

# ViewCube

September 2023

**Revving roads and renewables**  
CRISIL Ratings Annual Infrastructure Summit

# CRISIL ViewCube on renewables

The ViewCube is a compilation of sector views expressed during CRISIL's webinars.

These include CRISIL's own views, those of stakeholders, and those emanating from a poll conducted during the webinar.

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# Section 1

## Our view



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# Key messages

- Installed capacity of solar and wind to double to **218 GW** in the next five fiscals from 108 GW as of March 2023
  - Executable pipeline strong at **~50 GW**, provides visibility for this fiscal and the next
  - Pickup in auctions augurs well for capacity implementation over next fiscal onwards
- Rising renewable capacity to necessitate storage for grid balancing; **7-11 GW** of storage capacity expected in the next five fiscals
- Sector to require investment of **~Rs 6.4** lakh crore over the next five years; capital availability to remain conducive
- **Credit view on renewable developers stable:**
  - Ebitda to grow **20%** driven by healthy capacity growth
  - Operating performances to remain stable
  - Debt to rise, but leverage seen steady at ~7 times with healthy **DSCRs of 1.2-1.3 times**

## Section 1: Growth contours

- Installed capacity to double to 218 GW over the next five fiscals, driven by:
  - Strong executable pipeline of ~50 GW and pickup in auctions
- 7-11 GW of storage expected over the next five fiscals driven by government push
- Sector to see investment of ~Rs 6.4 lakh crore over the next five years; capital availability to remain conducive

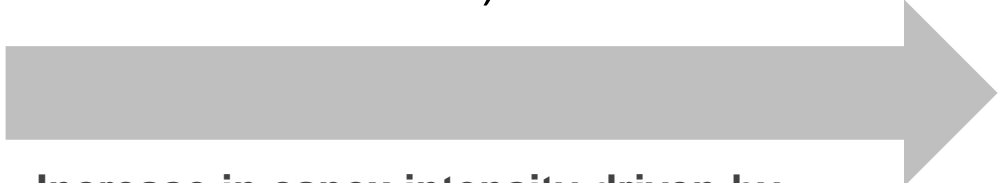
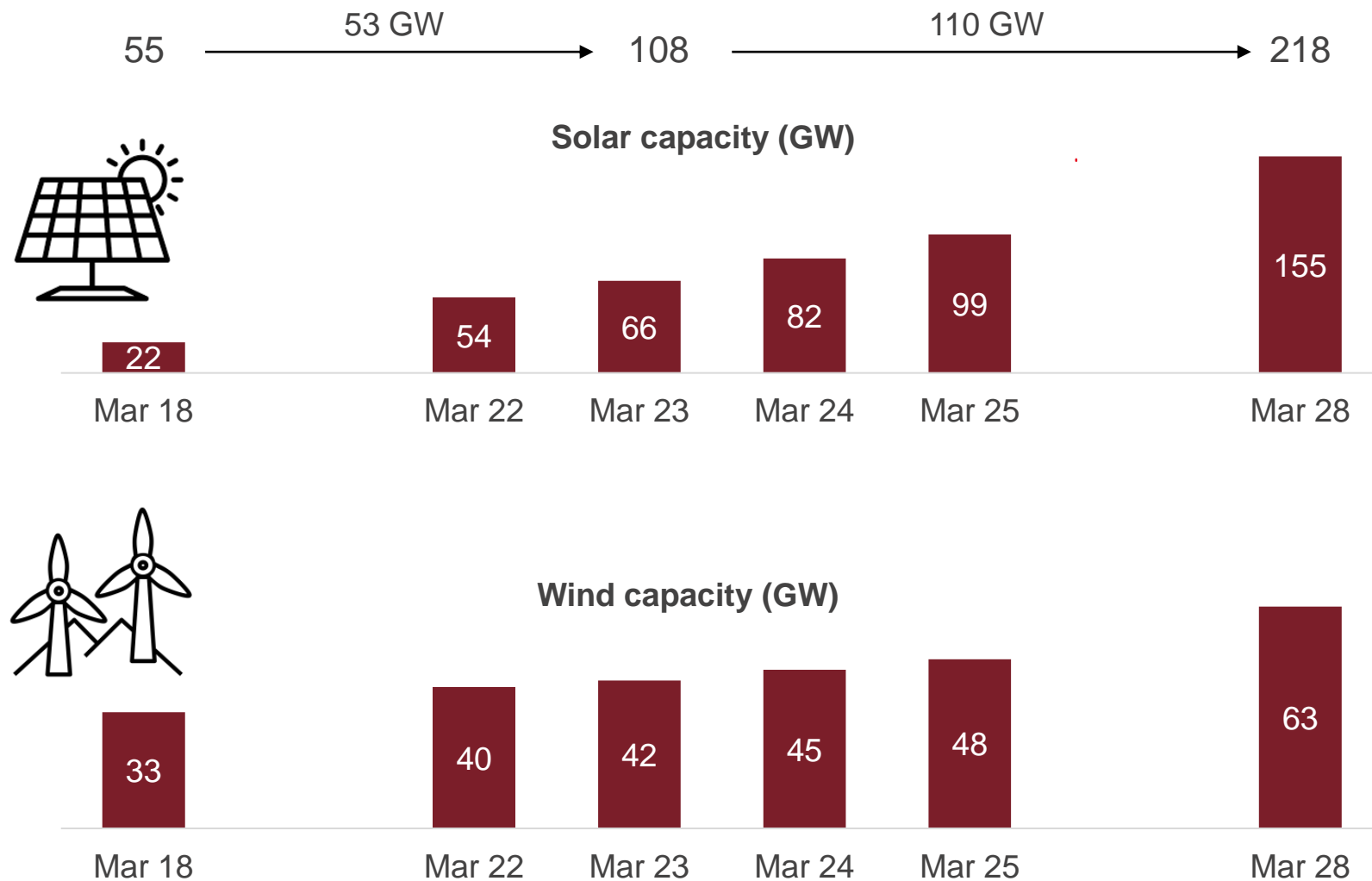
## Section 2: A stable credit view on renewable developers

