ViewCube

August 2023

Reading the energy meter

CRISIL Ratings webinar on thermal power and distribution

CRISIL Ratings

CRISIL ViewCube on thermal power and distribution

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

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

Analytical contacts

Ankit Hakhu
Director
CRISIL Ratings

Snehil Shukla
Associate Director
CRISIL Research

Shivaramakrishna Kolluri
Team Lead
CRISIL Ratings

Mithun Vyas
Team Lead
CRISIL Ratings

CRISIL Ratings

Contents

CRISIL Ratings

Section 1

Our view

CRISIL Ratings

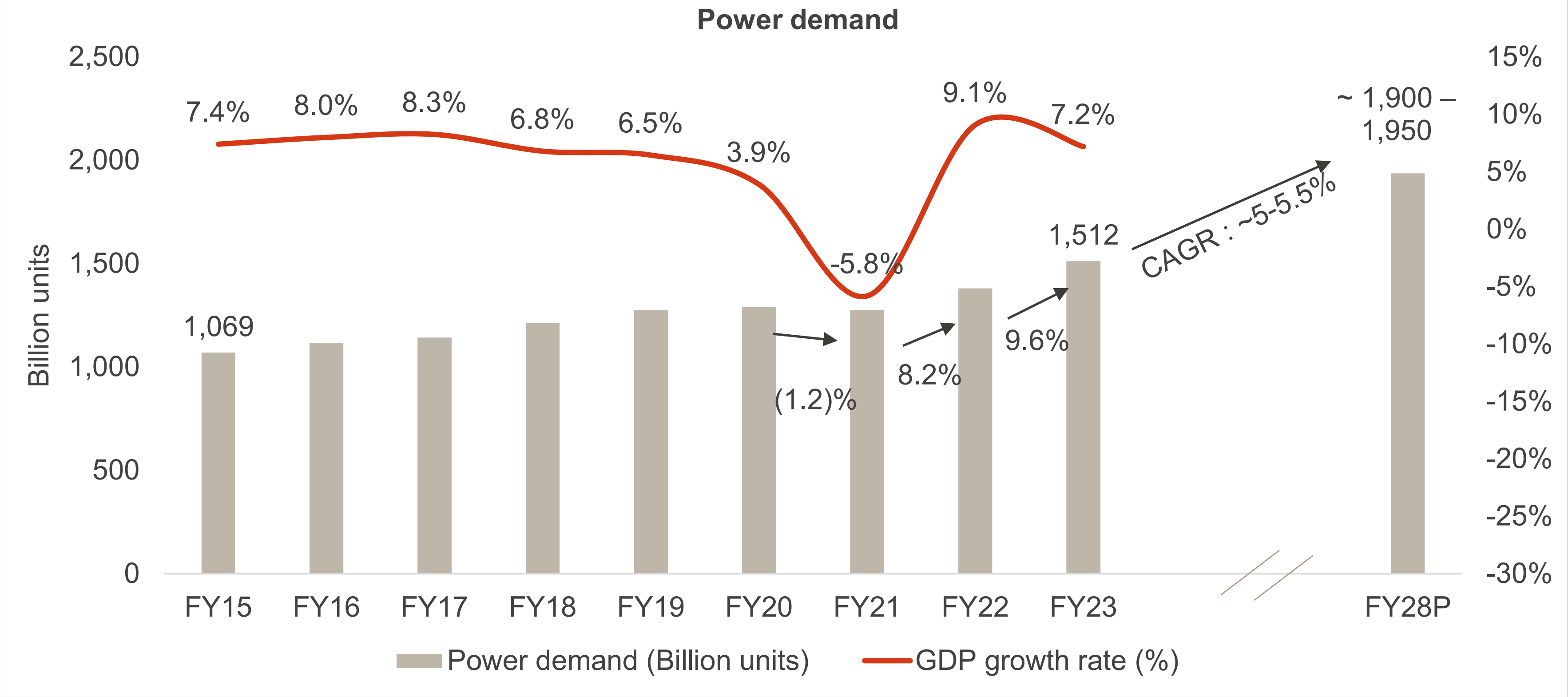
Outlook on power demand

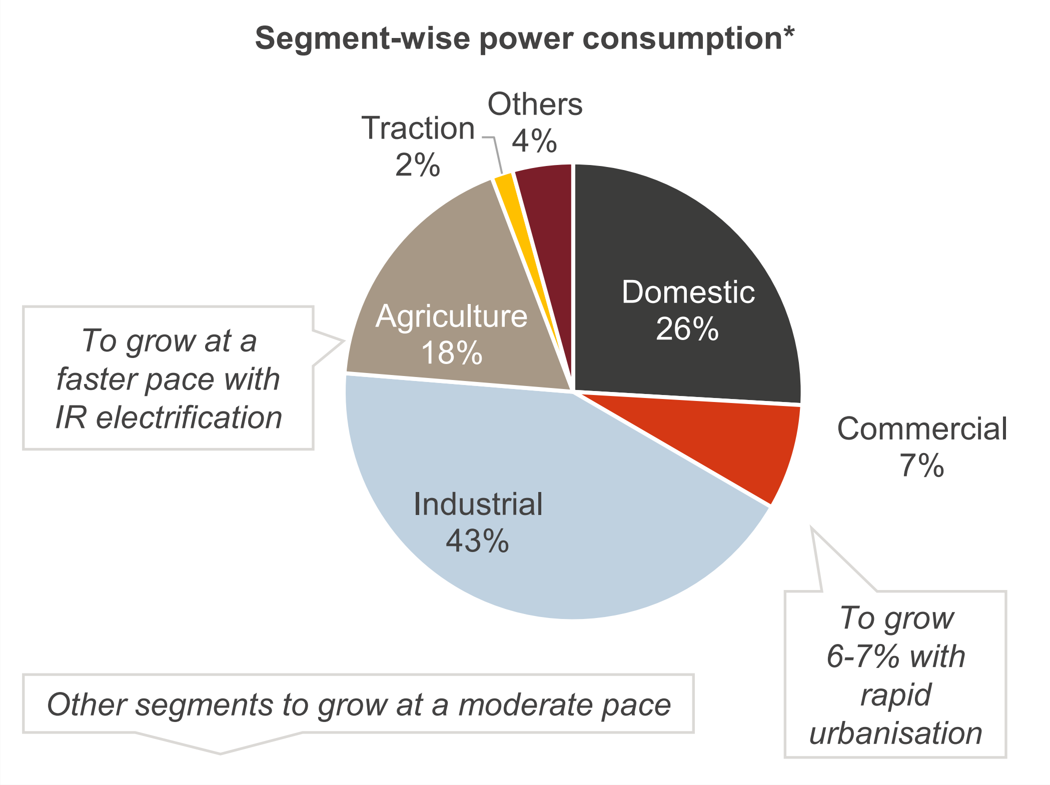
- **Power demand to grow 5.0% to 5.5% over the medium term**

- **Steady growth expected across categories**

Power demand to grow 5.0% to 5.5% over the medium term

Commercial and traction segments to drive demand; growth steady in industrial and other segments





** FY22 CRISIL Ratings' estimates*

- Power demand has a healthy correlation with the gross domestic product (GDP)
- Growth in demand last fiscal was driven by strong heat waves in the first quarter, followed by continued economic growth; the Index of Industrial Production grew 5.1% and rainfall remained around the long period average.
- Major demand drivers over the medium term: Commercial and traction segments, including railway electrification, upcoming metro projects, electric vehicles and data centres, supported by continued manufacturing and infrastructure activity

Source: CEA, MOSPI, CRISIL

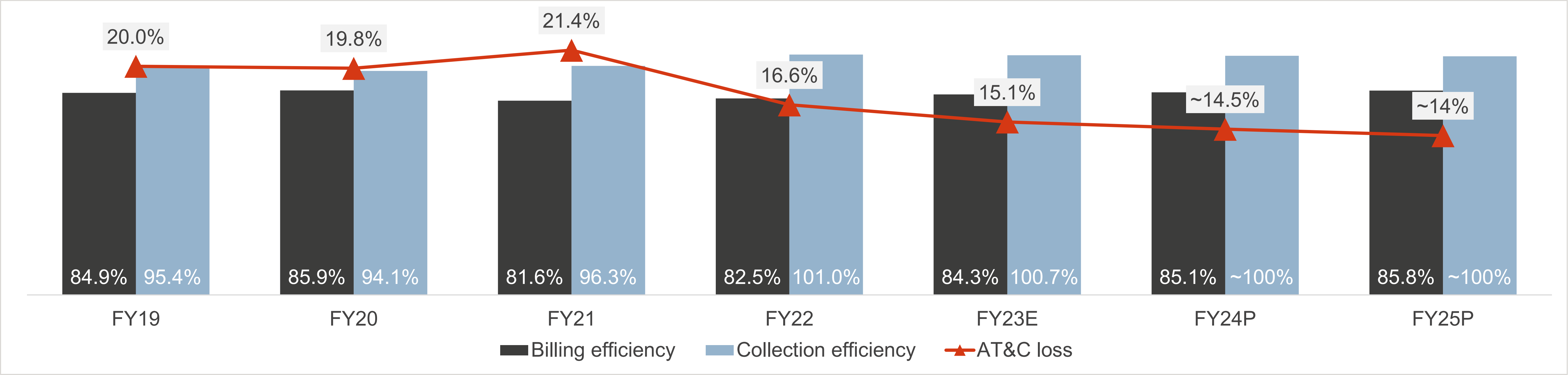
View on distribution companies, or discoms

- **ACS-ARR* gap narrowing because of state support and better operating metrics; debt to rise ~35% over fiscal 2023 estimates as payables fall**
- Operating performance of state discoms# improved, with aggregate technical and commercial (AT&C) losses falling to ~15.1% last fiscal from 21.4% in fiscal 2021. This should touch ~14% by fiscal 2025
- **Approved tariff hikes to improve viability of discoms, but implementation will be a key monitorable. Subsidy payouts by states have been timely and in full, and should remain so**
- ACS-ARR* gap to reduce further with expected tariff hikes and continuing subsidy support from state governments
- **Debt to rise as stretching payables no longer an option under the Electricity (Late Payment Surcharge and Related Matters) Rules, 2022 (LPS Rules)**

