

Power Sector: Households drive growth amid industrial slowdown

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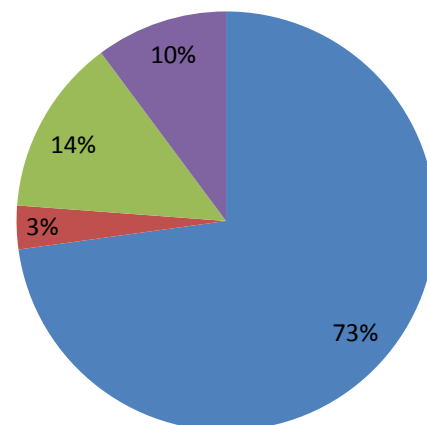
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Report Summary and Outlook

- Power Generation during April-October 2019 recorded 1.5% growth at ~843 billion units (BU). Nuclear and Hydro Power Production recorded robust recovery in power generation by 25.5% and 15% respectively. Nuclear power had witnessed lower generation during the corresponding period of the previous year due to O&M constraints.
- Renewable energy generation growth moderated and recorded 5.7% growth at 85.7 BU during H1FY20.
- Share of Thermal Power in the overall power generation has dropped to its lowest level since 1991-92 at 72.8% during the current financial year. Hydro Power and Nuclear Power generation peaked to multi-year highs during the fiscal and along with renewable, constituted 27% of the total power generated in the country. Power generated from small hydro and non-grid solar-rooftop has also contributed to the fall in demand for grid-based power.

Graph 1 Power Generation by Source (Apr-Oct '19)



■ Thermal Power ■ Nuclear ■ Hydro & Imp ■ Renewable

Source: CEA, Imports from Bhutan incl. in Hydro

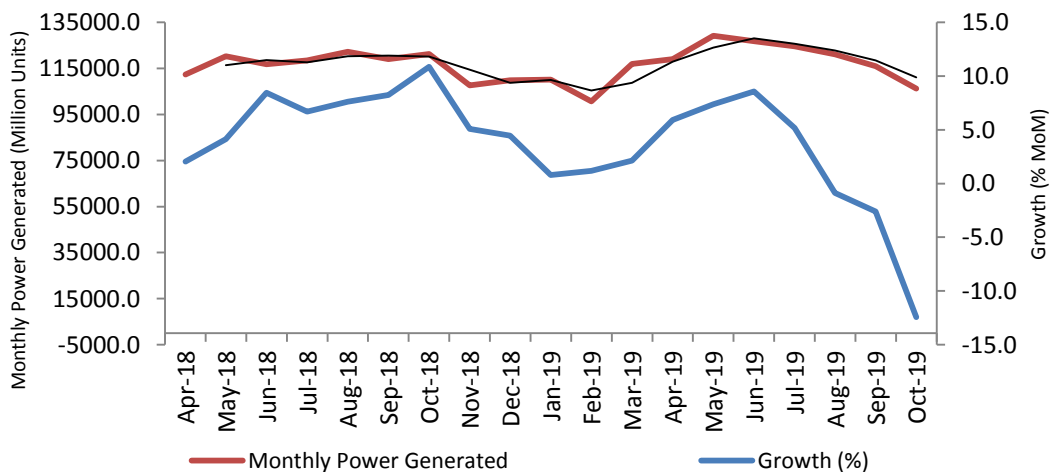
- Capacity addition during the period stood at 8.8GW, with renewable energy accounting for 2/3rd of the new capacity added during FY20.
- We expect recovery in growth in demand for power during December-March period. We revise growth estimates for power generation to 1-3% for FY2020 from our earlier estimate of 5-6%, on the back of slowdown across manufacturing industry.

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State of the sector

- Power sector has witnessed some of the widest range of reforms over the past 5 years. The reforms included UDAY for deleveraging and improving financial performance of discoms, SAUBHAGYA to improve last-mile connectivity and SHAKTI to provide fuel-supply linkage to power generators. Despite these measures, the sector continues to remain under stress with below-par utilization of power generation assets, continued underperformance of considerable number state discoms and resultant stress on the entire sector.
- Among leading indicators of stress in the sector, outstanding payment by discoms to Central, State and Private Power Generators including Renewable power generators is Rs.84,445 cr as of October, 2019.
- Turn-around of discoms would require further efforts including revival packages, privatization of distribution companies and providing incentives for penetration of renewable off-grid power for subsidy-based power supply.
- Financial health and performance of discoms continue to be a matter of concern for the stakeholders in the sector. Benefits from UDAY Scheme were limited to lowering interest costs for the state discoms, and the discoms continue to fare badly both operationally and financially.