- Healthy capacity addition to drive Ebitda growth of 20%, operating performance to remain resilient
- Debt will grow, but will be balanced by cash flows
  - Leverage expected to remain stable at ~7 time
  - Average DSCRs at 1.2-1.3 times

# Renewable capacity to double to 218 GW over the next five fiscals

Addition of ~22 GW per annum (more than double the ~10 GW per annum from fiscals 2019 to 2023)

## Overall capacity (GW)



### Increase in capex intensity driven by:

1. Healthy executable pipeline: Over 50 GW
2. Pickup in auction activity with 12 GW in the first four months of this fiscal (= fiscal 2023)
3. Regulatory interventions: Resolution of GIB issue and deferment of ALMM

### Further upside potential from green hydrogen and new wind tendering policy

### Key challenges to growth

- Sharp increase in module prices may raise tariffs and dampen offtake
- Unavailability of high-potential wind sites and supply constraints to restrict wind rollout

Source: Ministry of New and Renewable Energy (MNRE), CRISIL Ratings  
GIB: Great Indian Bustard, ALMM: Approved list of module manufacturers

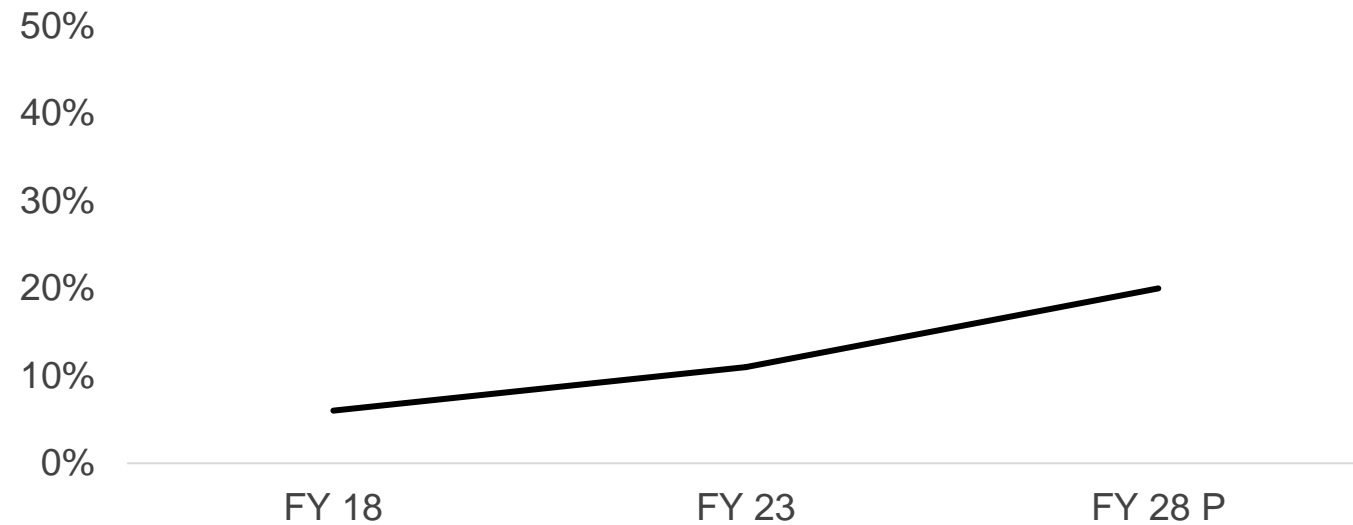
# Storage addition expected at 7-11 GW in the next five fiscals