**ACS: Average cost of supply per unit; ARR: Average revenue realised per unit*
#26 state discoms across 12 states accounting for ~60% of the energy sold in the country were considered for analysis

AT&C losses on the decline due to state support

Collection efficiency to sustain with expected timely subsidy payments by states



E: Estimated; P: Projections ;
Source: Tariff orders, annual reports and CRISIL Ratings

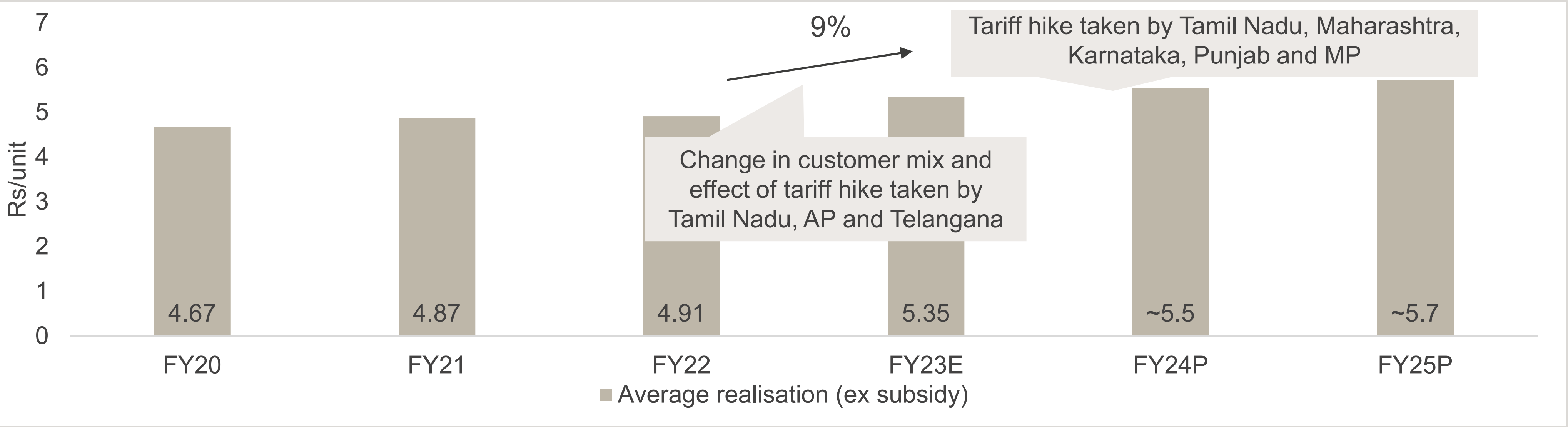
- AT&C losses have declined significantly driven by increase in commercial and industrial (C&I) consumption (up ~10%) and state governments releasing subsidy payments on time, along with additional payments, to liquidate part of past dues
- AT&C losses expected to decline to ~14% in fiscal 2025, driven by timely subsidy payments by state governments (part of Revamped Distribution Sector Scheme [RDSS] scheme), while T&D losses are expected to correct further as discoms take steps to improve network efficiency

Source: CRISIL Ratings analysis of 26 discoms across 12 states accounting for ~60% of the energy sold in the country.
AT&C loss = {1 - (billing efficiency X collection efficiency)} X 100

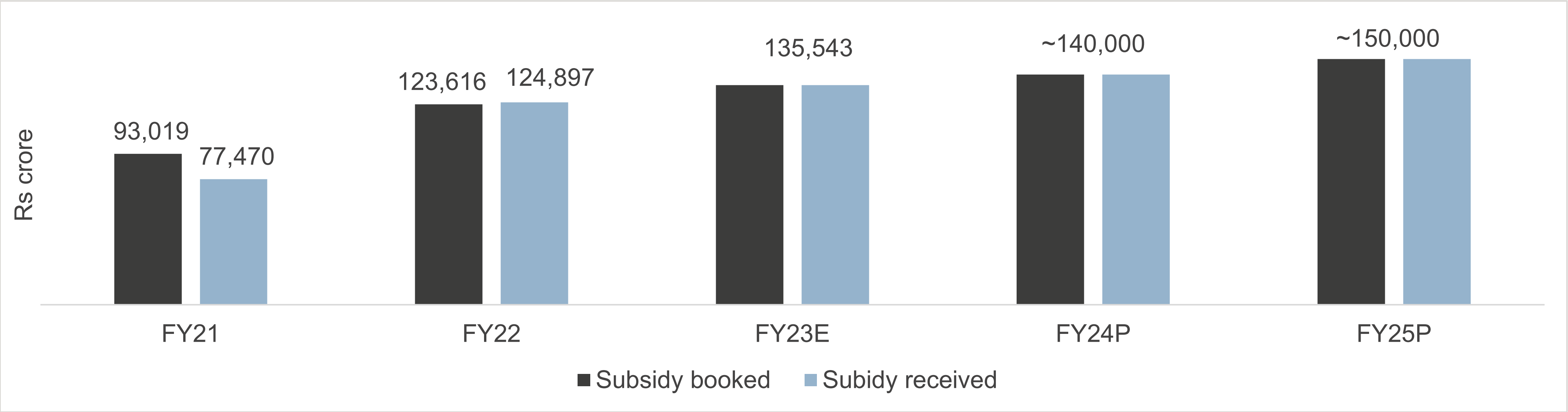
CRISIL Ratings

Tariff hike back on the cards

ARRs expected to rise because of tariff hikes



Subsidy payouts by states have increased substantially and have been on time

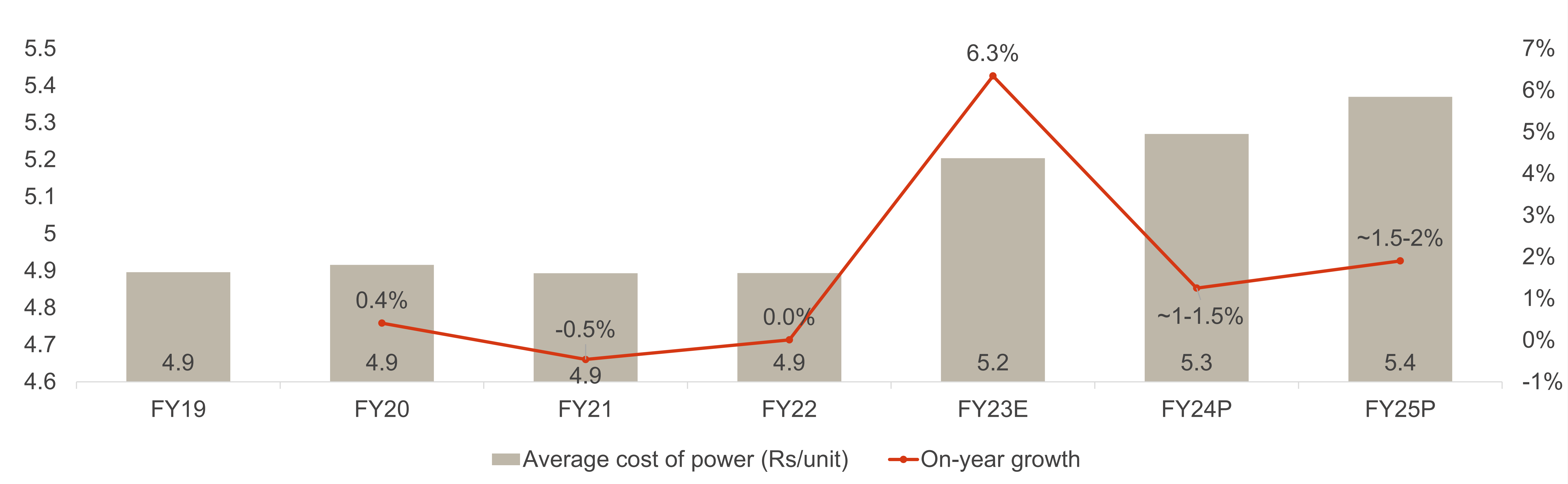


- Increased traction in tariff hikes
- Fiscal 2023 - Tariff hike by key states such as Tamil Nadu, Telangana, Uttar Pradesh and Andhra Pradesh
- Fiscal 2024 - Some state discoms, such as Tamil Nadu, Uttar Pradesh, Karnataka and Punjab, have applied for and have obtained approval to increase tariffs
- Tariff hikes expected to continue in fiscals 2024 and 2025 due to linkage with RDSS scheme; will remain a key monitorable

E: Estimated; P: Projections
Source: CRISIL Ratings analysis based on 26 discoms across 12 states accounting for ~60% of the energy sold in the country

