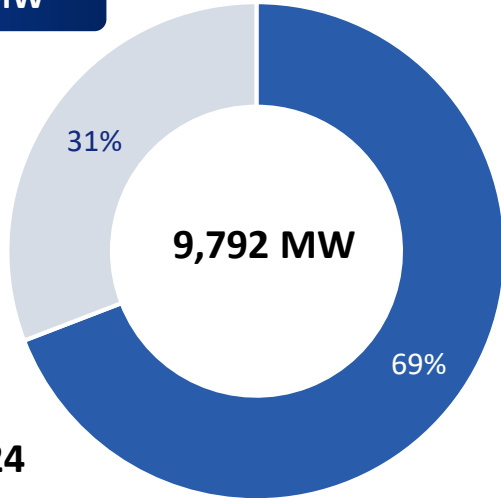
# Well Diversified Portfolio – Focused on Maximising Cash Returns

## Capacity Breakdown

**Generation 9,792 MW**

**Under-construction  
3,021 MW**

Wind 2,081 MW  
Thermal 700 MW  
Hydro 240 MW



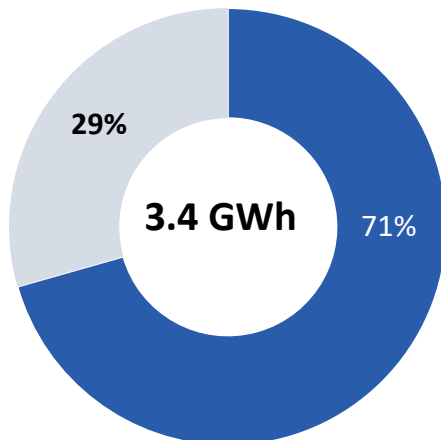
**Installed 6,771 MW**

Thermal 3,158 MW  
Wind 1,547 MW  
Hydro 1,391 MW  
Solar 675 MW

**Commissioned by CY24**

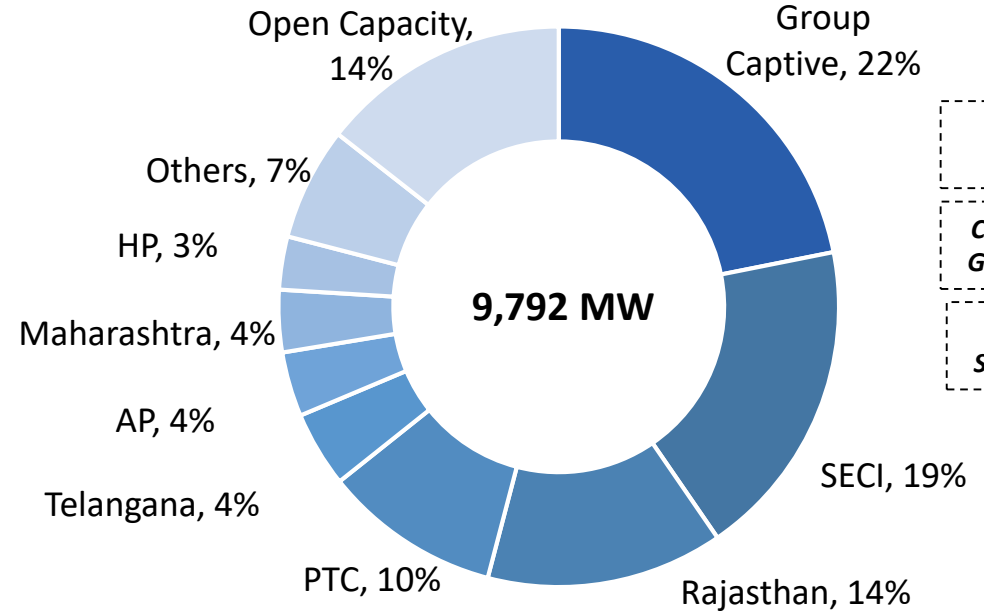
**Storage 3.4 GWh locked in**

**BESS  
1.0 GWh**



**Hydro PSP  
2.4 GWh**

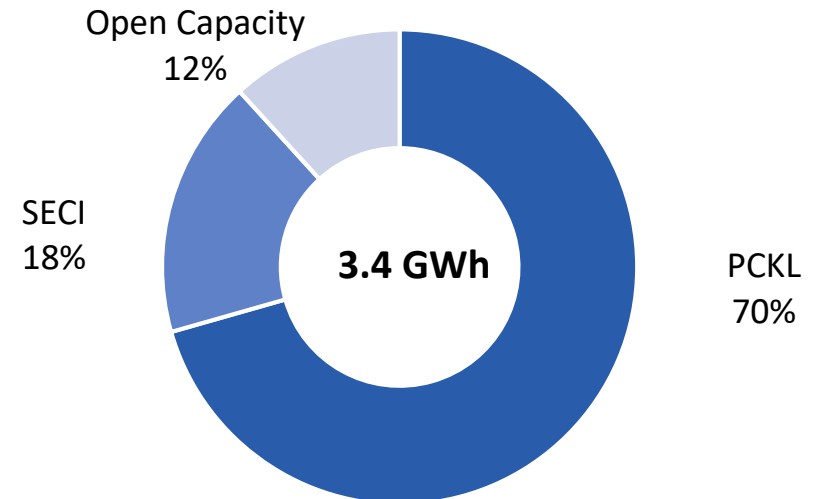
## Diversified Offtakers



*Current open capacity – 11%*

*Current Exposure to Group Captive - 20%*

*Total exposure to State discoms- ~34%*



# Agenda

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**Safety & Sustainability**

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**Healthy Operations and Financials**

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**Why JSW Energy ?**

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**JSW NEO – at a Glance**

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**Appendix**

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# Safety & Sustainability



# Continued Focus on Health & Safety Excellence

All Figures are for Q2 FY24



## Zero severe injuries/fatalities

Lost Time Injury Frequency Rate of zero at all the operational plants



## 84% of contractors covered by JSW CARES audit

20 Contractors (34%) achieve 5 Star rating & 73% contractors achieve 3 Star and above in a stringent Internal Safety Assessment and evaluation.



## 36,100+ Cumulative Safety Observations Resolved in Q2 FY24

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



## GWO (Global Wind Organization) Training for WTG project Teams

- ✓ 58% of Target Employees have completed GWO training
- ✓ 55% of Target Associate employees have completed GWO training
- ✓ All remaining target employees to complete training by December - 2023



## Enhancing Safety for Employees, Contractors & Community

- ✓ High Risks (Number 21 to25) mitigation through BHM tool initiated across all major plants – Barmer, Vijayanagar, Ratnagiri & Hydro Plants. Expected completion progressively by Dec-2023 onwards
- ✓ High Risks numbers 16 to 20 – audit completed. All improvement recommendations being implemented for finalization at respective locations
- ✓ Hydro Sholtu – Safety documentation & systems enhancements underway as part of preparation for BSC 5 STAR Gap Audit Dec-2023



# 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

CDP\* : A- (Leadership Level)

Sustainalytics: 23.9 (Medium Risk)

DJSI Corporate Sustainability Assessment: 70

FTSE4Good Index constituent

## Carbon Neutrality by 2050

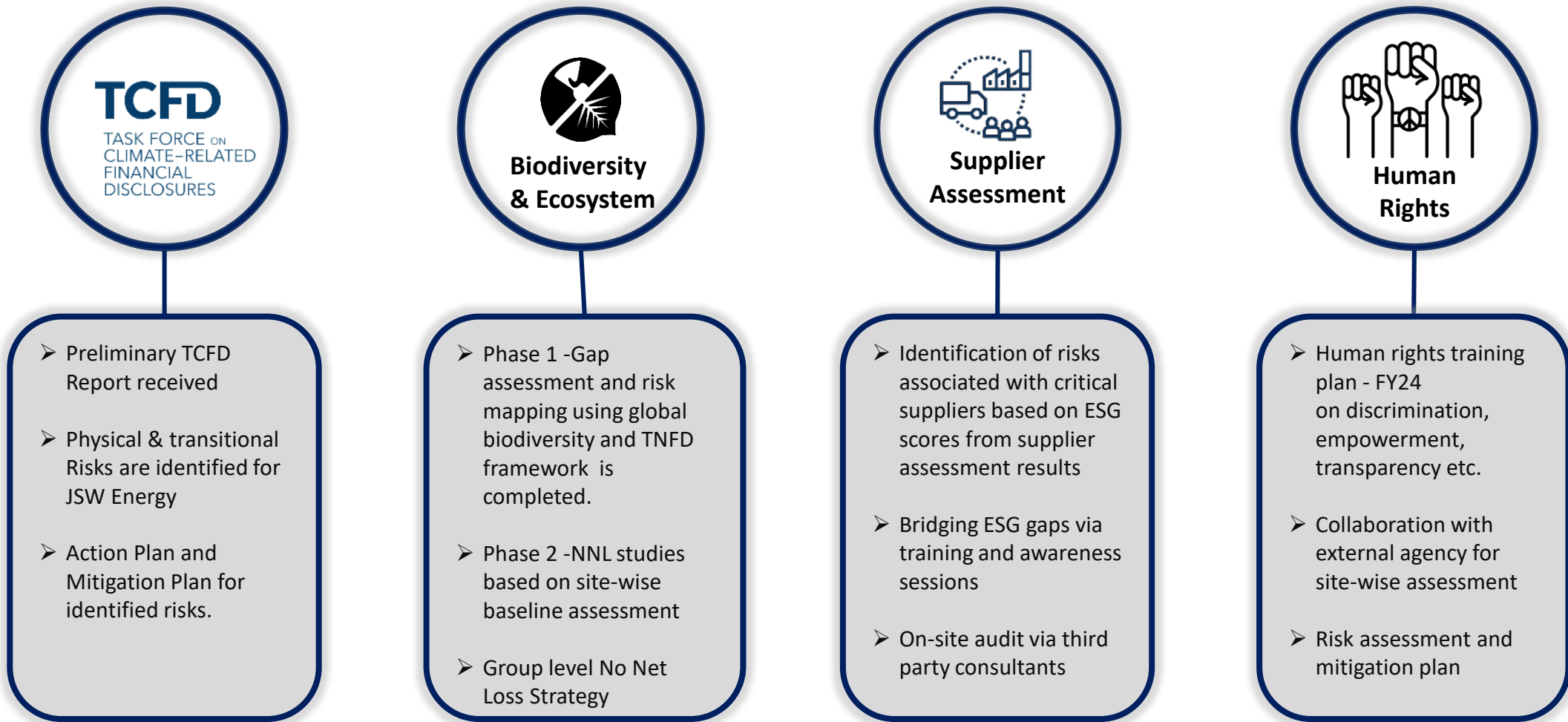
Committed to set science based targets to keep global warming to 1.5°C under SBTi

## 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>0.215 *</b>	60%	<ul style="list-style-type: none"> <li>TCFD –Preliminary report received</li> <li>Supply Chain Sustainability – development of Digital Platform is in progress for value chain partners.</li> <li>Increased share of renewable energy for decarbonization – Total capacity added till Q2FY 24 – 3,613 MW</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 – Ash Management , recycling of waste water , handling hazardous waste through authorized recycler.</li> <li>Utilisation of low ash coal in Ratnagiri and Vijayanagar</li> <li>Re-utilisation of pond ash as well as Bottom ash in Boiler</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>SO<sub>x</sub></li> </ul>	1.78	<b>0.683</b>	61%	
	<ul style="list-style-type: none"> <li>NO<sub>x</sub></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>Biodiversity Desktop Assessment completed for Thermal - Ratnagiri, Ind bharat , Wind - Dharapuram, Sandur, Tuticorin and Hydro Power Plant – Baspa II &amp; Karcham Wangtoo.</li> <li>Increased green cover across operations</li> <li>Implementation of Biodiversity Management plan at Barmer Plant .</li> <li>management plan at Barmer location.</li> </ul>



# Sustainability: H1 FY24 Performance

## Key Highlights



### Climate Change

- Increased share of renewable energy for deep decarbonisation
- Wind Projects – Tuticorin – generation started and commissioned 216 MW till Q2 FY 24.
- Continuous focus on process improvements to reduce GHG emission



### Water Security

- Maintained zero liquid discharge across operations
- Optimising utilisation of rain water harvesting system. 1,68,429 m3 water utilised by Ratnagiri Plant by this method
- Reuse of treated effluent of Sewage Treatment Plant for horticulture
- 2,36,869 m3 of water recycled and utilizing for process at Vijayanagar



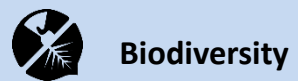
### Waste

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



### Air Emissions

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

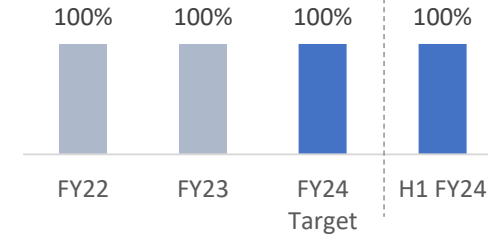


### Biodiversity

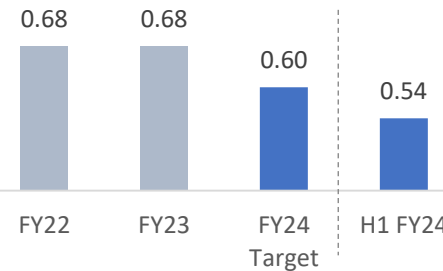
- Plantations of various species numbered 635, 1730, and 800 in the areas around Ratnagiri, Vijayanagar, and the Hydro Power Plants, respectively.
- Draft report of Biodiversity Assessment for Ratnagiri, Hydro, Wind Plant is received from CII
- Increase in green cover at all operations to achieve 'No Net Loss' of Biodiversity by 2030.

## Performance

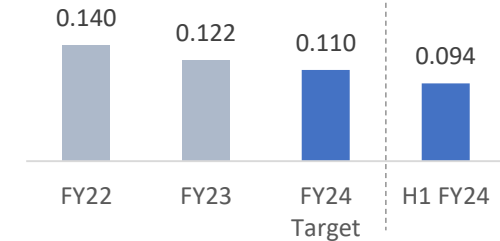
Ash Utilisation (%)



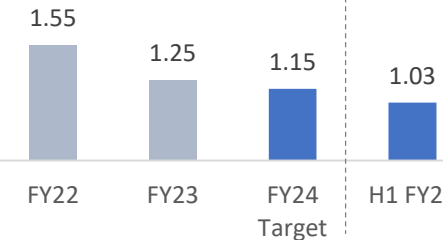
CO2 intensity (tCO2e/MWh)



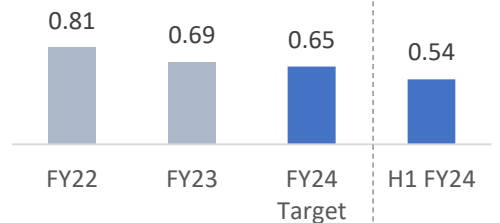
PM Emissions (kg/MWh)



SOx Emissions (kg/MWh)



NOx Emissions (kg/MWh)



# Sustainability: Empowering Our Communities



# Sustainability: Empowering Our Communities

## Project Shikhar: Bringing Powerful Transformation in the Field Of Sports

### Our Footprint

- 4 Centres
- 120+ Trainees
- 374 Medals

Boxing training sessions



Strength and Condition coaching



Shikhar Fellowship



Dedicated Professional Coaches



Events and Competitions Platform



### Health & Nutrition

#### Eye screening Camp at Hydro



#### Healthcare Outreach at Ratnagiri



**12,549**  
people availed OPD,  
IPD services

**588**  
lab tests done  
in FY23

**378**  
people availed  
ambulance services

### Medicinal Farming

A total of 230 farmers initiated medicinal farming



[Health & Nutrition](#)



[Water & Environment](#)



[Waste Management](#)



[Agri-livelihoods](#)



[Education](#)



[Women's BPO & Livelihoods](#)



[Skill Enhancement](#)



[Art, Culture & Heritage](#)



[Sports](#)



# Awards and Recognition



“Gold Award - 14th Exceed Green future Environment Award in sustainability category” Sustainable development foundation



Power- Gen ESG & Sustainability award -2023 for Best ESG Initiative – Water Efficiency by Council of Enviro Excellence



SEEM National Award for Energy Efficiency Platinum category in Sept-23



“National award for excellence in energy management 2023” Organized by CII



1st Prize in TOPS Convention by Indian Society for Quality, Bengaluru Chapter in July-23



Received LACP 2022 Vision Awards for JSW Energy Annual Report (FY 22-23) – Gold Award, Top 80 Reports & Top 10 Indian Reports

# Strong Board Oversight and Leadership



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



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



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



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



**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



**Mr. Rajiv Chaudhri**  
Independent Director



Majority Independent Board: 6/10 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

