SBICAPS
Complete Investment Banking Solutions

POWER SECTOR

TRANSITIONS IN THE ENERGY CLIMATE

FEBRUARY 2024

CONTENTS

EXECUTIVE SUMMARY (1/2)

- In FY24, energy supply and power demand have experienced remarkable growth, expanding by 8.5% y/y and 11.4% y/y respectively during the first 10 months of the fiscal year. These figures significantly exceed long-term trends observed over the past decade and past three years. If this robust trajectory persists, it could potentially surpass current medium-term estimates. The upsurge in demand can be attributed to various factors, including the overall rise in electricity consumption per capita, expanded electrification efforts, weather volatility, and heightened industrial activity. Additionally, emerging drivers such as green hydrogen and electric vehicles are anticipated to further augment energy demand.

- ***The government's ambitious target of achieving 5 mn tonnes per annum of green hydrogen capacity will necessitate ~ 250 BU of energy annually***. Accompanying this endeavour will be the creation of ~ 125 GW of renewable energy capacity, along with the requisite electrolyser capacity. While green hydrogen targets sectors traditionally challenging to decarbonize, such as heavy industry, the electric vehicle (EV) revolution aims to supplant fossil-fuel-based automobiles. Currently, India trails behind other economies in EV adoption, however, projections suggest that the number of ***EVs on Indian roads could surge by a factor of 20 from current levels by FY30, contributing to an incremental demand of ~40-50 BU.***

- The bulk of the anticipated rise in energy demand is anticipated to be satisfied by renewable energy sources and their corresponding storage solutions. While the early months of FY24 witnessed subdued progress in the construction and awarding of renewable energy projects, there has been a notable acceleration in activity during Q3. To meet the solar installed capacity targets by FY30, ***a sustained run rate of 35 GW per year is imperative***. However, additions have plateaued at around 12.7 GW since FY22, and a similar trend is anticipated for FY24. Additionally, ~9 GW of wind capacity needs to be added annually.

- An examination of projects under construction reveals a substantial pipeline extending until FY26, although there is a pressing need for greater momentum in the solar sector. The government's ambitious initiative to install 40 GW of rooftop solar capacity will not only alleviate pressure on utility-scale solar projects but also present households with the opportunity to contribute to the grid by selling excess electricity

- In tandem with renewables, thermal power generation is expected to continue playing a significant role, accounting for nearly half of the electricity produced by FY30 and providing reliable support during peak demand periods. However, underinvestment and the absence of long-term PPAs in this sector have resulted in many plants operating at high PLFs. In the short term, maximizing the utilization of over 40 GW of plants currently running at low PLFs will be crucial, primarily by resolving FSA and PPA issues. Additionally, *~10 GW may be added through the revival of currently non-operational plants with potential for recovery.*

EXECUTIVE SUMMARY (2/2)

- Despite these efforts, achieving the targeted 277 GW of thermal capacity by FY30 will be challenging. The existing under-construction capacity of 27 GW, combined with potential additions from idle plants, just about reaches the mark. Complicating matters further, around 64 GW of thermal plants will surpass the 25-year mark by that time. While the government's directive to defer the retirement of such plants until FY30 provides a degree of assurance, substantial action is required to refurbish and upgrade these aging facilities. This entails initiating work on an additional 55-60 GW of thermal capacity, surpassing the 25 GW originally envisioned.

- Recent events, such as the Punjab government's acquisition of a thermal plant, signify a potential trend where states may need to address capacity shortfalls. ***Analysis comparing peak demand vs state-owned capacity reveals a shortfall in many major states, necessitating strategic acquisitions or development of new thermal plants. This trend is expected to stimulate significant capital expenditure in the thermal sector by certain States.***

- In addition to generation, substantial investments are also required in transmission and distribution infrastructure. By FY30, it's estimated that transmission infrastructure will require Rs. 5 trn, with an additional Rs. 5 trn needed for distribution. Combined with earlier projections for generation and storage costs totaling Rs. 23 trn, this underscores the ***monumental funding requirement of Rs. 33 trn by FY30***. Such ambitious endeavors necessitate substantial funding, prompting banks to re-engage with the sector. Expectations are high for increased bank lending, which is anticipated to surpass the incremental lending observed in the past five years and become a cornerstone of financing for the power sector.

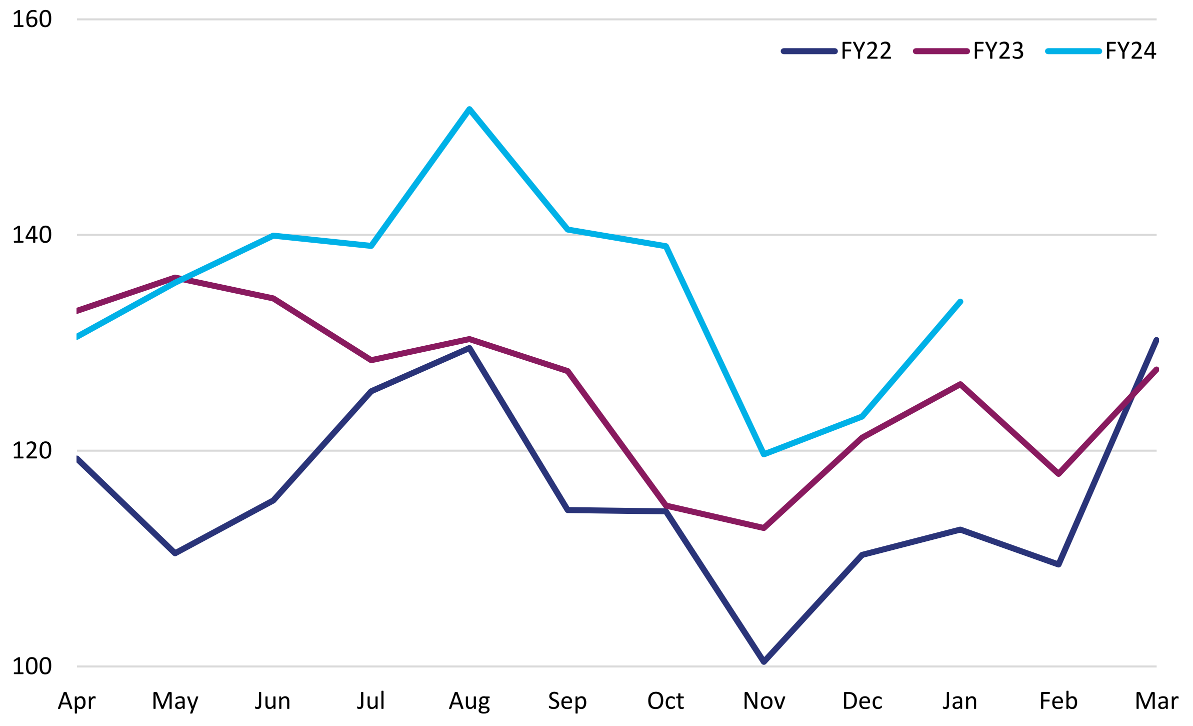
- In addition to debt financing, there's a need for capital recycling from operational projects to fund new ones. InvITs in the transmission sector have shown promise. Similar mechanisms can be extended to the generation side. Furthermore, the privatization of DISCOMs needs to resume to attract private fund flows. Energy companies, including both electricity and oil & gas players, are adapting to the changing landscape by diversifying into non-fossil fuel sources for sustainability. This includes building substantial renewable portfolios, potentially leading to equity listings/ strategic partners of renewable arms to unlock their value. Meanwhile, cash flows from conventional energy businesses are expected to support internal accruals, facilitating the transition to a new energy paradigm

In summary, various financing mechanisms, including increased bank lending, capital recycling, privatization, and diversification efforts by energy giants, are expected to converge to support the required transformation in the energy sector.

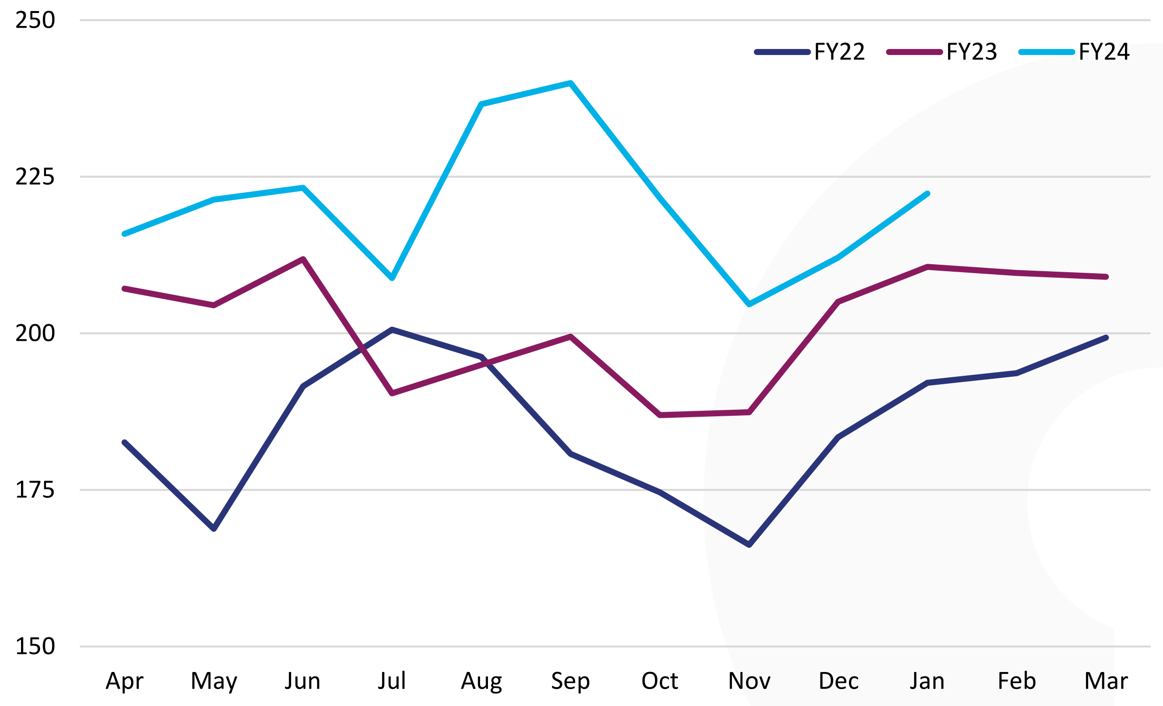
ELECTRICITY DEMAND REMAINS STEADY

SBICAPS
Complete Investment Banking Solutions

ENERGY SUPPLY (BU)



PEAK POWER DEMAND (GW)

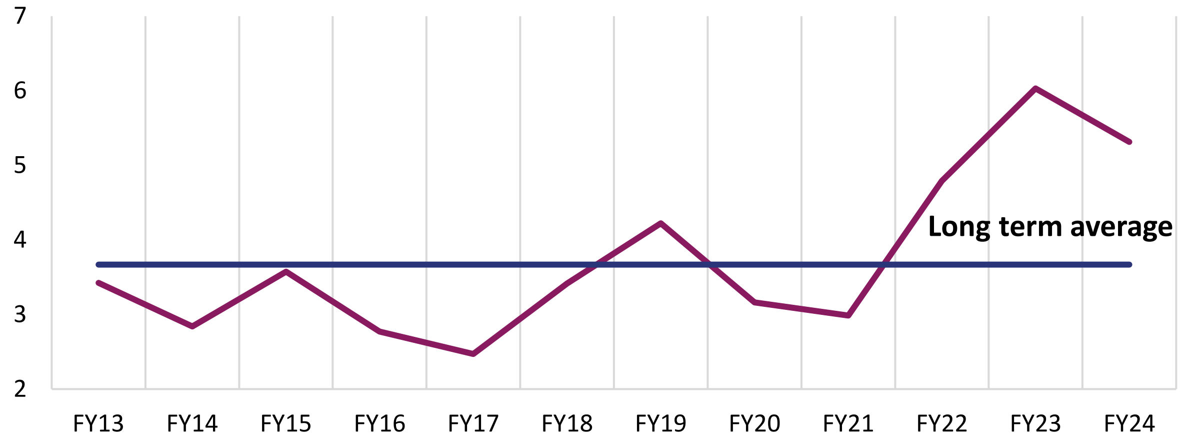


- FY24 has shown a clear uptrend in terms of energy supply, with the same growing at 8.5% y/y in 10MFY24. This is above the ~6% trend predicted by the 20th EPS. Seasonal variations (quarter/quarter and month/month) are also higher than observed earlier
- Peak power demand remained above trend throughout 10MFY24. The timing of the peak has shifted in the past decade from Q4 to Q2, as it is now driven by extreme weather rather than industrial demand