CRISIL Ratings

Power cost rose last fiscal on higher coal costs, short-term rates

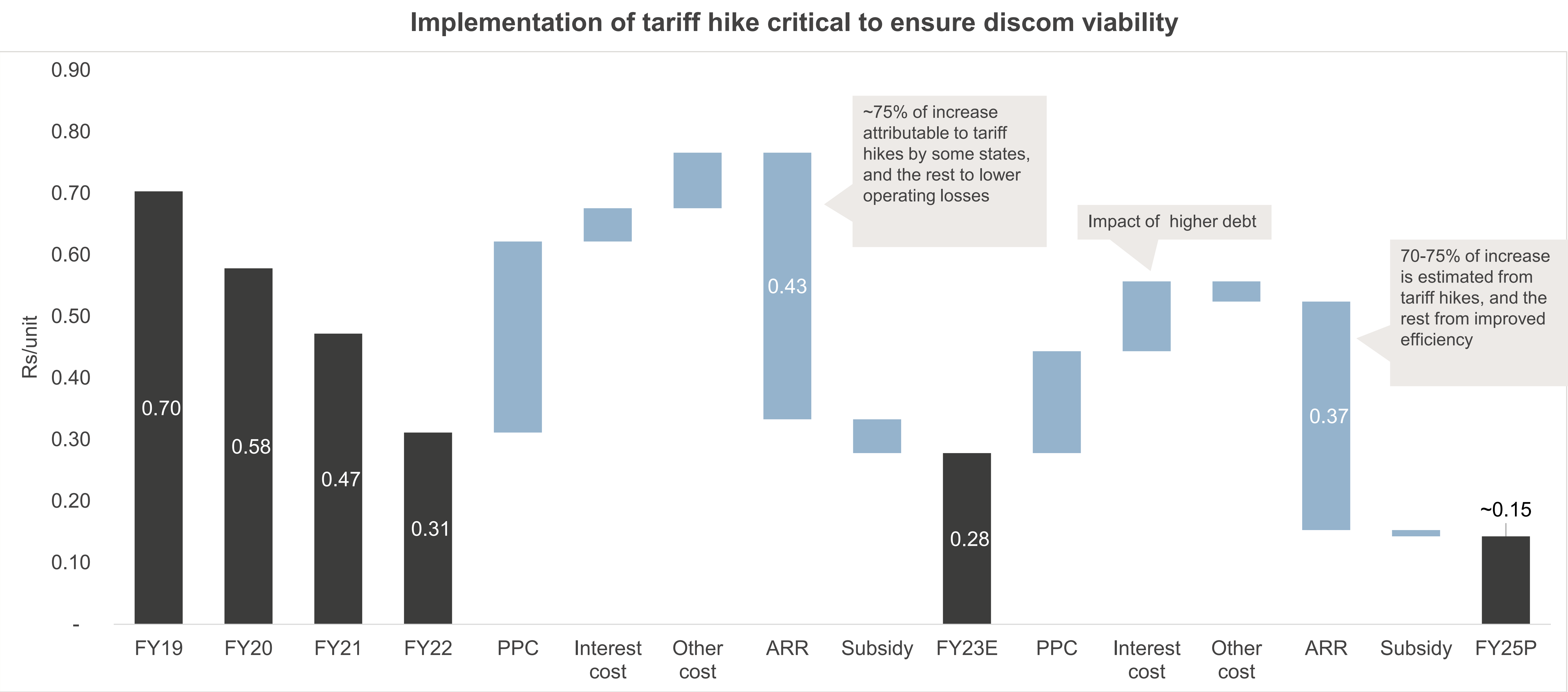


- Cost of power (ACS) increased last fiscal because of higher coal costs and short-term power tariff amidst rising power demand, no new long-term PPAs (thermal side) signed and rising share of short-term purchases
- Rising share of renewable energy in the supply mix and stabilising coal prices to limit increase in ACS to 1-2% over fiscals 2023-25

E: Estimated; P: Projections
Source: CRISIL Ratings analysis of 26 discoms across 12 states accounting for ~60% of the energy sold in the country

CRISIL
Ratings

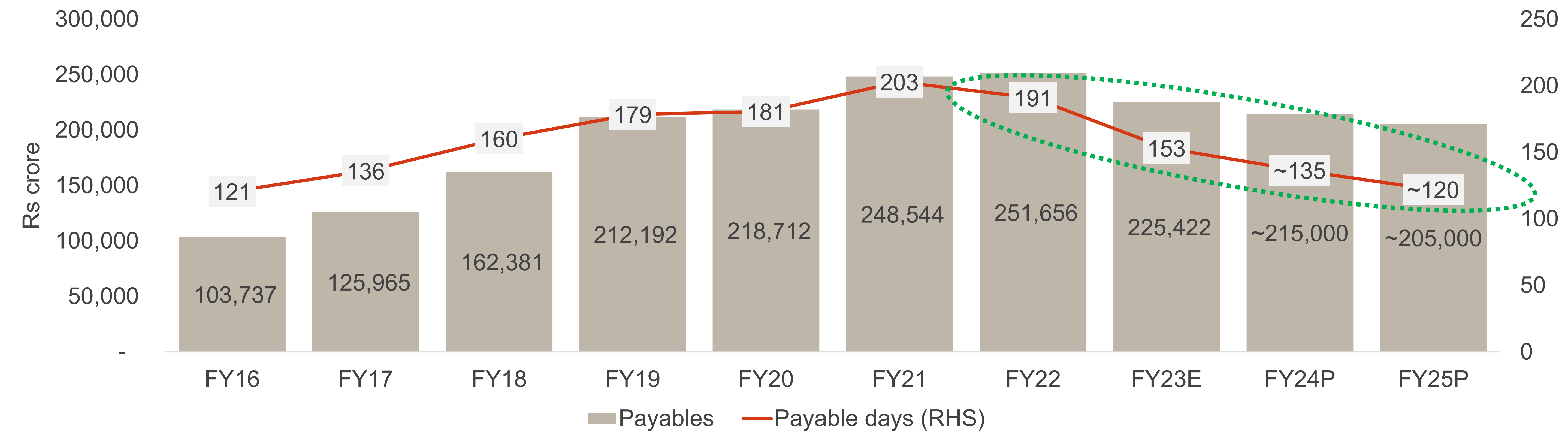
ACS-ARR* gap to keep narrowing on tariff hikes, subsidy support



**CRISIL Ratings analysis of 26 discoms across 12 states; E: Estimated; P: Projections*

CRISIL Ratings

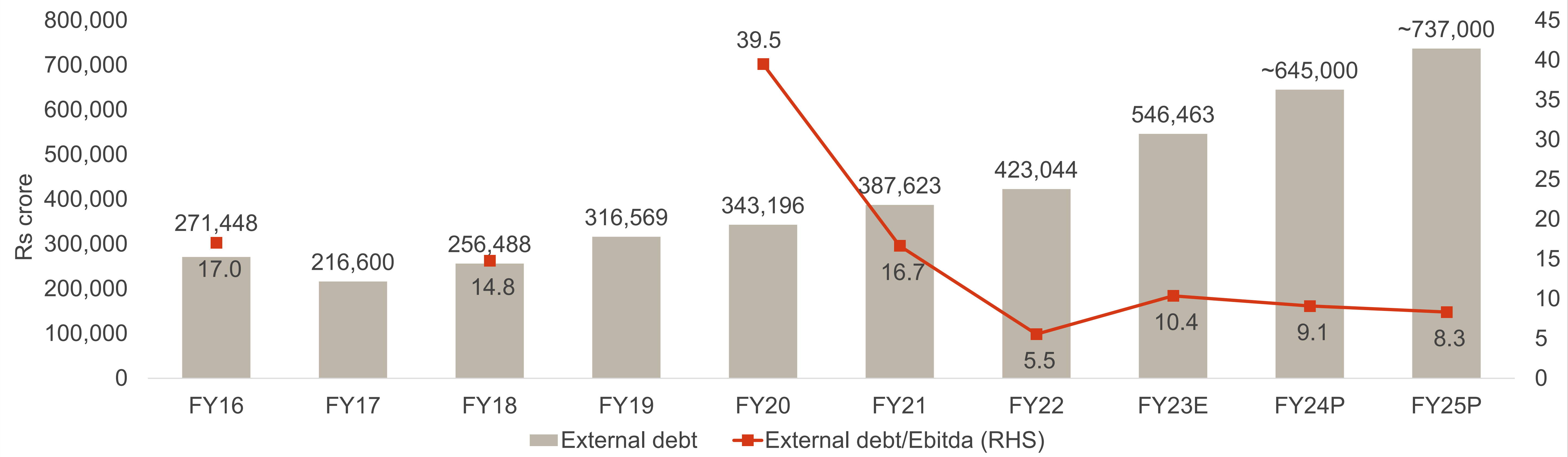
Improvement in payables because of LPS to continue



- The LPS Rules to reduce payables
- Outstanding dues of independent power producers (IPPs) and central public sector enterprises (CPSEs) at Rs ~100,000 crore as of June 2022 (cut-off date for LPS) for states assessed; to be paid over the next few years
- The rules stipulate timely payment to gencos of dues accrued post June 2022, which may bring down overall payables to ~120 days

Note: States which have opted for the LPS scheme include Andhra Pradesh, Karnataka, Madhya Pradesh, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh. Other states which have opted for LPS, but are not covered in the analysis include Bihar, Chhattisgarh, Jammu and Kashmir, Jharkhand and Manipur
Payables include dues to state gencos
CRISIL Ratings analysis of 26 discoms across 12 states accounting for ~60% of the energy sold in the country; E: Estimated; P: Projections

Debt will increase as stretching payables is no longer an option



- Fall in payables because of LPS Rules and incremental debt for capital expenditure and working capital will lead to increase in external debt
- Support from states, in the form of timely and full subsidy payments and liquidation of a part of past dues, is expected to continue
- Implementation of tariff hikes as approved in tariff order crucial to ensure serviceability of additional debt

Note: CRISIL Ratings analysis of 26 discoms across 12 states accounting for ~60% of the energy sold in the country; E: Estimated; P: Projections

CRISIL Ratings

Central policies pushing states to improve discom performance

RDSS

Purpose of RDSS

- Reduce **AT&C** losses to **12-15%**
- Reduce **ACS-ARR** gap to **0** by **FY25**

- Various discoms have submitted projects worth Rs 2.5 trillion for approval under RDSS; these are to be implemented over fiscals 2023-27.
- Projects have been approved under two broad categories: implementation of smart meters and other projects aimed at reduced AT&C losses.
- Actual disbursement is subject to the discoms meeting several conditions, including timely release of subsidy, quarterly and annual financial filings, clearance of dues by all government departments, timely issuance of tariff orders, no regulatory asset accrual, reduction in payables.
- So far, the central government has released only ~Rs 1,700 crore, indicating slow pace of implementation.
- However, the scheme has led to improvement in disclosure timelines by discoms.