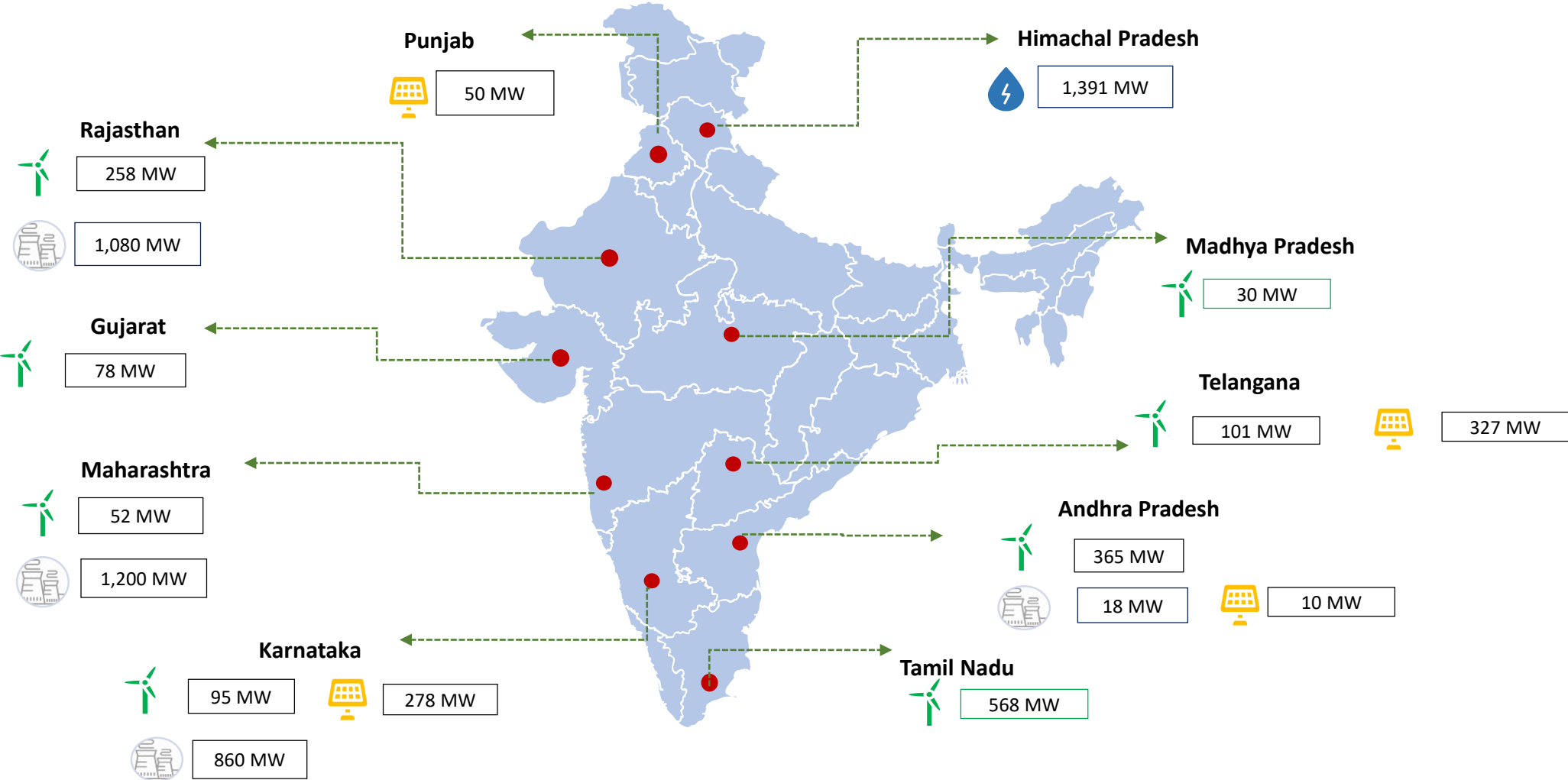
# Healthy Operations and Financials



Sholtu Hydro Power Plant - Turbine

# Operating Locations: Pan India presence

Current Operational Capacity (6,771 MW)



Operating Plants across 10 states

# Healthy Operations and Financials

**85%**

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

**~90%**

EBITDA contribution from LT

**~22BUs**

Net Generation

**₹ 2,999Cr**

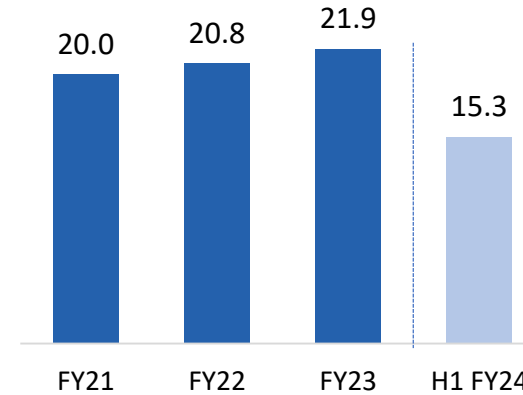
Cash PAT<sup>2</sup>

Figures are for FY23

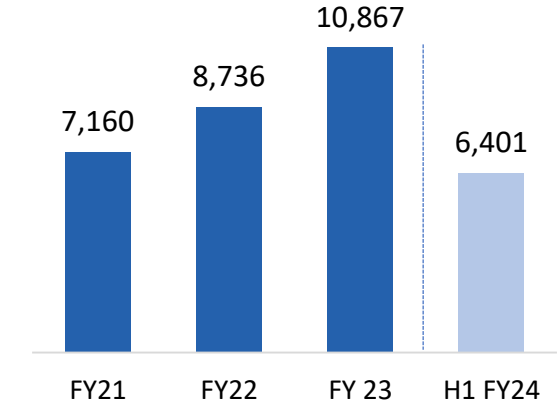
- Steady operations and robust financial: Track record of strong yearly cash profits of ~₹2,999 Crores.
- High LT PPA tie-up rendering high cash flow visibility
  - Almost all LT PPA under two-part tariff (imported/domestic fuel cost/forex pass through)
  - Remaining Avg. Life of PPA: ~18 years
  - Remaining Avg. Life of Assets: ~25 years
- Diversified off-takers
  - All plants placed favorably in Merit Order Despatch
  - Hydro projects under 'must-run' status
  - Trade receivables (excl. Acquired RE Portfolio) at ₹ 1,599 Cr equaling to 56 receivable days as on Sep'30, 2023

Resilient business model with steady cashflow generation despite sectoral headwinds

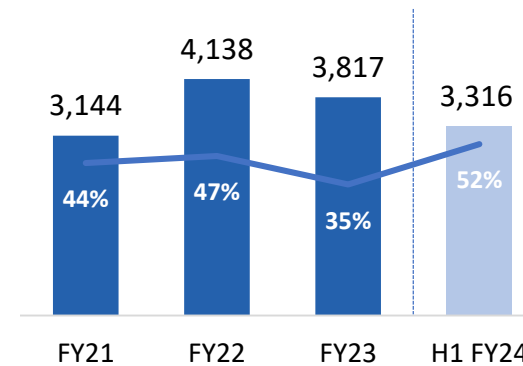
Net Generation (BUs)



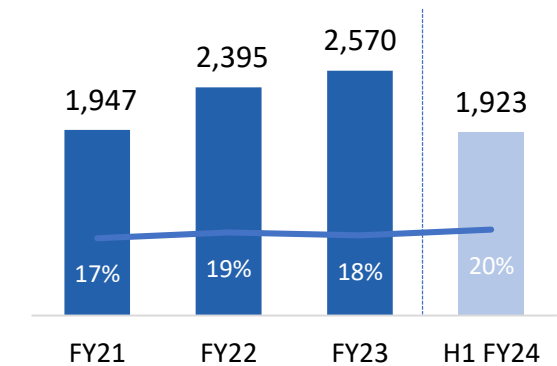
Total Income<sup>3</sup> (₹ Crore)



EBITDA & EBITDA Margin (₹ Crore)



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



# Robust balance sheet to support renewable-led growth

**4.6x**

Net Debt/EBITDA

**1.2x**

Net Debt/Equity

**8.51%**

Wt. average cost of debt \*

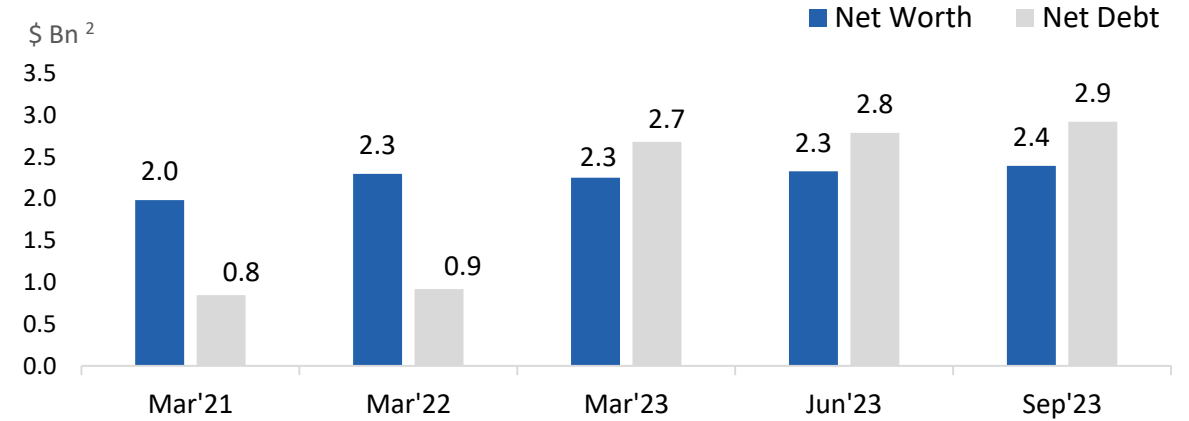
**56**

Receivable Days\*\*

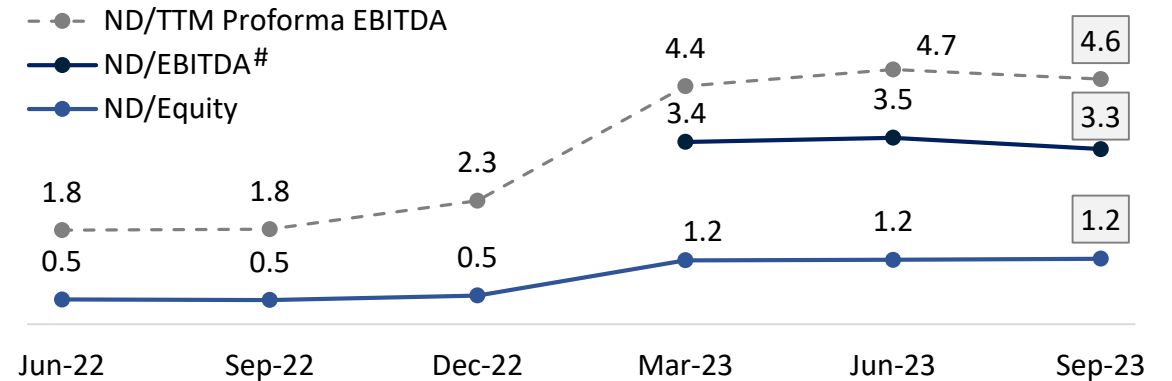
Figures as of September 30, 2023

- ✓ Strong Liquidity with healthy cash balances: ₹ 3,291 Crore as of Sept 30, 2023
- ✓ Financial flexibility enhanced by equity investments:
  - Holding 7Cr (70mn) JSW Steel shares of Value<sup>1</sup>: ₹ 5,018 Cr
- ✓ Healthy Credit Ratings:
  - India Rating & Research: AA (Stable outlook)
  - ICRA Ltd: ICRA AA (Stable)
- ✓ Access to diverse pools of liquidity
- ✓ Operating portfolio generating healthy CF & mid-teen equity IRR
- ✓ Weighted average cost of debt\* is 8.51% as of Sep 30, 2023

## Robust balance sheet & strong cashflow available to pursue growth



## ND/EBITDA for Operational Projects at 3.3x (Sep-23)<sup>3</sup>



1 Value of JSW Steel Share holdings as on Sep 30 2023

2 Conversion based on USD = INR spot rate as of respective date

3. Based on net debt for operational projects of ₹10,338 crores; total net debt at the group level stands at ₹24,260 crores on Sep-23.

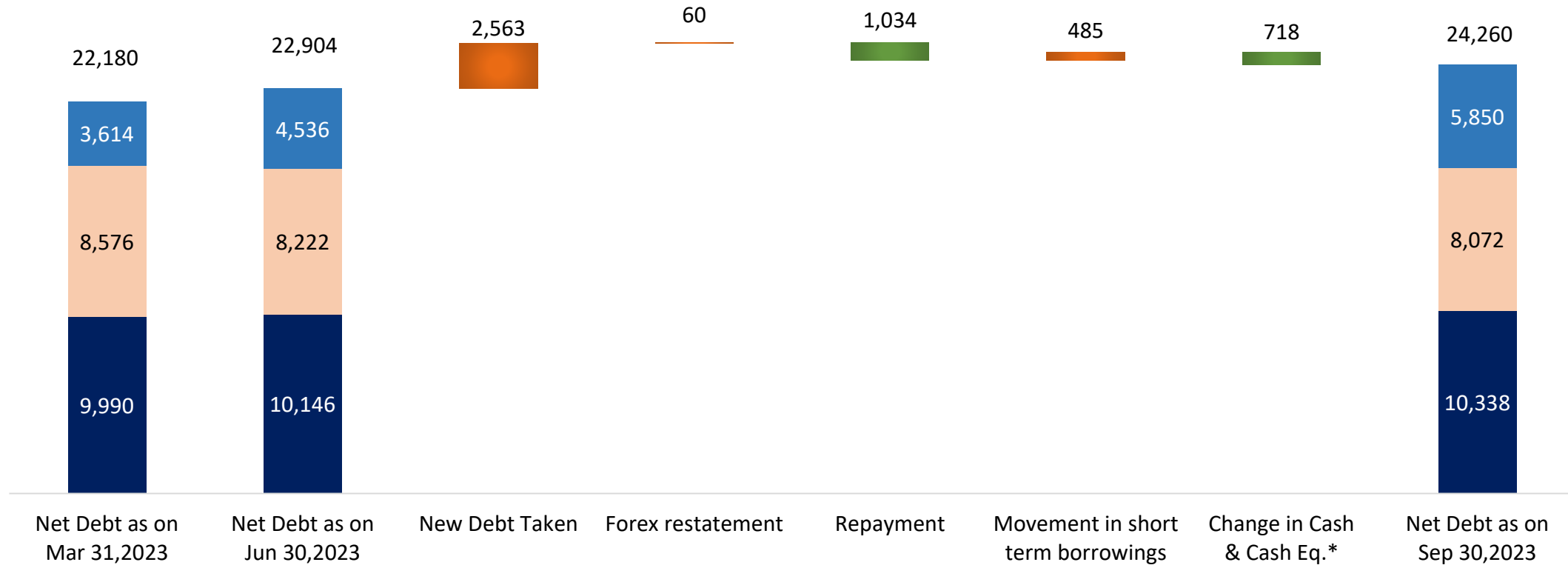
\* Including Acquired RE Portfolio's debt post refinancing and debt sizing package which is in place | \*\* Excl Acquired RE Portfolio receivables | # Including Acquired RE Portfolio Debt and excluding debt on under-construction projects

# Net Debt Movement

Particulars in ₹ Cr

- Capital Work- in-Progress (CWIP)
- Acquired RE Portfolio
- Operational Projects

Leverage	Net Debt (₹ Cr)	EBITDA (TTM; ₹ Cr)	ND/EBITDA (x)
Operating	10,338	3,993	2.6x
Acquired RE Portfolio (Normalised EBITDA)	8,072	1,650	4.9x
<b>Combined (Excl. CWIP)</b>	<b>18,410</b>	<b>5,643</b>	<b>3.3x</b>



**Sustainable ND/EBITDA is within the guided range of 3.5x-4.0x**

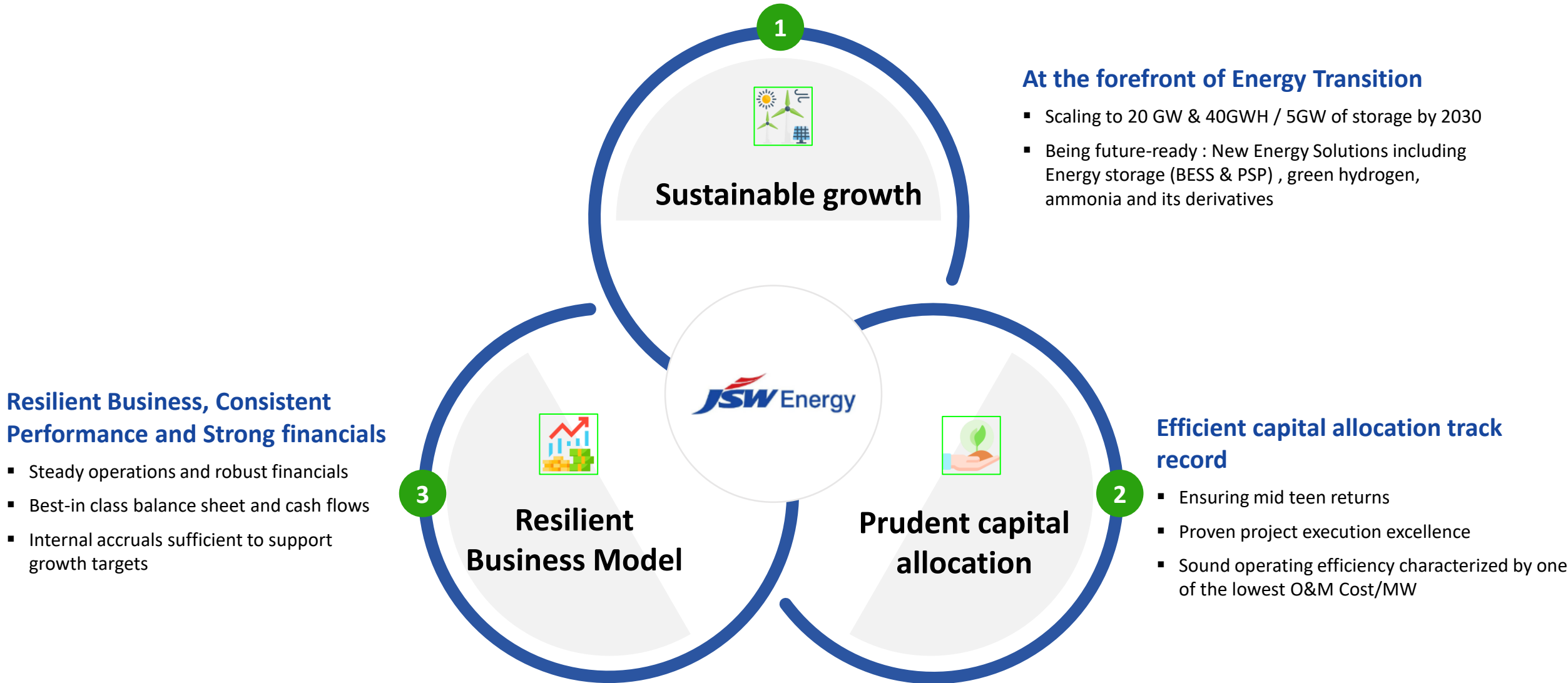
# Why JSW Energy ?