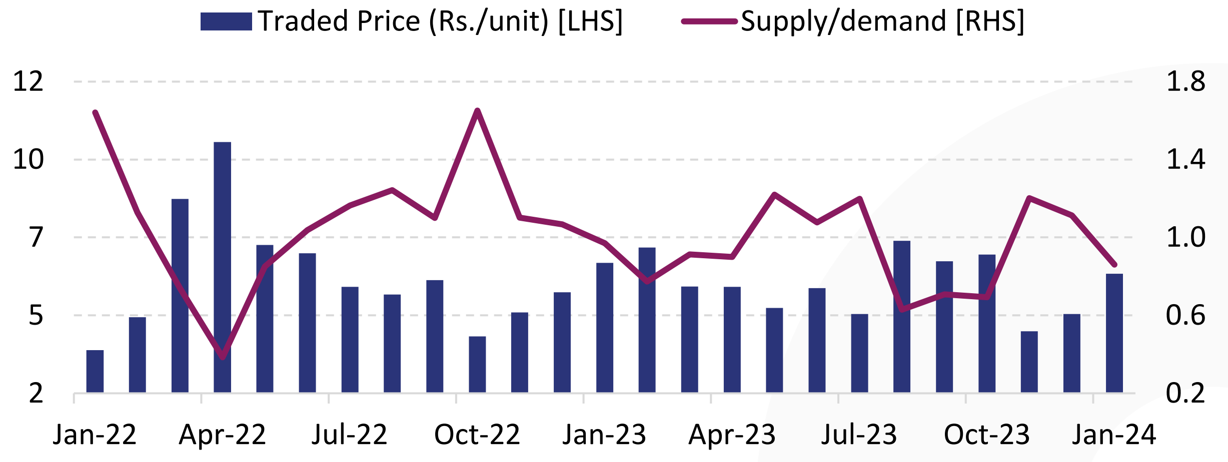
Source: CEIC, BS, CEA, SBICAPS

NEW DEMAND-SUPPLY MATH REFLECTED IN POWER MARKETS

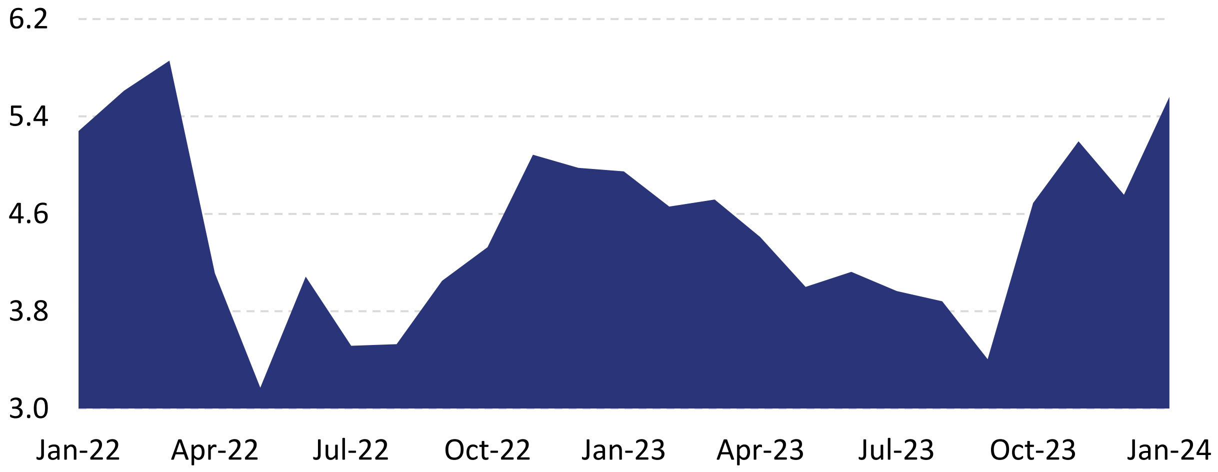
IEX CLEARING PRICE (RS./UNIT)



SPOT PRICE (RS/UNIT) VS. SUPPLY-DEMAND IN DAM



VOLUME IN DAY AHEAD MARKET (DAM) (TWH)

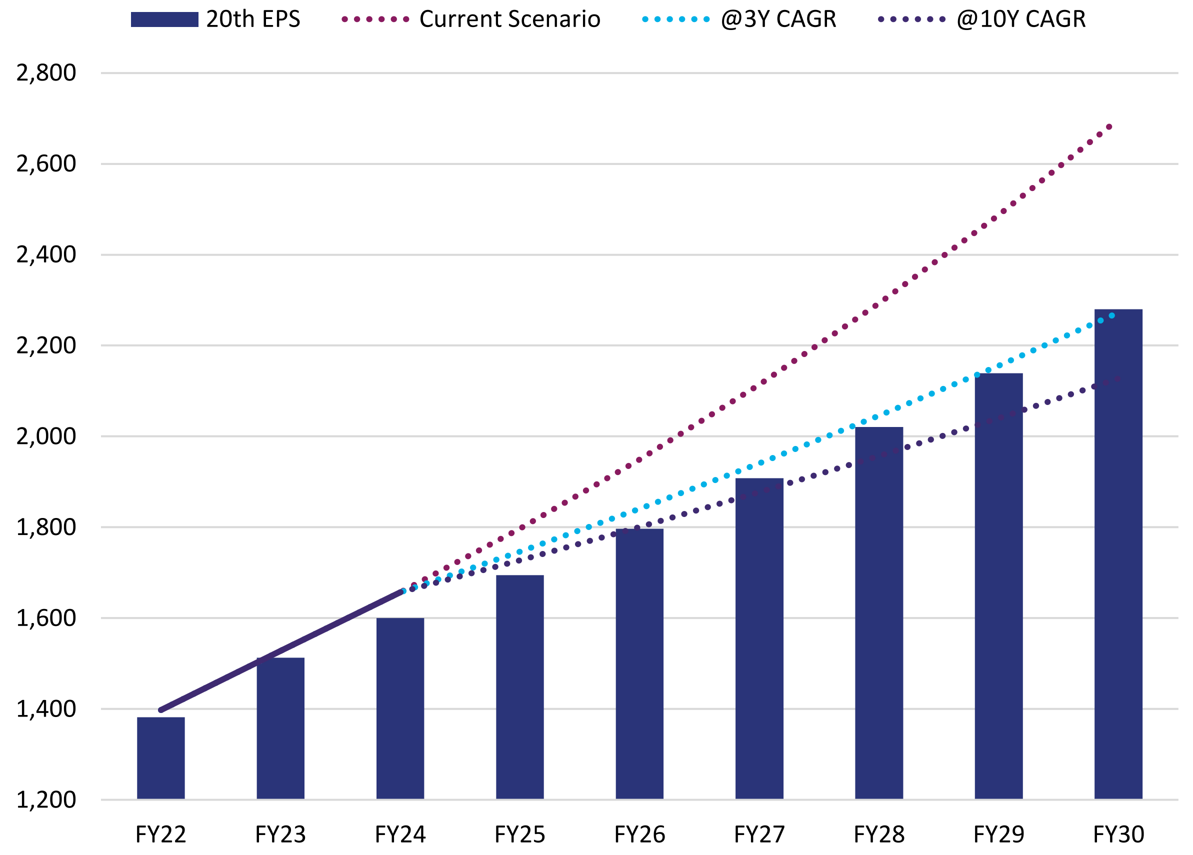


- Average clearing price in YTDFY24 much higher than the long-term average, and volumes being rich as well
- Volumes remain buoyant in the power markets even in relatively lean months
- Demand exceeds supply in high demand months such as summer and during monsoons, when coal glut affects thermal supply

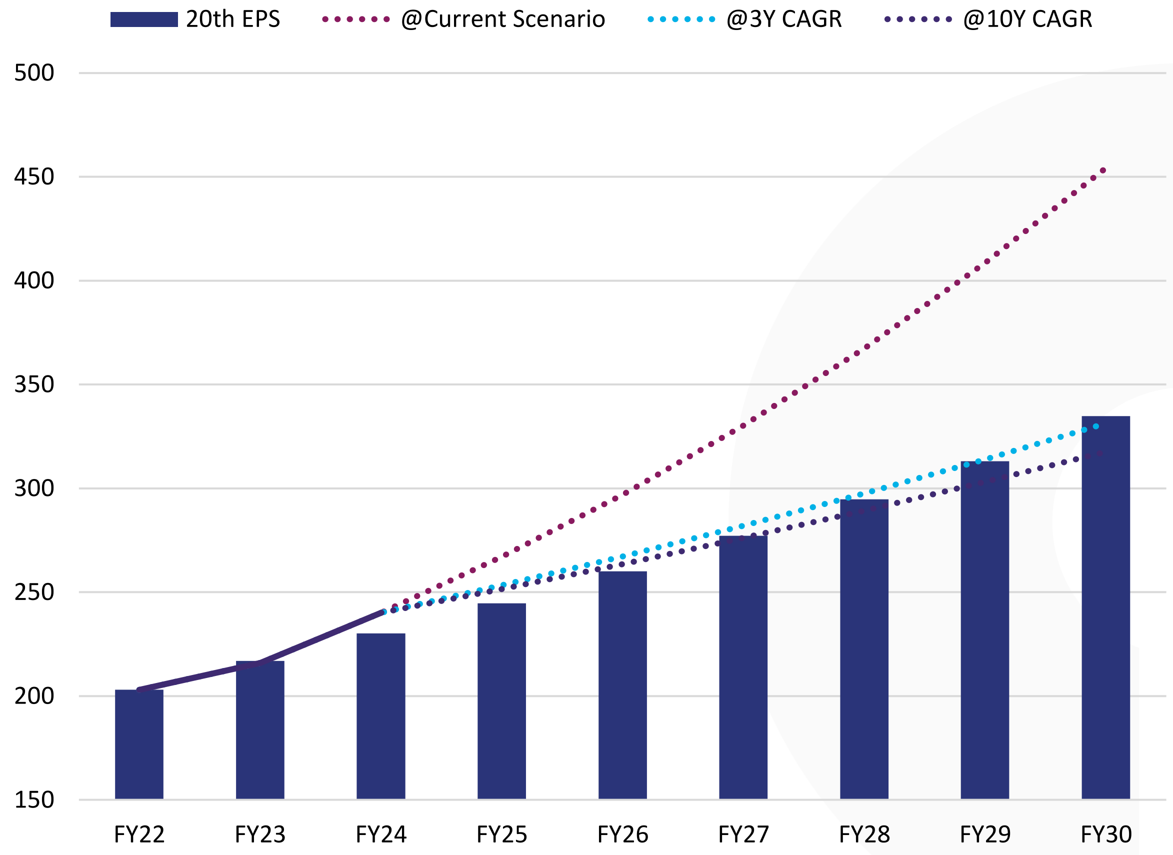
Source: IEX, SBICAPS

REQUIREMENTS COULD OVERSHOOT ESTIMATES

ENERGY REQUIREMENT (BU)



PEAK POWER DEMAND (GW)



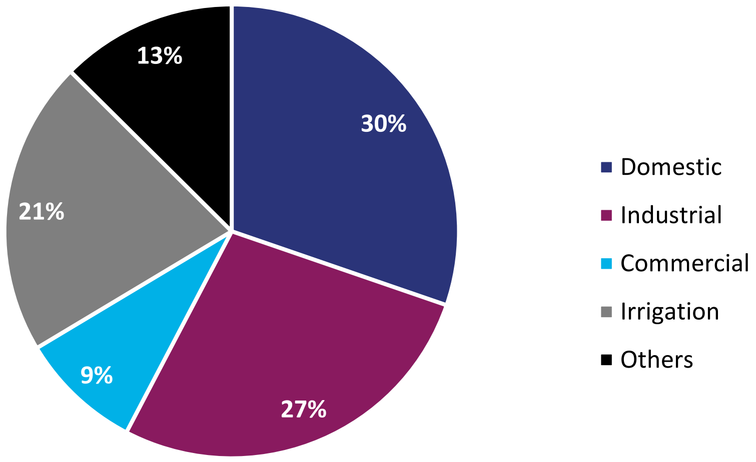
- Projecting current growth in energy and power till FY30 yields that actual requirements could be larger than those projected as per 20th EPS (which is the base case). It is also much higher than 3Y and 10Y average growth
- ***While some normalization may be expected from this base seen in 10MFY24, upside potential for demand remains and could exacerbate capacity need***

Source: CEIC, CEA, SBICAPS; *Current scenario assumes energy and power growth are as observed y/y in 10MFY24, 3Y and 10Y are for FY ending FY23

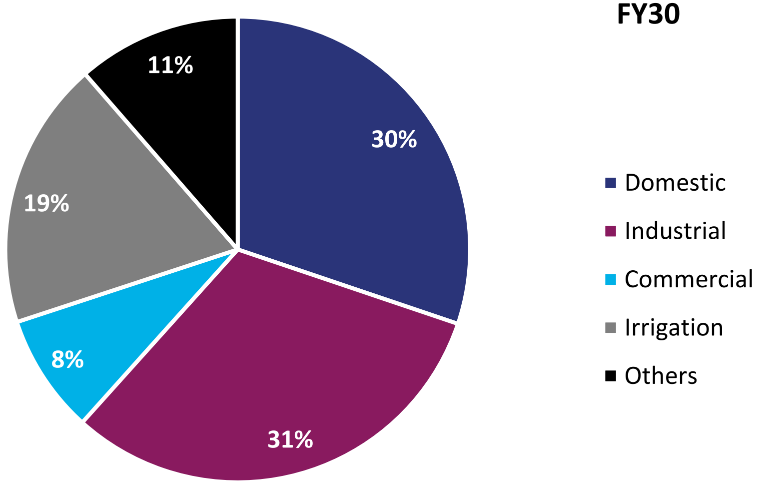
SECTORAL DEMAND MIX TO UNDERGO GRADUAL SHIFT

SECTORAL ENERGY DYNAMICS

FY23



FY30



KEY DRIVERS OF ENERGY DEMAND

Domestic	• Hotter summers • Increasing per capita income • Free electricity schemes • EVs	• Electrification and 24 hours electricity almost complete • Stable population growth • Rooftop solar
Industrial	• PLI and Make In India • Green initiatives to increase share of electrical energy	• Energy efficiency measures
Commercial	• Increasing office and commercial space • Hotter summers	• Persistence of hybrid work • Green buildings
Irrigation	• Lower water table • Mechanisation of agriculture • Free electricity schemes for pumps	• Better quality seeds • Changing mix of coarse cereals vs. rice