LPS Rules – June 2022

- Under the LPS Rules, non-payment of dues to gencos will lead to access to the short-term market being cut off. This, led by many state government releasing subsidy payments on time, should ensure liquidity for discoms. Under the LPS Rules, many discoms have opted to pay their dues in equated monthly instalments (EMIs) over the next 3-4 years.
- As of March 31, 2023, Rs 36,767 crore was disbursed by PFC and REC under this scheme, which has led to a material fall in payables.

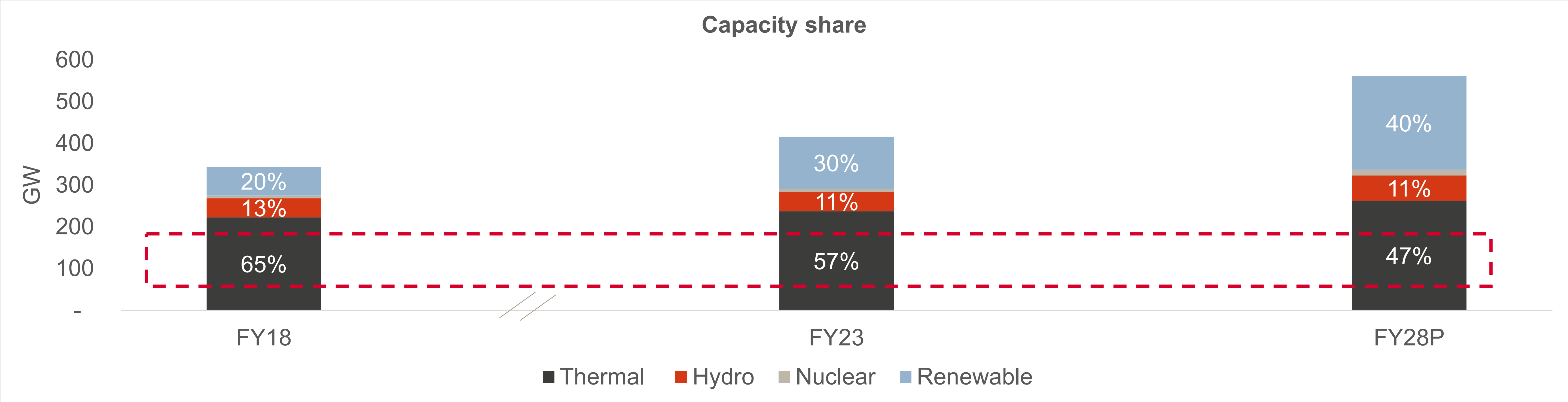
Gencos

- **PLFs of coal-based power plants to moderate in the near term because of scheduled capacity addition in fiscals 2024 and 2025, but to remain above 60% over the next five years**
- Capacity share of thermal power may drop below 50%, but will remain above 65% in generation mix in the next five years
- **Domestic coal supply to the power sector to remain adequate at the current allocation level**
- Short-term markets to see prices moderate due to improving coal supply
- **Receivables seen at decadal low the end of this fiscal because of regular monthly payments under the LPS Rules**
- Debt protection metrics of thermal IPPs^ rated by CRISIL Ratings expected to sustain

^Representing ~50% of total operational capacity of thermal IPPs

Capacity share of thermal power seen below 50% in five years

Centre and states to drive additions in thermal segment; no private participation expected



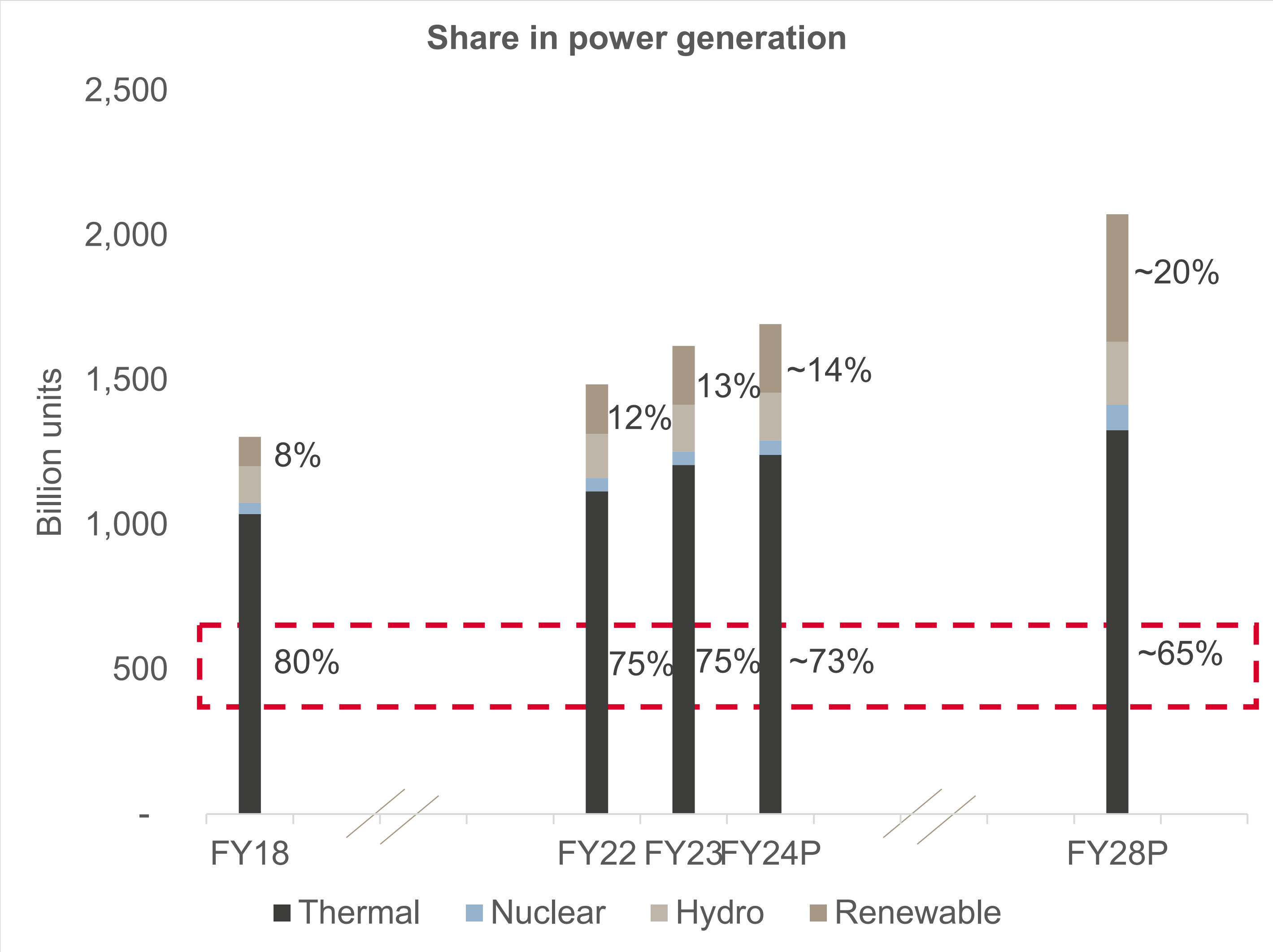
- ~25 GW of coal-based power plants expected over the next five years; no major gas-based capacity expected, except one under construction
- Renewables to have a major share in capacity additions over the next five years (~100 GW)
- Long gestation period in the hydro and nuclear segments to keep capacity additions low in the next five years. Nuclear power capacity to double with commissioning of under-construction projects. Under-construction hydro capacities of 10-15 GW to be commissioned in the next five years.
- No major plant likely to be retired due to peaking demand requirements and recent introduction of scheme for pooling of tariff for plants with expired PPAs