Graph 2 Power Generation and Growth (Monthly - FY19 & FY20)



Source: Office of the Economic Advisor, CEA

Power Generation and Growth

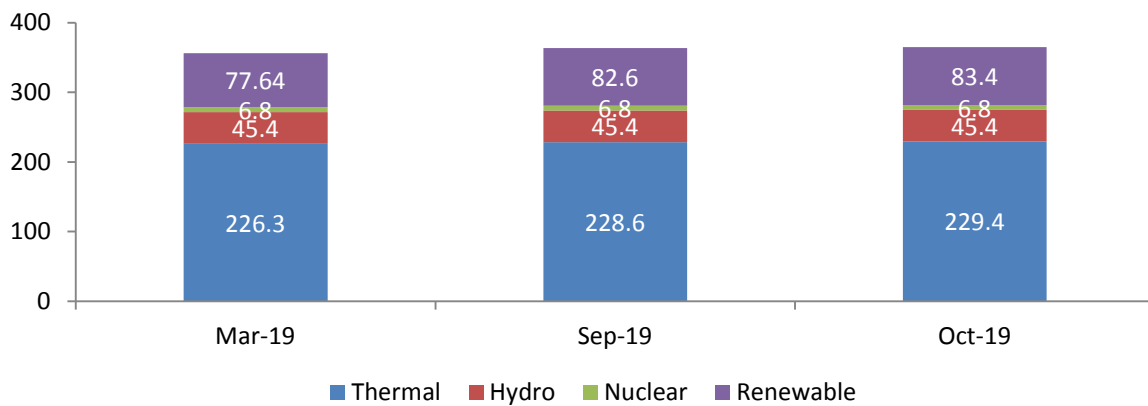
The overall growth in demand for power has fallen to its lowest level in the last decade mainly on account of slowdown in industrial activity. Power-intensive industries like automobile and cement have witnessed broad-based slowdown during the year, which has impacted the demand for power. Additionally, growth in generation from non-grid renewable power has also led to some slowdown in demand for grid-based power. Despite the wide-scale economic and industrial slowdown, the power demand grew marginally at 1.5% during April-October 2019 period vs 6.8% in the corresponding period of FY19.

Installed Capacity and Addition:

- 3.1 GW of new capacity has been added in thermal power segment. Corresponding period in the previous year recorded fall of 1.2 GW of installed capacity in the thermal segment.

- Renewable energy capacity addition picked up pace during the April-October 2019 period after having witnessed a brief slowdown in FY19 and Q1 FY2020. 5.8 GW of new capacity has been added during Q1&Q2 FY20 - primarily solar and 25% of wind based capacity. This is near-double of the capacity added during the corresponding period in FY19.
- There were no new capacity additions in the Hydro and Nuclear Power segment. 11.52 GW of new hydro power capacity is under-construction across 12 states.
- Renewable energy capacity addition is expected to peak over the next 3-4 quarters on the back of execution of strong order book pipeline. Solar Project developers would also be looking to take benefit of moderation of safeguard duty on imported solar panels.

Graph 3 Installed Capacity (Source-wise in Gigawatt (GW))