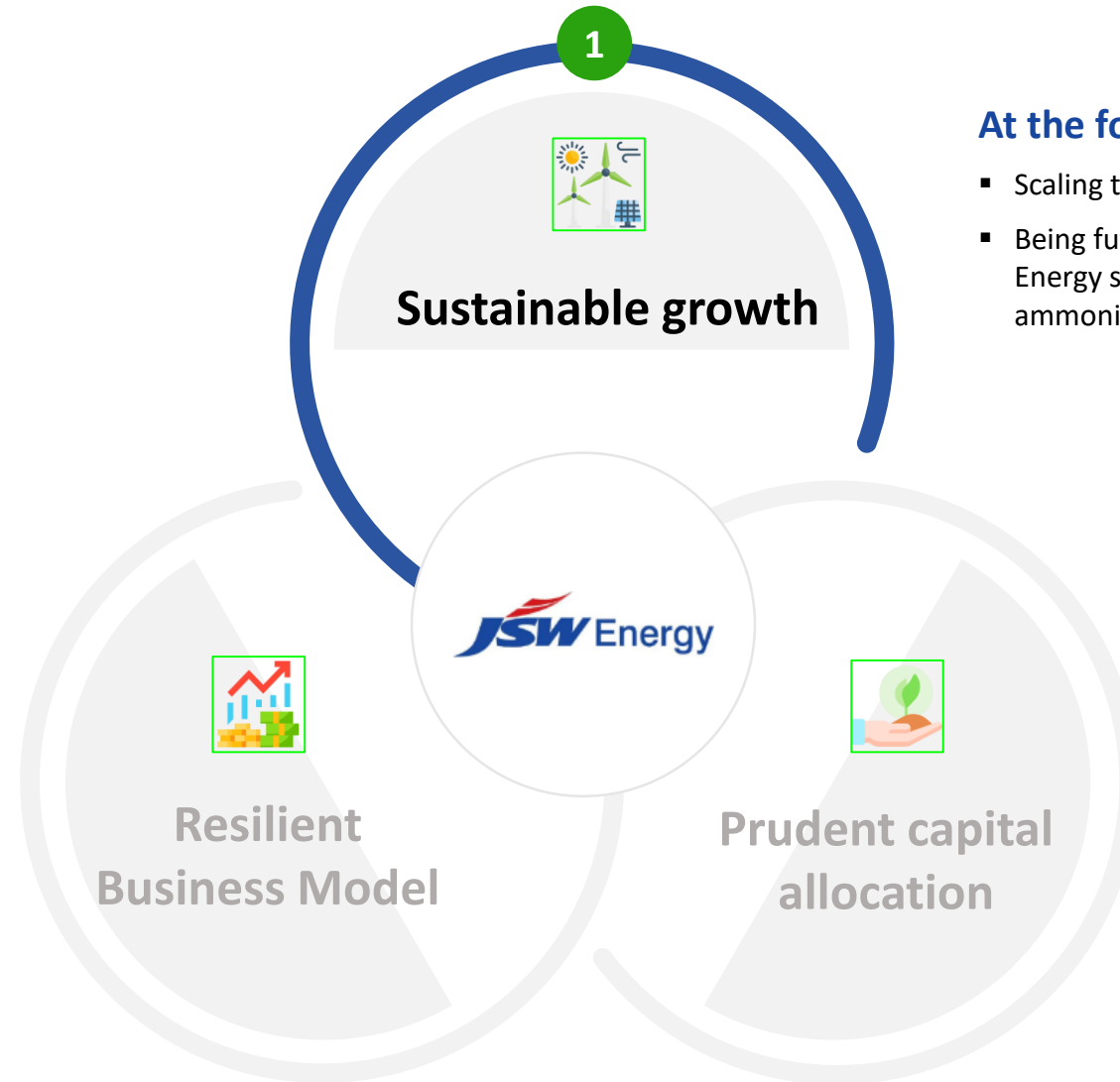
- Compelling Investment Story
- Key Highlights

An aerial photograph of a large dam and reservoir. The dam is a long, grey concrete structure with several spillways. The reservoir is a large body of greenish water. The surrounding landscape is hilly and somewhat arid. A thick blue diagonal line runs from the top left towards the bottom right, crossing the dam and reservoir.

Committed to reaching  
Net Zero emissions by 2050





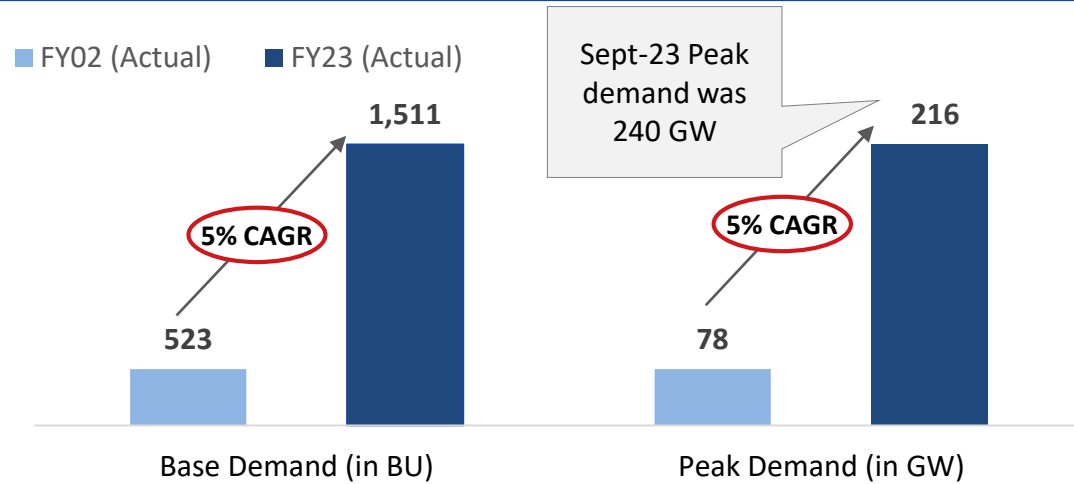


## At the forefront of Energy Transition

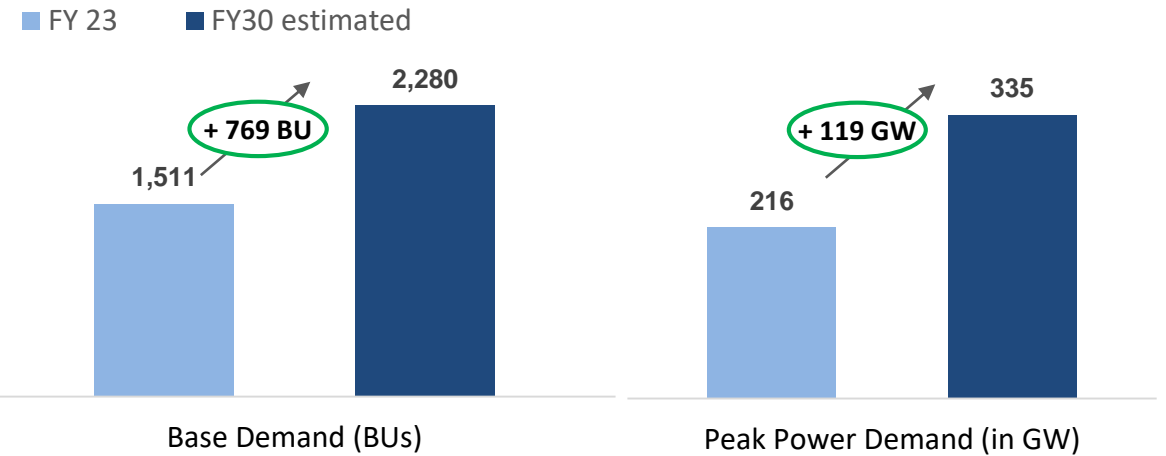
- Scaling to 20 GW & 40GWH / 5GW of storage by 2030
- Being future-ready : New Energy Solutions including Energy storage (BESS & PSP) , green hydrogen, ammonia and its derivatives

# Significant Market Opportunity: Power Demand Growth to be met by RE

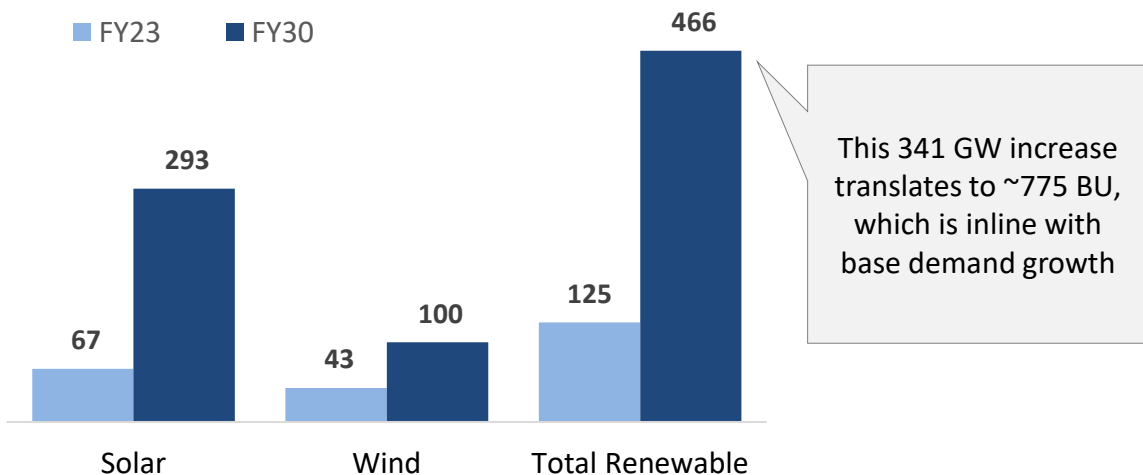
## Historical Power Demand Growth




## Similar growth expected in power demand over next decade




## Demand to be met incrementally with Renewable Energy



## Rapid Urbanization and universal electrification to drive power demand

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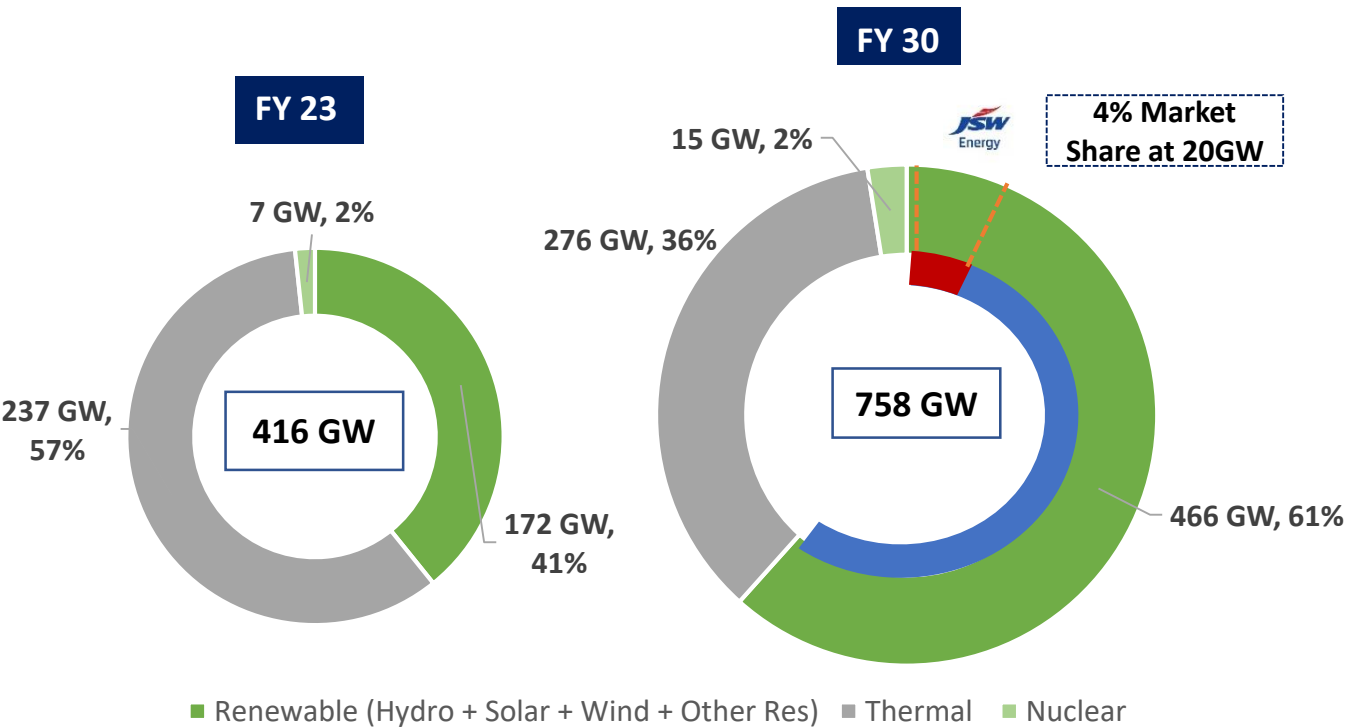
India is world's third largest power producer, however has a low per capita consumption (~1/3<sup>rd</sup> of world average), this provides huge opportunity for growth
- 

Sustained economic growth has driven power demand in India, going forward, unlocking of demand from increased rural electrification and rapid urbanization to drive demand for power

# Participating in India's Green Transition

India's share of Renewables is projected to increase from 41% in FY 23 to 61% in FY 30

## Changing Environment and our Approach

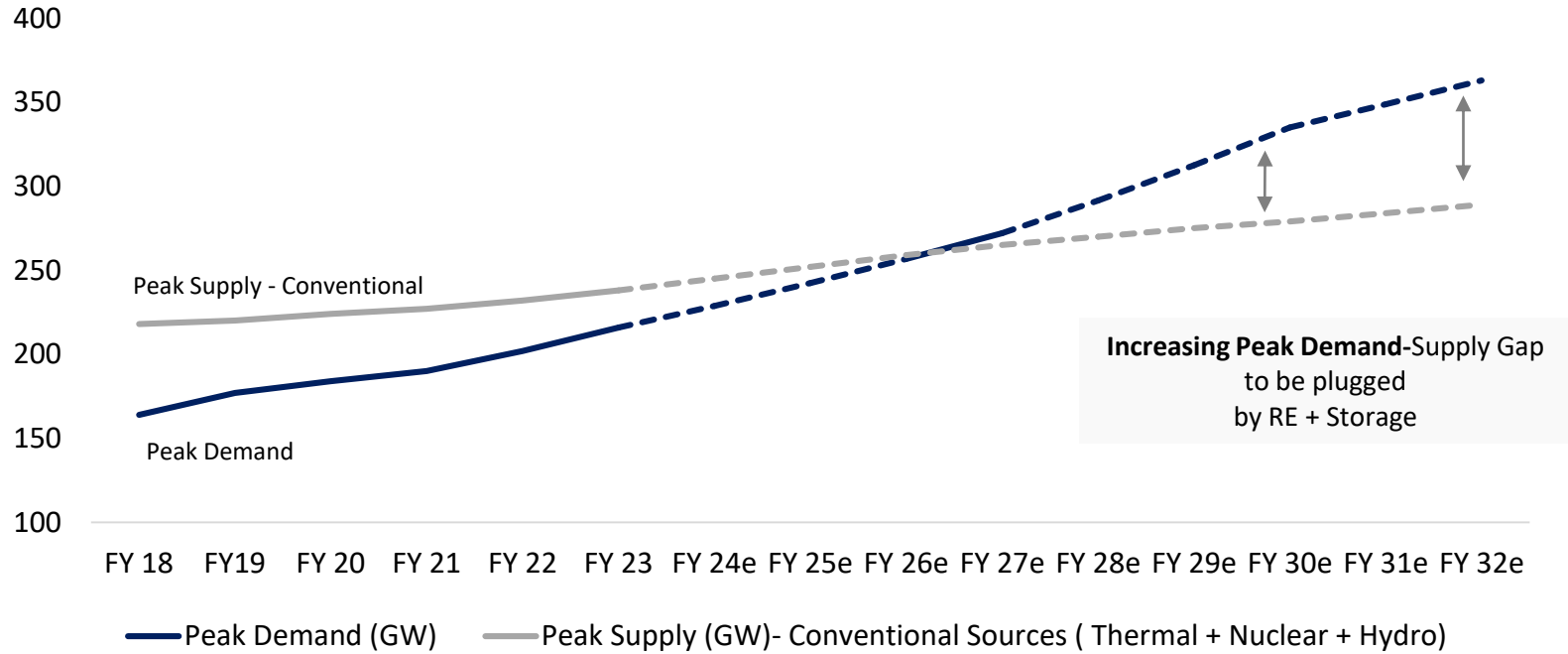


- JSW Energy's strategy is to grow its capacity to 20 GW by FY30 mainly through renewable capacity addition, which is in line with India's renewable energy growth trajectory
- Being part of JSW Group which has its presence across multiple business including steel, cement, infra and paints gives us the opportunity to further grow through group captive

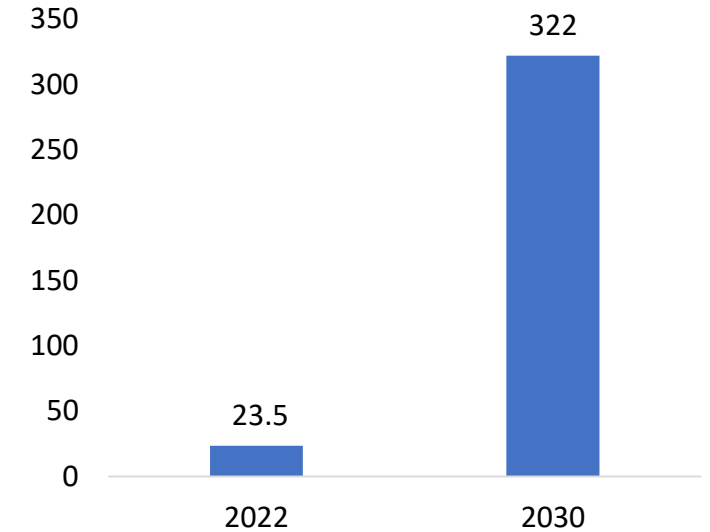
Domain	Environment	Our Approach
<b>Capital</b>	<ul style="list-style-type: none"> <li>• High cost of borrowing due to interest rate hike</li> </ul>	<ul style="list-style-type: none"> <li>• Bidding assumptions take into account interest cycles through life of project</li> </ul>
<b>Supply Chain</b>	<ul style="list-style-type: none"> <li>• BCD on imported Solar Panels/Cells</li> <li>• Uncertainty of supply of Solar panels and WTGs</li> </ul>	<ul style="list-style-type: none"> <li>• De-risking of supply chain through backward integration</li> </ul>
<b>Policy and Fiscal Support</b>	<ul style="list-style-type: none"> <li>• Draft Hydro PSP and Green Hydrogen policy</li> <li>• Budgetary support for Green Transition</li> </ul>	<ul style="list-style-type: none"> <li>• Early Mover in hydro PSP and BESS</li> </ul>
<b>Business Model</b>	<ul style="list-style-type: none"> <li>• Reduced bidding intensity combined with lower tariff discovery</li> </ul>	<ul style="list-style-type: none"> <li>• Bidding discipline with a targeted IRR at P90</li> </ul>