Government push visible through higher proportion of storage in auctions and policy support

**Renewable generation to rise significantly and account for ~20% of generation by fiscal 2028...**

**...Government steps in to push penetration**

Renewable as percentage of overall generation



Source: CRISIL Ratings, CEA

- **Rise in proportion of storage/round-the-clock (RTC) auctions:** 30-34% last fiscal vis-à-vis 10-15% between fiscals 2020 and 2022
- **Policy push:** PHES policy guidelines released in April 2023 aim to provide budgetary support, allowance for additional revenue, storage targets for discoms and transmission charge waiver

*PHES – Pumped hydro energy systems*

- Pumped PHES and battery (Li-Ion or alternate chemistry) to be dominant forms of storage
- Storage capacity of 7-11 GW expected till fiscal 2028, largely in PHES; battery capex will depend on movement in battery prices
- Levelised cost of PHES expected at Rs 5-6 per unit, comparable to cost of Rs 5-6 per unit for thermal power plants (with domestic coal)

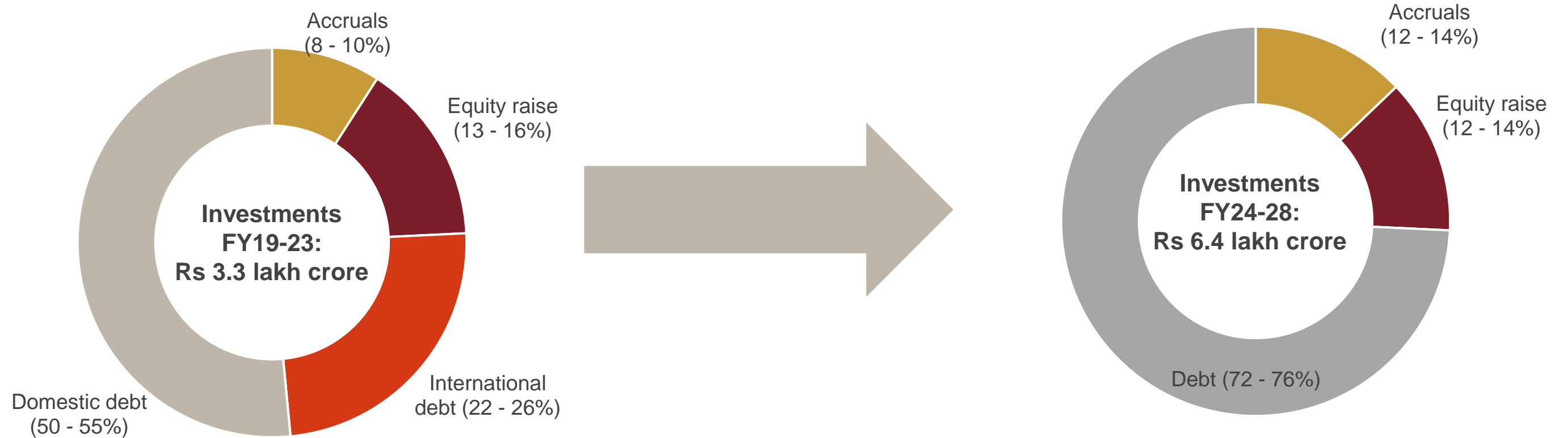


# Sector to see investment of ~Rs 6.4 lakh crore over the next five years

Capital availability to remain conducive

Healthy investor support received in the form of equity and green bonds/ECBs (nearly 35-40% of overall investment)

Share of accruals to increase as capacities increase; debt funding seen at 75%, equity at 12-14%



- **Equity:** Interest in sector (from ESG perspective) committed announcements and past record expected to keep equity contribution stable
- **Internal accruals:** Higher installed base leading to increase in contribution of internal accruals
- **Domestic debt:** Rising interest from public sector, domestic capital markets and institutions
- **Green bonds/ECBs:** Growth from global debt investors a monitorable as these will remain sensitive to global interest rate cycles

Source: CRISIL Ratings

## Section 1: Growth contours

- Installed capacity to double to 218 GW over the next five fiscals, driven by:
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- Sector to see investment of ~Rs 6.4 lakh crore over the next five years; capital availability to remain conducive