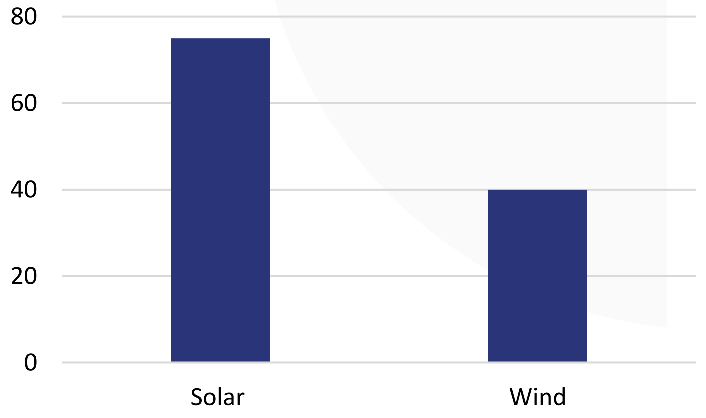
GREEN HYDROGEN TO EMERGE AS A CONSUMER

OVERVIEW OF NGHM

	Component	Purpose	Outlay (Rs. Bn.)	Status
Bidding based on annual manufacturing capacity, committed specific energy consumption, and committed local value addition	I	Electrolyser Manufacturing	44.4	10 companies awarded in Tranche I for 412 kTPA on 9 Jan’24
Bidding on least incentive demanded over 3-year period	II (Mode 1)	Green Hydrogen Production	130.5	8 companies awarded in Tranche I for 1,500 MW on 12 Jan’24
Demand is aggregated by implementation agency, then lowest cost bid chosen	II (Mode 2A)	Green Ammonia Production		Scheme guidelines notified on 16 Jan’24
	II (Mode 2B)	Green Hydrogen for Refineries		

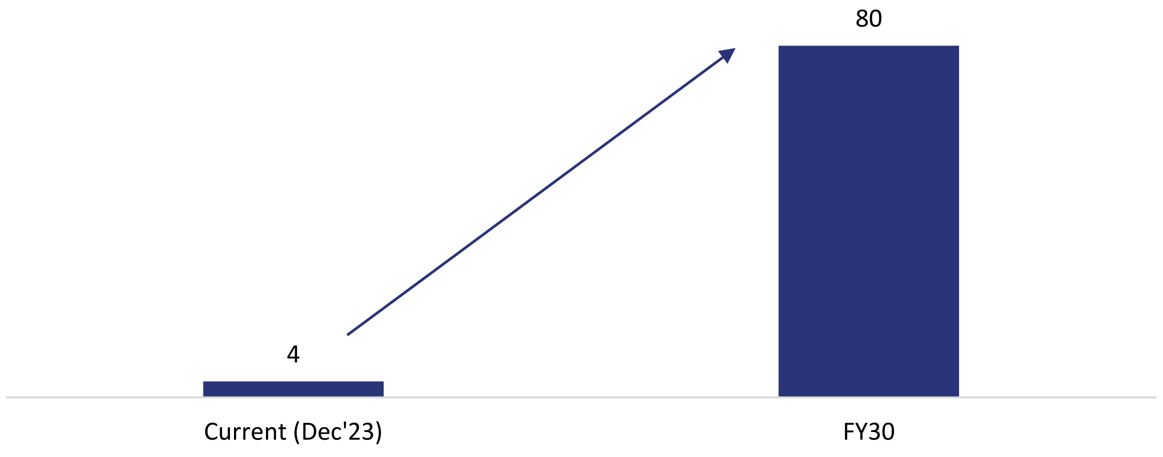
- 5 mn tonnes per annum green H2 capacity will be added by 2030; this will need about 125 GW of associated renewables capacity
- This will be accompanied by 60 GW of electrolyser capacity to ensure steady production
- Scheme guidelines for implementation of pilot projects in shipping sector were also notified on 1 Feb’24

RENEWABLES NEEDED FOR GREEN HYDROGEN TARGET (GW)

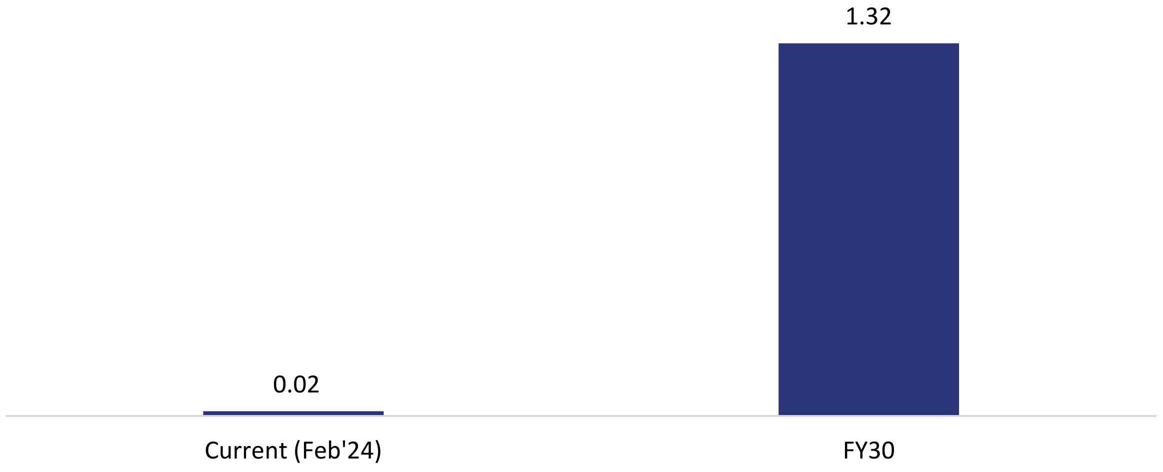


ELECTRIC VEHICLES TO ACCELERATE ENERGY DEMAND

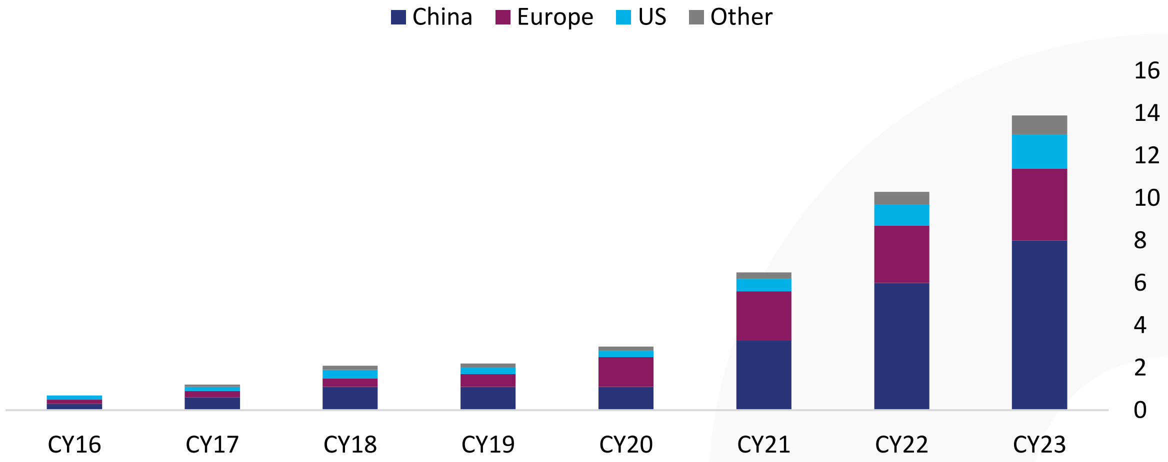
ELECTRIC VEHICLES ON THE ROAD IN INDIA (MN)



EV CHARGERS IN INDIA (MN)



GLOBAL ELECTRIC VEHICLE SALES (MN)

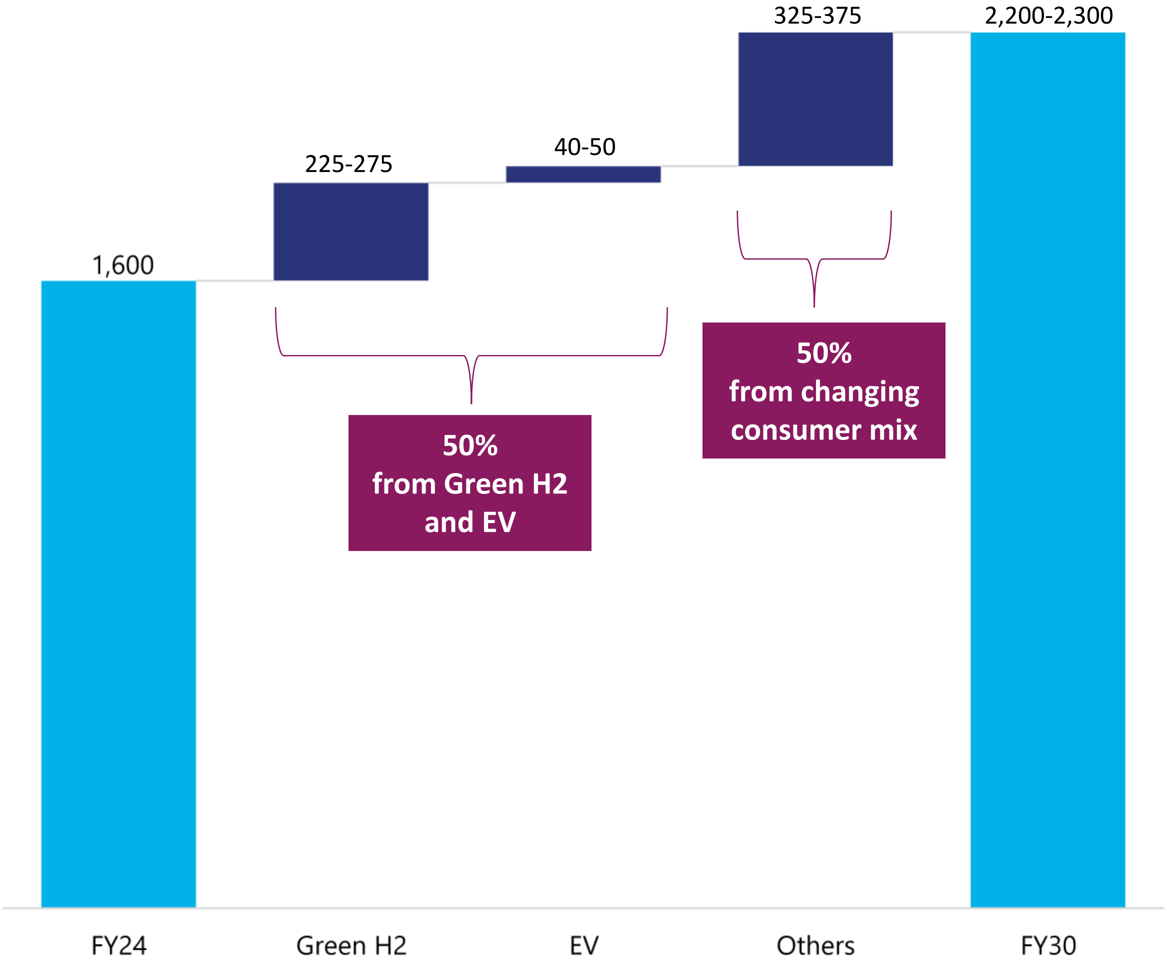


- EV sales have swollen at a CAGR of 106% since 2014. Estimates suggest we may have up to 80 mn EVs in the country by 2030
- EV penetration of about 30% in private cars, 70% in CVs, 40% in buses, and 80% in 2W and 3W is targeted by 2030
- There would be a corresponding rise in EV chargers as well, but they will still lag in FY30 as 1:40 ratio is ideal

Source: NITI Aayog, VAHAN, BEE, CII, IEA, SBICAPS

TOGETHER THESE WILL LEAD TO INCREMENTAL ENERGY DEMAND

ENERGY REQUIREMENT (BU)



- By FY30, green hydrogen could constitute >10% of the demand mix, while EVs would be ~2%
- These are not expected to contribute greatly to peak demand. Infact EVs could flatten the load curve as they charge mostly at night

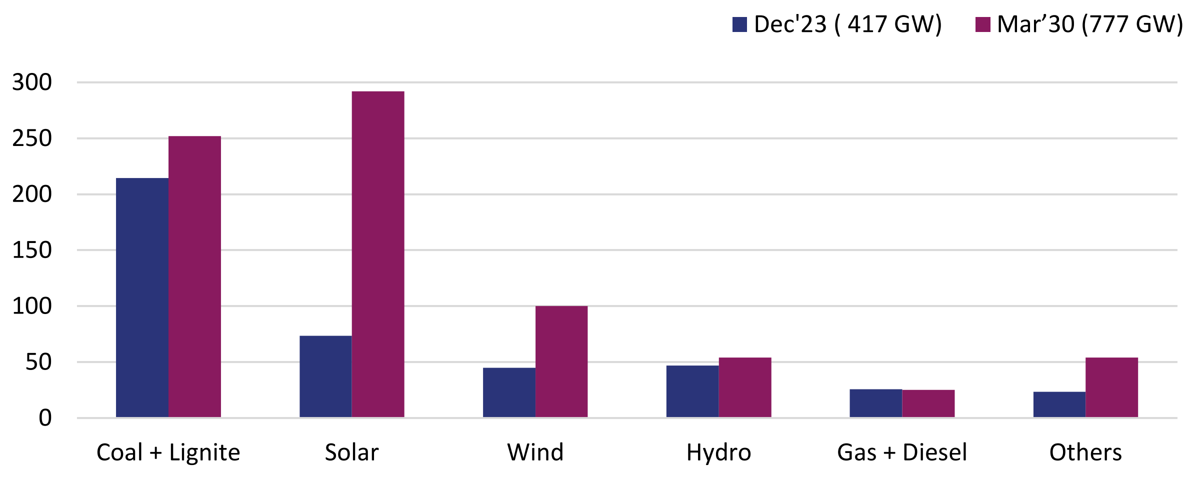
Note: The above analysis assumes overall adherence to 20th EPS projections (base case). Requirements could swell if this is exceeded, as is probable