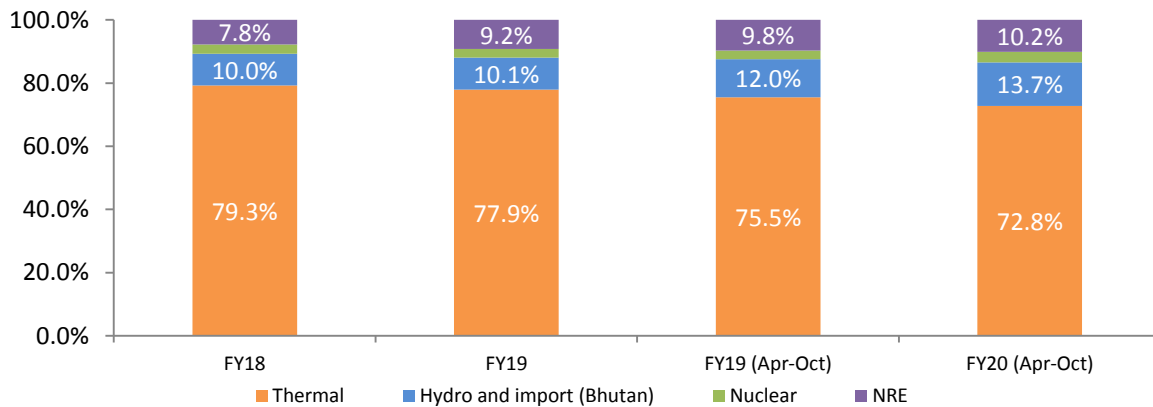


Source: CEA

Electricity demand and generation

- Total energy generated in the country stood at 843.8 billion unit (BU) during April-October FY2020, growth of 1.5% compared with April-October FY19. Thermal energy which includes coal-gas-diesel based power plants accounted for 72.8% of the power generated in the country, which is the lowest share for the fossil fuel based power source since 1991-92.
- Nuclear, Hydro & import from Bhutan; and Renewable energy accounted for 3.4%, 13.7% and 10.2% respectively of the power generated during the year.
- Renewable power recorded a modest 5.7% growth in generation at 85.8 BU during April-October 2019. The share of hydro and nuclear based power are at multi-year high on the back of higher installed capacity of these sources being operationally available for power generation during FY20.

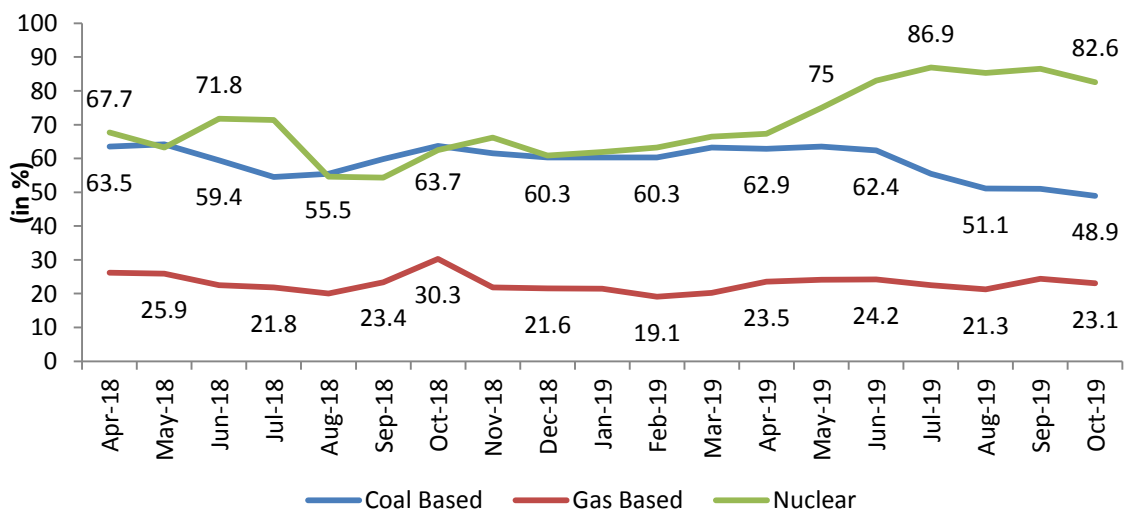
Graph 4 Total Power Generation (Source-wise and as (%) of total)



Source: CEA NRE- New and Renewable Energy, Hydro Includes Hydro Power and Bhutan Imports

- PLF of thermal plants which includes coal and gas based power plants dropped to 48.9% in October 2019 compared with 62.9% recorded in April 2019 and 63.7% recorded in October 2018. Capacity utilization of thermal power plants for April-October 2019 period has come down to 56.64% from 60.16% recorded for the corresponding period of the previous year.
- Gas based power plants continued to witness below-par capacity utilization at 23.1% in October 2019 and is 700 bps lower than the capacity utilization recorded for October 2018. Two gas-based plants each in Tamil Nadu and Andhra Pradesh, recorded steep decline in power generated, which has affected capacity utilization for the entire segment compared with last years' level. There has been drop in supply of gas from KGD6 to gas-based plants and only some of this shortfall has been met through imports and spot purchases.
- Fall in capacity utilization is a major cause of concern for the already ailing thermal power segment. The thermal segment has been under stress due to issues which includes but is not limited to, prolonged delay in payments and mounting dues from state discoms, fuel supply woes etc.

