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INDIA | UTILITIES | COVERAGE INITIATION

JM FINANCIAL

Utilities - Hydropower

Recalling the Forgotten Giant of Clean Electricity

Renewables on accelerated & consistent growth path

Hydro power helps to manage variability & intermittency of RE

After a long time, hydro power on cusp of structural upturn

JM Financial Institutional Securities Limited

Utilities

Hydropower - Recalling the forgotten giant of clean electricity

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The increasing share of variable and intermittent renewable energy (RE) in the power generation mix is slowly but steadily escalating the challenge of maintaining the stability and reliability of the grid. It is becoming imperative to enhance the contribution of flexible power and energy storage in the generation mix. Hydroelectric power (HEP) very efficiently provides grid flexibility, stability and storage along with scale in generation. We believe HEP is on the cusp of a structural upturn after decades of subdued performance, making the industry players NHPC and SJVN, who have strong core competencies, with significant capacities installed (5.4GW/1.9GW) and under-construction (9.3GW/2.3GW), the natural beneficiaries of this growth phase. We initiate coverage on NHPC and SJVN with a BUY rating and a SOTP-based target price of INR 55/sh and INR 50/sh respectively.

- **Strong consistent growth in renewables in India:** Driven by a huge policy push and aggressive participation from the private sector, RE in India has grown at an unprecedented pace in the recent decade (installed FY13/23: 27GW/125GW). The National Electricity Plan 2023 targets RE capacity of 337GW/596GW by FY27/32, contributing 35%/44% in the energy mix driven by the likely success of endeavours to indigenise the supply chain (PLI), national commitment for net zero emissions and an overall favourable ecosystem.
- **Grid stability to become a challenge:** Both solar and wind are infirm sources of power, i.e., they have i) temporal variability (supply uncorrelated with demand pattern, thus creating system management-related challenges for operators), and ii) output uncertainty (scheduling-related challenges as RE generation forecasts deviate at the real-time of operation). Hence, the grid's ability to continuously adjust electricity generation with varying consumer demand in real-time to maintain a stable power grid (essential to prevent power outages, voltage fluctuations, and frequency deviations) will be put to the test.
- **'Load-following ability' of hydropower making it a favourite:** As witnessed on 5th Apr'20, hydropower plants can quickly ramp their generation up and down compared to coal/nuclear power plants. They bring valuable scale and flexibility to help electricity systems adjust quickly to sudden shifts in consumer demand and supply. This 'load-following ability' of HEP necessitates increasing its share in the power generation mix so that greater amounts of RE can be integrated into the whole power system.
- **Hydropower on the cusp of a structural upturn after decades:** After being displaced by rapidly scaling coal-based power generation during the last 5 decades, hydropower is on the cusp of a structural shift driven by increasing momentum in energy transition (India targets 50% of the energy requirement from RE by 2030). The installed capacity is targeted to increase to 62GW by FY32 from 42GW in FY23, thereby increasing its share in generation from 3% (FY23) to more than 10% (FY32).
- **NHPC's installed capacity to grow 50% by FY26:** Of the 9GW of under-construction hydro projects, two large projects- 4X200MW Parbati-II and 2,000MW Subansiri Lower are expected to get commissioned over the next 3 years, effectively increasing its installed capacity by 50% to 8,251MW in FY26. NHPC remains a strong play in clean energy that is in alignment with the national objective of becoming emission net-zero. We initiate coverage on NHPC with a **BUY** and a SOTP-based TP of **INR 55/share** (based on DCF) implying an upside of 22%.
- **SJVN poised for 3x growth in generation by FY26:** SJVN, primarily a hydropower generation company, has over the years diversified into other energy technologies such as thermal, solar and wind projects. Large capacities (6.5GW) are expected to be commissioned by FY26 from its under-construction hydro, RE and thermal projects, which will lead to 3x growth in power generation. SJVN has set a target of achieving 50GW of installed capacity by 2040 with 96% contribution from non-fossil fuels. We initiate coverage on SJVN with a **BUY** and a SOTP-based TP of **INR 50/share** (based on DCF) implying an upside of 30%.