# Energy Storage critical in India's Energy Transition

## Peak Demand vs Supply from Conventional Sources (GW)



## Storage Capacity GWh\*



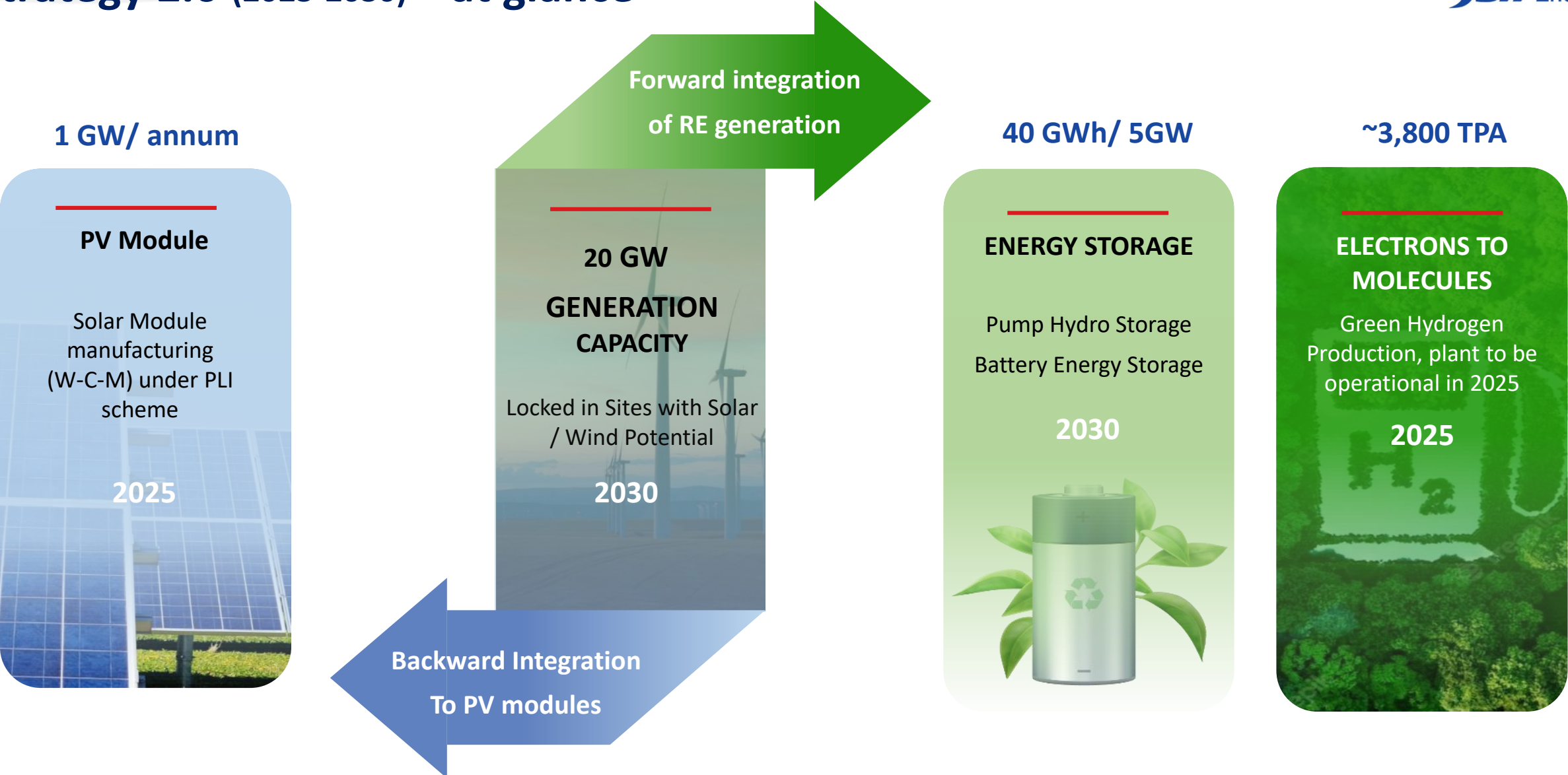
### Renewable Energy + Storage Solutions required to plug increasing Peak Demand-Supply Gap going forward

- Peak Power Demand is expected to grow at a CAGR of ~6% between FY23-30
- Old & Inefficient thermal capacities to keep on retiring YoY
- Hence, Increasing gap between Peak Demand and Peak Supply from conventional power sources (Thermal+Nuclear+Hydro) will be needed to be plugged by supply from renewable + storage capacities

### Optimal generation mix report 2023 projects a large requirement for Energy Storage in 2030

- Projections of the order of 322 GWh of energy storage requirement by 2030

# Strategy 2.0 (2023-2030) – at glance



**Growth driven by internal accruals**

**Normalised Net Debt/EBITDA to be in the range in 3.5x-4.0x**

**Balance Sheet Size to grow at 22% CAGR**

# Strategy 2.0 – 20 GW Generation + 40 GWh of Storage by FY30

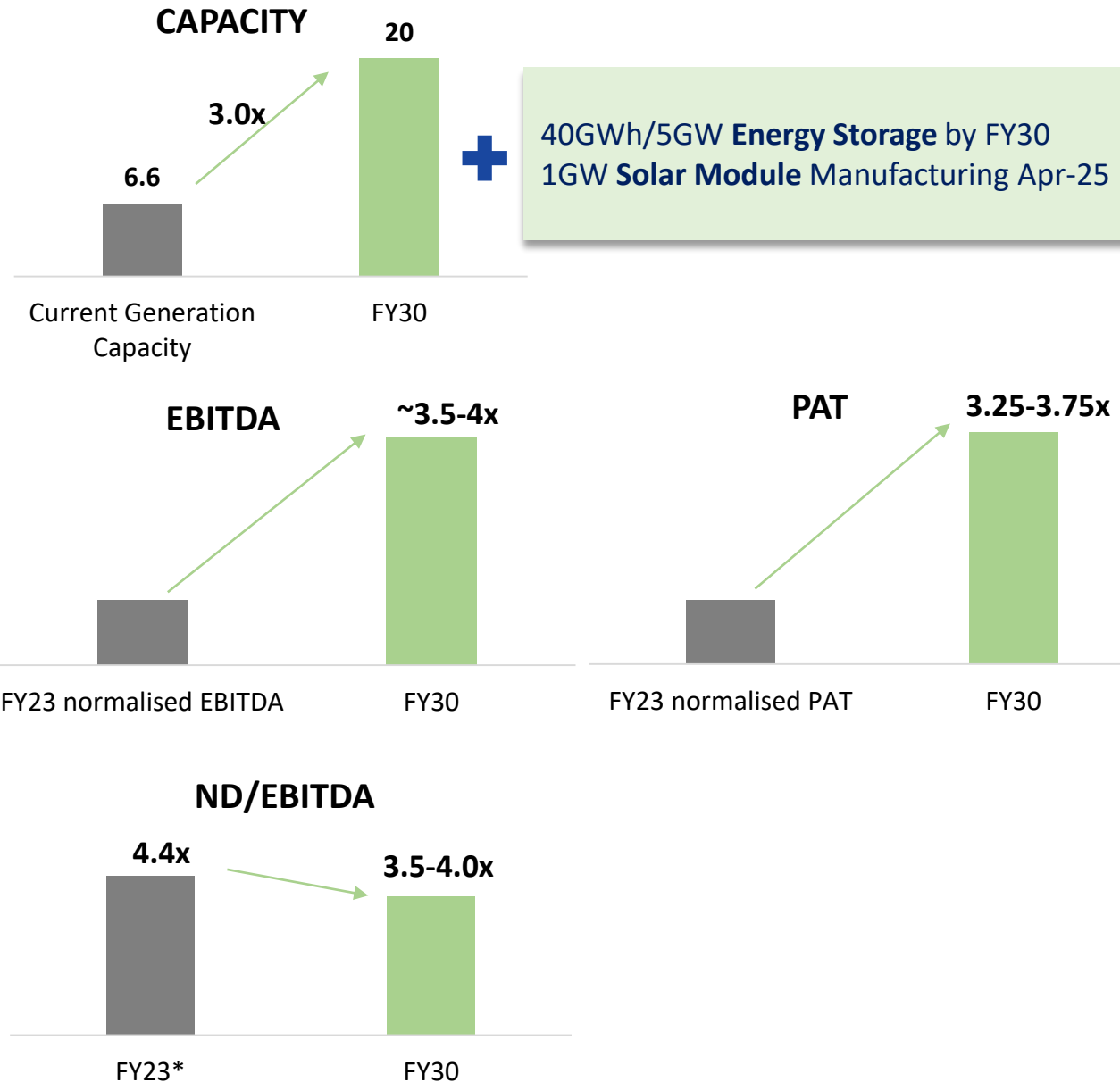
## Pillars for Self sustainable and Integrated road map

- Sustainable value creation focused on Cash Returns
- Internal Accruals and BS Headroom (no external capital)
- Organisational Capability and competency

## Growth Multipliers

Portfolio generating healthy cash flows & 20% cash return<sup>1</sup>

- ❖ **Steady operations and robust financials**
  - Portfolio TTM Cash PAT of ₹2,999 Crore p.a.
  - Incremental cash accruals from commissioning of Under construction projects and integration of M&A deals
- ❖ **85% of portfolio tied-up under Long Term PPA**
  - 85% of portfolio tied-up under Long Term PPA; Remaining Avg. Life of Assets/PPA: ~25 years / ~18 years
- ❖ **Financial flexibility** enhanced by equity investments: JSW Steel shares: 7 Cr shares held (Value as on Sep 30, 2023: ₹ 5,018 Cr)
- ❖ Healthy receivables management and low working capital cycle



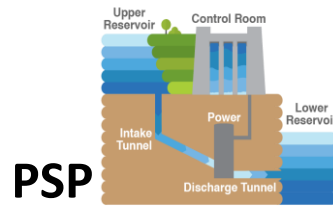
# Battery Storage (BESS) and Hydro Pump Storage (HPSP)

## Optimal Generation Capacity Mix for 2029-30

Apr-2023 Report

Base Case Energy Storage Capacity #

Total Generation (Inc. HPSP) Capacity Projection ##



PSP

**19.0 GW**  
X 6 hours =  
**114 GWh**



BESS\*

**41.6 GW**  
X 5 hours =  
**208 GWh**

**777 GW**

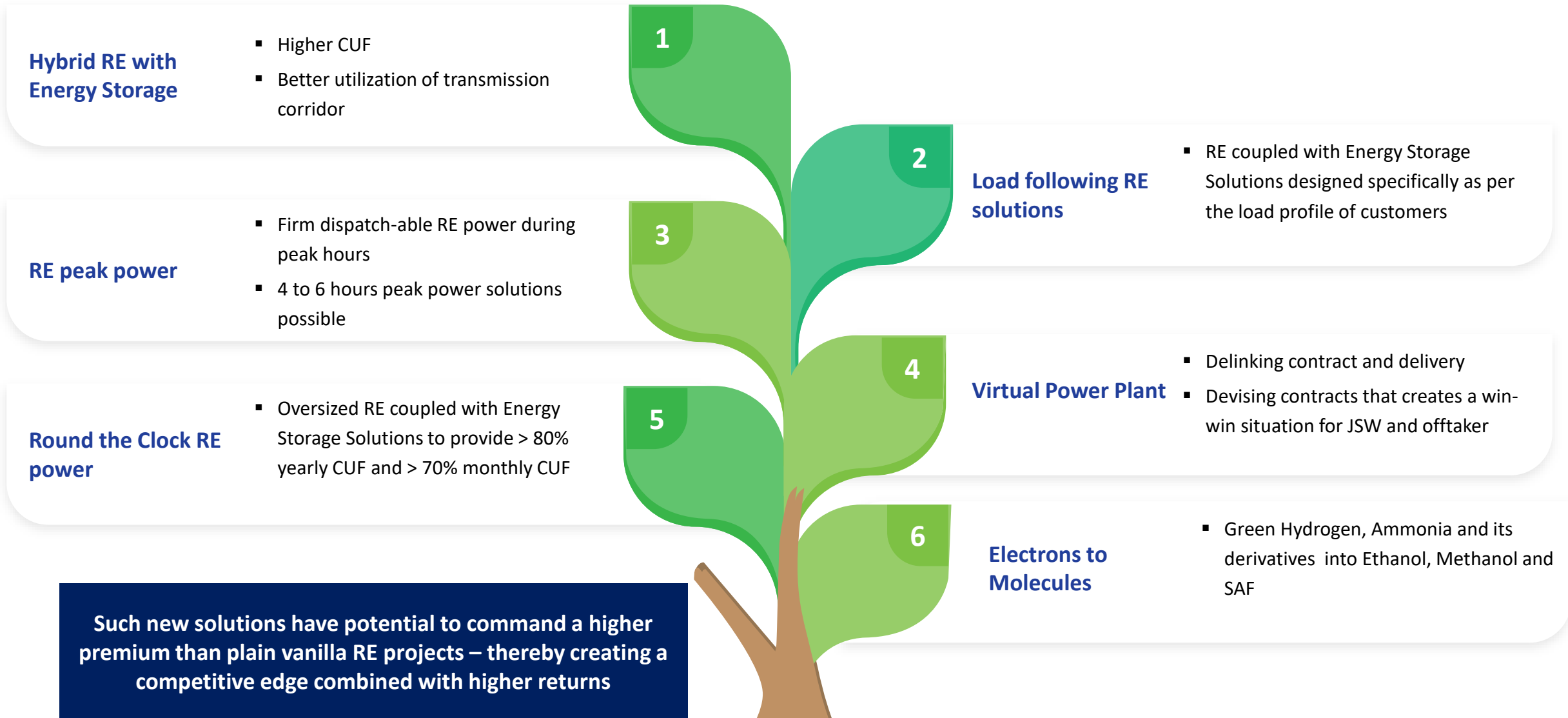
Considering base capacity as capacity mix for 2021-22

JSW Energy

- ✓ 40GWh/ 5GW of energy storage capacity by FY 2030
- ✓ 3.4GWh of storage locked in ( 1GWh of BESS and 2.4 GWh of HPSP)
- ✓ Large Resources secured for ~80 GWh PSP/ 12.3 GW
- ✓ Growth through internal accrual
- ✓ Existing portfolio generating healthy CF & mid-teen equity IRR



# Energy Storage – Enabler for New RE based products and services



# Electrons to Molecules: 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 ~ 2.5-3.0)

### 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



## JSW Energy

- Contracted India's largest Commercial Scale Plant for production of Green H<sub>2</sub> (Capacity- 3,800 TPA). This is towards production of Green Steel
- Signed MoU with JSW Steel for 85-90 KTPA of Green Hydrogen & 720 KTPA of Green Oxygen by 2030.

**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

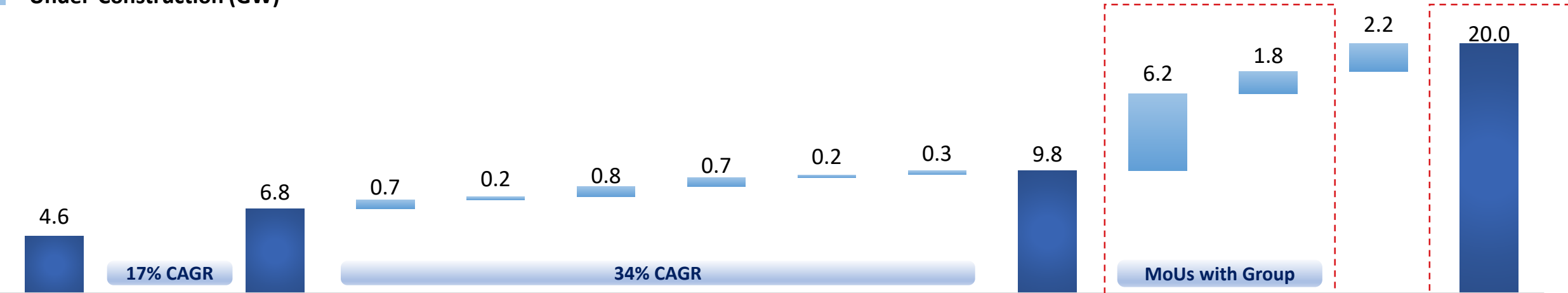
### Characteristics

↓ Zero CO<sub>2</sub>  
↑ High Cost

# Towards sustainable and integrated growth

## Under Construction 3.0 GW, to be Commissioned by CY24

### Under-Construction (GW)



	FY21	Current Operational	Ind-Barath	SECI X Wind	SECI IX Wind	Group Captive Wind	Kutehr	SECI XII Wind	Operational by CY24	MoU - Generation	MoU - RE for Hydrogen	Projects to bid	2030 Target
Commissioning			-Unit 1 in Q3 FY24 -Unit 2 in Q4 FY24	Progressively (216 MW CoD)	Progressively from Q3 FY24		Sept 2024	March 2025	1.0 GWh 	2.7 GWh 	1.0 GWh 		40 GWh 
PPA			-	25 Years	25 Years	25 Years	35 Years	25 Years					
Offtaker			Open	SECI	SECI	JSW Steel	Haryana Discom	SECI					
Capital Expenditure			Total: ₹ 19,360 Cr   Committed: ₹16,993 Cr   Spent: ₹11,317 Cr (Including 225 MW Solar Operational)						~₹2,200 Cr				

### Energy Products and Services

- 1 GW of solar module manufacturing (W-C-M)
- Contracted 3,800 TPA of Green hydrogen with JSW Steel
- MoUs for 85-90 KTPA of green hydrogen and 720 KTPA of green oxygen under group captive