Graph 5 PLF of Thermal and Nuclear Power Sources (All-India April '18- Oct '19)



Source: CEA

Coal supply and consumption:

- Total coal supplied by Coal India (CIL) & Singareni Collieries Company Limited (SCCL) to the power sector stood at 315.9 MT during April-October FY2020 vs 328.5 MT in the corresponding period of FY19.
- Total Receipt of coal which includes coal allocated by CIL & SCCL and imports dropped by 6.58 MT for the 167 plants monitored by CEA.
- Ratio of supply to allocation by CIL & SCCL to CEA monitored power plants stood at 80.4%. This indicates 19.6% shortfall in supply versus allocated quantity. This is a substantial decline compared with the corresponding period of FY19 (89.4%).
- On the other hand, receipt of imported coal recorded an increase of 17.6% y-o-y to 40MT during the April-October 2019 period.

Table 1 Coal Imports and Receipt of Domestic Coal (CEA Monitored Power Plant In Million Tonnes)

	Domestic Coal* (Apr-Oct)		Imported Coal (Apr-Oct)	
	2018-19	2019-20	2018-19	2019-20
Total Volume	328.5	315.9	34	40

Source: CEA, * Receipt from CIL and SCCL

Demand by Geography and Sectoral Drivers:

- Growth in power generation during the April-October 2019 was on account of higher demand from “Saubhagya Scheme” beneficiary states. Providing connection to households in order to achieve 100% electrification has in part helped the sector avert de-growth.
- Large states namely Uttar Pradesh, Bihar, Punjab, West Bengal and Rajasthan have recorded over 5% growth in consumption of power. These states along with Odisha, Madhya Pradesh and Assam accounted for 75% of beneficiaries under the “Saubhagya Scheme” (Household Electrification Scheme).
- The ongoing economic downturn has led to decline in power consumption/demand from industrialised states. Maharashtra, which is also the largest power consuming state in India, recorded a decline in consumption of 5.6%. Other states namely Tamil Nadu, Telangana, Gujarat and Odisha too recorded fall in power consumed. These states house large clusters of mining, automobile, cement and other manufacturing industries, and a decline in these sectors led to fall in demand for power across these states.
- The demand-supply gap or power deficit has remained at 0.6% during the April-October 2019 period. North-East reported 4.8% of power deficit followed by Northern Region at 1.3%. Within Northern Region, Jammu & Kashmir and Uttar Pradesh accounted for 65% and 30% of the regions power supply deficit.

Table 2 Energy Power Supply Position (April-Oct)

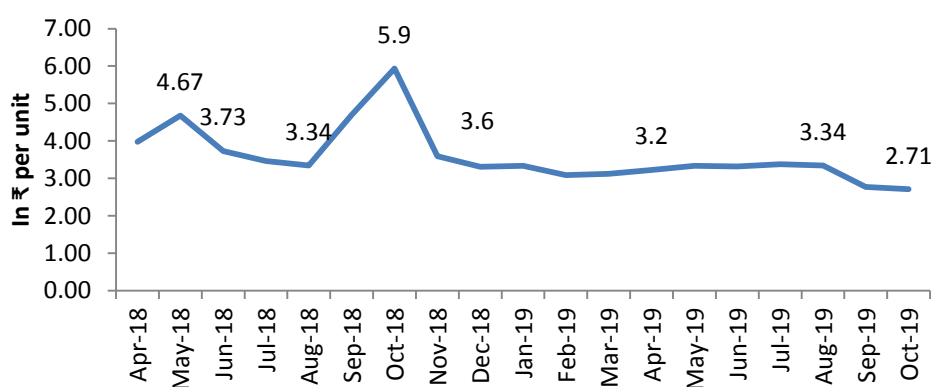
(In Million Units)	Apr- Oct 2018	Apr- Oct 2019	Change %
Maharashtra	95,378	90,048	-5.6% ▼
Uttar Pradesh	74,917	80,913	8.0% ▲
Gujarat	70,310	67,566	-3.9% ▼
Tamil Nadu	65,699	65,623	-0.1% ▬
Rajasthan	45,177	47,652	5.5% ▲
Madhya Pradesh	40,044	40,945	2.3% ▲
Punjab	38,615	40,702	5.4% ▲
Telangana	38,064	37,087	-2.6% ▼
Karnataka	38,975	40,081	2.8% ▲
Andhra Pradesh	37,258	38,375	3.0% ▲
Haryana	35,205	37,023	5.2% ▲
West Bengal	33,129	35,294	6.5% ▲
Delhi	22,523	23,140	2.7% ▬
Odisha	20,264	19,043	-6.0% ▼
Bihar	18,860	20,472	8.5% ▲