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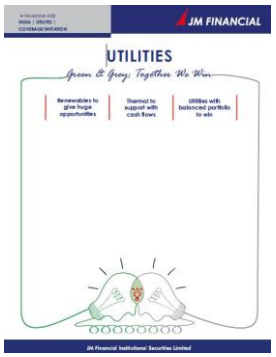


Green & Grey: Together We Win

#9pm9minutes

Hydroelectric power saved the day

Remember Prime Minister Narendra Modi's call for switching off electric lights at homes across the nation for 9 minutes at 9 PM on 5th Apr'20 as a mark of demonstrating a collective will to fight the Covid-19 pandemic?

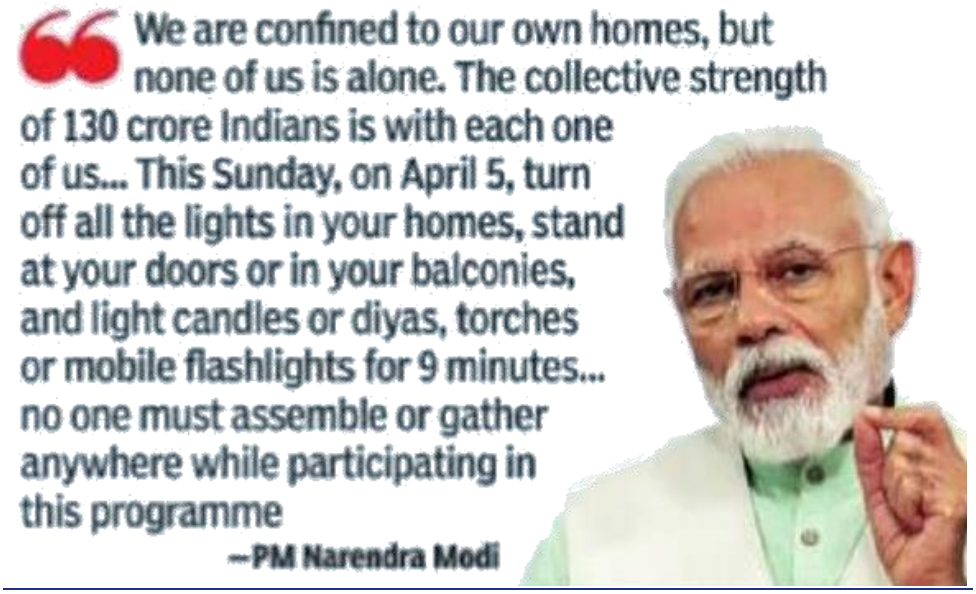
What could have been a manageable local event (power shutdown) turned into a massive grid stressor. There was a 31GW plunge in demand when most households switched off electric lights for 9 minutes from 21.00 hours to 21.09 hrs.

What you may not know is that availability of flexible generating resources in the form of hydro, gas and pumped storage plants enabled smooth handling of sharp variations in demand during the event.

The event received an overwhelming response, with demand plummeting by 31,089MW. The sharp downside in the load curve was managed effectively with matching generation back-down in various types of generators across the country. Generation reduction of over 68% (17,543MW) during the event was achieved through hydropower with substantial additional relief of 10,950MW coming through other sources, viz., thermal (7,240MW), gas (1,950MW) and wind (1,998MW). The recovery of the load was again managed with a corresponding increase in hydro, thermal, gas and wind generators. The maximum rate of fall and rise in demand recorded during the event was 4,196 MW/min and 3,015 MW/min respectively. The maximum rate of change in generation was -4,312 MW/min and +2,839 MW/min with a maximum ramp rate of -2,728 MW/min and +1,977 MW/min provided by hydro generators.