Source: SBICAPS

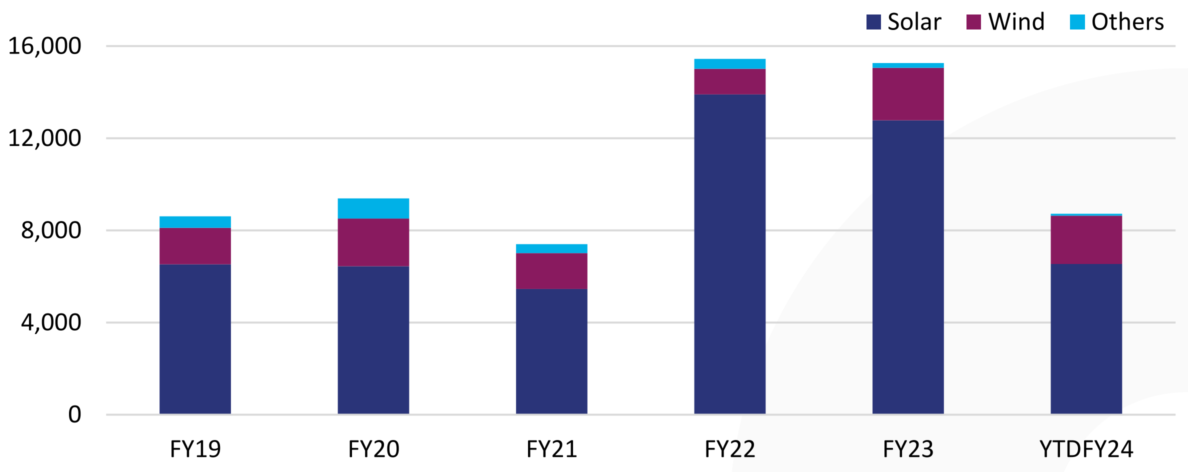
MUCH OF THIS REQUIREMENT WILL BE MET FROM RENEWABLES

SBICAPS
Complete Investment Banking Solutions

INSTALLED CAPACITY (CURRENT VS FY30)

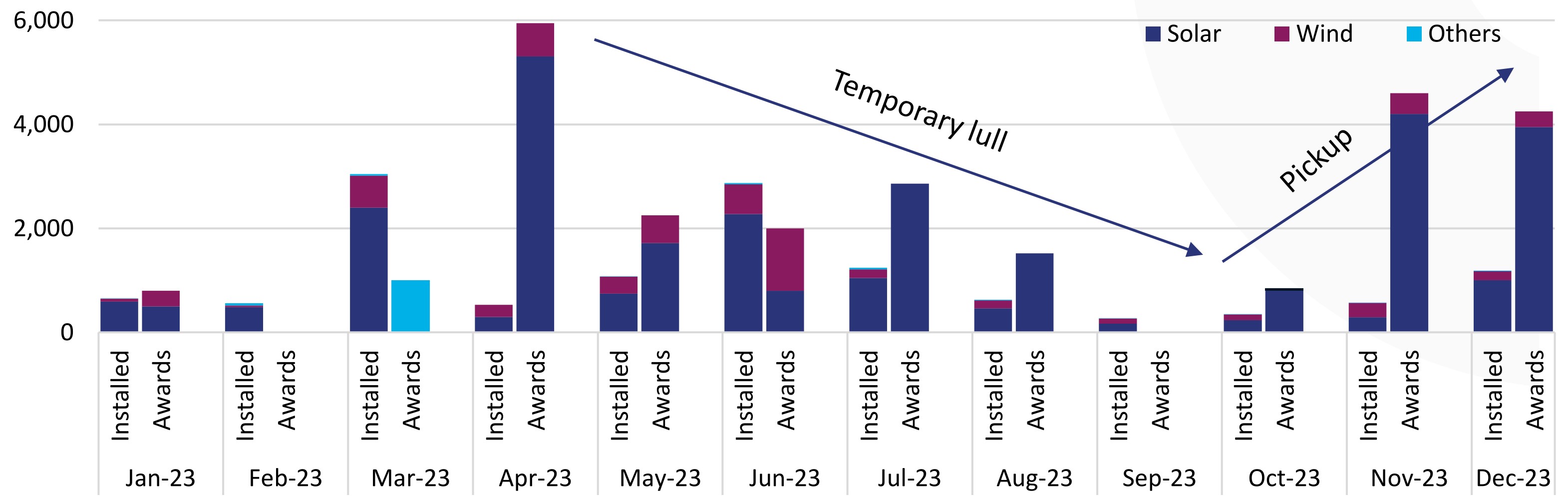


RENEWABLE ENERGY ADDED (MW)



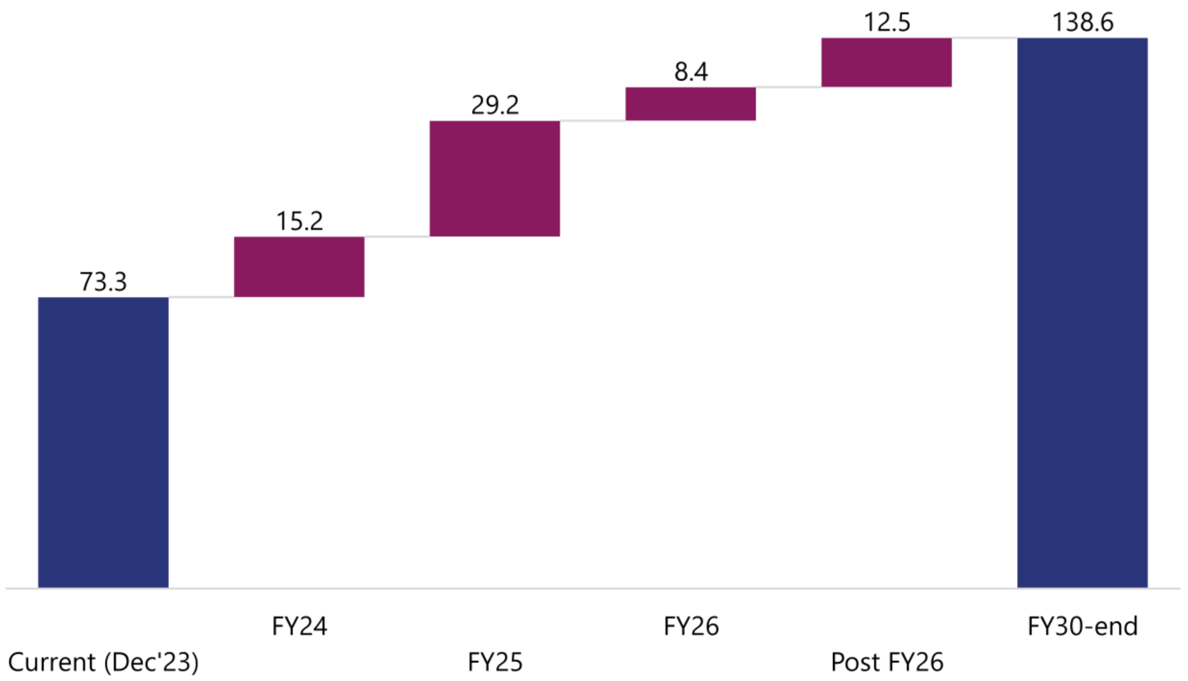
RENEWABLE CAPACITY ADDED (MW)

- The run-rate of renewables addition needed to meet FY30 targets is much beyond current run rate. Pickup is needed beyond current level
- Pace of addition took a break in Q2FY24, with the period seeing a drought. There has been a sound increase in Q3

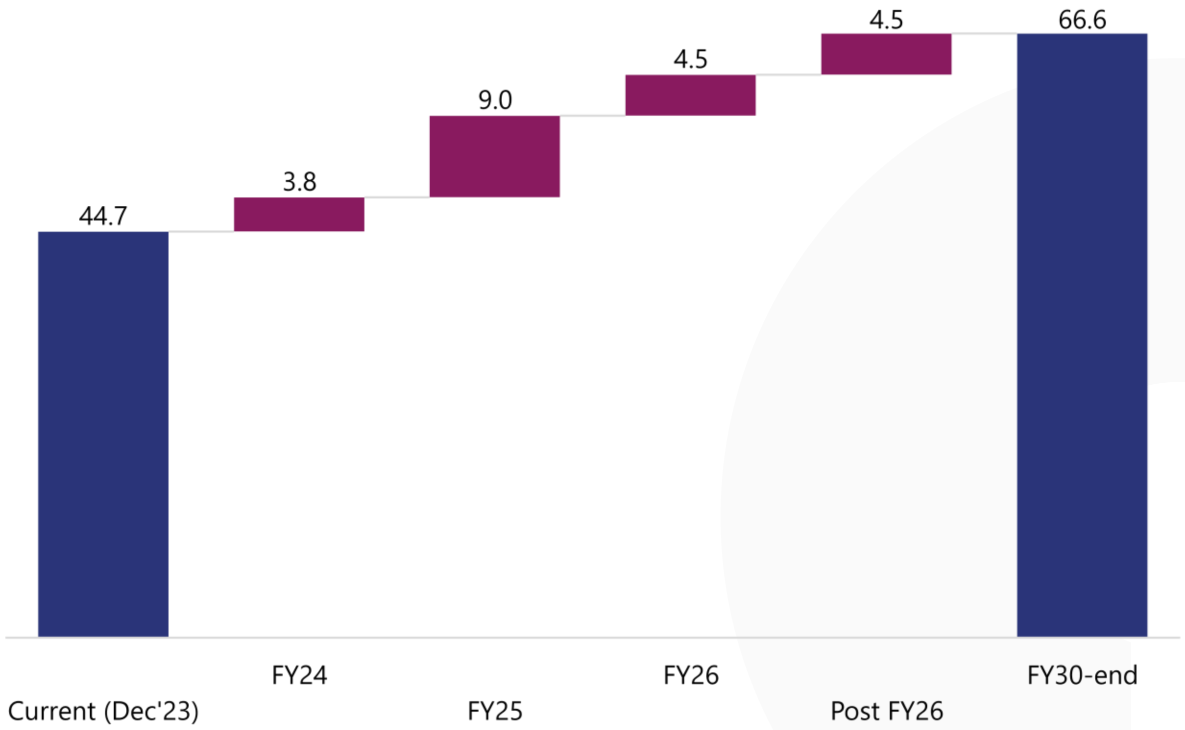


SOLAR ADDITIONS NEED TO PICK UP

ADDITION SCHEDULE OF SOLAR PROJECTS (GW)



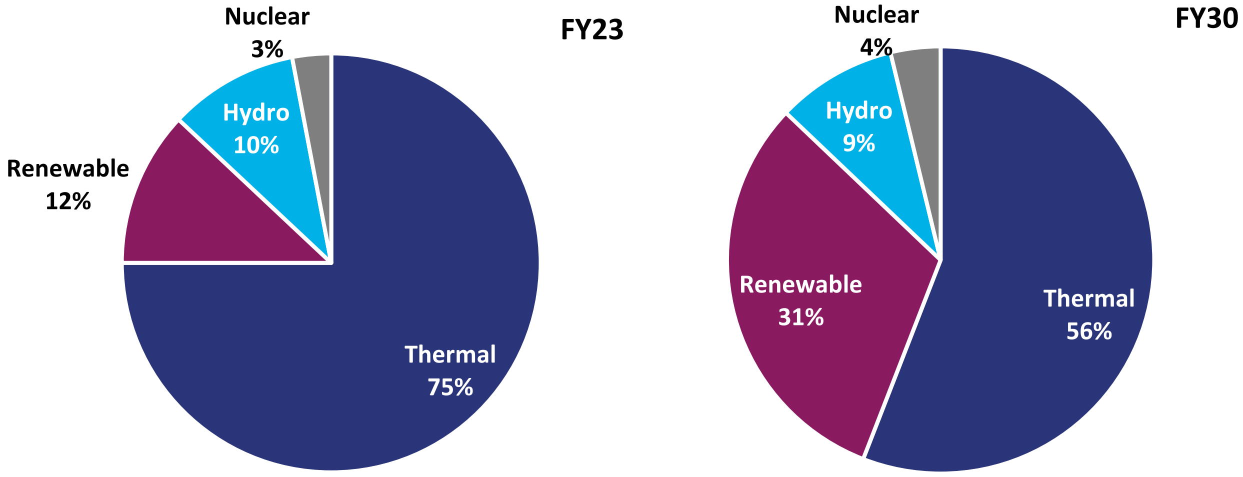
ADDITION SCHEDULE OF WIND PROJECTS (GW)



- Run rate of ~35 GW/year is required to meet solar installed capacity requirements by FY30. Additions have stagnated at ~12.7 GW FY22 onwards, and a similar trend is expected in FY24 as well. Further, 40 GW of rooftop solar is expected to be installed using at outlay of Rs. 750 bn
- ~9 GW of wind capacities are need to be added per year. While this is much lower than traction seen recently, under construction trends suggest that the trajectory may pick up by FY25. A significant chunk of wind energy requirement comes from hybrid plants

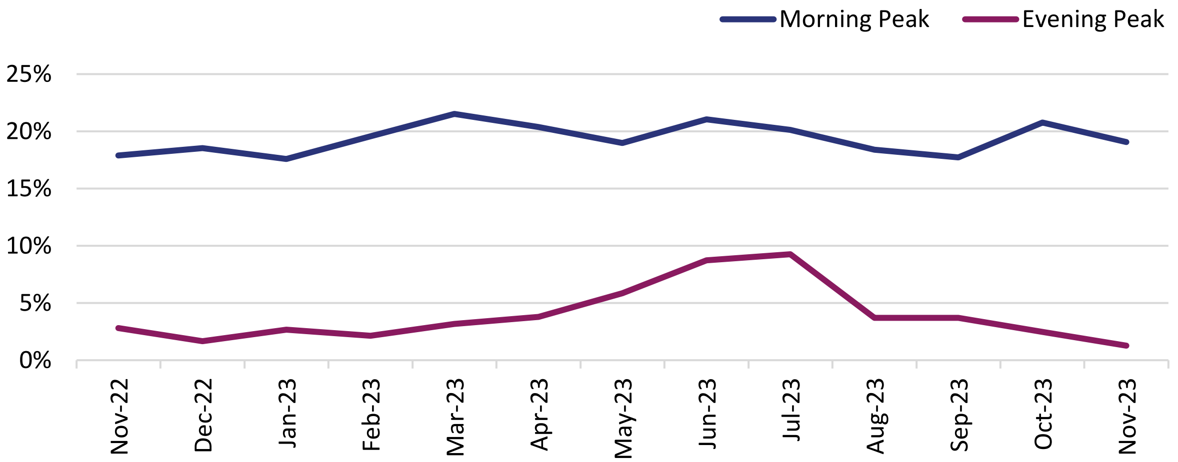
THERMAL WILL CONTINUE TO BE SIGNIFICANT

SHARE OF THERMAL IN GENERATION (FY23 vs FY30)