## Section 2: A stable credit view on renewable developers\*

- Healthy capacity additions to drive Ebitda growth of 20%, operating performance to remain resilient
- Debt will grow, but will be balanced by cash flows
  - Leverage expected to remain stable at ~7 times
  - Average DSCRs at 1.2-1.3 times

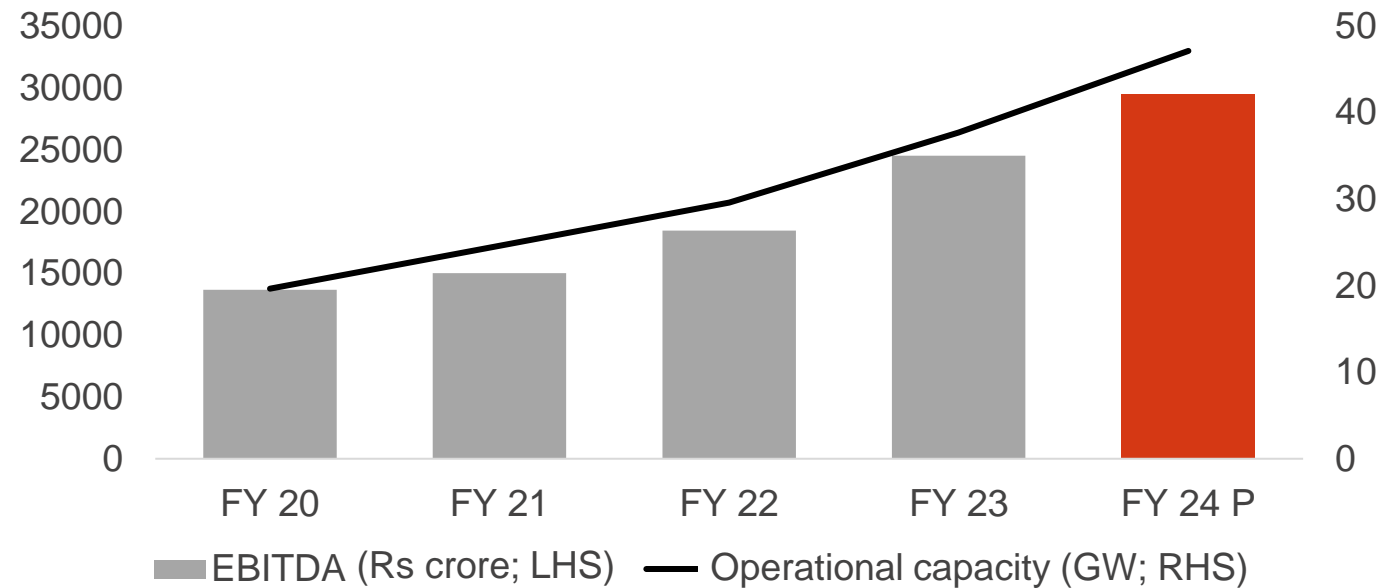
*\* Assessment includes aggregated study of 14 leading renewable players developing ~50% of upcoming capacity*

# Ebitda growth seen strong, at ~20% this fiscal, with capacity growth

Generation largely resilient and in line with expectation, but needs monitoring on the wind side