## Efficient capital allocation track record

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

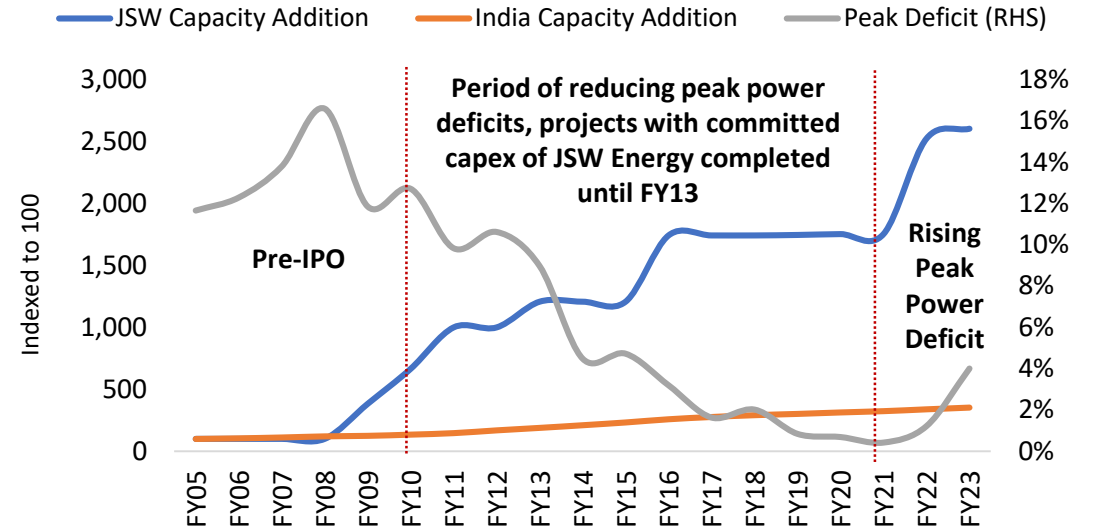
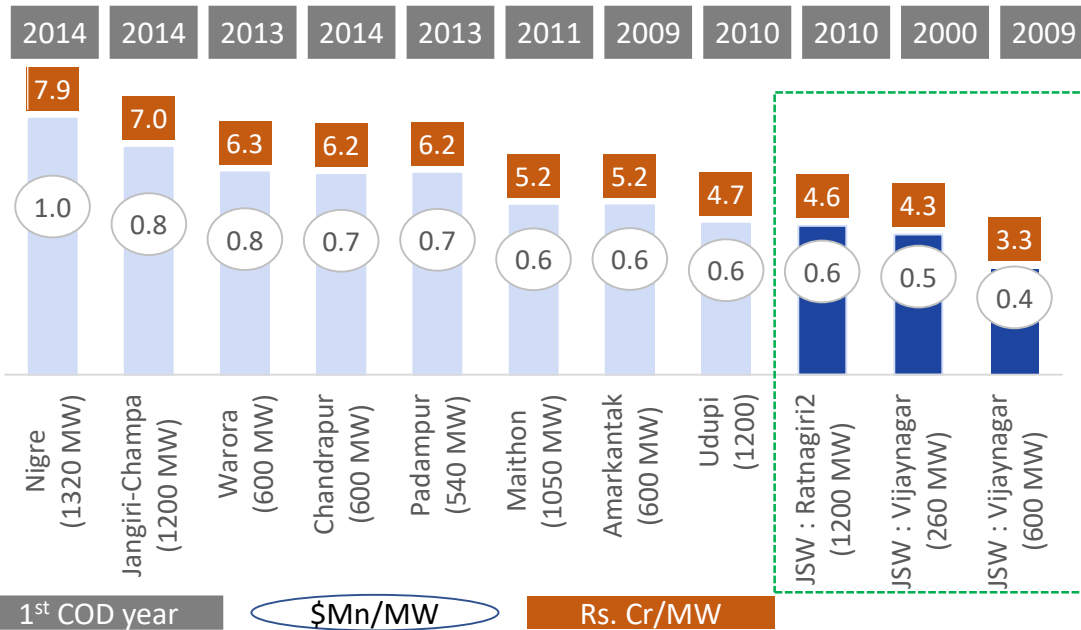
# Proven project execution and operational excellence...

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

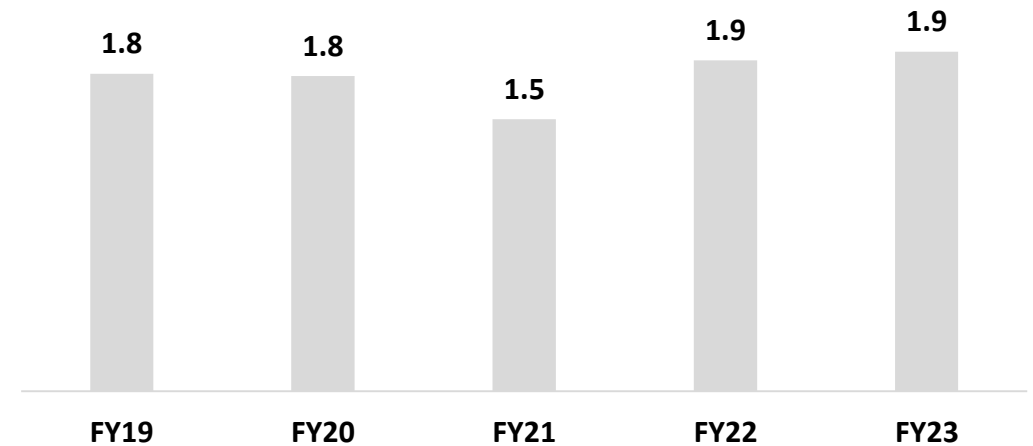
Selective bidding to ensure mid teen returns

Successful integration of inorganic capacities

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

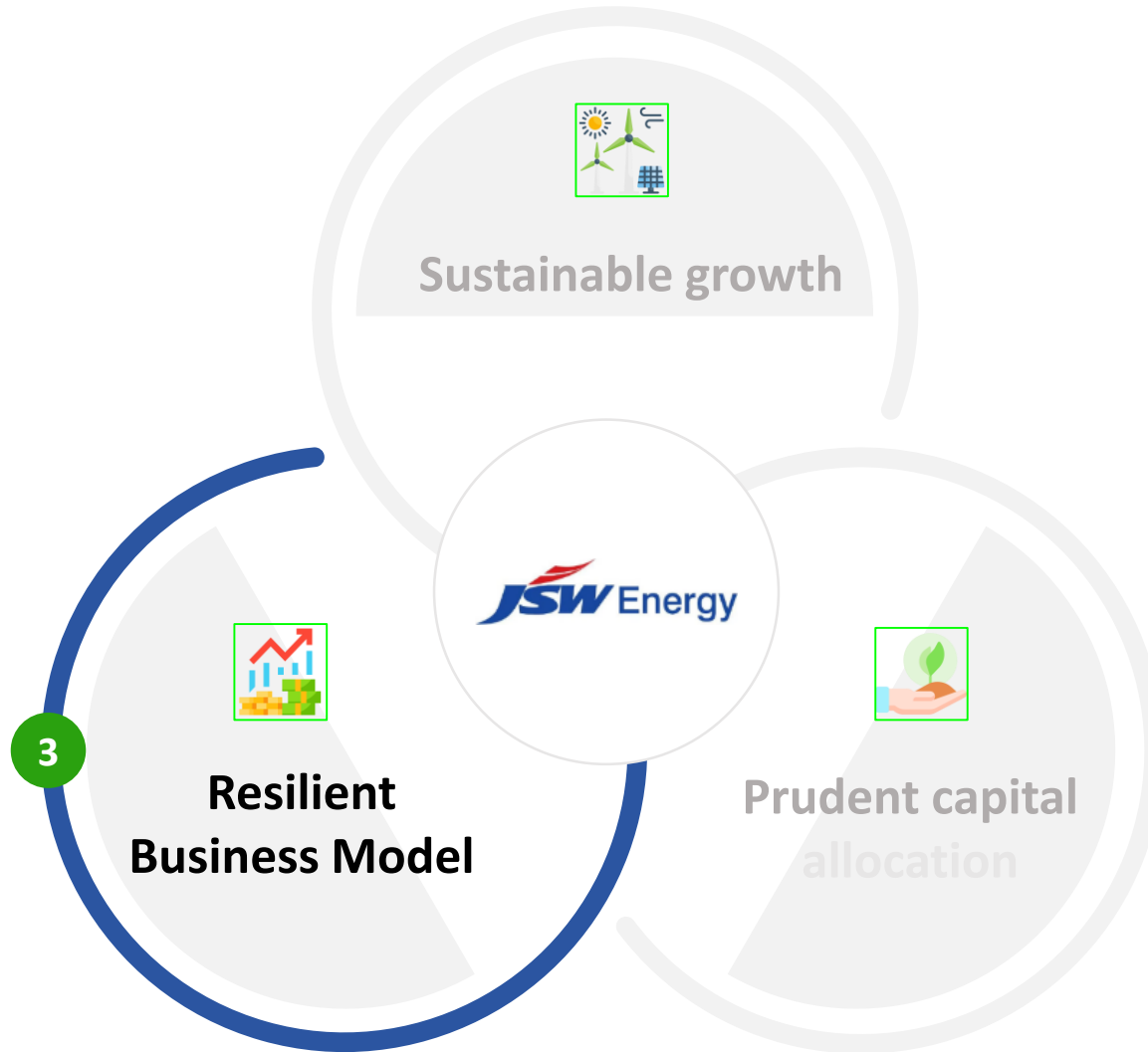


## Sound operating efficiency characterized by one of the lowest O&M Cost/MW (₹ mn)



## Resilient Business, Consistent Performance and Strong financials

- Steady operations and robust financials
- Best-in class balance sheet and cash flows.
- Internal accruals sufficient to support growth targets



# Robust Balance Sheet & Cashflows

## Balance sheet headroom to pursue growth opportunities

- **Strong Financials**

Figures in ₹ Cr	As on Sept 30, 2023
Networth	19,877
Net Debt	24,260
Net Debt/TTM Proforma EBITDA	4.6x
Net Debt/Equity	1.2x
Wtd. Average Cost of Debt	8.51%
Cash PAT TTM	2,999

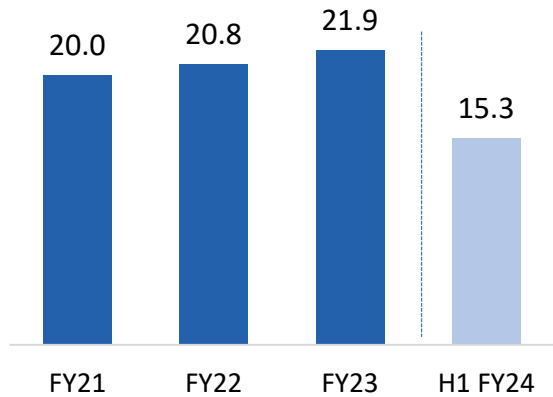
- **Healthy Credit Ratings and access to diverse pools of liquidity**

- India Rating & Research: IND AA (Outlook Stable)
- ICRA Ltd: ICRA AA/ Stable

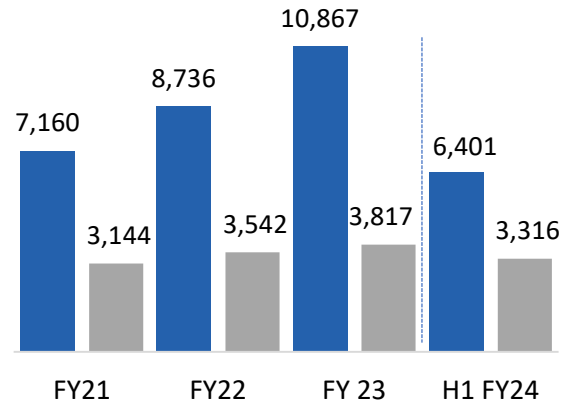
- **Strong Liquidity with healthy cash balances: ₹3,291 Cr\***

# Steady Operations and Robust Financials

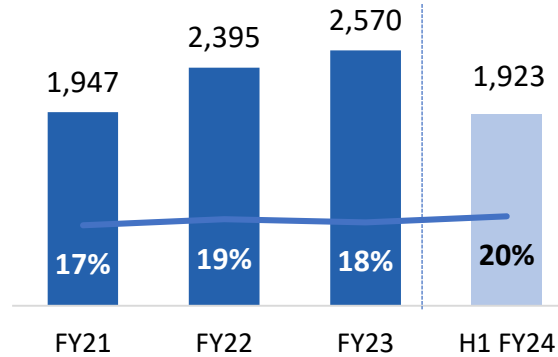
## Net Generation (BUs)



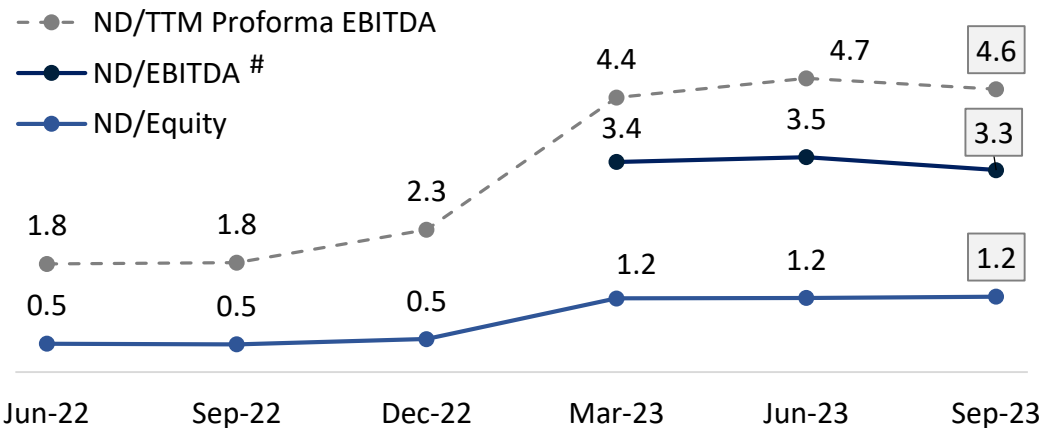
## Total Income<sup>1</sup> and EBITDA (₹ Cr)



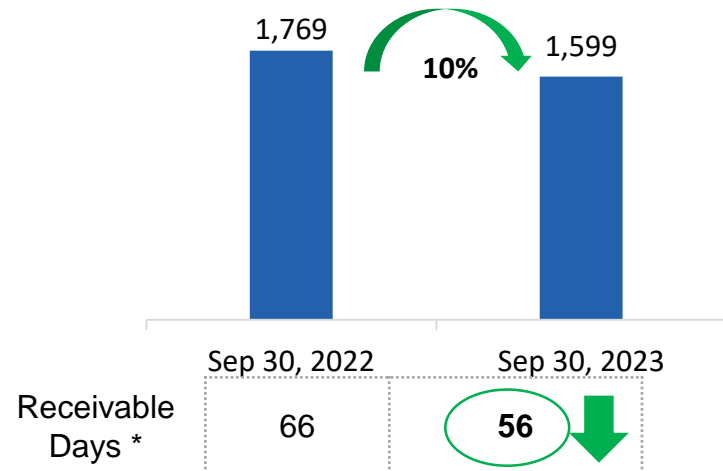
## Cash PAT (₹ Cr) and Cash Returns



## ND/EBITDA for Operational Projects at 3.3x



## Healthy receivables days



### Steady operations and robust financial

- 85% of portfolio tied-up under Long Term PPA; Remaining Avg. Life of Assets/PPA: ~25 years / ~18 years
- Track record of strong yearly cash profits and mid-teen equity returns

### Financial flexibility

- Strong leverage ratio, Net Debt to operating EBITDA of 3.3x
- JSW Steel shares: 7 Cr shares held (Value as on Sept 30, 2023: ₹ 5,018 Cr)

### Receivables








- All plants placed favourably in States' Merit Order Dispatch
- Payment security mechanism in force for power tied under long term PPA with discoms

1. Not comparable YoY from FY21 due to Change to Job Work Model Partially

#ND/Proforma EBITDA Including acquired RE portfolio Debt and Excluding Debt on U/C Projects \* Includes Unbilled Revenue and excluding Acquired RE Portfolio receivables



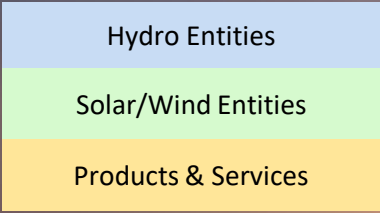
# JSW Energy : Key Highlights

 <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 2022 CDP Climate Change rating</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, Ratnagiri and Vijaynagar 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 ~90% EBITDA and Cashflow generation in FY23</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: 4.6x, Net Debt/EBITDA; 1.2x Net Debt/Equity</li><li>✓ Healthy debt metrics to be maintained while pursuing value accretive growth</li><li>✓ A healthy cash balance of ₹3,291 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 8.51%</li><li>✓ Executed attractive refinancing and debt sizing package for Acquired RE Portfolio RE assets, cost saving of &gt; ₹240 cr</li><li>✓ Raised a US\$ 707 million green bond to refinance debt for hydro entity in May’21</li></ul>

# JSW Energy – at a glance



# JSW Energy – Broad Corporate Structure



**JSW Energy Limited**  
9,792 MW

**Standalone**

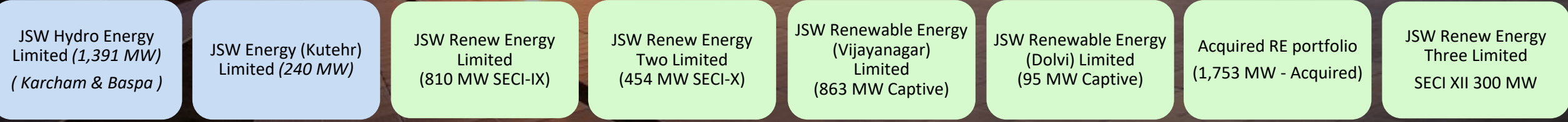
Ratnagiri – 1,200 MW  
 Vijayanagar – 860 MW  
 Nandyal – 18 MW  
 Solar – 10MW  
**Total – 2,088 MW**