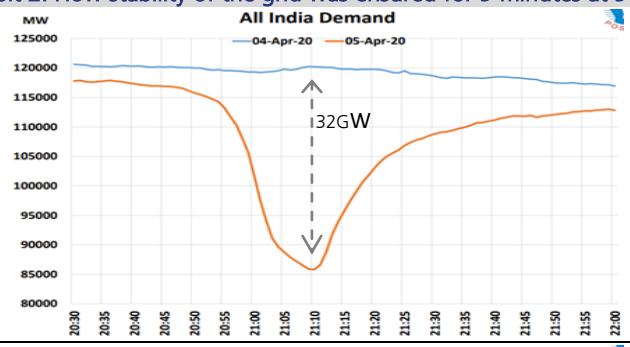
This 'load-following ability' of hydropower in a short period made the event a success; without hydropower, grid stability would have been compromised.

Exhibit 1. Prime Minister's call to the nation on 5th Apr'20

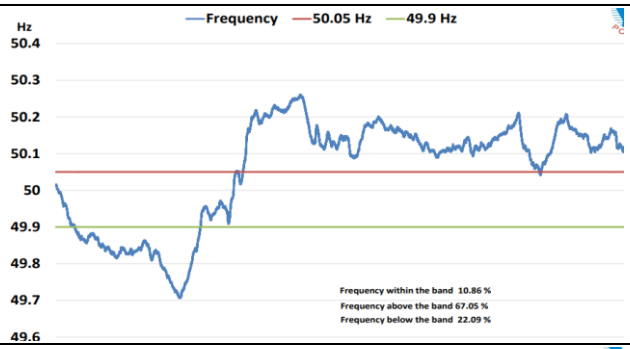


Source: Times of India

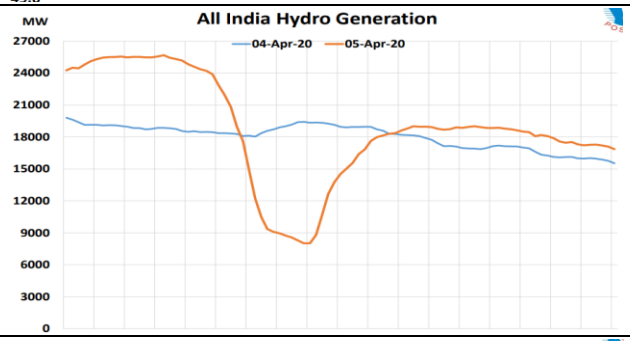
Exhibit 2. How stability of the grid was ensured for 9 minutes at 9 PM on 5th Apr'20



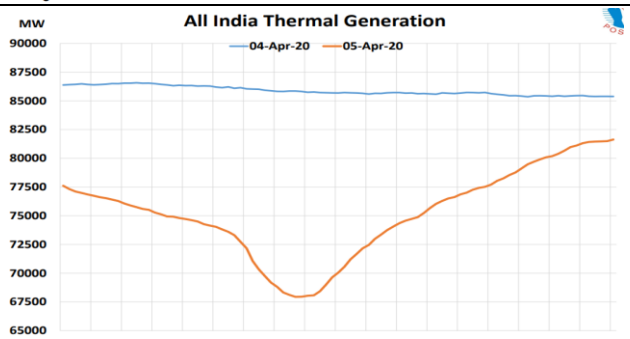
All-India demand started reducing from 20:45 hrs and minimum demand of 85,799MW was recorded at 21:10 hrs. Subsequently, from 21:10 hrs, demand started picking up and settled around 114,400MW at 22:10 hrs. The total reduction in all-India demand recorded during the event was 31,089MW.