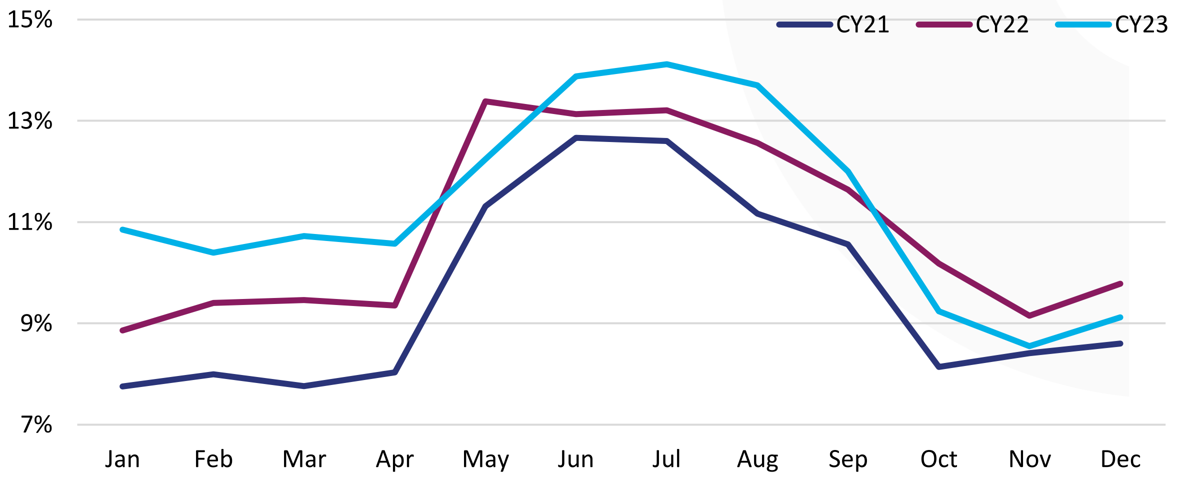


- Renewables will play a major role in a green grid. Nevertheless, even in FY30, a significant share of demand will be met by thermal
- Role of thermal will be especially important during Q3 and Q4 of FY, when renewable generation share becomes seasonally low
- Further, thermal is also critical for satisfying diurnal peaks, especially those which occur at night, as wind addition is not upto solar

SHARE OF RENEWABLE AT PEAK DEMAND

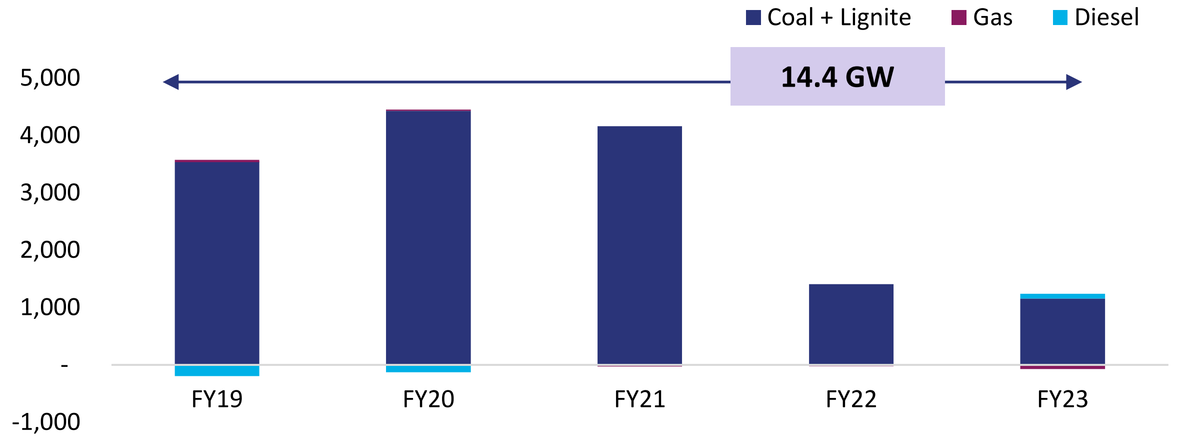


SHARE OF RENEWABLES IN GENERATION (% OF TOTAL)



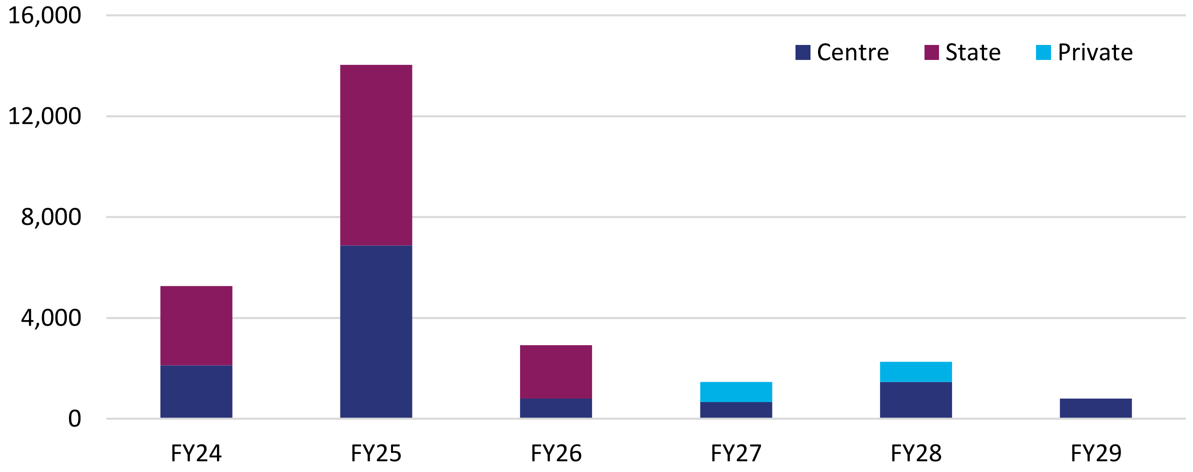
THERMAL CAPACITY ADDITIONS TO ESCAPE THE GLUT

NET THERMAL ADDITIONS OVER PAST 5 YEARS (MW)



Note: Negative values indicate retirals > additions

UNDER CONSTRUCTION THERMAL CAPACITY (MW)



THERMAL PLANTS COMMISSIONED IN 9MFY24 (MW)

PLANT	STATE	CAPACITY	COMMISSIONING
Barh STPP	Bihar	660	Jun-23
Kashipur CCPP	Uttarakhand	214	Jun-23
Telangana STPP	Telangana	800	Sep-23
Shirpur TPP	Maharashtra	150	Nov-23
Dr. Narla Tata Rao TPS	Andhra Pradesh	800	Dec-23
Total	**India**	**2,624**	

- <3 GW of net thermal capacities were added in FY22 and FY23, reflecting limited private sector interest, coupled with absence of long-term PPAs, ESG concerns, and reducing cost of renewable power

- Moderate additions are expected in FY25. Total under construction capacity as of now is well below that required to meet needs. New announcements are expected

IMPROVED COAL AND OWNERSHIP CHANGES TO MAXIMISE CURRENT PLANTS

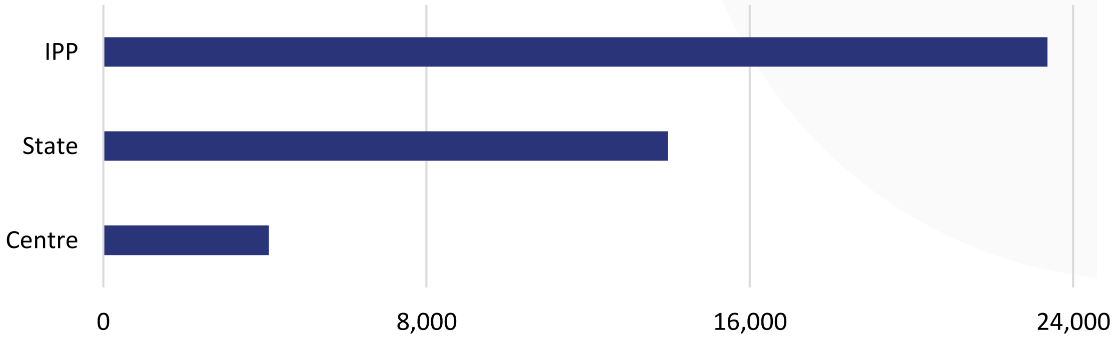
SBICAPS
Complete Investment Banking Solutions

MAJOR THERMAL SECTOR DEALS

SR. NO.	PROJECT	CAPACITY (MW)	ACQUIRER	STATUS	PLF (JAN'24)	DEAL DATE
1	GMR Chhattisgarh	1,370	Adani Power	Operational	69%	Aug-19
2	Prayagraj Power Gen. Corp.	1,980	TATA Power	Operational	74%	Dec-19
3	Essar Power Mahan	1,200	Adani Power	Operational	80%	Mar-22
4	Simhapuri Energy	600	Jindal Power	Operational	65%	Jun-22
5	Avantha Jhabua Power	600	NTPC	Operational	84%	Sep-22
6	Korba West Power Co	600	Adani Power	Operational	88%	Feb-23
7	Lanco Anpara	1,200	Megha Engineering	Operational	55%	Apr-23
8	GVK Govindwal Sahib	540	PSPCL	Operational	60%	Jan-24
9	Lanco Amarkantak	600	Adani Power	Operational	80%	Feb-24
10	Ind Barath Utkal	700	JSW Energy	Commissioning in Jun'24; 100% complete		Dec-22
11	Meenakshi Energy Limited	1,000	Vedanta	Likely to be revived by Oct'24; 100% complete		Dec-23
12	Monnet Power Co/ Malibrahmani	1,050	JSPL	Likely to be revived by FY25; 84% complete		Dec-22
13	Athena Chhattisgarh Power	1,200	Vedanta	Likely to be revived by FY31; 75% complete		Jul-22
14	KVK Nilanchal	750	Padmaprabhu Traders	28% complete		Aug-22

- ~15 GW of deals in the thermal sector have happened in recent times; with acquirers largely in the private sector
- ~4.7 GW of additional capacity could be commissioned from deals which are complete. Of this, ~2.0 GW will be for captive usage, leaving ~2.7 GW for grid usage

PLANTS WITH <50% PLF IN 9MFY24 (MW)



BUZZ COULD REINVIGORATE STUCK PLANTS AS WELL

SBICAPS
Complete Investment Banking Solutions

POTENTIAL ADDITIONS FROM STUCK PROJECTS

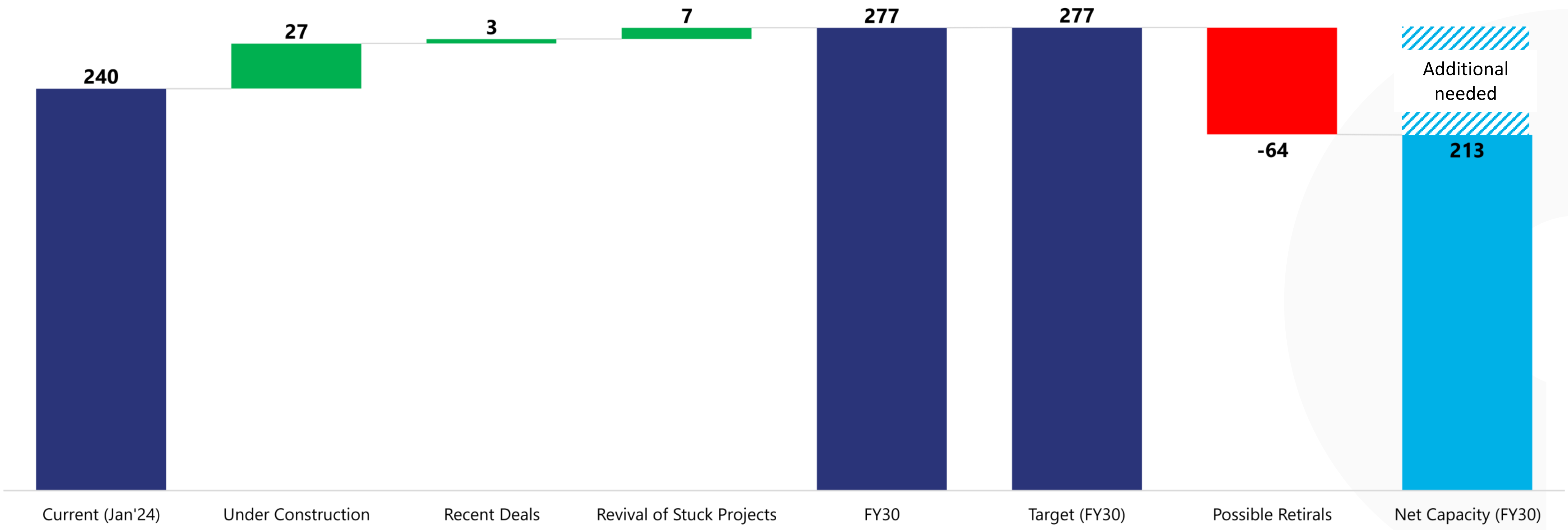
S. NO.	PROJECT	POTENTIAL ADDITION (MW)	OWNER	STATE	STAGE OF COMPLETION	STATUS
1	Hiranmayee Energy	150	Haldia Energy Ltd	West Bengal	99%	Under hold, in NCLT
2	Barsinagar TPP ext.	250	NLC	Rajasthan	8%	Due to withdrawal of PPA and land issue in mines
3	Bithnok TPP	250	NLC	Rajasthan	8%	Due to withdrawal of PPA and land increased project cost
4	Bijora Ghanmukh TPP	600	Jinbhuvish Power Generation Pvt. Ltd.	Maharashtra	12%	Issues in coal linkage once resolved will look for funding
5	Binjkote TPP	600	SKS Power Generation Ltd	Chhattisgarh	50%	Under NCLT, Likely to be revived by FY31
6	Gorgi TPP	660	D.B. Power (MP) Ltd.	Madhya Pradesh	12%	Requested for COP extension, then planned for revival
8	Amravati TPP Ph II	1,080	Rattan India Power Pvt. Ltd.	Maharashtra	11%	No PPA bids and change in environmental norms
9	Nasik TPP Ph II	1,350	Rattan India Power Pvt. Ltd.	Maharashtra	10%	No PPA bids and change in environmental norms
10	Akaltara TPP	1,800	KSK Mahandi Power Company Ltd	Andhra Pradesh	70%	Under NCLT. PPL and REC are shortlisted as PRAs in NCLT process
	Total	6,740				