Source: CEA

Tariffs:

Average Market Clearing Price (MCP) in FY19 was Rs.3.86 per kWh on IEX. The previous year witnessed prices touching decadal high on the bourses on the back of fuel shortage and high demand from power intensive industries. Average clearing prices have fallen (approximately 20%) post August 2019. MCP remained between Rs.3.2-3.4 before declining further to Rs.2.7 in September and October. (Refer to Graph 5)

Graph 6 Market Clearing Price (Apr '18-Oct '19)



Source: IEX Market Data

Renewable energy auctions and PPAs: Renewable energy auctions witnessed tariff recovery during FY20. Solar and wind energy tariffs remained in the range of Rs.2.55-2.84 per unit. The tariffs for both sources have recovered after having touched all-time low of Rs.2.44 in FY19. The maximum tariff cap was raised to Rs.2.93 from Rs.2.75 by SECI.

Performance of State Discoms and operating indicators:

State Discoms which are counter-parties to power generators have been under tremendous pressure to perform on the operational and financial front ever since the roll-out of UDAY Scheme. Despite lowering of financial costs for discoms FY17 onwards, they have continued to struggle in terms of improvement of operational performance.

With the exception of Maharashtra, Gujarat, Himachal Pradesh and Karnataka, all other states continue to report high ACS-ARR gap which is indicative of mounting operating losses for such discoms. High ACS-ARR gap is indicative of revenue shortfall due to poor collection efficiency as well as ineffective quarterly tariff implementation. States with higher farm users continue to witness a higher ACS-ARR Gap. Additionally, states which are not self-sufficient in generation capacity too record high ACS-ARR Gap due to higher landed cost of power.

The solution for such states lies in adopting solar rooftop at a faster pace, and additionally introducing pre-paid billing for supply to government offices and farm users in order to improve collection efficiency.

Table 3 Understanding trends in AT&C Losses

Aggregate Technical and Commercial Losses (AT&C)					
	FY17		FY18		FY20#
	Target	Achievement	Target	Achievement	(Oct '19)
All India	18.74%	20.25%	16.80%	18.80%	21.10%
Rajasthan	20.10%	26%	17.60%	20%	25.80%
Uttar Pradesh	28.30%	30.20%	23.60%	26.70%	33.10%
Haryana	24%	25.40%	20%	20.30%	20.90%
Tamil Nadu	14%	14.50%	13.80%	14.20%	13.60%
Punjab	15.30%	14.50%	14.50%	17.30%	28.50%
Telangana	12.50%	15.90%	11.20%	13.50%	10.20%
Andhra Pradesh	9.30%	11%	9%	8.70%	10.30%
Madhya Pradesh	21.20%	26.50%	19.20%	29.70%	30.10%
Jharkhand	28%	31.80%	22%	31.80%	37.10%
Maharashtra	16.70%	18.90%	17.50%	17.40%	18.10%
J&K	46%	61.30%	35%	53.80%	49.80%
Bihar	36.40%	39%	29%	33.20%	35.90%
Himachal Pradesh	13.30%	8.50%	13%	12.10%	0.70%
Kerala	11.50%	17.30%	11%	12.10%	10.20%
Chhattisgarh	18.90%	19.30%	18%	18.80%	43.80%
Meghalaya	32.50%	34.90%	27.50%	34.60%	32.60%

Legend: Green for Good to Red for Poor, Source: Lok Sabha Replies, UDAY, #-AT&C Losses as on UDAY on 20th December 2019.