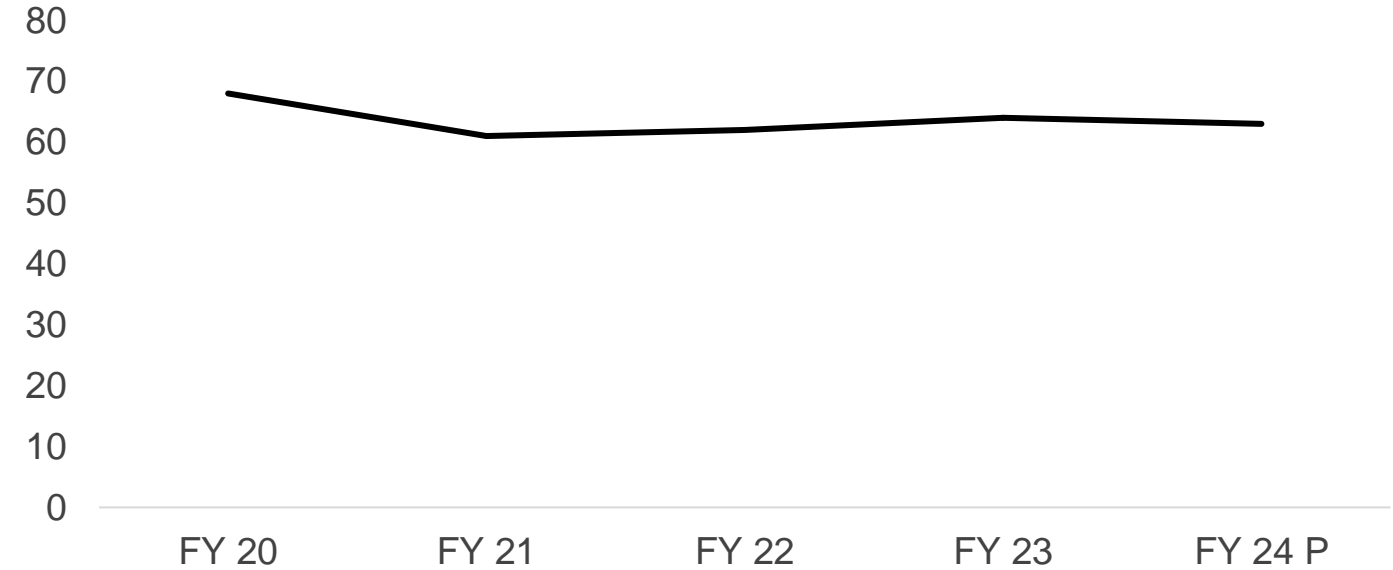
**Ebitda growth of ~20% this fiscal to be powered by increasing capacities**

Ebitda (Rs crore) and operational capacity (GW)/ of leading players



**Steady performance with Ebitda per MW largely stable**

Ebitda to operational capacity of leading players (Rs lakh/MW)



Source: CRISIL Ratings

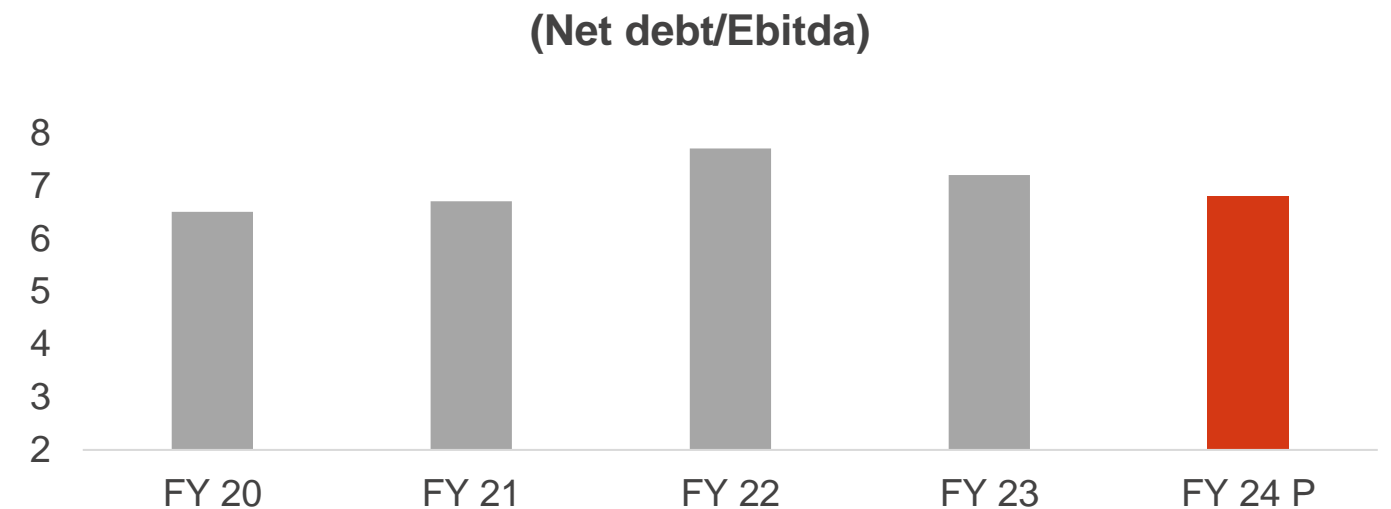
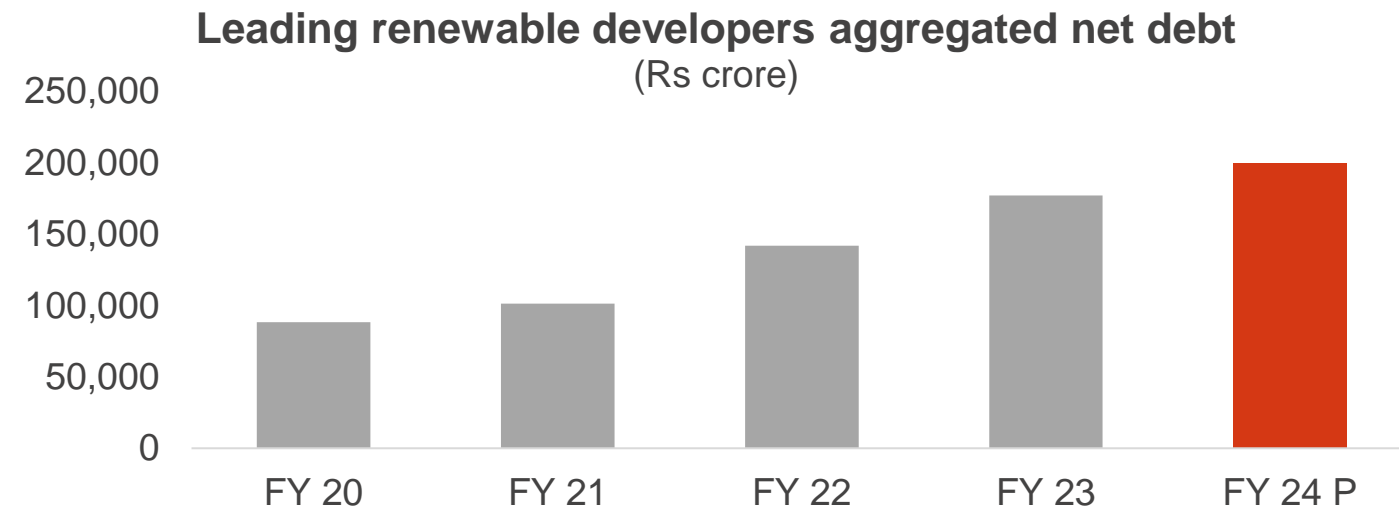
- Strong Ebitda growth of 20% envisaged with rising capacity this fiscal
- Study on operational performance of rated and assessed portfolio indicates satisfactory track record for solar, lagging for wind
- Performance steady at company level with stable Ebitda per MW of operational capacity, at Rs 60-70 lakh