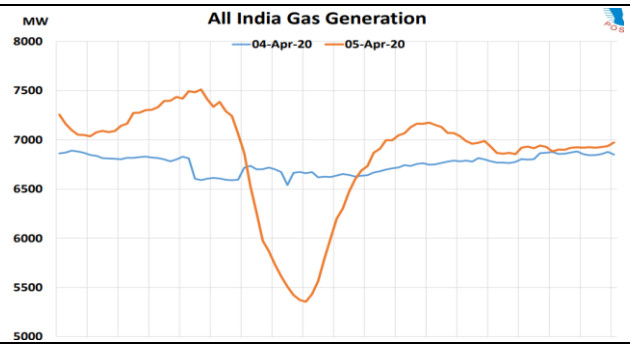
Grid frequency during the event remained in the range of 50.26 Hz to 49.70 Hz with maximum and minimum frequencies of 50.259 Hz and 49.707 Hz recorded at 21:08 hrs and 20:49 hrs respectively.



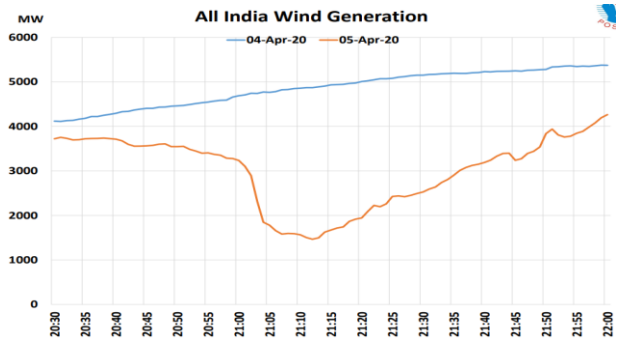
Hydro generation across the country was maximised by 20:45 hrs and a generation reduction of 17,543MW (from 25,559MW to 8,016MW) between 20:45 hrs and 21:10 hrs (matching with demand reduction of 31,089MW during the same period) was achieved with these resources. Hydro generation was again ramped up from 8,016MW to 19,012MW from 21:10 hrs to 21:27 hrs to meet the increase in demand after the event.



Of the total reduction in generation of 10,950MW from 20:45 hrs to 21:10 hrs, thermal accounted for 6,992MW.



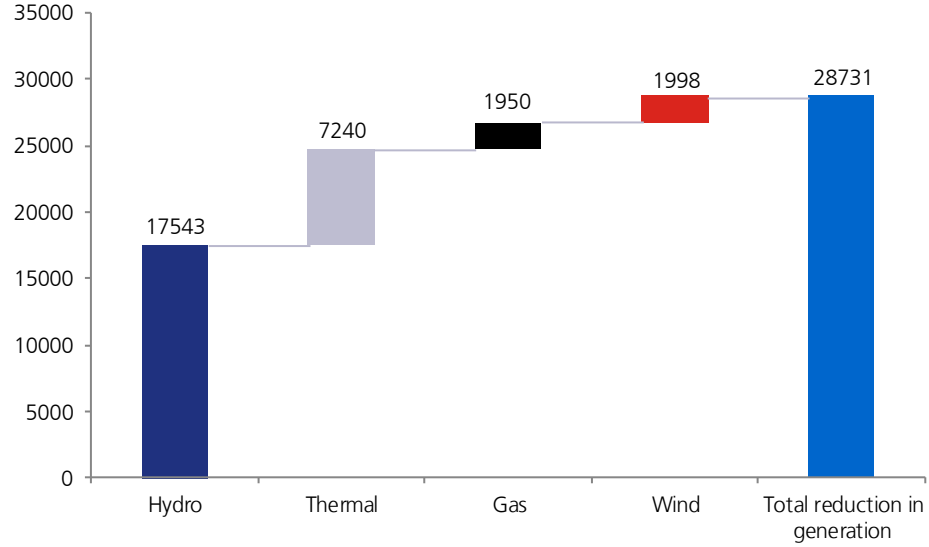
Gas-fired power generation was curtailed by 1,951MW.



Wind power accounted for a reduction of 2,007MW.