Source: CEA and CRISIL

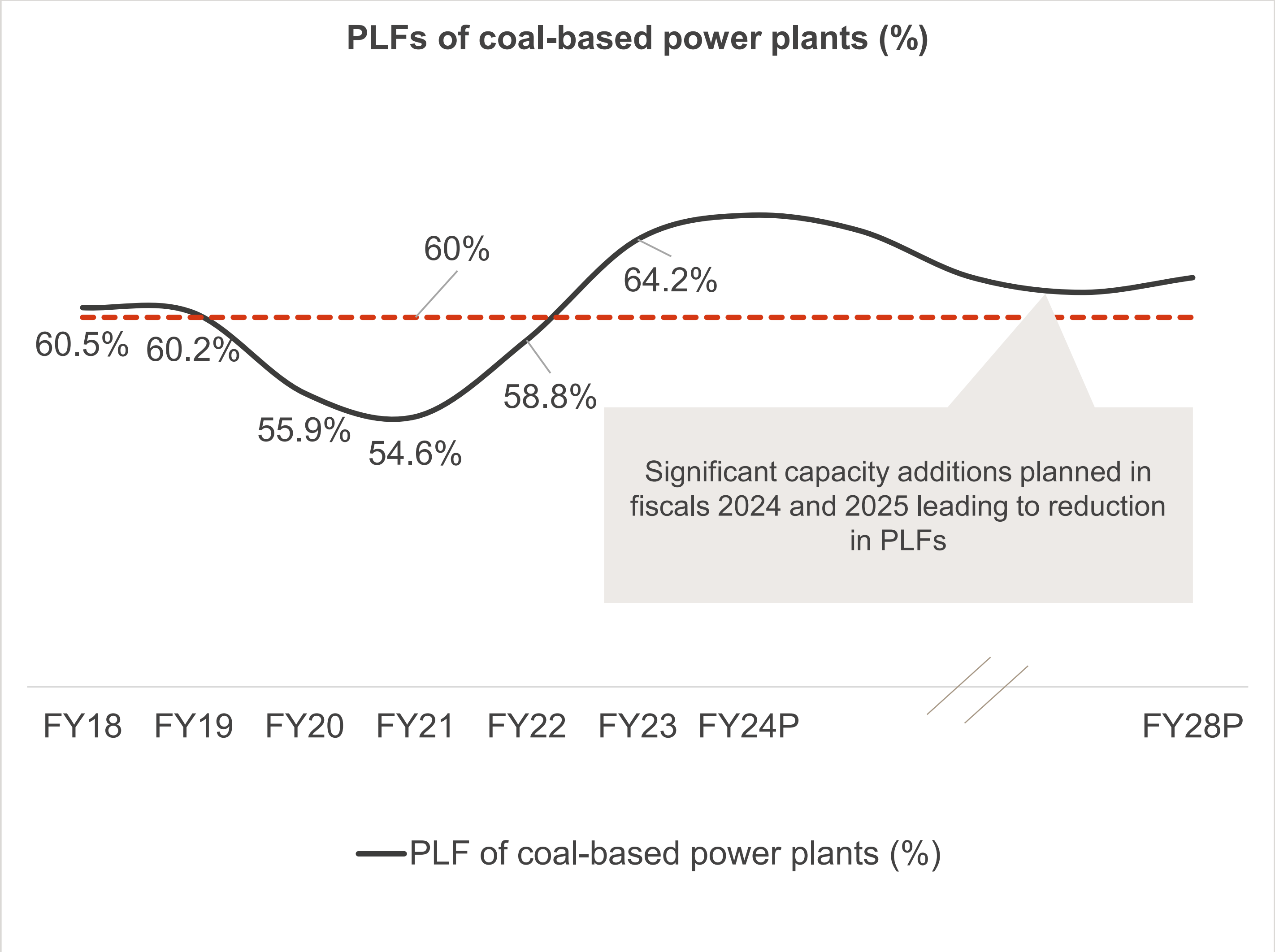
CRISIL Ratings

Coal-based plants to see PLFs dip, but stay >60% in next five years

Significant capacity addition in the next two fiscals to reduce PLFs; only a third required to be met by coal-based plants



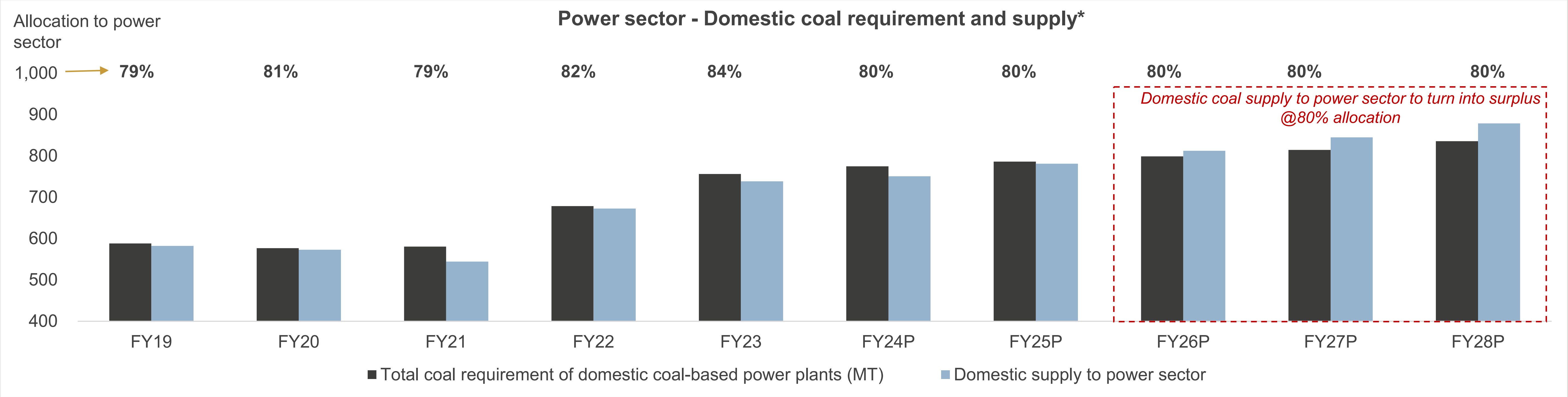
Thermal includes coal, lignite, gas and diesel. Renewables include solar, wind, biomass, small hydro and others



Source: CEA, CRISIL

Domestic coal adequate for next two years at current allocation

Allocation for power may reduce from fiscal 2026 with higher coal production vis-à-vis requirement



** Assumes 6% growth in coal production in FY24 and 4% from FY25*

- Domestic coal production rose 15% to 891 MT in fiscal 2023, propping up inventory; government's target for fiscal 2024 is 1012 MT.
- The government is taking steps for steady domestic coal supply, including outsourcing of mines, auction of commercial mines, **implementation of various first-mile connectivity projects and railway lines**.
- *Coal imports by imported coal-based power plants to remain low with international coal prices expected to remain high.*

Source: CEA, MOP, CRISIL

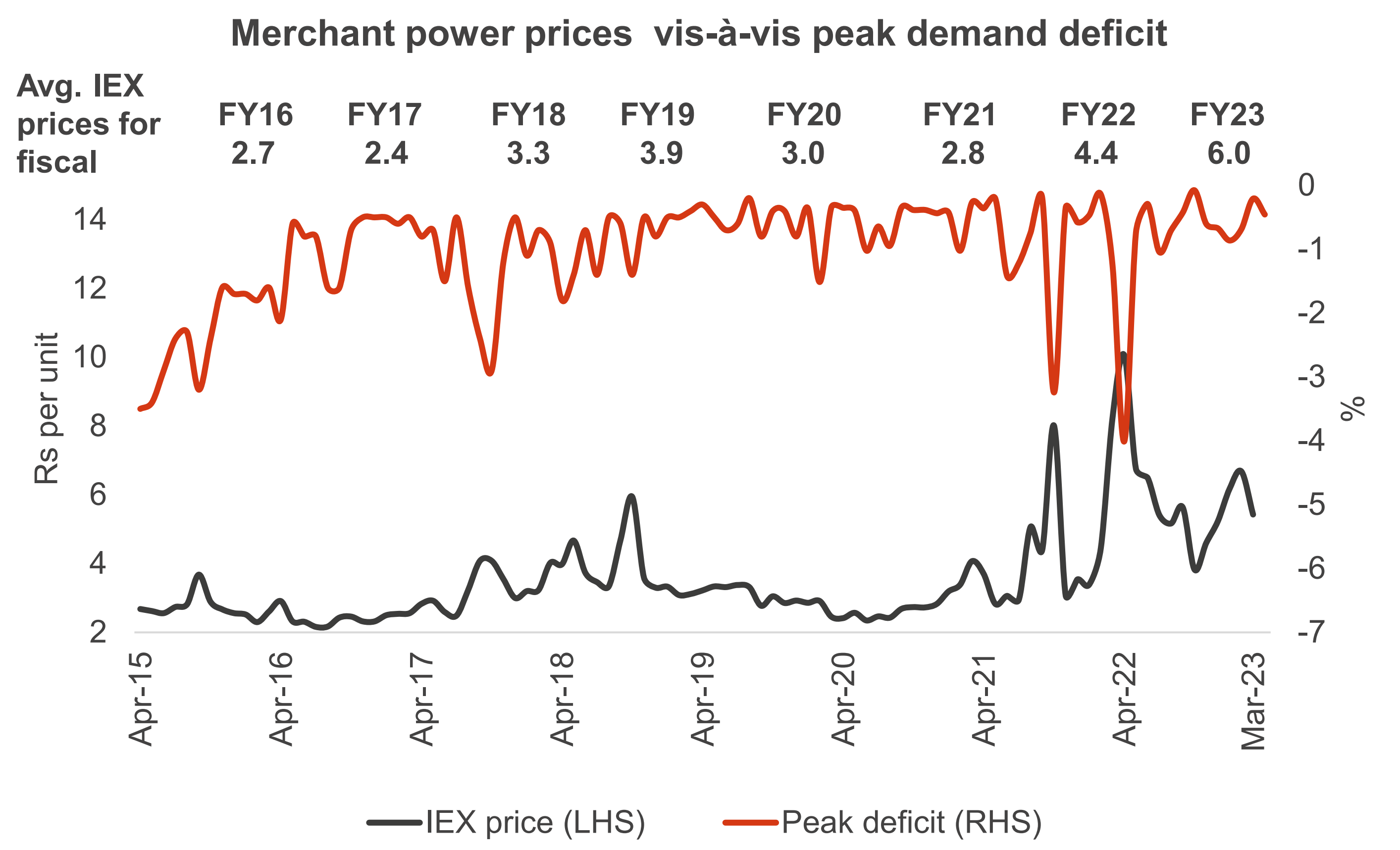
	FY19	FY20	FY21	FY22	FY23	Long-term outlook
Imported coal blending ratio**	3.6%	4.1%	1.8%	1.2%	4.6%	"Watchout"
Coal allocation to the power sector	79%	81%	79%	82%	84%	⬇