# Despite higher debt for capacity expansion, leverage to remain steady

Capital raised upfront, improved receivables to keep gearing ~7 times

Debt to rise as well as capacity base will increase

However, leverage likely to remain steady at ~7 times



Source: CRISIL Ratings

- Net debt expected to rise along with higher capacities being implemented
- However, leverage expected to remain stable at ~7 times
  - **Leverage improved last fiscal after the release of stuck receivables** and improved operational performance
  - Continued tailwinds of Late Payment Surcharge (LPS) to result in reduction in receivables this fiscal, too
- **Sharp improvement in leverage unlikely due to higher capex intensity, but downside protected as equity raise has been healthy**
- Healthy cash flow covers: **DSCRs expected at 1.2-1.3 times** over tenure of the debt supporting credit profiles

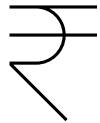
# Key takeaways



Renewable capacity to double to **218 GW** in the next five fiscals due to a strong pipeline and pickup in auctions

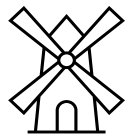


Rising capacity to necessitate storage for grid balancing; storage of **7-11 GW** expected in the next five fiscals

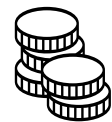


Investment of **~Rs 6.4 lakh crore** required over the next five years; capital availability to remain conducive

## Credit outlook on renewable developers: Stable



Healthy cash flows to ensue with Ebitda growth of 20% and steady asset performance



Debt to rise, but leverage to remain stable at **~7 times** with healthy DSCRs of 1.2-1.3 times

**Key monitorables:** Stretch in payments because of weak financial risk profiles of state discoms, geopolitical disruptions impacting module costs

# Section 2

## Their view



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# Excerpts from a panel discussion held during the webinar (1/3)

## Eminent panelists

### RP Gupta

Chairman & Managing Director  
SECI

### Deepaksingh C Thakur

Managing Director & CEO  
Mahindra Susten Private Limited

### Nawal Saini

Managing Director  
Renewable Power & Transition, Brookfield

### Shivanand Nimbargi

Managing Director & CEO  
Ayana Renewable Power Private Limited

### Suvek Nambiar

Managing Director & CEO  
India Infradebt Limited

## On growth prospects of the Indian renewables sector

- A conducive regulatory stance and steep government targets of 500 GW by 2030 will be pertinent to the RE growth story.
- Strong ESG focus of the industry with sufficient capital availability will accelerate growth.
- Adequate capital deployment can mitigate the growth challenges in the sector.
- Improvement in payment track record of discoms will support investments in RE.