Source: POSOCO, JM Financial

Exhibit 3. Contribution from various sources in generation reduction



Source: POSOCO, JM Financial

Energy transition

India has set a vision to achieve net zero emissions by 2070, in addition to attaining short-term targets, which include:

- Increasing renewables capacity to 500GW by 2030,
- Meeting 50% of the country's energy requirement from renewables,
- Reducing cumulative emissions by 1bn tons by 2030, and
- Reducing emissions intensity of India's GDP by 45% by 2030.

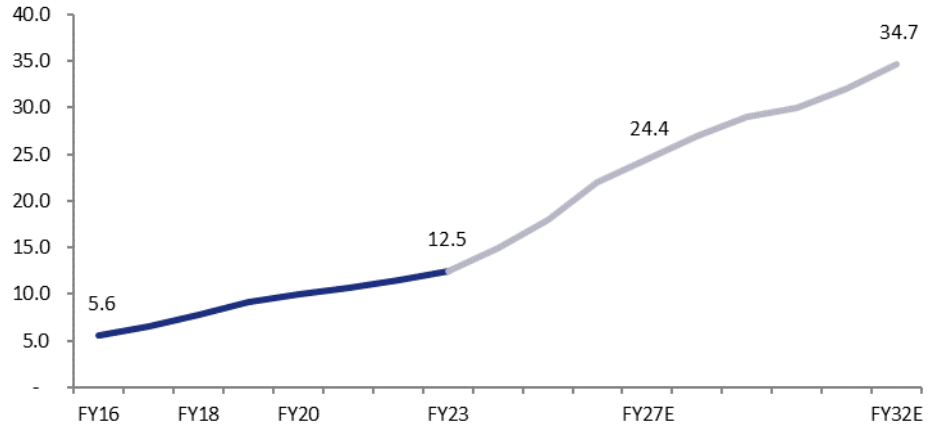
Exhibit 4. Installed capacity targets for 2032 (MW)

Particulars	Current Installed capacity	Addition by 2027	Addition from 2027- 2032	Installed capacity By 2032
Hydro	**42,104**	**10,342**	**9,732**	**62,178**
PSP	**4,746**	**2,700**	**19,240**	**26,686**
Small Hydro	4,944	256	250	5,450
Solar PV	66,780	118,786	179,000	364,566
Wind	42,633	30,263	48,999	121,895
Biomass	10,802	2,198	2,500	15,500
Nuclear	6,780	6,300	6,600	19,680
Coal + Lignite	212,445	22,688	24,510	259,643
Gas	24,824	-	-	24,824
Total	**416,059**	**193,532**	**290,831**	**900,422**

Source: National Electricity Plan, JM Financial

The commitment regarding renewables capacity is proposed to be met mainly through the installation of solar and wind power capacities. As a result, the contribution of variable renewable energy in total generation is increasing faster than anticipated. As per National Electricity Plan 2023, the contribution of RE will reach 34.7% of total generation by FY32 from the existing 12.5%.

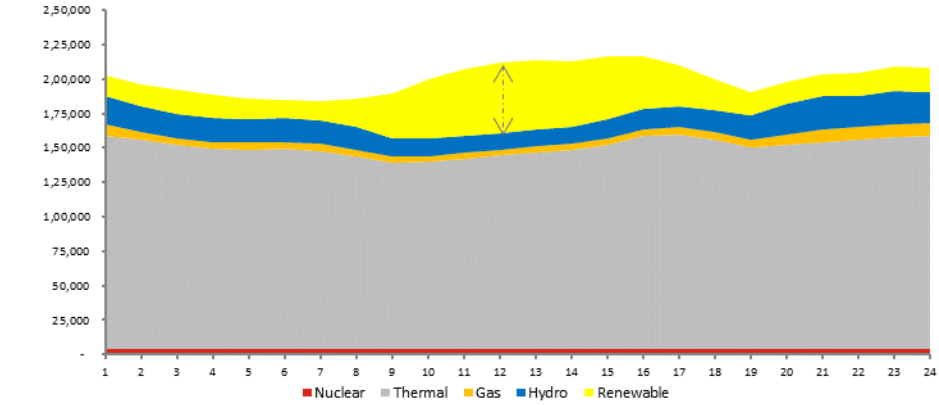
Exhibit 5. Share of RE in total generation (%)