**Other subsidiaries**

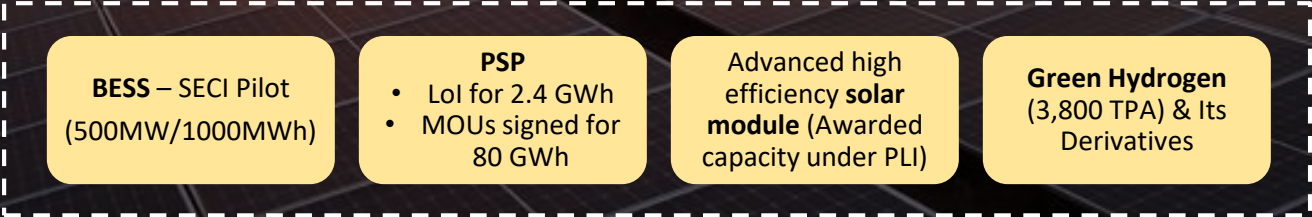
JSWEBL – 1,080 MW  
 Ind-Barath – 700 MW

**JSW Neo Energy \***  
5,924 MW

**Energy Generation Portfolio**



**Products & Services**



\* Corporate structure post Acquisition and restructuring. Includes 18 MW of operational solar power plant for JSW group captive. All subsidiaries shown are wholly owned subsidiaries except RE CPP

# Thermal Assets

**Ratnagiri 1,200 MW**



**Ind Barath 700 MW**



**Barmer 1,080 MW**



**Vijayanagar 860 MW**



# Thermal Assets | Generating Robust Cashflows

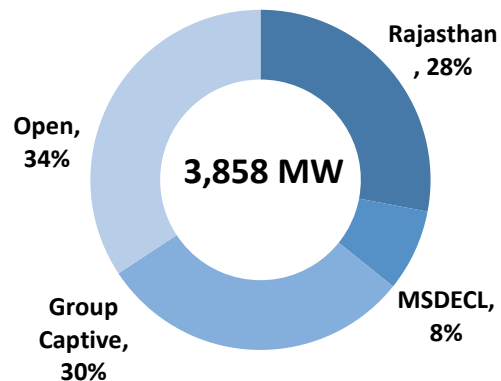
## Overview

**Total Thermal Capacity**  
3,858 MW

**Operational Capacity**  
3,158 MW

**Under Construction**  
Ind-Barath  
700 MW

## Offtaker Profile



**Installed Capacity**

**PPA tied**

**Fuel Type**

**Net Generation (Mus) Q2 FY24**

LT

Total

**PLF/ (Deemed PLF)**

LT

Total

## Operational Assets - 3,158\* MW



**Ratnagiri**

1,200 MW

1,100MW

Imported Coal

1,478 MUs (14% YoY)

1,752 MUs (34% YoY)

67%/(88%)

72%/(91%)



**Barmer**

1,080 MW

1,080 MW

Lignite

1,593 MUs (-4% YoY)

1,593 MUs (-4% YoY)

75%/(78%)

75%/(78%)



**Vijayanagar**

860 MW

338 MW

Imported Coal

510 MUs (-18% YoY)

900 MUs (22% YoY)

80%/(86%)

51%/(53%)

## Under Construction



**Ind - Barath**

700 MW

Merchant

Domestic Coal

Located in coal belt

Easy access to water

Commissioning  
Unit 1 – Q3 FY24  
Unit 2 – Q4 FY24

~80% of Installed Thermal Capacity Tied-up under Long-Term PPA

# Renewable Assets



# Renewable Assets | Presence across all modes of generation

Total 5,922 MW

Offtaker Profile

Operational Assets – 3,613 MW

Under Construction – 2,321 MW

Expected to be operational by CY 2024

**3,628 MW**  
61%

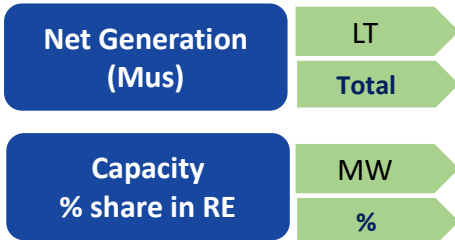
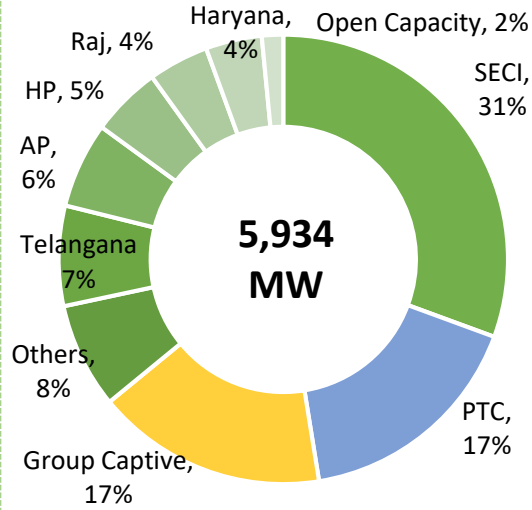
Wind

**1,631 MW**  
27%

Hydro

**675 MW**  
11%

Solar



## HYDRO



- Karcham Wangtoo (1,091)
- Baspa (300)

2,694 MU  
2,766 MU

**1,391 MW**  
23.4%

## WIND



- Acquired RE Wind (1,331)
- SECI X (216)

1,315 MU  
1,315 MU

**1,547 MW**  
26.1%

## SOLAR



- Vijayanagar Captive (225)
- Acquired RE Solar (422)
- Others (28)

288 MU  
288 MU

**675 MW**  
11.4%

## HYDRO



- Kutehr (240)

240 MU

**240 MW**  
4.0%

## WIND



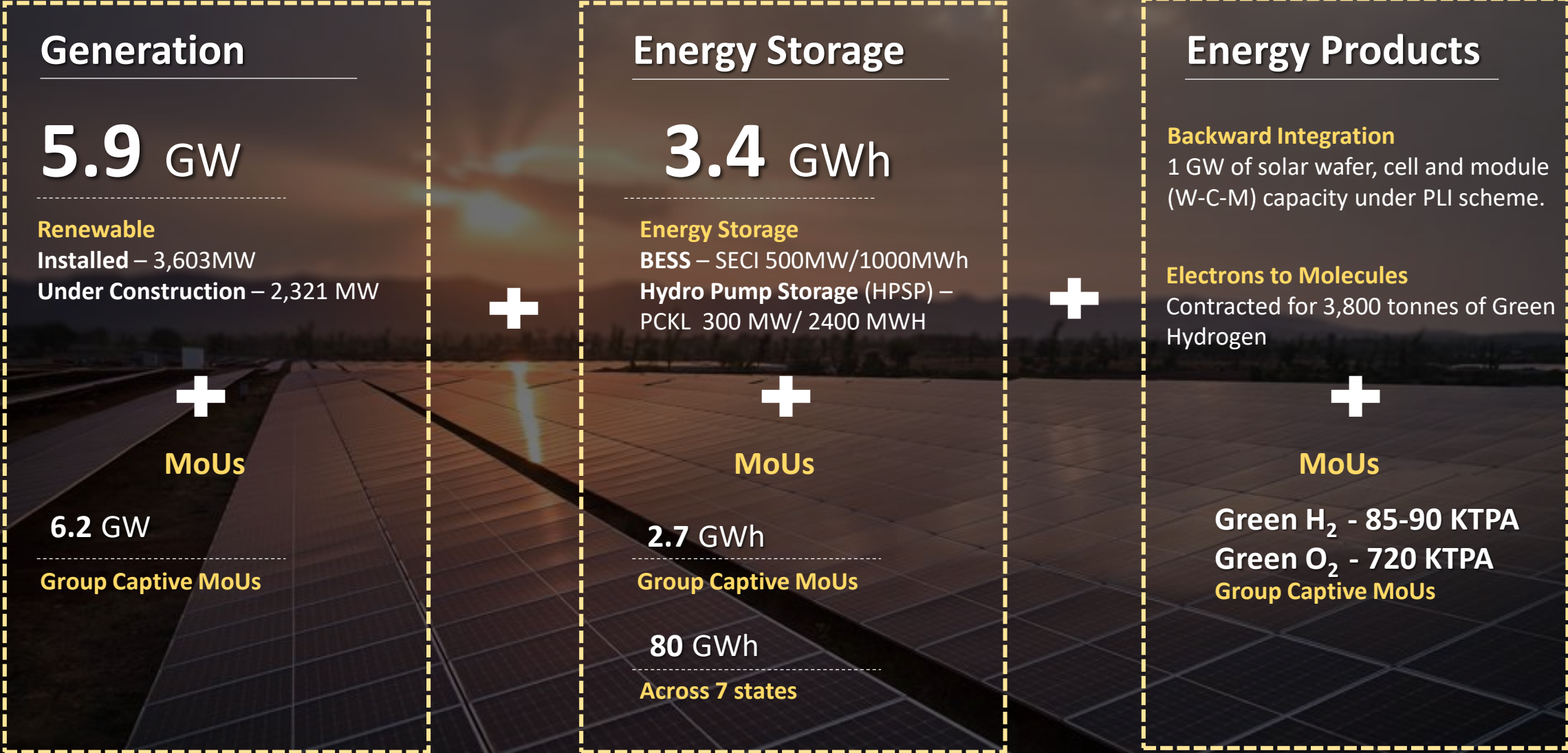
- SECI IX (810)
- SECI X (234)
- Captive JSW Steel (733)
- SECI XII (300)

2,081 MU

**2,081 MW**  
35.1%

All under construction projects are tied-up with long term PPA

# JSW NEO Energy – At a Glance



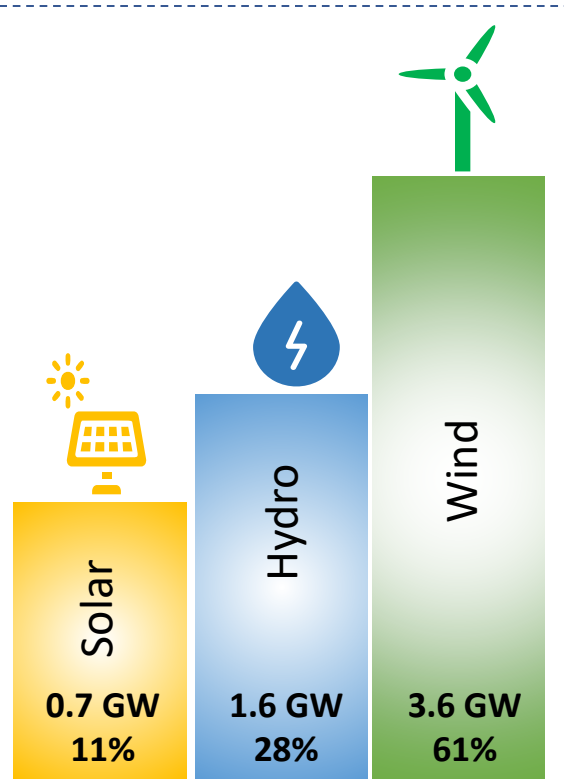


# JSW Neo – Presence across the value chain

Well placed to achieve 10 GW of generation capacity ahead of stated timeline of 2025 with foray into New Age Businesses

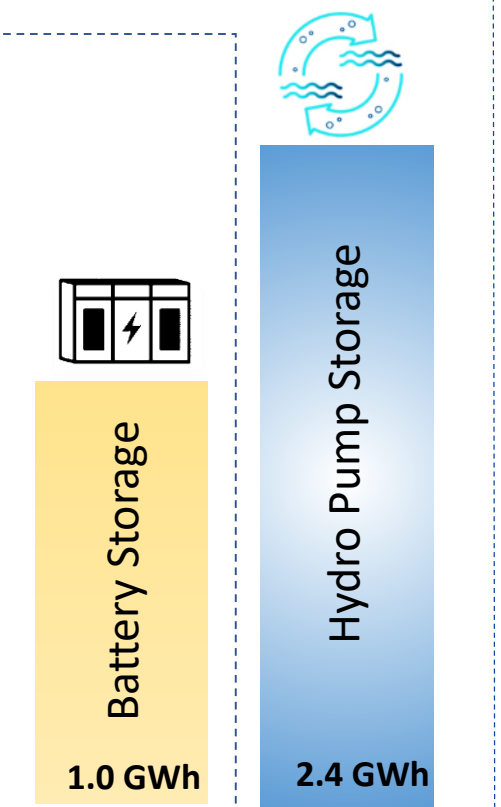
## Power Generation

**5.9 GW**  
Installed Capacity by CY24



## Energy Storage

**3.4 GWh**  
locked in capacity



## Energy Products & Services

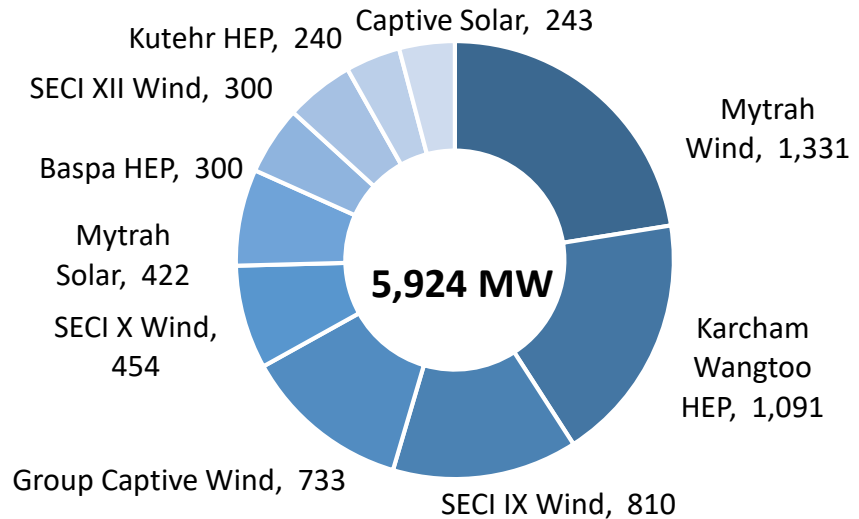
**Solar Modules & Green H<sub>2</sub>**



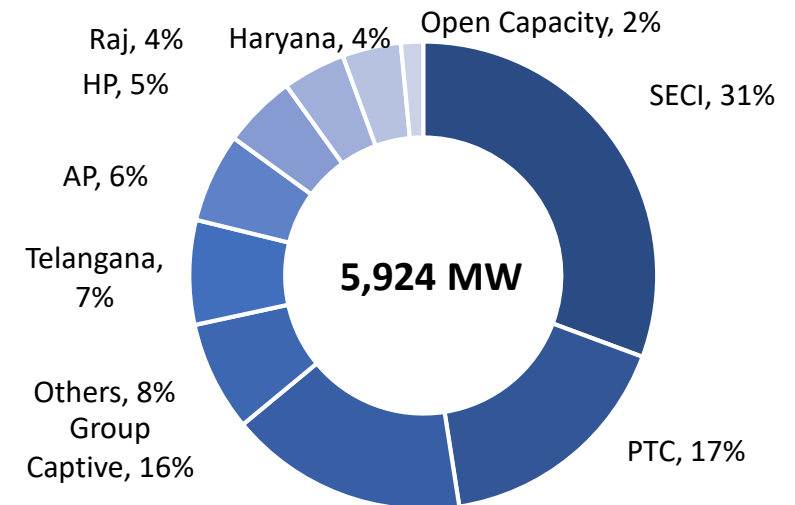
**Commissioning by CY24**

**Beyond CY 24**

## JSW NEO - Assets

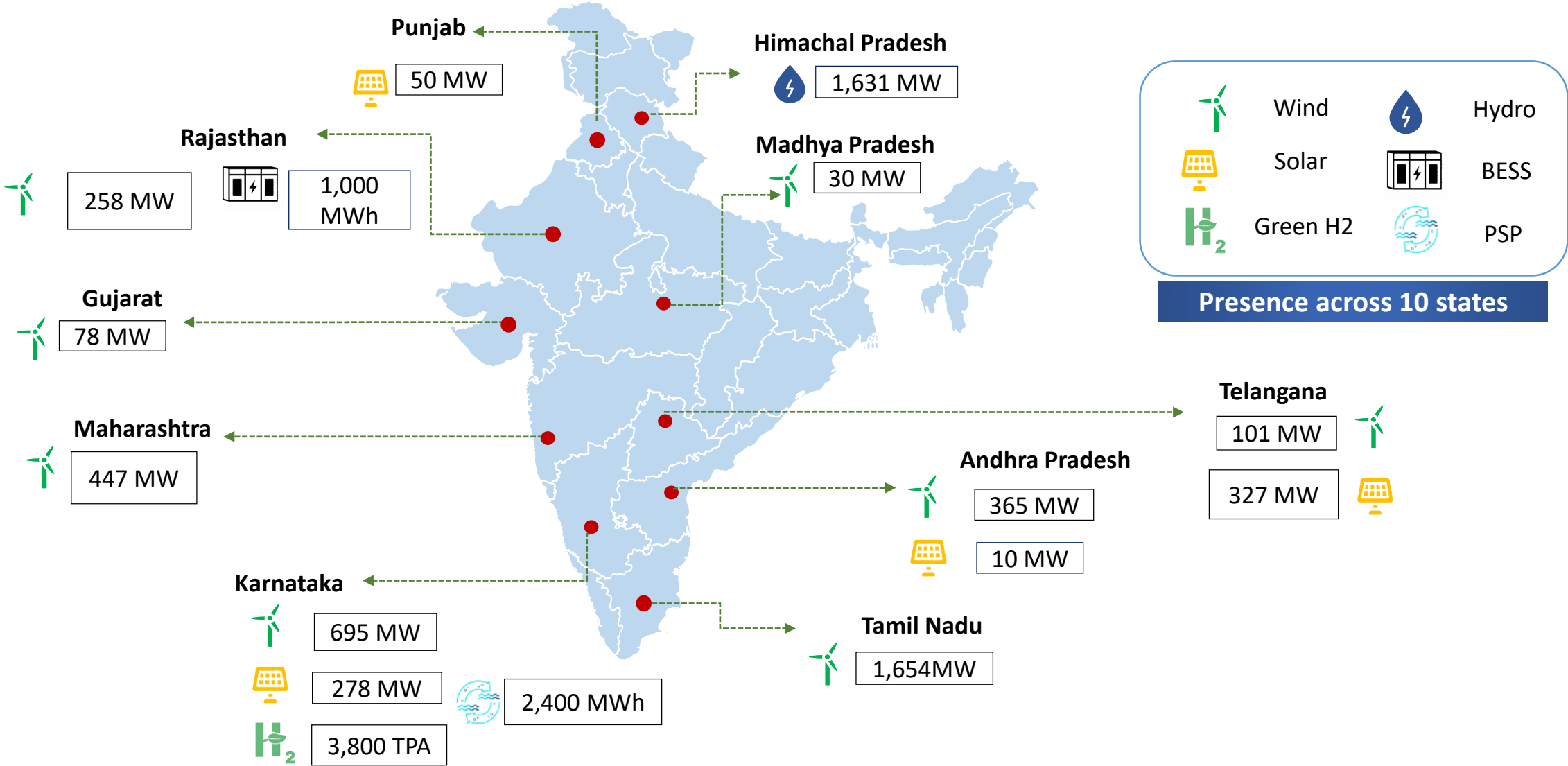


## JSW NEO – PPA Profile



# Developed a Pan India Footprint of Diverse Asset Base

Operational Capacity by CY 24 (5,924 MW)