- ~24 GW of thermal capacities exist where work is on hold, largely in the private sector. Of these, ~6.7 GW could come into the grid if stuck projects are appropriately resolved

Source: CEA, SBICAPS

NEW THERMAL PLANTS NEED TO BE PLANNED

PROJECTED THERMAL CAPACITY (GW)

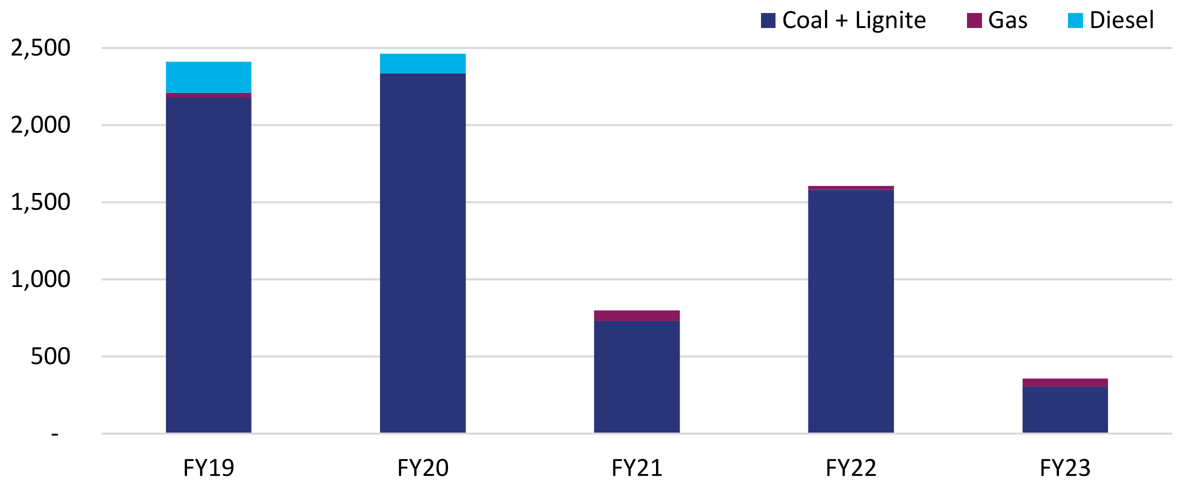


- Current sources (including under construction) shall suffice to meet target only if there are no retirals. The government has assured no retirals will be done till FY30. Progressively, more thermal plants need to be planned to replace old and inefficient plants

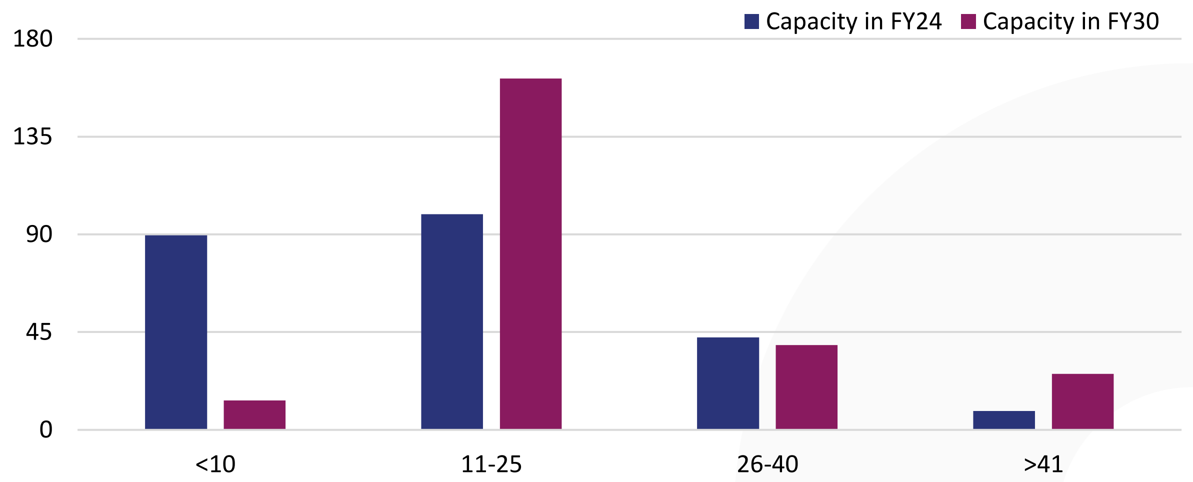
Source: CEA, News Sources, SBICAPS

TO COMPENSATE FOR AGEING PLANTS

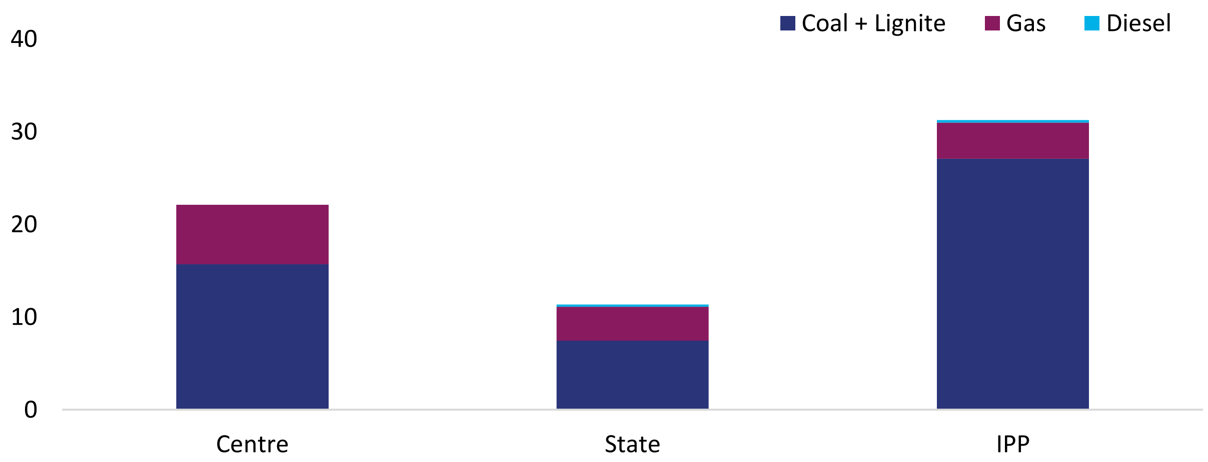
RETIRALS OF THERMAL PLANTS IN PAST 5 YEARS (MW)



AGEING OF CURRENTLY OPERATIONAL THERMAL PLANTS



THERMAL PLANTS > 25 YEARS AGE BY FY30 (GW)

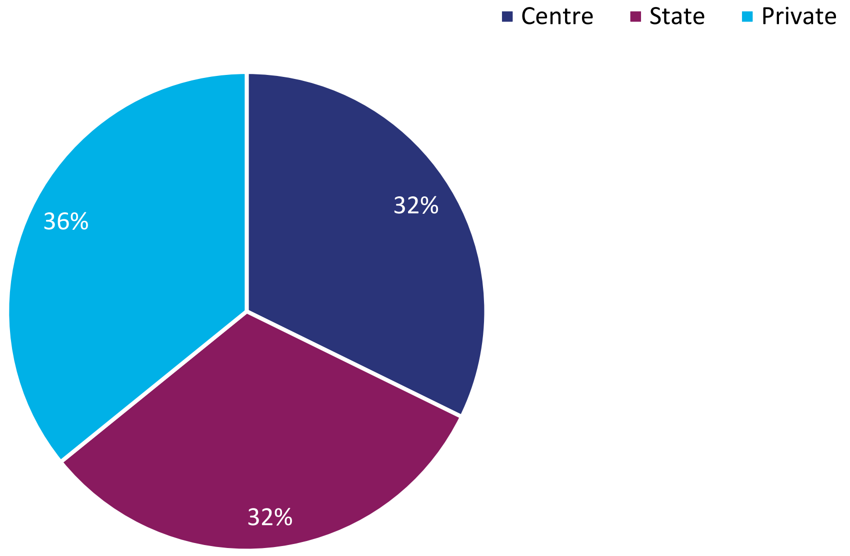


- ~65 GW of thermal plants are likely to be over 25 years of age by FY30. The government has said no retirement is likely till FY30, yet their high cost of operations and eco-impact would remain a concern

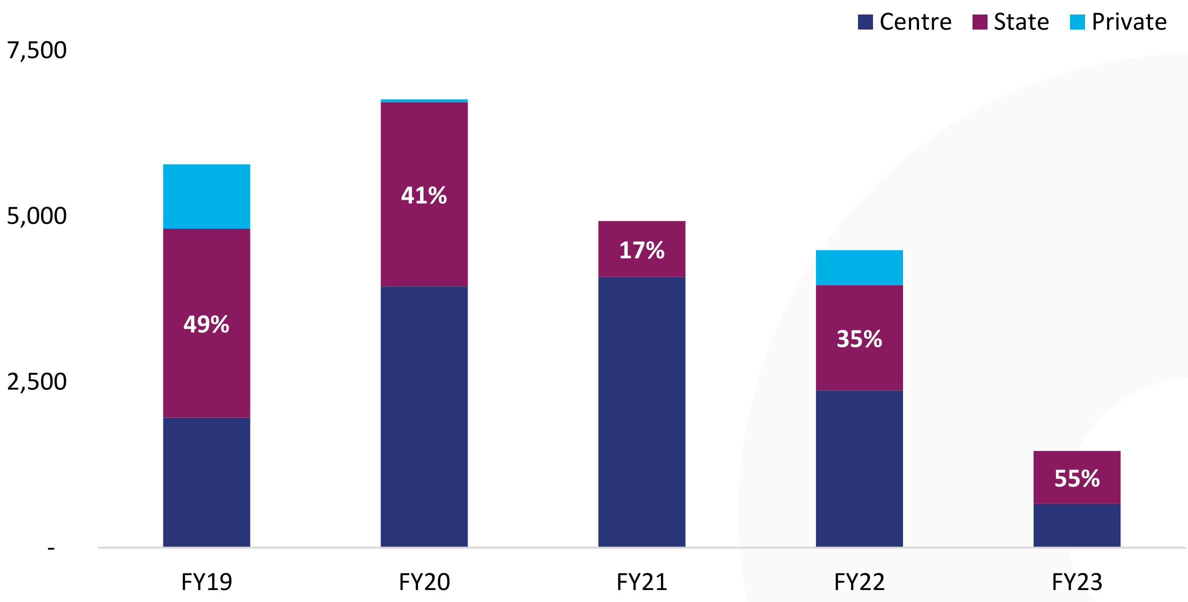
- A large chunk of the old plants would be IPPs as private sector has not done much recent capex in this sector. Given PPAs signed are also likely to expire, these plants may be available for acquisition

STATES COULD BE THE MAJOR MOVERS OF THERMAL

INSTALLED CAPACITY BY OWNER



THERMAL ADDITIONS OVER PAST 5 YEARS (MW)

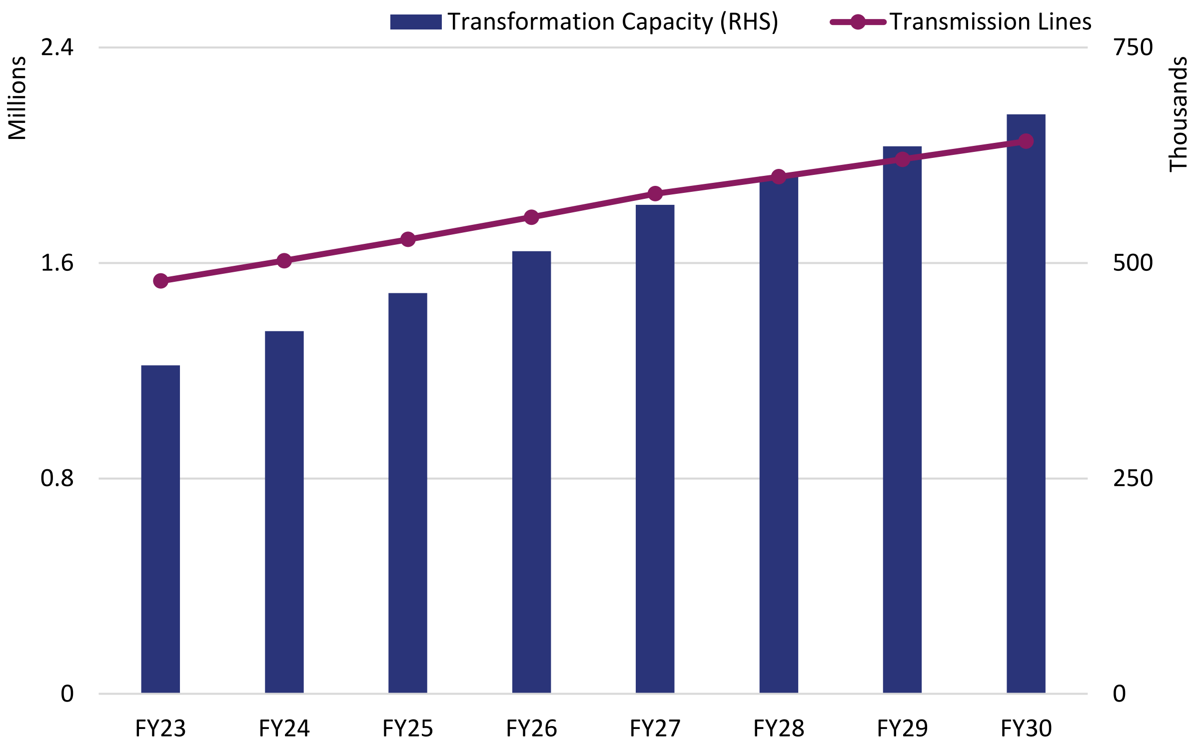


- Electricity is a concurrent subject, and the responsibility of distribution fully lies with States. Further, power requirements for various states surge owing to promises of free electricity and large base of consumption
- Share of thermal additions for States has been above their share in installed capacity (32%), indicating that they are on a capex spree and need to add more plants. States will play a critical role in achieving the 80 GW construction target set for the next few years
- States could strive to first acquire IPPs (as seen in the Punjab case), especially those at high PPA cost. After this, new plants could be built to shore up their capacity