Source: CMIE, CEA, JM Financial

Looking at the hourly generation dispatch patterns for 8th June 2023 (Exhibit 6), the supply from renewables met 24% of peak demand during 12-13 hrs. However, as the share of renewables increases gradually in the coming years, the supply from renewables in meeting the peak demand is also expected to increase to almost 50% on a typical day in May'26.

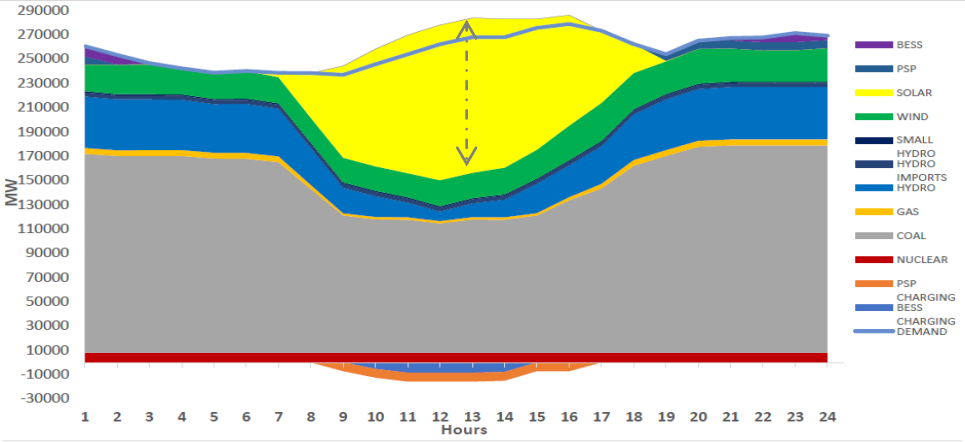
Exhibit 6. Generation mix on 8th Jun'23 (MW)



Source: Elekore, JM Financial

Further, it can be seen that on a typical peak demand day in May'27 (Exhibit 7), storage is getting charged during the period when excess solar generation is available and dispatched during non-solar hours. However, RE generation could not be fully absorbed due to the shape of the load curve, minimum technical loading of the coal and gas plants, etc.

Exhibit 7. Generation mix on a typical day in May 2026 (MW)



Source: National Electricity Plan, 2023, JM Financial

Both solar and wind are infirm sources of power, i.e., they have,

- Temporal variability: supply uncorrelated with demand pattern, thus creating system management-related challenges for operators, and
- Output uncertainty: scheduling-related challenges as RE generation forecasts deviate at the real-time of operation.

The challenge of temporal variability of renewables may not be sufficiently met due to limited flexibility in existing power generation assets. Similarly, the output uncertainty of power may make the stability and reliability of the grid more challenging than ever before.

As witnessed on 5th Apr'20, hydropower plants can ramp their electricity generation up and down very rapidly compared with other power plants such as coal, gas and nuclear. They bring valuable scale and flexibility to help electricity systems adjust quickly to shifts in demand and compensate for fluctuations in supply from other sources. This 'load-following ability' of hydropower necessitates an increase in its share in the power generation mix so that greater amounts of wind and solar power can be integrated into the whole power system.