Presence across 10 states

Map of India representation – scaling may not be accurate

# Energy Storage – Unique Value Proposition as an Early Mover

## Battery Energy Storage System (BESS)

LoA received for 500MW/1000 MWh SECI project in Jan-23

- 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
- Expected commissioning by CY24

Particulars	SECI (BESS)
Tender capacity	500 MW / 1000 MWh
No. of hours backup	2 hours
Purchase agreement tenure	12 years
RTE	Min 85%
No of cycles per day	2

## Hydro Pump Storage (PSP)

- Received LoI for 2.4GWh (300 MW x 8 hours) PSP from Power Company of Karnataka Ltd (PCKL)
  - Target commissioning : 36 months from signing of PPA
  - PPA Duration: 40 years
  - JSW’s proven experience with managing the largest hydro portfolio in the private sector
- Large Resources secured for ~80GWhr PSP/ 12.3 GW

State	Capacity (GW)
Karnataka	0.4
Maharashtra	3.0
Uttar Pradesh	1.7
Rajasthan	1.2
Andhra Pradesh	1.5
Telangana	1.5
Uttarakhand	3.0
<b>Resources Secured</b>	<b>12.3</b>

# Green Hydrogen Opportunity – JSW Energy’s Unique Positioning

G

RTC RE Power at competitive prices

- Power is ~65-70% of variable cost for Green H<sub>2</sub> production
- Green H<sub>2</sub> a natural progression path for power companies banking on its competitive power cost
- JSWEL has RE resources with good CUF and profile along with large energy storage resources

R

Monetization of byproducts

- Valorization of Oxygen produced generating by-product credits
- O<sub>2</sub> produced in the Green H<sub>2</sub> to also be a part of the offtake agreement

E

Scalability

- JSWEL’s backward integration to solar module manufacturing along with secured energy storage resources, provides optionality of scaling up its Green H<sub>2</sub> capacity going ahead
- Low LCoE for Green H<sub>2</sub> provides optionality for manufacturing further downstream derivatives

E

Co-location with Offtaker

- Co-location of Hydrogen Complex with JSW Steel’s ecosystem
- Sharing of common infrastructure like water, roads, rail, etc.

N

Project Experience

- Ability to execute and build plants at costs well below industry standards
- Operational excellence - Industry leading efficiency & high Equity IRRs

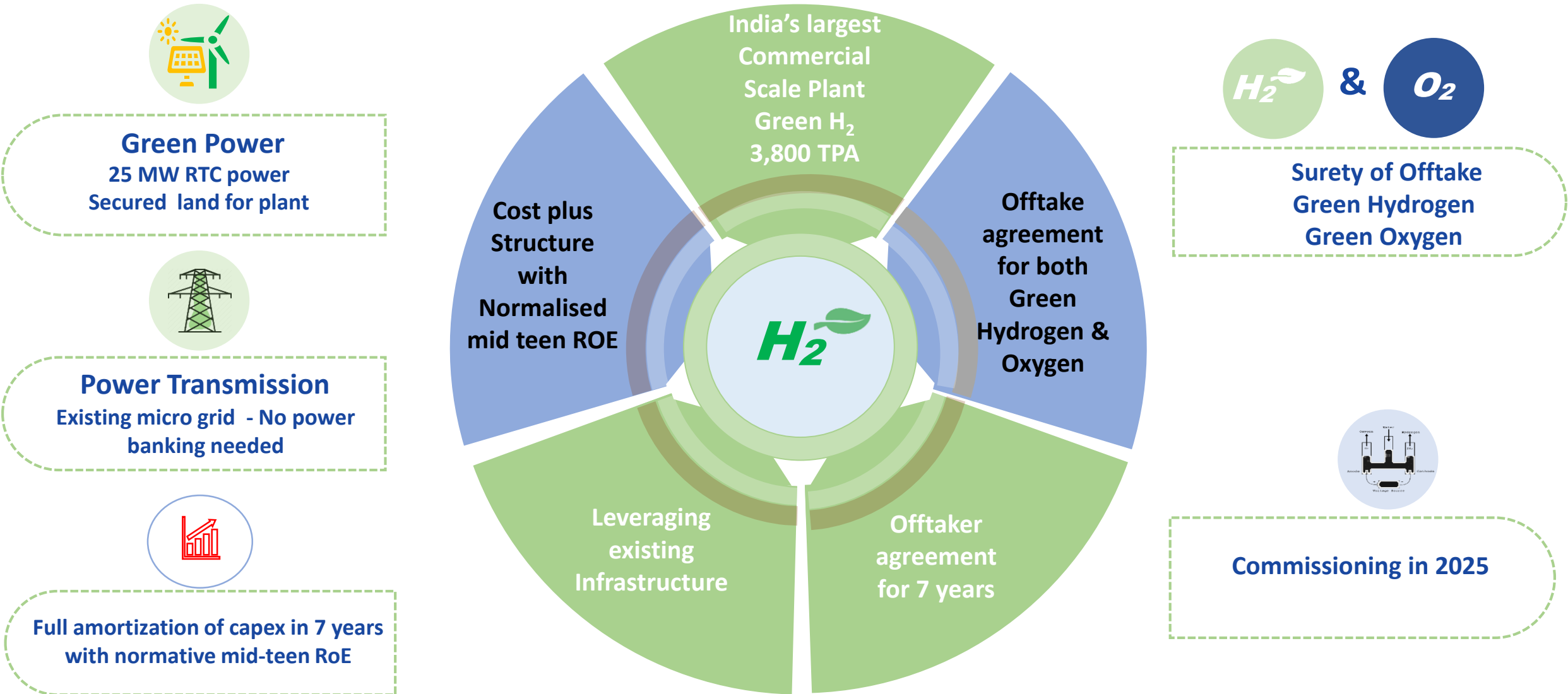
H<sub>2</sub>

Mutually Beneficial

- Green H<sub>2</sub> project win-win for JSWEL and JSW Steel
- Decarbonisation for hard to abate sector (Steel)
- Using Green H<sub>2</sub> increases the productivity of Direct Reduced Iron (DRI) process and will help offset Carbon Tax on Exports of Steel.

# Contracted India's Largest Commercial Scale Green Hydrogen Project

## India's First Plant to Produce Green Hydrogen for Production of Green Steel



## NEED FOR BACKWARD INTEGRATION

Solar power is critical to transition towards green power

Tariff policy (BCD) restrictive, leading to high landed cost of cells and modules

Grid connected projects must use modules listed in ALMM

Supply reliability issue, limited domestic module capacity vs the requirement

1 GW under PLI



Wafer-Cell- Module

## BACKWARD INTEGRATION AT JSW ENERGY

Allocated 1 GW of capacity under PLI for W-C-M

Supply Chain Derisking - strategic intent to utilize solar modules for captive usage

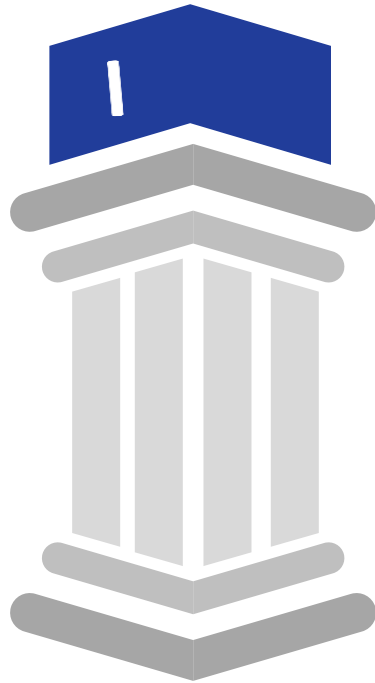
Eligible for ~₹ 320 Cr benefits under PLI scheme. Additional Incentives from State Government are under negotiation

Securing Resources – Location identified in Rajasthan, necessary approvals and ordering are in process

**Capacity to be operational by April 2025**

**Capital expenditure of ~₹ 1,600 Cr**

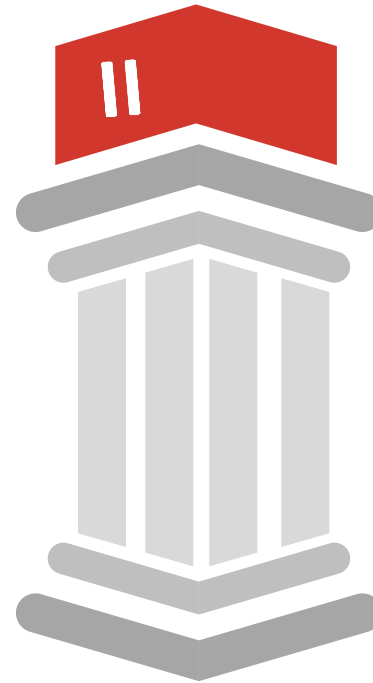
## Value Accretive Business Model



### 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 while ensuring all safety guidelines

## Protecting Returns



### Value Accretive Business Model

- 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

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



### Execution Efficiency

- Group's project execution excellence: Fast execution while ensuring all safety guidelines

## Enhancing IRRs



### De-scoped Project Execution

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



### Attractive Financing Solutions

- Debt loading coinciding with revenue generation
- Reducing Interest cost via refinancing



### Operational excellence

- Cost reductions due to Self O&M
- Technology Improvement

## Further Growth Opportunities



### Green Energy Needs of JSW Group and C&I customers

- JSW Group has aggressive growth plans in Steel, Cement and Paints businesses providing opportunities for group captive projects



### Power to X (PtX): Green Chemicals

- Green Hydrogen and Ammonia derivatives
- Green Methanol and derivatives



### Energy Storage: Hydro PSP and BESS

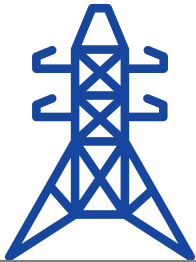


### Value Accretive M&A opportunities

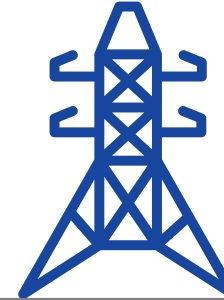


# Growth Framework leading to industry-leading returns

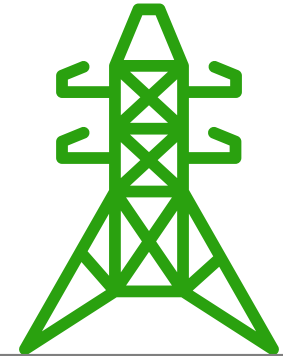
Single digit to lower teen IRR%



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

1- Company market analysis; COD: Commercial operations date; IRR: Internal Rate of Return



**JSW** Energy

**Investor Relations Contact:**

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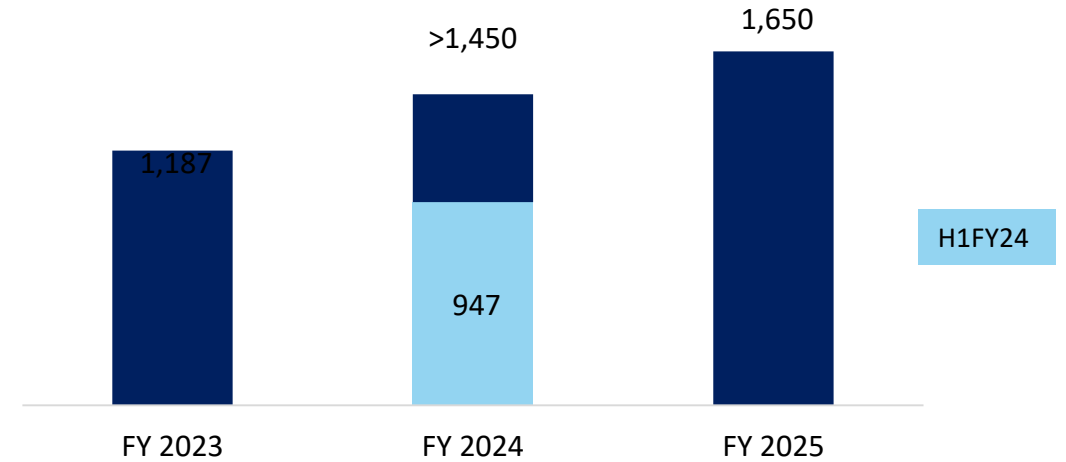
**ESG Data Profile:** [Link](#)

# Appendix

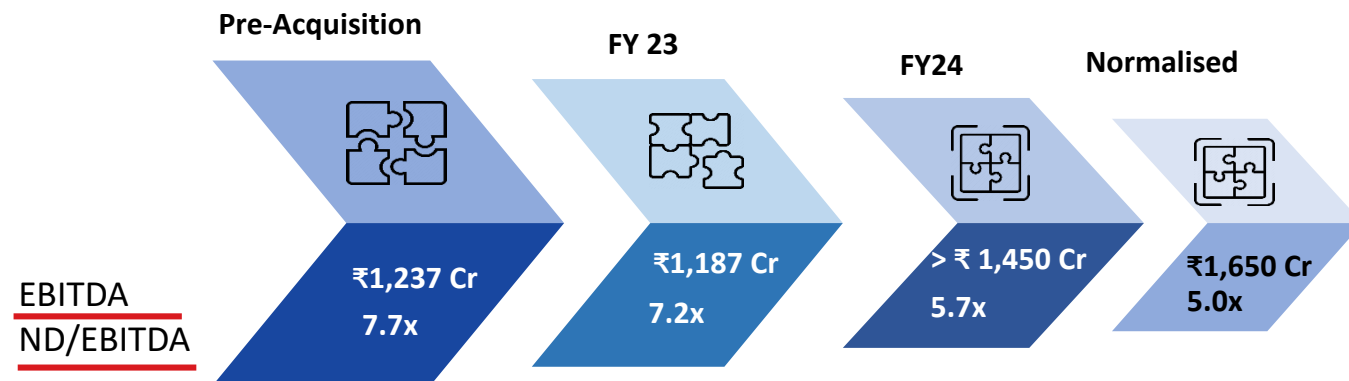


# Acquired RE Portfolio Progress on Track

## Acquired RE Assets EBITDA



## Acquired RE Portfolio Net Debt/EBITDA



# Acquired RE Portfolio

## Asset Optimisation & Performance Improvement progressing well



## Asset Optimisation & Performance Improvement Plan - Promising Outcome Witnessed



### WIND

#### Action Plan

- Restoration of WTGs
- Improve Machine Availability (MA)
- Focused interventions –
  - 76% of generation is from 10 sites
- Transmission loss improvement
- Power curve correction



### Outcome

#### Restoration of WTGs

All WTGs which were stopped before acquisition have been restored  
Maniyachi site (252 MW) fully operational and contributed in Q2 FY24

#### Machine availability

WTGs restoration and spare availability resulted in improved Machine Availability (MA). Achieved highest 98.5% MA in a day.  
MA in H1 FY24 improved to 95.5% as compared to H1 FY23 (87.5%)

#### Focused intervention on O&M

In house spares repair and inventory management initiated, to drive quick turnaround of repair and maintenance activity  
Capability building for self O&M of wind farms- Initiated for 764 MW

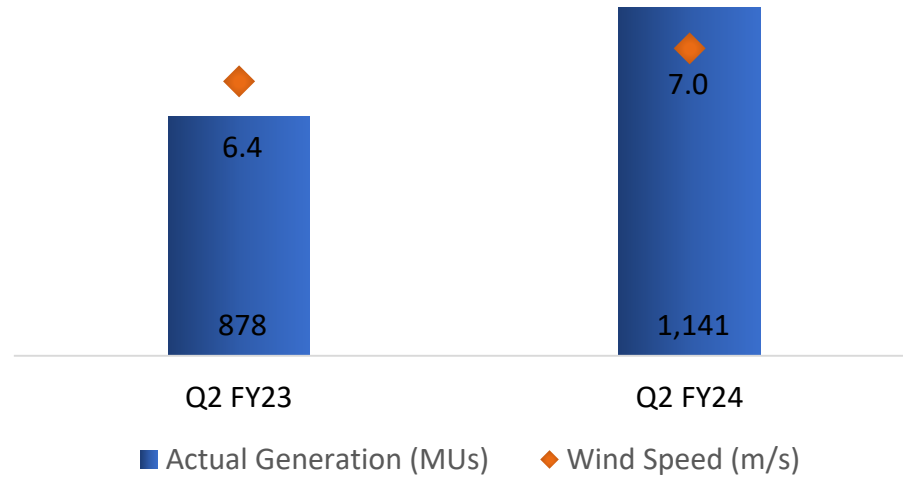
#### Equipments

All spares and material ordered, 90% has reached site.  
Balance of plant strengthening: Material and spares for 33 KV line, PSS and USS started receiving at plants.