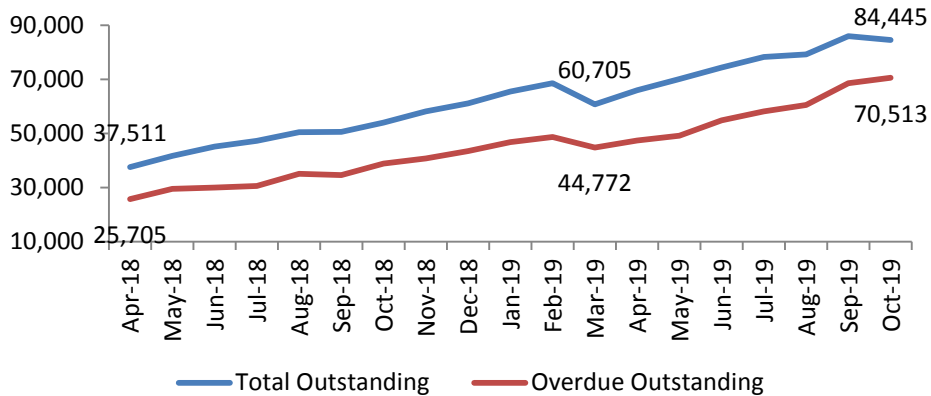
Aggregate Technical and Commercial Losses (AT&C) Losses: Most large power consuming states continued to report >15% of AT&C losses. Maharashtra, Uttar Pradesh, Rajasthan, Punjab, Haryana and Madhya Pradesh are among the largest power consuming states in the country. Maharashtra with an AT&C loss of 18% has been the only state which has been able to come close to achieving its FY19 target of 15% AT&C loss level. The other states continue to report >20% AT&C loss. Some of these states namely Rajasthan and Madhya Pradesh had an additional year i.e. FY20 in order to bring AT&C losses under 15%.

Losses of discoms had been on a declining trend for FY17 and FY18. Book losses of discoms were Rs.37,877 cr in FY17 and declined to Rs.15,049 cr in FY18. But as per indicative data from UDAY, discom losses have risen in FY19.

PRAAPTI: Mounting payables for Discoms

- Understanding outstanding payable to generators by state discoms provides an additional data-point in order to comment on the financial health of discoms.

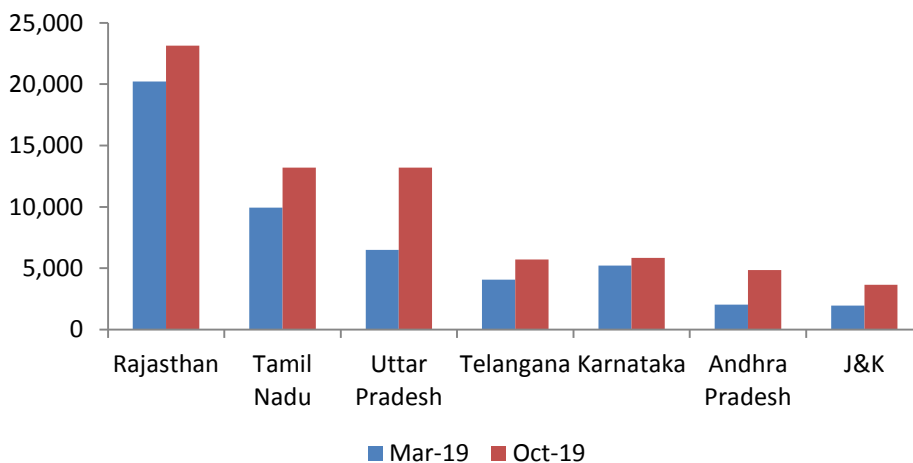
Graph 7 Outstanding Dues by Discoms to Power Generators (All-India April '18- Oct '19)



Source: CEA

- Rajasthan with an outstanding payable of Rs.23,144 cr, Tamil Nadu (Rs.13,197 cr) and Uttar Pradesh (Rs.13,206 cr), together constitute about 59% of the total payable by all discoms to power generators.
- Total overdue payable by discoms to generators recorded 57% increase to Rs.70,513 cr in October 2019 versus March 2019. Total outstanding payable grew by 39% to Rs.84,445 cr during the same period.

Graph 8 States with large outstanding dues to power generators (Rs cr)



Source: PRAAPTI

- Among the top states, Andhra Pradesh (about 140%), Uttar Pradesh (103%) and J&K (85%) recorded the highest increase in outstanding dues to power generators.

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