TRANSMISSION INFRASTRUCTURE TO KEEP PACE

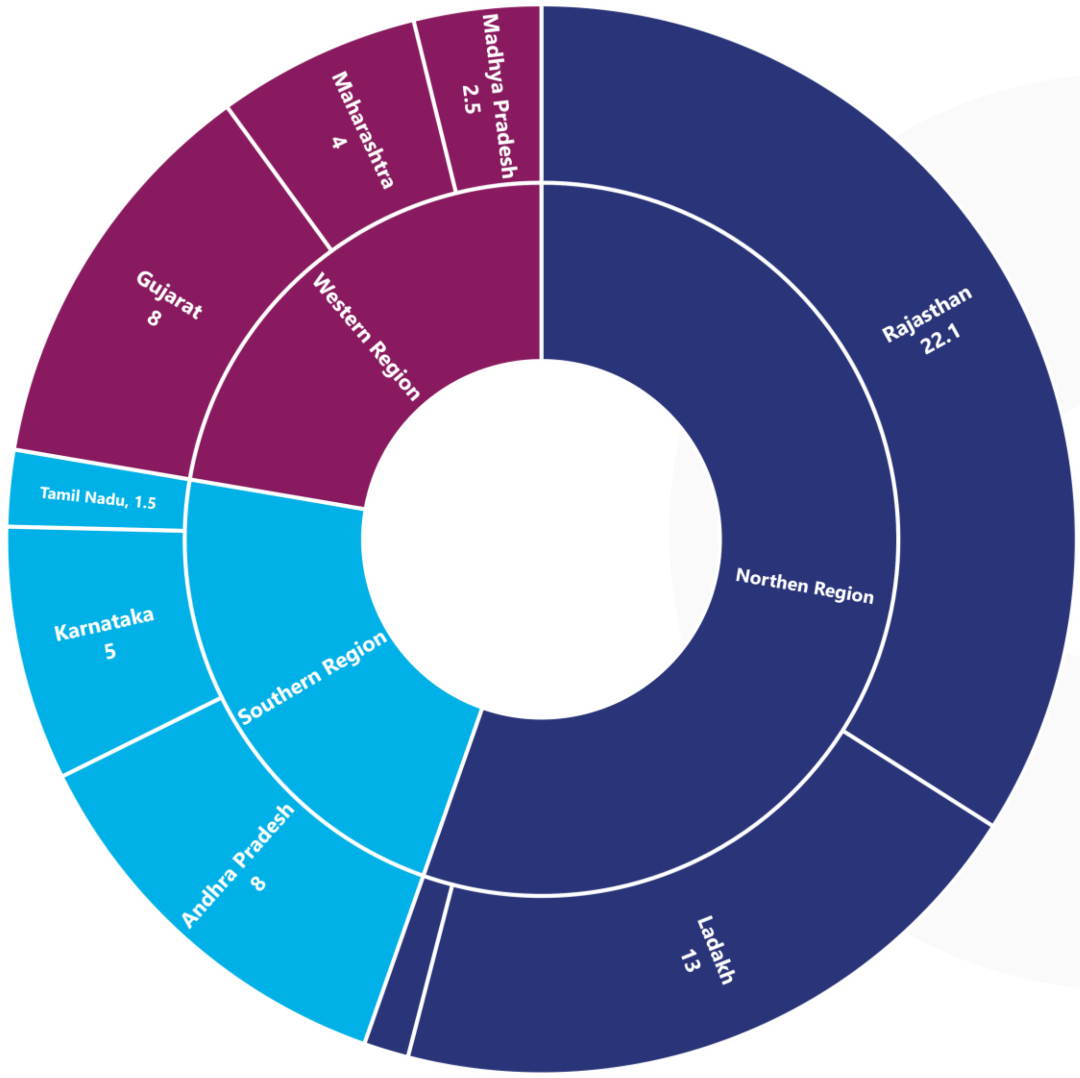
SBICAPS
Complete Investment Banking Solutions

TRANSMISSION LINE (CKM) & TRANSFORMATION CAPACITY (MVA)



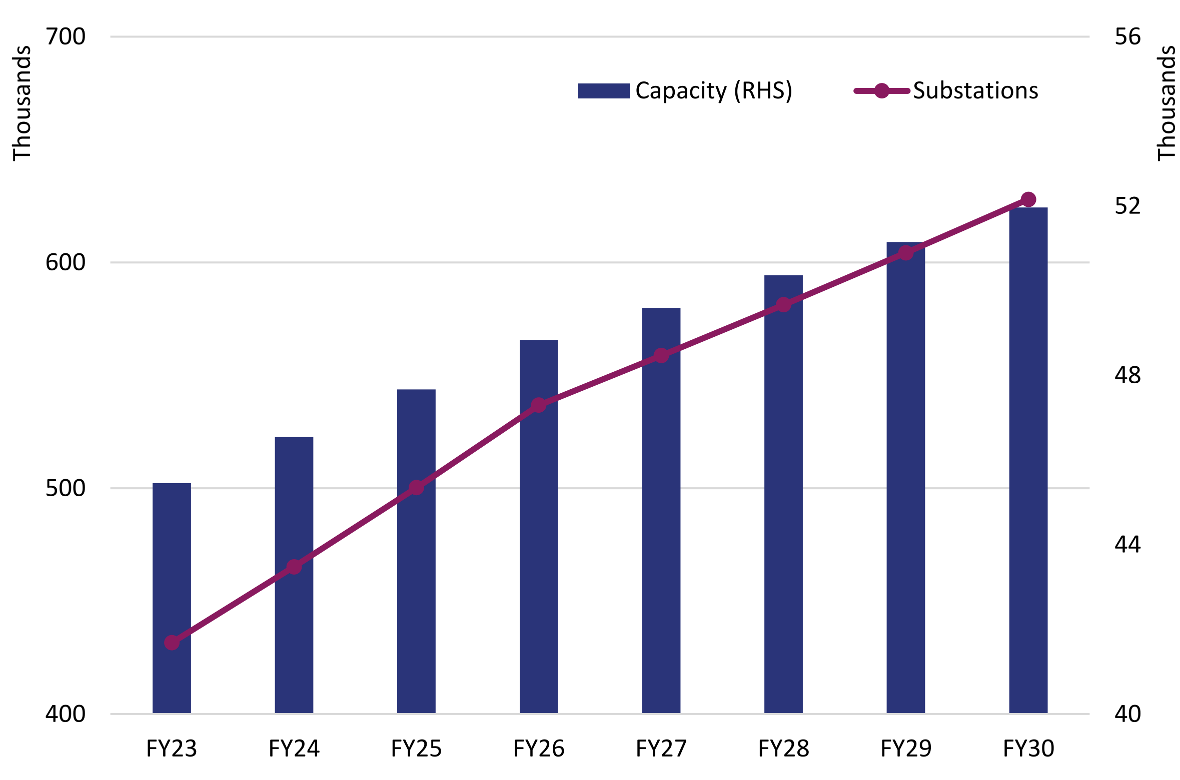
- An estimated expenditure of Rs. 5.4 trn would be required for implementation of additional transmission system of 220 kV+ till FY30
- Transmission system has been planned for about 537 GW RE capacity by the year 2030

UNDER IMPLEMENTATION RENEWABLE EVACUATION (GW)

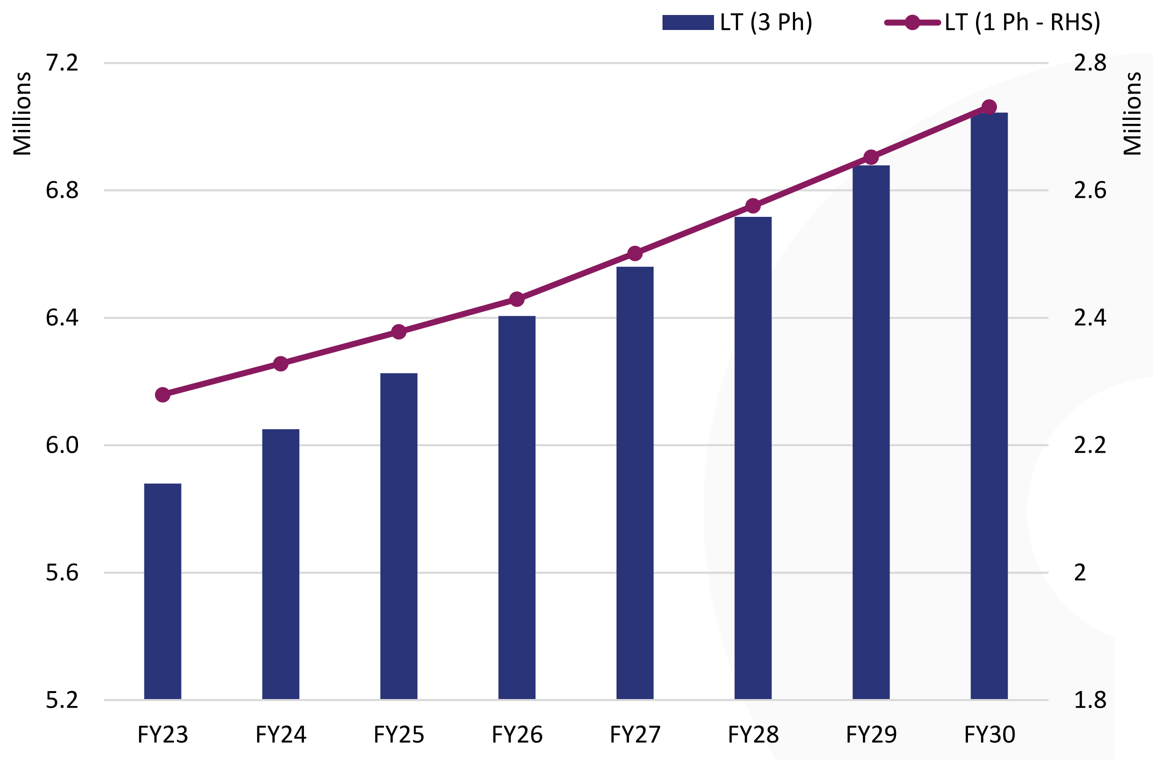


DISTRIBUTION UPGRADES NEEDED TO REDUCE LOSSES

PLANNED SUB-STATTION CAPACITY (MVA)



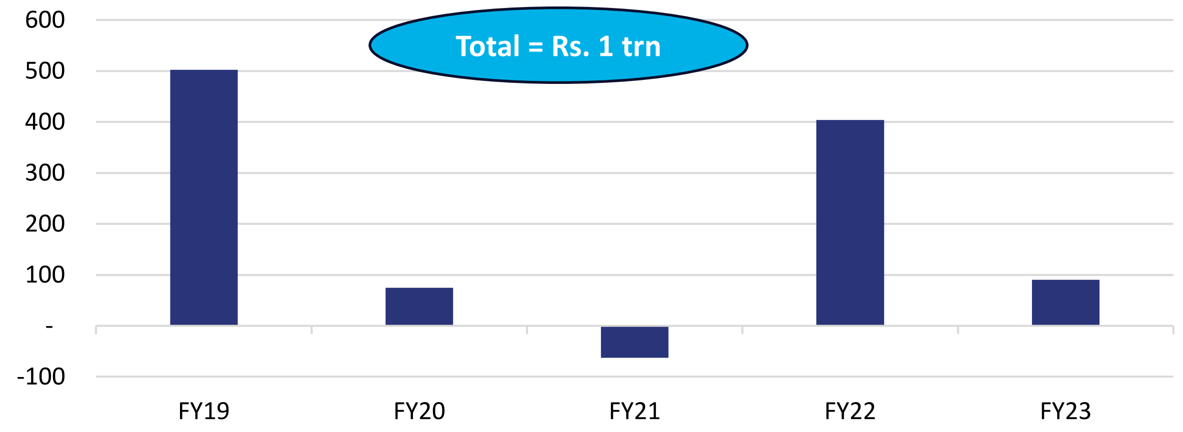
PLANNED LT FEEDER LENGTH (CKT-KM)



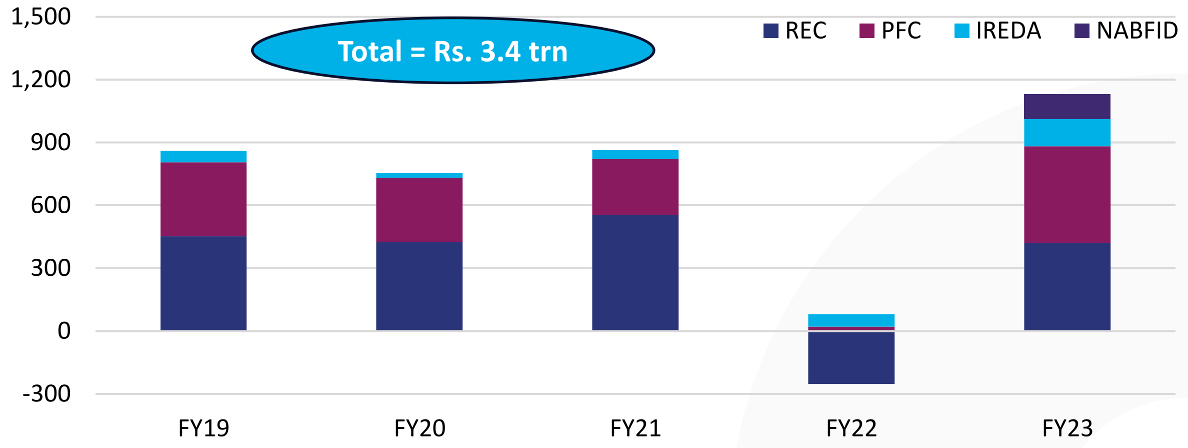
- An estimated expenditure of Rs. 5.3 trn would be required for distribution infrastructure upgradation till FY30
- The total investments available with discoms through RDSS and other schemes is around Rs. 1.9 trn. It accounts for 44% of total estimated fund required for distribution infrastructure upgradation during FY22-FY27.