## On capital availability (both equity and domestic/foreign currency debt)

- Ample sources of equity available through large conglomerates with global vision as well as PE funds. Interest in the sector remains fairly high.
- Investments and tendering in the past two years have slowed due to on-ground issues such as GIB, ALMM and wind sector turmoil. However, ESG and climate concerns will drive investment.
- The quality of assets is also important for capital infusion. Developers are seeking opportunities to expand their portfolios.
- Debt disbursements are most likely to pick up given the resilience demonstrated by the sector and with negligent default statistics and continued government support, despite tailwinds.



# Excerpts from a panel discussion held during the webinar (2/3)

## On operational performance and movement of tariff

- Timely operations and maintenance (O&M) is pivotal in power generation. The type of technology used to set up the project is key for the overall performance.
- Wind resource in the country needs to be reassessed, some corrections required.
- Regular data analytics of past track record of the site will help remove bottlenecks in the performance of these projects.
- Bidding for new solar and wind projects should factor in the downside of resource availability and sufficient buffers should be maintained.
- Reduction in O&M cost with less labour deployment and more use of technology should make up for the gaps in resources.
- Tariffs are expected to increase over the medium term given the cost pressures prevailing in the market.

## On key mitigants for financing renewables

- Debt financing for assets is derived from projected cash flows of the assets and not the intrinsic value of the asset.
- The quality of the asset and commercial feasibility of the project, in terms of the region it is set up in, are of utmost importance for checking the viability of cash flows.
- Counterparty risk plays a pivotal role in project financing. Assessing if the project is viable for the counterparty is an important step.
- Mismatch between evacuation infrastructure and addition of renewables in the area needs to be monitored.





# Excerpts from a panel discussion held during the webinar (3/3)

## On storage solution for grid balancing

- Energy storage solutions will be imperative for grid stability once installed capacity crosses the 200 GW threshold.
- Storage solutions are essential as the share of renewables has already reached a significant proportion of total generation. Focus should be on reducing the cost of development of storage systems.
- Interest seen from all parties with 11 GW of bids tendered for storage/hybrid solutions in the past 4-5 years.
- Regulatory approval timelines have to be reduced from 4-5 years to add meaningful storage solutions in India.
- While the world is focusing on lithium battery energy storage system, there is a need for investment in other forms of storage (flow battery, pump-storage, lead batteries) to make India a leader in storage.

## On tariff trajectory

- Tariffs are likely to rise given that ALMM will kick in from March 2024. Supply chain constraints will also lead to higher tariffs.
- The government's focus is on self-reliance, but the benefit of the PLI scheme is likely to be seen only after 2.5-3.0 years if the capacities are set up in a timely manner.
- Domestic capacity is focused on module manufacturing and import dependence will continue. There is a need for backward integration.

## On payment cycle of discoms

- Central agencies such as SECI and NTPC have been consistently making timely payments.
- Central counterparties are likely to maintain their payment track record, given the benefit of diversity, payment security funds, and higher bargaining power because of their scale, as well as flexibilities such as being beneficiary in tripartite agreement between the state government, the central government and the Reserve Bank of India.
- As several state discoms have subscribed to the LPS scheme of the Centre, receivables position of developers have improved.



# Solar and wind power producers rated by CRISIL Ratings

Company
Ujjawala Power Pvt Ltd
Amplus Green Power Pvt Ltd
Jbm Solar Power Maharashtra Pvt Ltd
Walwhan Wind RJ Ltd
Green Infra Corporate Solar Ltd
TAQA Neyveli Power Company Pvt Ltd
Walwhan Solar MP Ltd
TP Kirnali Ltd
ABREL SPV 2 Ltd
Aditya Birla Renewables Subsidiary Ltd
Rajat Renewables Ltd
Azure Power India Pvt Ltd
Rising Bhadla 2 Pvt Ltd
Kanak Renewables Ltd
Renew Wind Energy (Devgarh) Pvt Ltd
NLC India Ltd
Chattel Constructions Pvt Ltd
Solarfield Energy Two Pvt Ltd
Ganges Green Energy Pvt Ltd
Kiran Solar One Pvt Ltd
Walwhan Solar MP Ltd