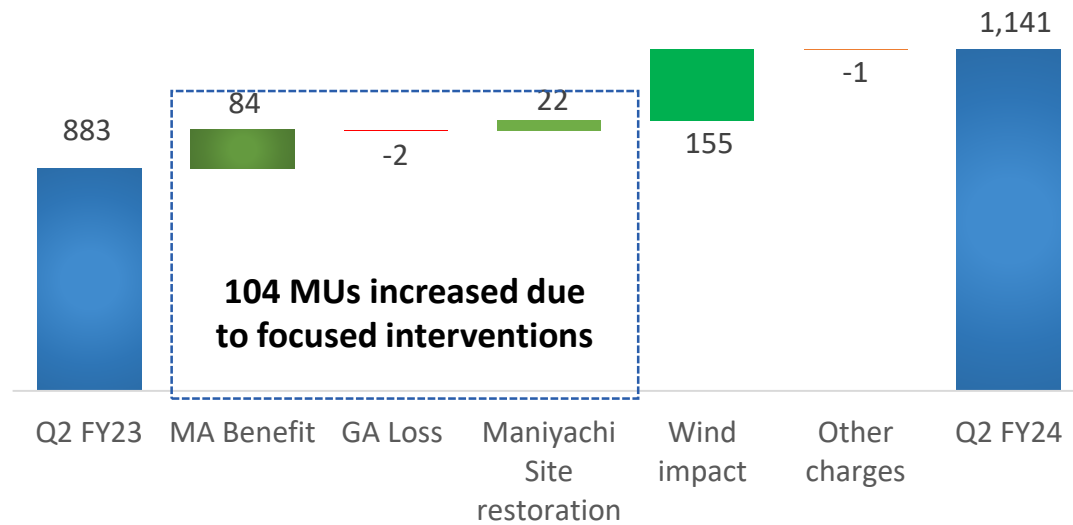
**Expected generation improvement by ~700 MUs**

# Acquired RE Wind - progress on track

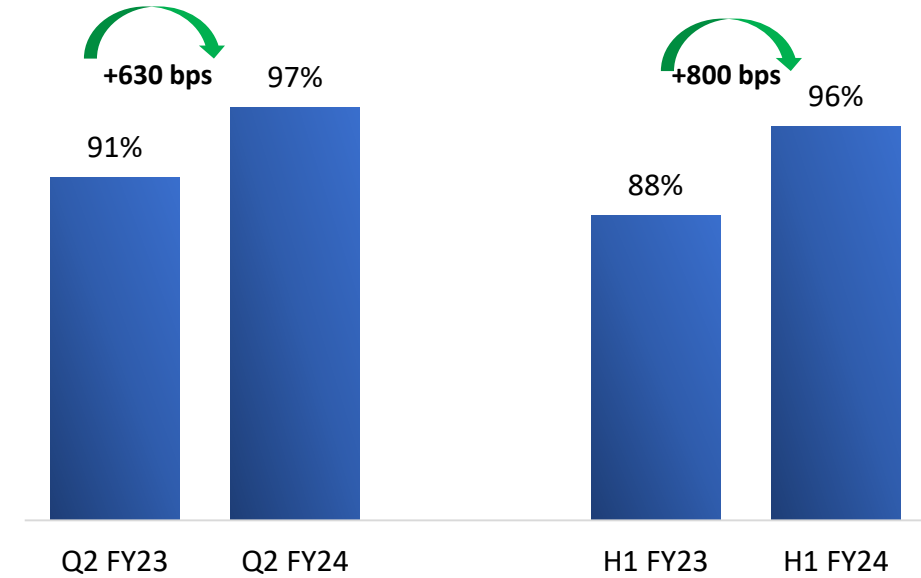
## Actual Generation vs Wind Speed



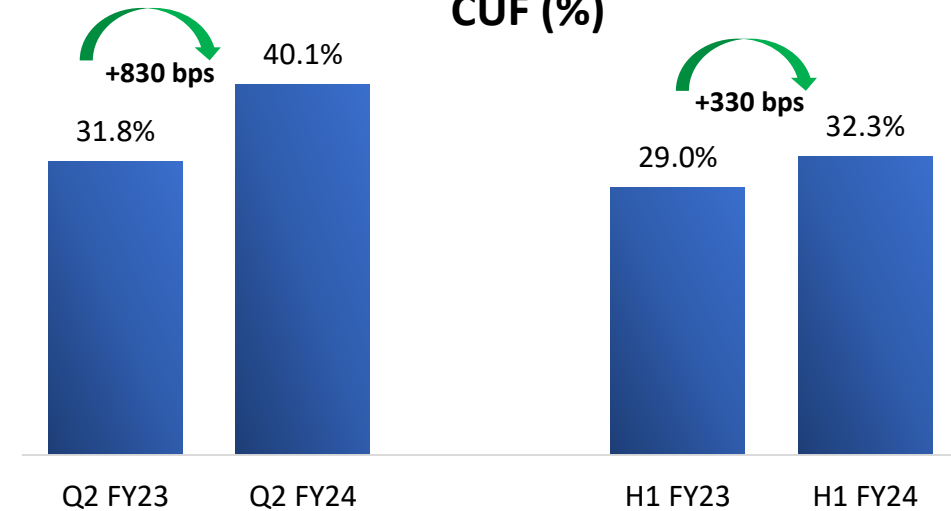
## Wind Generation (MUs)



## Machine Availability (%)



## CUF (%)



## Asset Optimisation & Performance Improvement Plan - Promising Outcome Witnessed



### SOLAR

#### Action Plan

- Improved Performance Ratio (PR) to add ~12 MUs, driven by:
    - O&M SOP implementation
    - Spares Management
    - Improve tracker availability
  - DC side Capacity augmentation (38 MW) to add ~20 MU's
- ~45 MUs improvement**



#### Operations & Maintenance

O&M SOP implemented and monitored on regular basis  
Spares are proactively planned and spares backup created accordingly

#### O&M and Performance Ratio

Performance parameters are re-negotiated with O&M vendor  
Plant performance parameters linked to performance ratio

#### Tracker availability

Tracker availability improved to 99% in this quarter

#### Augmentation & Restoration (38 MW DC)

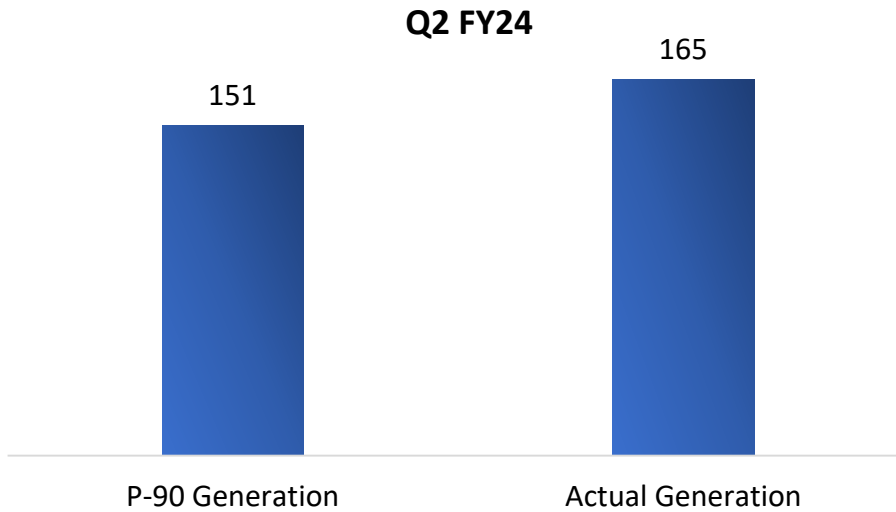
Order for modules is placed & delivery started, Module erection work under progress.

**Expected generation improvement by ~45 MUs**

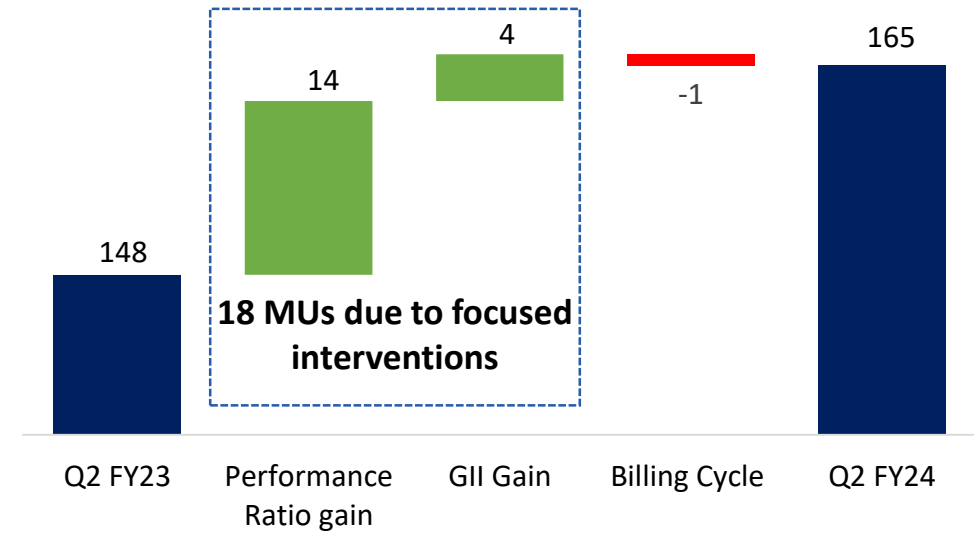


# Acquired RE Solar - progress on track

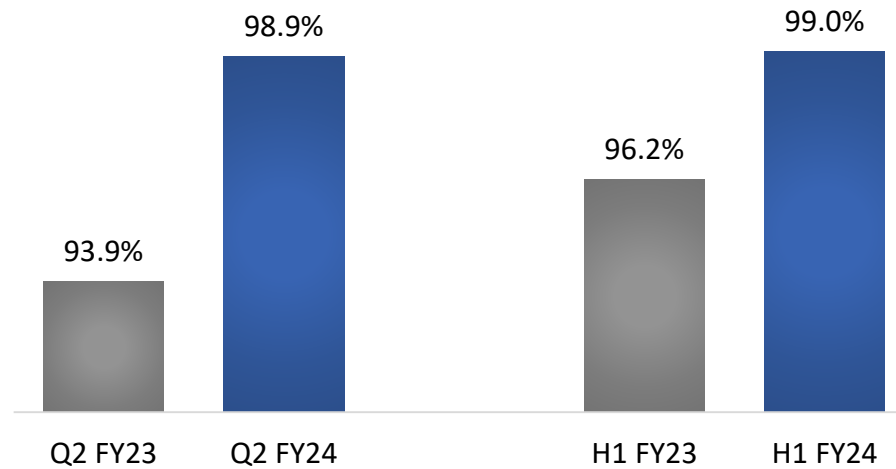
## P-90 vs Actual Generation (MUs)



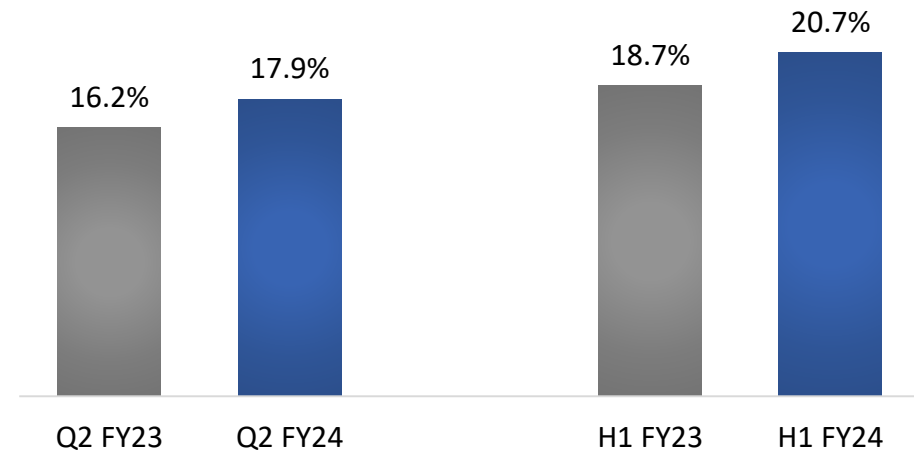
## Solar Generation (MUs)



## Plant Availability (%)

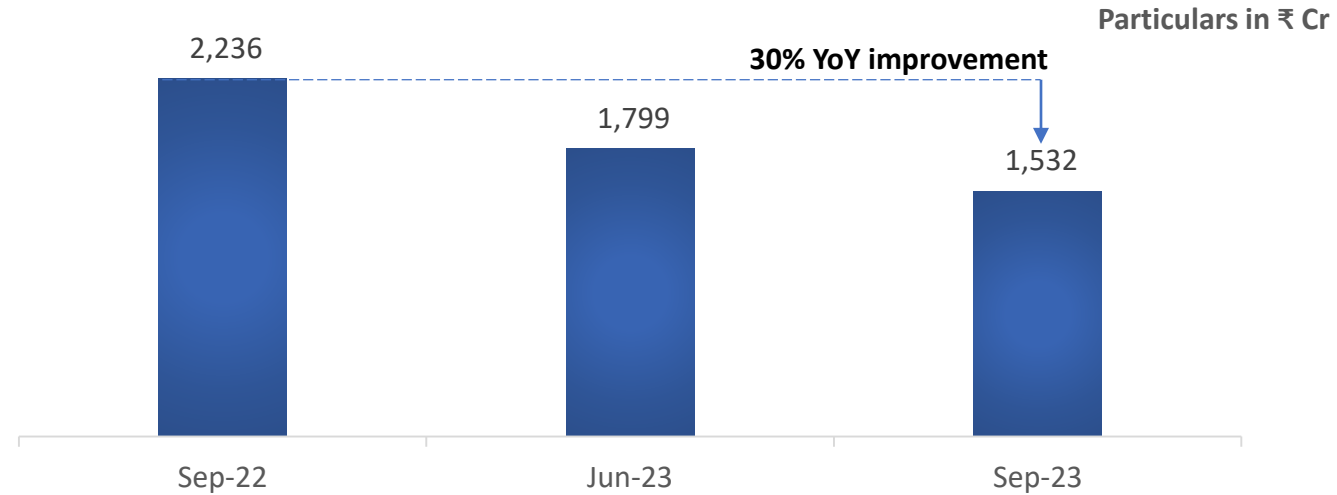


## CUF (%)

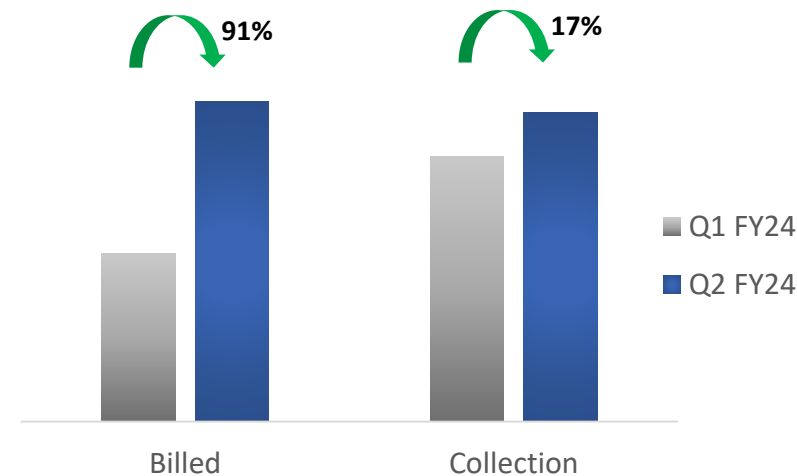


# Receivables Cycle Improving

## Strong collection in Acquired RE Portfolio's Receivables



## Focused O&M Interventions leading to strong billing/collection growth



Operating efficiency reflecting in strong generation and billing growth

Continued focus on collection efficiency supports further reduction in the receivables

**Optimise Receivables Cycle to Healthy Levels within 12 months**

# Under Construction Projects



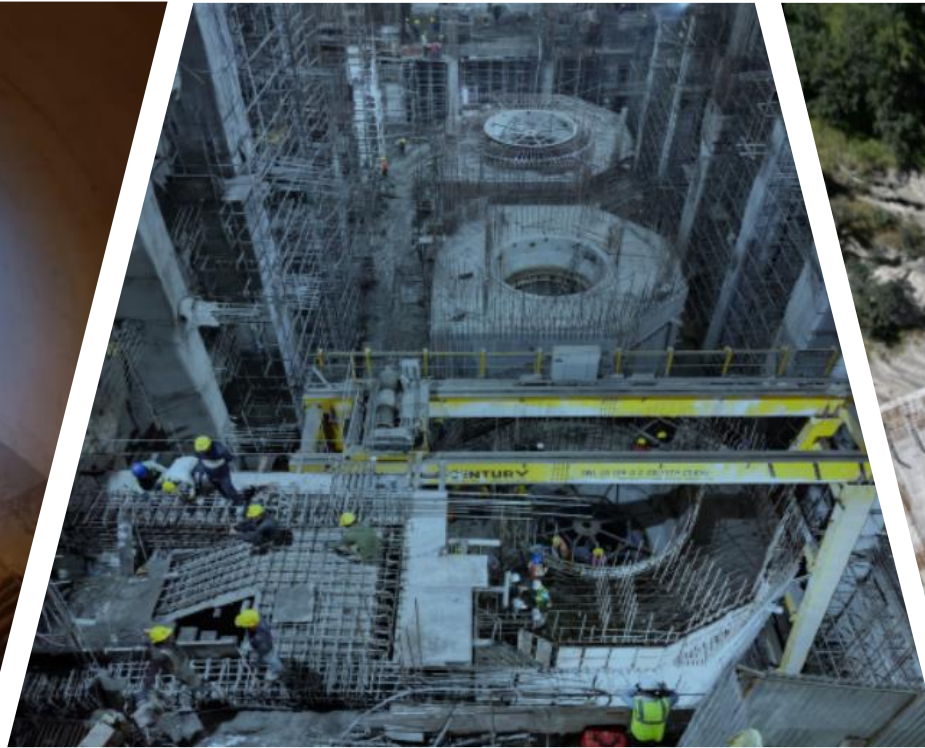
Acquired RE Portfolio Solar Plant (Hungund, Karnataka)



## **Wind Projects (SECI IX,X, XII and Group Captive)**

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- 216 MW commissioned by end of Q2 FY24
- Expected commissioning by CY 2024



## Tunneling & Concreting

- Completed ~ 99.4% (21 km) tunneling work (up from ~ 95.9 % in Q1)
- Power house and control room concreting in progress (55% completed)

## Electro-mechanical works

- Spiral Case erection work of all units completed

## Concreting Barrage

- Completed ~76 % of Concreting of Barrage
- Erection of Barrage gates to start



## Mechanical

- Boiler light up work completed
- Coal and ash handling work in progress

## Electrical Works

- Transmission tower foundation, erection and stringing work in progress
- Switchyard overhauling work started