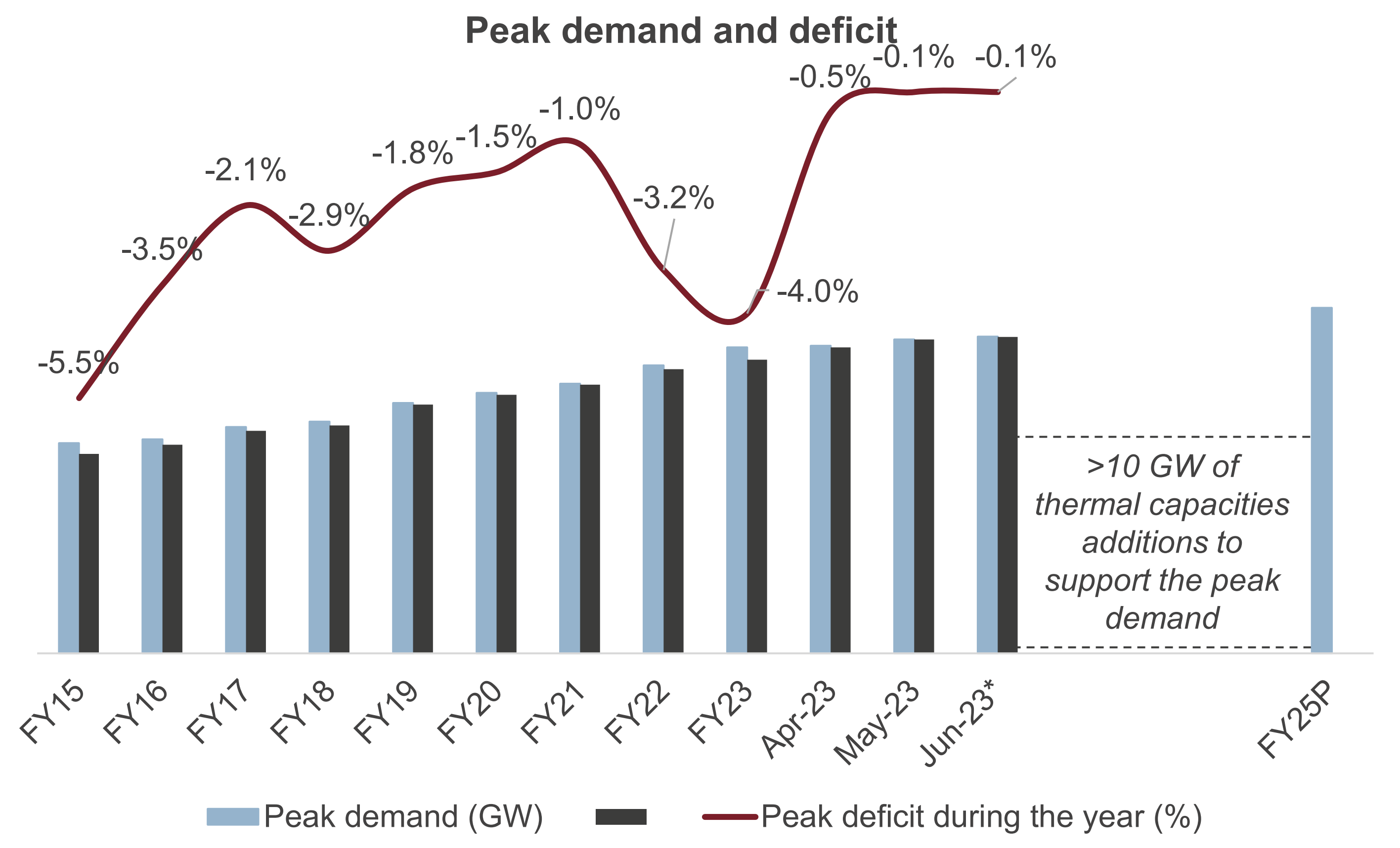
***Of domestic coal-based power plants*

CRISIL Ratings

Prices in short-term market to moderate

>10 GW thermal capacity additions scheduled this fiscal; other segments to support, too





IEX prices are for the day ahead market which formed ~65% of the total volume sold in exchanges during FY23

- Improving coal supply situation and expected increase in conventional capacities to pull down prices. Domestic coal supply to remain strong while international coal prices are expected to remain rangebound ($60-70 per tonne)
- The short-term power market in India has significant upside potential as it forms less than 15% of the total power generated in India, compared with 30-80% in developed countries.

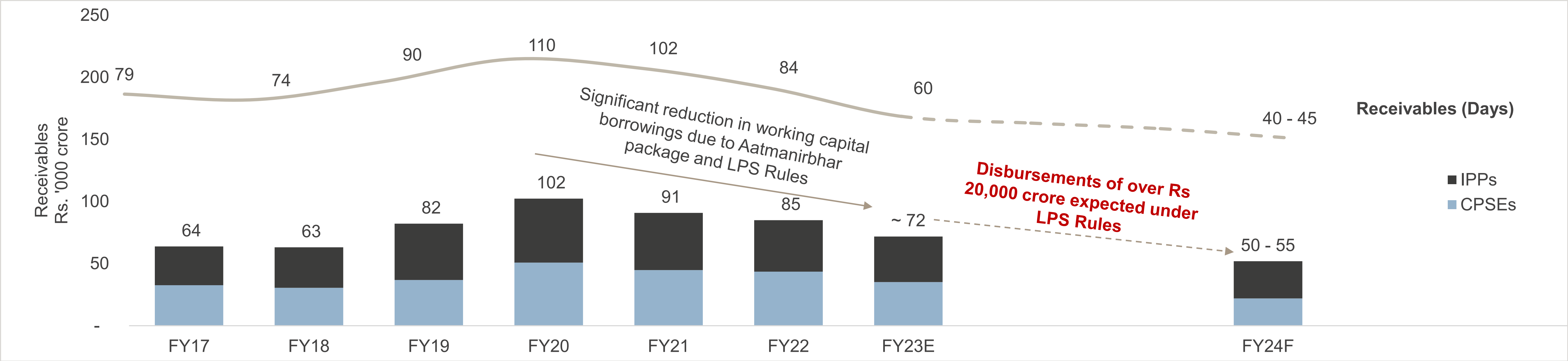
Source: IEX, Ministry of Coal, CEA, CRISIL

CRISIL Ratings

Receivables position to ease further this fiscal

Over Rs 30,000 crore disbursed by PFC/REC last fiscal; over Rs 30,000 crore expected this fiscal

Movement of overdue receivables (excluding unbilled revenue)



Includes companies with over 83% of the total power generation by CPSE and IPPs in fiscal 2023

Source: Ministry of Power, CEA, CRISIL Ratings

- 13 states/union territories making payments under LPS Rules; 8 EMIs paid till March 2023
- Discoms continue to clear current dues on time (within two-and-half months from the invoice date)

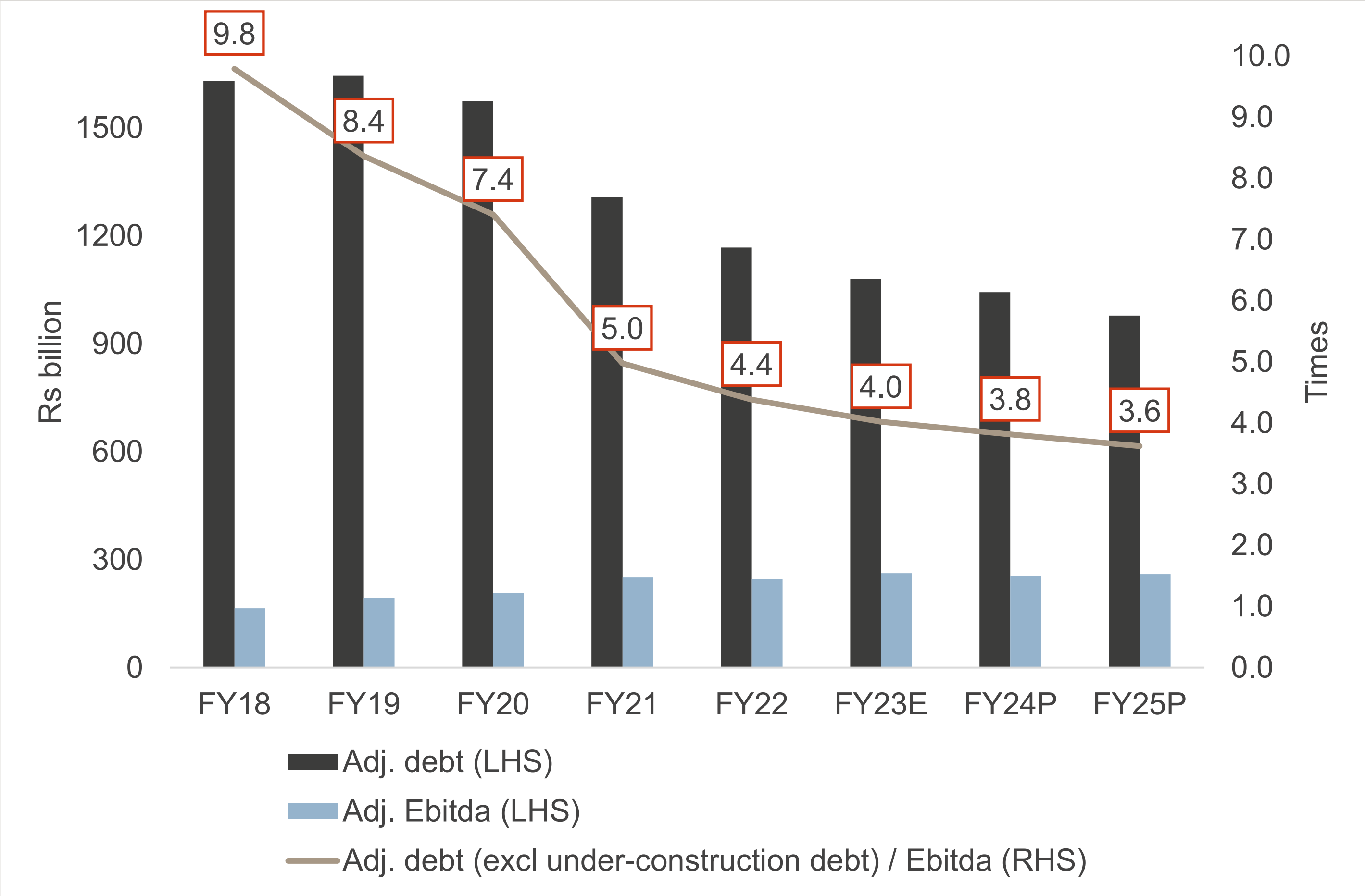
<u>Penal mechanism in absence of payment of current dues</u>