Company
Kudgi Transmission Ltd
Adani Green Energy (UP) Ltd
Azure Power Forty Three Pvt Ltd
DJ Energy Pvt Ltd
Aditya Birla Renewables Ltd
Priapus Infrastructure Ltd
Amplus Solar Solutions Pvt Ltd
Prathama Solarconnect Energy Pvt Ltd
Solitaire Energies Ltd
Jhajjar Power Ltd
Azure Power Forty Pvt Ltd
Renew Wind Energy (Rajasthan 3) Pvt Ltd
Hinduja Renewables Energy Pvt Ltd
DB Power Ltd
Amplus Pavagada Solar Energy Two Pvt Ltd
Aditya Birla Renewables Utkal Ltd
Satpura Transco Pvt Ltd
Kindle Engineering and Construction Pvt Ltd
NTPC Ltd
Kiran Renewables Pvt Ltd
Yarrow Infrastructure Pvt Ltd

Company
JBM Solar Energy Maharashtra Pvt Ltd
Raajhans Solar Pvt Ltd
Renew Wind Energy (Rajasthan One) Pvt Ltd
Malwa Solar Power Generation Pvt Ltd
Azure Power Maple Pvt Ltd
Nellai Renewables Pvt Ltd
Torrent Solargen Ltd
SJVN Ltd
Aditya Birla Renewables SPV 1 Ltd
Torrent Power Ltd
Dreisatz Mysolar24 Pvt Ltd
Praj Industries Ltd
Nabha Power Ltd
Green Infra Wind Energy Ltd
North Eastern Electric Power Corporation Ltd
Amplus KN Solar Pvt Ltd
TP Northern Odisha Distribution Ltd
Uttar Urja Projects Pvt Ltd
ABREL Solar Power Ltd
Prayagraj Power Generation Company Ltd
Rising Bhadla 1 Pvt Ltd

# Solar and wind power producers rated by CRISIL Ratings

Company
Vayu (Project 1) Pvt Ltd
Deligentia Energy And Infrastructures Pvt Ltd
Renew Solar Energy (Telangana) Pvt Ltd
India Grid Trust
Energy Efficiency Services Ltd
Renew Wind Energy (Karnataka 4) Pvt Ltd
Renew Sun Waves Pvt Ltd
Molagavalli Renewable Pvt Ltd
Avaada SataraMH Pvt Ltd
Jindal Power Ltd
Bhanuenergy Infrastructure and Power Ltd
Trinethra Wind And Hydro Power Pvt Ltd
Hiraco Renewable Energy Pvt Ltd
Solarfield Energy Pvt Ltd
Renew Clean Energy Pvt Ltd
Sapphire Industrial Infrastructures Pvt Ltd
Ganeshvani Merchandise Pvt Ltd
Powerlinks Transmission Ltd
Latur Renewable Pvt Ltd
MI Mysolar24 Pvt Ltd
Renew Wind Energy (Budh 3) Pvt Ltd

Company
Solitaire Industrial Infrastructure Pvt Ltd
Bhanuenergy Industrial Development Ltd
Aditya Birla Solar Ltd
Responsive SUTIP Ltd
Amravati Power Transmission Company Ltd
NTPC-SAIL Power Company Ltd
Kanti Bijlee Utpadan Nigam Ltd
Citra Real Estate Ltd
Amplus Tumkur Solar Energy One Pvt Ltd
ONGC Tripura Power Company Ltd
Renew Wind Energy (Karnataka 3) Pvt Ltd
Renew Saur Urja Pvt Ltd
Virescent Renewable Energy Trust
Delhi Transco Ltd
Sembcorp Energy India Ltd
Aftaab Solar Pvt Ltd
Bothe Windfarm Development Pvt Ltd
CBC Solar Technologies Pvt Ltd
Juniper Green Sigma Pvt Ltd
Hinduja Renewables Pvt Ltd
Prayatna Developers Pvt Ltd

Company
Nuclear Power Corporation of India Ltd
Vector Green Prayagraj Solar Pvt Ltd
Clean Sustainable Energy Pvt Ltd
Hero Future Energies Pvt Ltd
Kiran Suryaprakash India Pvt Ltd
Renewables Trinethra Pvt Ltd
Tata Power Renewable Energy Ltd
Narmada Wind Energy Pvt Ltd
Aditya Birla Renewables Energy Ltd
Precious Energy Services Ltd
Walwhan Renewable Energy Ltd
Parampujya Solar Energy Pvt Ltd
Bhopal Dhule Transmission Company Ltd
JBM Solar Power Pvt Ltd
Power Grid Corporation of India Ltd
Fermi Solarfarms Pvt Ltd
Talwandi Sabo Power Ltd
Waacox Energy Pvt Ltd
Sepset Constructions Ltd
Porbandar Solar Power Ltd
Sand Land Real Estates Pvt Ltd

# Thank you

For further assistance and queries, write to us at [events@crisil.com](mailto:events@crisil.com)

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