BANK FINANCING NEEDS TO PICK UP TO MEET RS. 33 TRN NEED

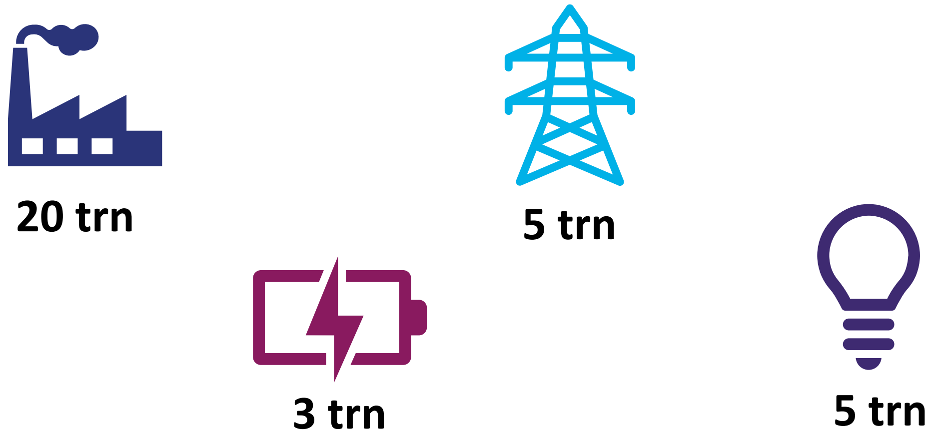
INCREMENTAL BANK CREDIT TO POWER SECTOR (RS. BN., Y/Y)



INCREMENTAL CREDIT TO POWER SECTOR (RS. BN., Y/Y)



INVESTMENT NEEDED IN POWER TILL FY30 (RS.)



- Bank financing of power sector has been low in past few years, with PFC and REC taking up a lion's share of funding. Going forward, we expect share of banks to increase owing to large funding requirement
- Power DFIs are also constrained by increased risk weights and concentration risk: they are diversifying to other sectors. This will mean their incremental lending to power sector will remain in check
- Capital market financing of power sector could be explored through green bonds for renewables. Incremental lending to thermal sector from capital markets could be minimal

DISCLOSURES & DISCLAIMER

SBICAPS
Complete Investment Banking Solutions

Research Analyst(s) Certification

The views expressed in this research report ("Report") accurately reflect the personal views of the research analysts ("Research Analysts") employed by SBI Capital Markets Limited ("SBICAPS"), having SEBI Registration No. INH000007429 as Research Analyst, about any and all of the subject issuer(s) or company(ies) or securities. This Report has been prepared based upon information available to the public and sources, believed to be reliable. I/We also certify that no part of my/our compensation was, is, or will be directly or indirectly related to the specific recommendation(s) or view(s) in this Report.

The Research Analysts engaged in preparation of this Report or his/her relative:-

a) do not have any financial interests in the subject company mentioned in this Report;
b) do not own 1% or more of the equity securities of the subject company mentioned in the Report as of the last day of the month preceding the publication of the Report;
c) do not have any material conflict of interest at the time of publication of the Report.

The Research Analysts engaged in preparation of this Report:-

a) have not received any compensation from the subject company in the past twelve months;
b) have not managed or co-managed public offering of securities for the subject company in the past twelve months;
c) have not received any compensation for investment banking or merchant banking or brokerage services from the subject company in the past twelve months;
d) have not received any compensation for products or services other than investment banking or merchant banking or brokerage services from the subject company in the past twelve months;
e) has not received any compensation or other benefits from the subject company or third party in connection with the Report;
f) has not served as an officer, director or employee of the subject company;
g) is not engaged in market making activity for the subject company

Details of Research Analysts

Name	Rajan Jain	Name	Venkatesh Balakrishnan	Name	Soham Bobde
Qualification	PGDBA	Qualification	PGDM	Qualification	MBA
Designation	Head- Credit Research	Designation	Assistant Vice President	Designation	Associate

Details of Research Analyst entity

Name	SBI Capital Markets Limited
Registration Number	INH000007429
Address	15th floor, A & B Wing, Parinee Crescenzo Building, G Block, Bandra Kurla Complex, Bandra East, Mumbai- 400 051
Telephone Number	+91 22 4196 8300
Compliance Officer	Bhaskar Chakraborty
Email id	compliance.officer@sbicaps.com
Telephone Number	+91 22 4196 8542

Registration granted by SEBI, membership of and certification from National Institute of Securities Markets in no way guarantee performance of SBICAPS or provide any assurance of returns to investors.

DISCLOSURES & DISCLAIMER

SBICAPS
Complete Investment Banking Solutions

Other Disclosures:
SBI Capital Markets Limited (“SBICAPS”) is registered with the Securities and Exchange Board of India (“SEBI”) as a “Category I” Merchant Banker and has obtained the Certificate of Registration as Research Analyst from SEBI. SBICAPS is engaged into investment banking, corporate advisory and financial services activities. SBICAPS is a wholly owned subsidiary of State Bank of India (SBI), the largest commercial bank in India. Hence, State Bank of India and all its subsidiaries and all subsidiaries of SBICAPS are treated and referred to as Group Entities of SBICAPS.

We hereby declare that our activities were neither suspended nor we have materially defaulted with any regulatory authority with whom we are registered in last five years. However, SEBI has conducted the routine inspection and based on their observations has issued advice letters from time to time. We have not been debarred from doing business by any Stock Exchange / SEBI or any other authorities; nor has our certificate of registration been cancelled by SEBI at any point of time

SBICAPS or its Group Entities, may: (a) from time to time, have long or short position in, and buy or sell the securities of the company mentioned in the Report or (b) be engaged in any other transaction involving such securities and earn brokerage or other compensation or act as a market maker in the financial instruments of the company discussed herein or act as an advisor or lender/borrower to such company or may have any other potential conflict of interests with respect to any recommendation and other related information and opinions.

SBICAPS does not have actual / beneficial ownership of one per cent or more securities of the subject company, at the end of the month immediately preceding the date of publication of the Report. However, since Group Entities of SBICAPS are engaged in the financial services business, they might have in their normal course of business financial interests or actual / beneficial ownership of one per cent or more in various companies including the subject company mentioned herein this Report.

SBICAPS or its Group Entities might have managed or co-managed public offering of securities for the subject company in the past twelve months and might have received compensation from the companies mentioned in the Report during the period preceding twelve months from the date of this Report for services in respect of managing or co-managing public offerings/corporate finance, investment banking or merchant banking, brokerage services or other advisory services in a merger or specific transaction.

Compensation paid to Research Analysts of SBICAPS is not based on any specific merchant banking, investment banking or brokerage service transaction.

SBICAPS or its Group Entities did not receive any compensation or any benefit from the subject company or third party in connection with preparation of this Report.

This Report is for the personal information of the authorized recipient(s) and is not for public distribution and should not be reproduced, transmitted or redistributed to any other person or in any form without SBICAPS’ prior permission. The information provided in the Report is from publicly available data, which we believe, are reliable. While reasonable endeavours have been made to present reliable data in the Report so far as it relates to current and historical information, but SBICAPS does not guarantee the accuracy or completeness of the data in the Report. Accordingly, SBICAPS or any of its Group Entities including directors and employees thereof shall not be in any way responsible or liable for any loss or damage that may arise to any person from any inadvertent error in the information contained, views and opinions expressed in this Report or in connection with the use of this Report.

Please ensure that you have read “Risk Disclosure Document for Capital Market and Derivatives Segments” as prescribed by Securities and Exchange Board of India before investing in Indian securities market.

DISCLOSURES & DISCLAIMER

The projections and forecasts described in this Report should be carefully evaluated as these:

1. Are based upon a number of estimates and assumptions and are inherently subject to significant uncertainties and contingencies.
2. Can be expected that some of the estimates on which these were based, will not materialize or will vary significantly from actual results, and such variances may increase over time.
3. Are not prepared with a view towards compliance with published guidelines or generally accepted accounting principles. No independent accountants have expressed an opinion or any other form of assurance on these.
4. Should not be regarded, by mere inclusion in this Report, as a representation or warranty by or on behalf of SBICAPS the authors of this Report, or any other person, that these or their underlying assumptions will be achieved.

This Report is for information purposes only and SBICAPS or its Group Entities accept no liabilities for any loss or damage of any kind arising out of the use of this Report. Though disseminated to recipients simultaneously, not all recipients may receive this Report at the same time. SBICAPS will not treat recipients as clients by virtue of their receiving this Report. It should not be construed as an offer to sell or solicitation of an offer to buy, purchase or subscribe to any securities. This Report shall not form the basis of or be relied upon in connection with any contract or commitment, whatsoever. This Report does not solicit any action based on the material contained herein.

It does not constitute a personal recommendation and does not take into account the specific investment objectives, financial situation/circumstances and the particular needs of any specific person who may receive this document. The securities discussed in this Report may not be suitable for all the investors. SBICAPS does not provide legal, accounting or tax advice to its clients and you should independently evaluate the suitability of this Report and all investors are strongly advised to seek professional consultation regarding any potential investment.

Certain transactions including those involving futures, options and other derivatives as well as non-investment grade securities give rise to substantial risk and are not suitable for all investors. Foreign currency denominated securities are subject to fluctuations in exchange rates that could have an adverse effect on the value or price of or income derived from the investment.

The price, value and income of the investments referred to in this Report may fluctuate and investors may realize losses on any investments. Past performance is not a guide for future performance. Actual results may differ materially from those set forth in projections. SBICAPS has reviewed the Report and, the current or historical information included here is believed to be reliable, the accuracy and completeness of which is not guaranteed. SBICAPS does not have any obligation to update the information discussed in this Report.

The opinions expressed in this Report are subject to change without notice and SBICAPS or its Group Entities have no obligation to tell the clients when opinions or information in this Report change. This Report has not been approved and will not or may not be reviewed or approved by any statutory or regulatory authority in India, United Kingdom or Singapore or by any Stock Exchange in India, United Kingdom or Singapore. This Report may not be all inclusive and may not contain all the information that the recipient may consider material.

The securities described herein may not be eligible for sale in all jurisdictions or to all categories of investors. The countries in which the companies mentioned in this Report are organized may have restrictions on investments, voting rights or dealings in securities by nationals of other countries. Distributing/taking/sending/ dispatching/transmitting this document in certain foreign jurisdictions may be restricted by law, and persons into whose possession this document comes should inform themselves about, and observe, any such restrictions. Failure to comply with this restriction may constitute a violation of laws in that jurisdiction.

DISCLOSURES & DISCLAIMER

Legal Entity Disclosure Singapore:

The recommendation in this Report is intended for general circulation and the recommendation does not take into account the specific investment objectives, financial situation/circumstances and the particular needs of any particular person. Advice should be sought from a financial adviser regarding the suitability of the investment product, taking into account the specific investment objectives, financial situation or particular needs of any person in receipt of the recommendation, before the person makes a commitment to purchase the investment product.

This Report is distributed in Singapore by State Bank of India, Singapore Branch (Singapore Registration No. S77FC2670D). State Bank of India, Singapore Branch is a bank, an Exempt Capital Markets Services Entity and Exempt Financial Adviser regulated by the Monetary Authority of Singapore. This Report is not intended to be distributed directly or indirectly to any other class of persons other than persons who qualify as Institutional Investors, Expert Investors or Accredited Investors (other than individuals) [collectively "Intended class of Persons"] as defined in section 4A(1) of the Securities and Futures Act2001. Persons in Singapore should contact State Bank of India, Singapore Branch in respect of any matters arising from, or in connection with this Report via email at rmmb@sbising.com or by call at +65 6506 4246.

Section 45 of the Financial Advisers Act 2001 provides that when sending a circular or other written communication in which a recommendation is made in respect of securities, a financial adviser is required to include a concise statement, in equally legible type, of the nature of any interest in, or any interest in the acquisition or disposal of, those securities that it or an associated or connected person has at the date on which the circular or other communication is sent. Such circular or written communication must be retained by the financial adviser for five (5) years.

Under Regulation 35 of the Financial Advisers Regulations, State Bank of India, Singapore Branch is exempted from compliance with section 45 of the Financial Advisers Act 2001 and is not required to include such a statement of interest in securities in any written recommendation or document that State Bank of India, Singapore Branch may send to the Intended class of Persons. The Intended class of Persons are therefore not protected by the requirements of section 45 of the Financial Advisers Act 2001 if no disclosure is made of any interest that State Bank of India, Singapore Branch or any associated or connected person may have in the securities that State Bank of India, Singapore Branch may recommend in such document.

For the avoidance of doubt, State Bank of India, Singapore Branch emphasizes that this Report is for informational purposes only, and that neither State Bank of India, Singapore Branch, SBICAPS, SBICAPS' Associates nor the Analysts accept any liability for any loss or damage of any kind arising out of or caused by any use or reliance on this Report.

Legal Entity Disclosure Abu Dhabi:

SBI Capital Markets Limited, based in Abu Dhabi Global Market, is authorised and regulated by the Financial Services Regulatory Authority (FSRA). This document is directed at Professional Clients and not Retail Clients. Any other persons in receipt of this document must not rely upon or otherwise act upon it.

This document is provided for informational purposes only. Nothing in this document should be construed as a solicitation or offer, or recommendation, or to engage in any other transaction.