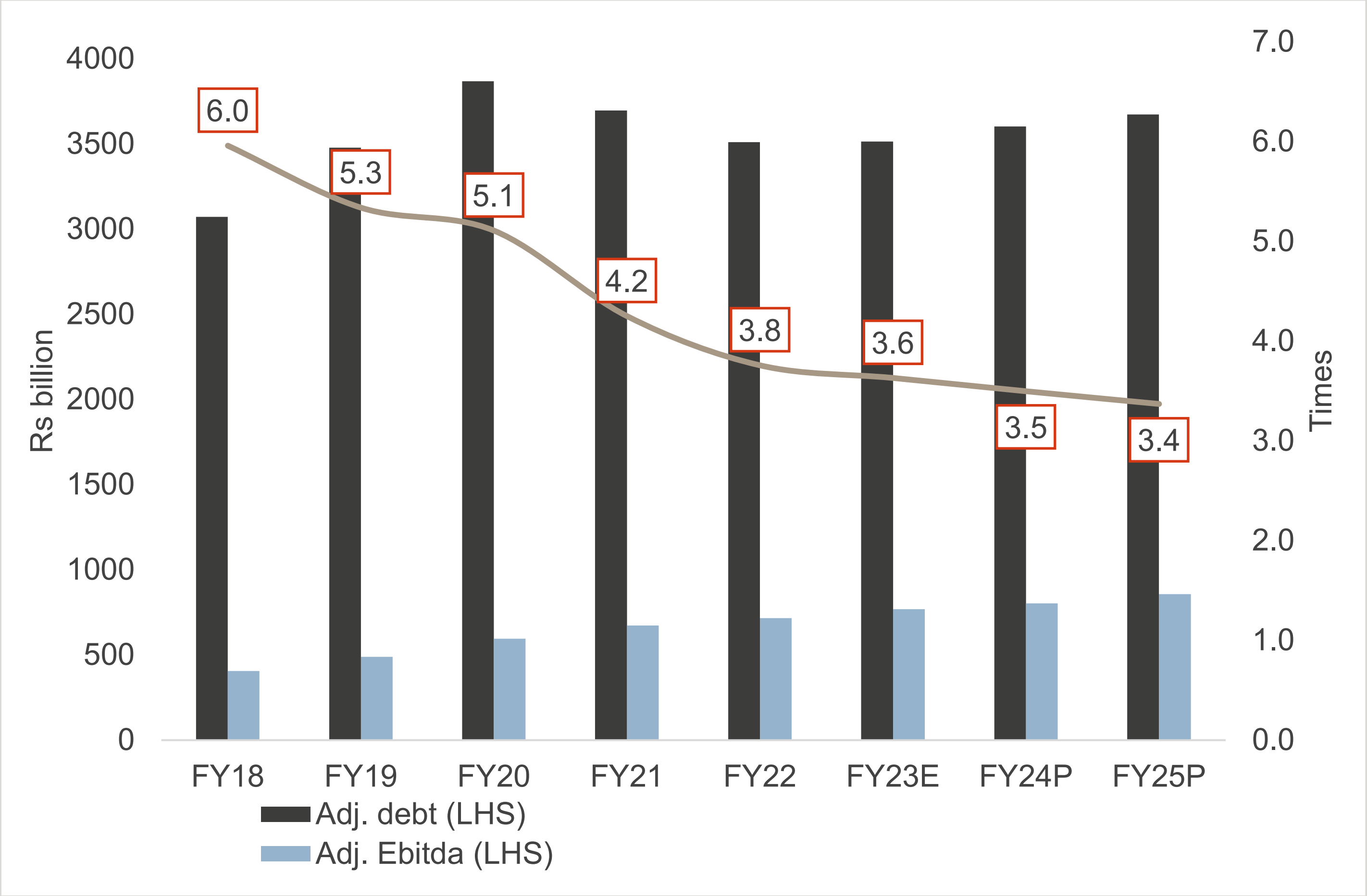
- Continued liability for payment of fixed and capacity charges during the period of default
- LPS shall be levied on the entire outstanding dues
- Short-term access (to inter-state transmission system [ISTS] for one year) shall be regulated entirely
- On continued default, medium- and long-term access shall be regulated by 10%

CRISIL Ratings

Debt metrics in the CRISIL Ratings portfolio likely to sustain

Driven by reduction in working capital debt through LPS Rules, steady operating performance





Represents ~50% of total operational non-stressed capacity of CPSEs + thermal IPPs
Source: Company data, CRISIL Ratings

Represents ~50% of total operational non-stressed capacity of thermal IPPs

- Significant debt reduction in some of the past years is due to stressed asset resolution and disbursements under Atmanirbhar package and LPS Rules

CRISIL Ratings

Summary

- Power demand expected to grow 5.0% to 5.5% over the medium term
- ACS-ARR gap to reduce because of approved tariff hikes and continued state support
- **Payables to trend downwards** with implementation of the LPS scheme. Debt to rise ~35% over the next couple of years as stretching payables no longer an option for discoms
- Measures by the central government showing results, with state governments paying subsidy in full and on time and improvement in the reporting standards of discoms
- PLFs of coal-based power plants to remain above 60% over the next five years; domestic coal supplies expected to remain adequate
- Receivables position to ease with LPS Rules, 2022

Key monitorables

- Any material change in weather phenomena, such as heat waves or extended monsoon, impacting power demand
- Sustenance of growth in domestic coal production and movement in imported coal prices
- Implementation of tariff hikes by discoms and progress in the implementation of RDSS
- Steeper-than-expected rise in discom debt resulting in widening ACS-ARR gap
- Sustenance of payment by counterparties post completion of the LPS Rules

Section 2

Their view

CRISIL Ratings

Excerpts from a panel discussion held during the webinar

Suresh Nagarajan
Chief Executive Officer
DB Power Ltd

Samuel Joseph
Deputy Managing Director
NaBFID

Lalit Jain
President
MB Power (MP) Ltd

On power demand

- Power demand is likely to grow 5-6% per annum over next couple of years, driven by industrial demand
- Growth in peak power demand is likely to pick up pace, reaching ~300 GW by fiscal 2028.
- Resultantly, upcoming capacities (including 25 GW of thermal power) may not be sufficient to meet demand. Also, storage technologies may need to accelerate.

On coal supply

- Supply challenges unlikely in fiscal 2024, given the increase in production.
- Expect imported coal blending to go decline to 6% and lower, with improvement in domestic supply

Merchant sales and prices

- Merchant prices have softened in the past 3-4 months owing to cooler temperatures in the north. Prices unlikely to peak during the rest of this fiscal.
- Gap in peak power demand may drive merchant prices.

On discoms

- Tariff hikes are important for the sustenance of the sector. The central government has taken various measures to improve discom health.
- Discoms may float medium-term PPAs to overcome the vagaries of the spot market. This will be an opportunity for some of the open thermal capacities.

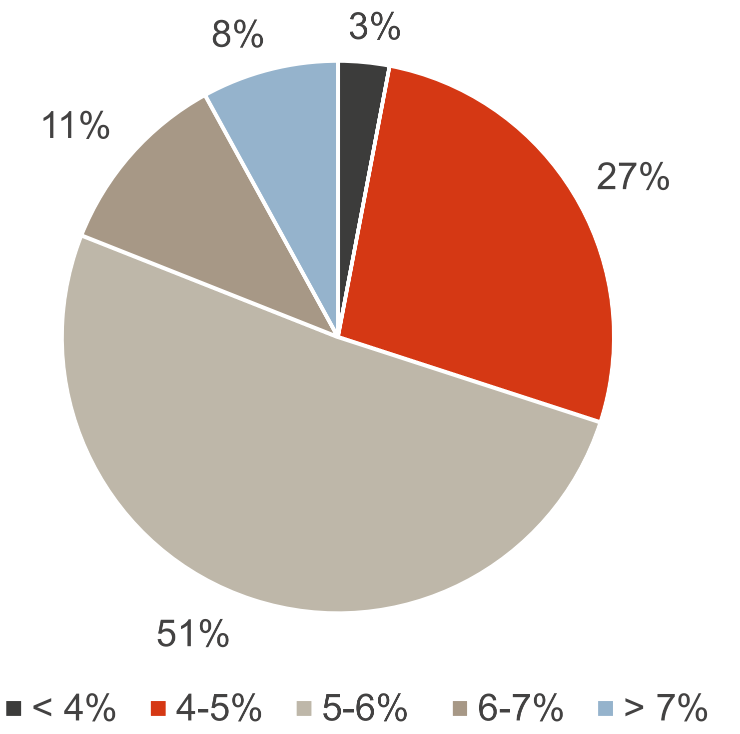
Section 3

Poll view

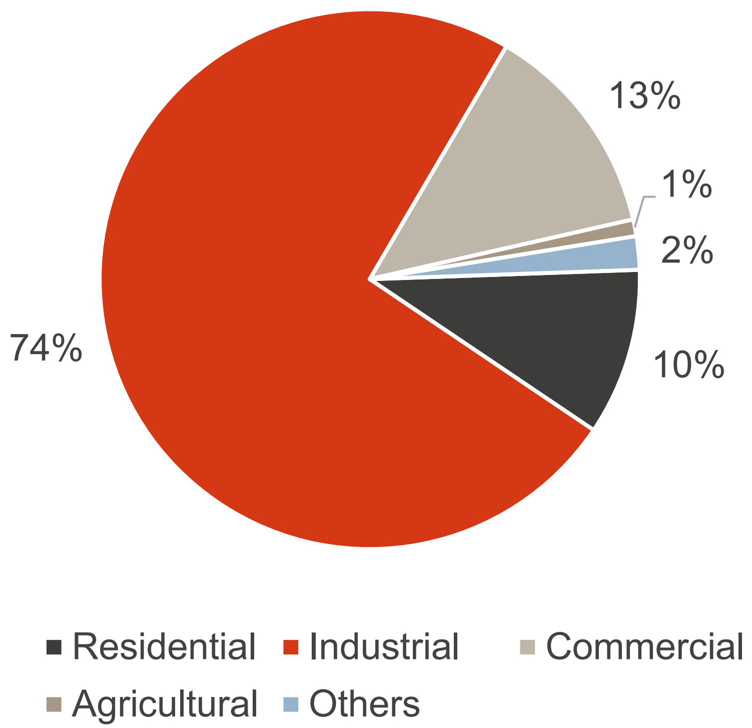
CRISIL Ratings

Results of a survey conducted during the webinar (1/2)

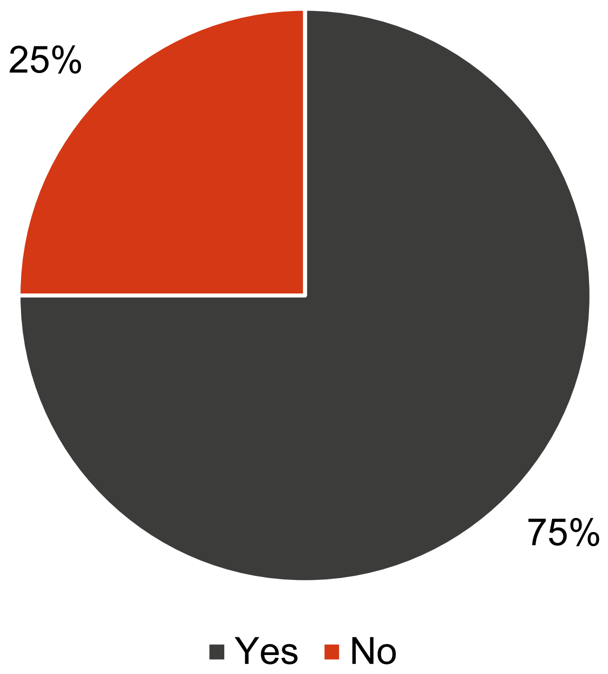
How much do you expect power demand to grow this fiscal? ?



Which segment will drive growth?



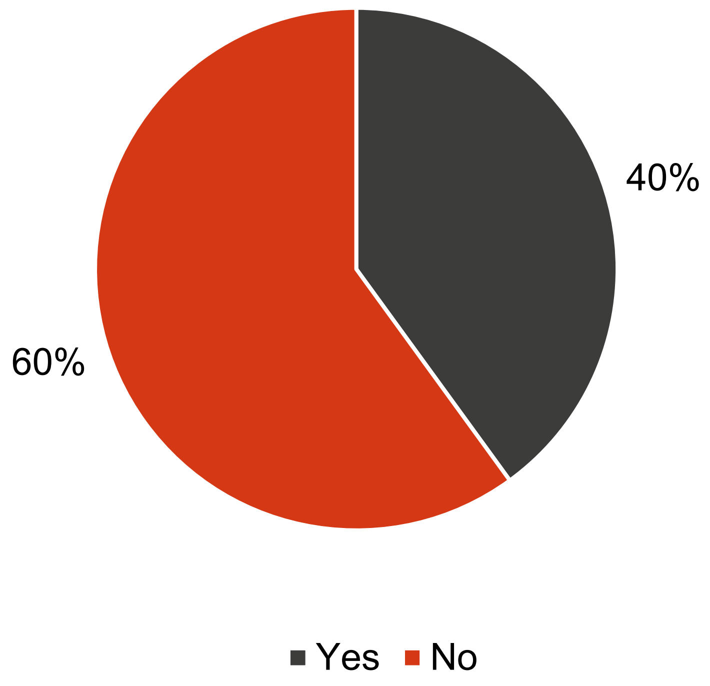
Will new government initiatives, such as RDSS and implementation of smart meters, address the structural issues in the sector?



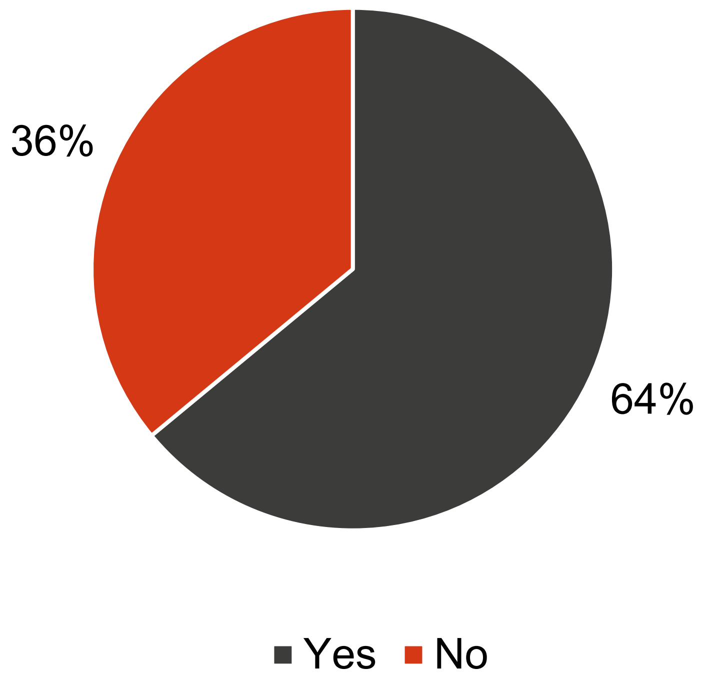
CRISIL Ratings

Results of a survey conducted during the webinar (2/2)

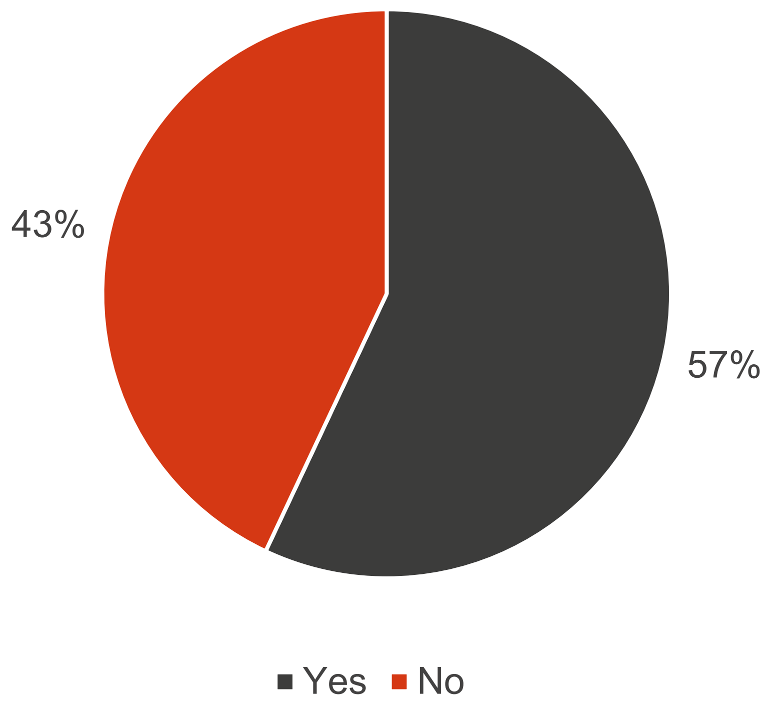
Do you see any coal availability challenges for domestic coal-based power plants over the medium term, considering the growth in coal production and pace of capacity additions in other segments?



Do you foresee any peak demand deficit challenges in the near term?



Do you think discoms will continue to make timely payments after the EMIs under LPS Rules, given the penal mechanism in place?



CRISIL Ratings

Thank you

For further assistance and queries, write to us at events@crisil.com

*Disclaimer: This event and its content are intellectual property and confidential information of CRISIL. Any use of the same without written permission of CRISIL is illegal and hence punishable. Recording the webinar in any form in full or part or copying, altering, distributing or streaming the webinar is strictly prohibited and violation will attract legal action.

CRISIL Ratings

About CRISIL Ratings Limited (A subsidiary of CRISIL Limited, an S&P Global Company)

CRISIL Ratings pioneered the concept of credit rating in India in 1987. With a tradition of independence,

analytical rigour and innovation, we set the standards in the credit rating business. We rate the entire range of debt instruments, such as, bank loans, certificates of deposit, commercial paper, non-convertible / convertible / partially convertible bonds and debentures, perpetual bonds, bank hybrid capital instruments, asset-backed and mortgage-backed securities, partial guarantees and other structured debt instruments. We have rated over 35,000 large and mid-scale corporates and financial institutions. We have also instituted several innovations in India in the rating business, including rating municipal bonds, partially guaranteed instruments and infrastructure investment trusts (InvITs). CRISIL Ratings Limited ("CRISIL Ratings") is a wholly-owned subsidiary of CRISIL Limited ("CRISIL"). CRISIL

Ratings Limited is registered in India as a credit rating agency with the Securities and Exchange Board ofIndia ("SEBI").

For more information, visit www.crisilratings.com.

About CRISIL Limited

CRISIL is a leading, agile and innovative global analytics company driven by its mission of making markets function better.

It is India's foremost provider of ratings, data, research, analytics and solutions with a strong track record of growth, culture of innovation, and global footprint.

It has delivered independent opinions, actionable insights, and efficient solutions to over 100,000 customers through businesses that operate from India, the US, the UK, Argentina, Poland, China, Hong Kong, UAE and Singapore.

It is majority owned by S&P Global Inc, a leading provider of transparent and independent ratings, benchmarks, analytics and data to the capital and commodity markets worldwide.

For more information, visit www.crisil.com

Connect with us: LINKEDIN | TWITTER | YOUTUBE | FACEBOOK | INSTAGRAM

CRISIL Privacy Notice

CRISIL respects your privacy. We may use your personal information, such as your name, location, contact number and email id to fulfil your request, service your account and to provide you with additional information from CRISIL. For further information on CRISIL’s privacy policy please visit www.crisil.com/privacy.

CRISIL Ratings