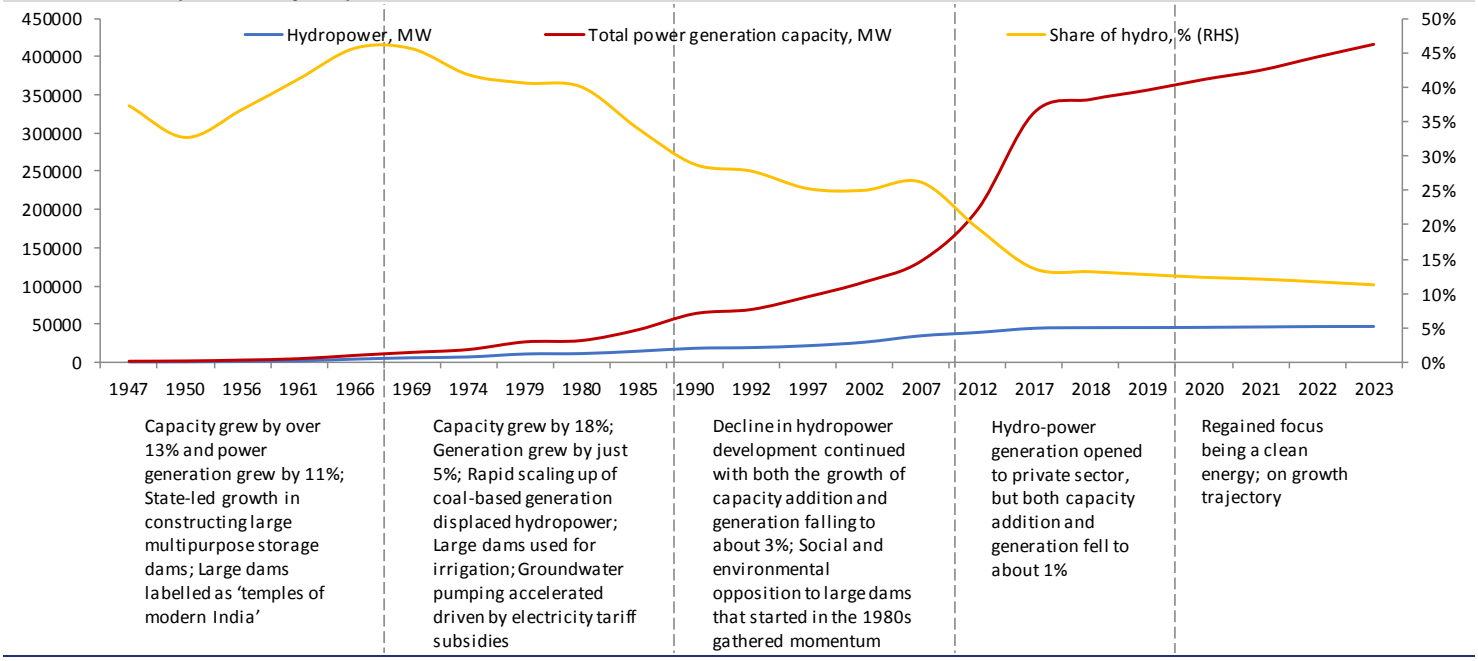
Hence, for achieving the target of 500GW of renewables capacity by 2030 and putting India on the pathway to net zero emissions by 2070, the government has raised its hydropower ambitions drastically. India's hydropower capacity is planned to grow almost twice by 2032, as per the National Electricity Plan 2023.

Hydro power generation in India: Unmet potential

India is endowed with rich hydropower potential; it ranks fifth in the world in terms of usable potential. This is distributed across six major river systems (49 basins), namely, the Indus, Brahmaputra, Ganga, the central Indian River systems, and the east and west flowing river systems of south India. The economically exploitable potential from these river systems through medium and major schemes has been assessed as 84,044MW (at 60% load factor) with an energy potential of 600bn units (BU) per year. However, to date, only about 20% of the country's vast hydro potential has been harnessed.

Hydropower development commenced over a century ago in India with the installation of a 130kW power station in the Darjeeling district of West Bengal, almost at the same time as the world's first hydroelectric station in the United States. Since then, it remained an important component within the overall electricity portfolio of India. But it has failed to keep pace with the rapid increase in thermal power generation. Hydropower was primarily affected by geological surprises (especially in the Himalayan region where underground tunnelling is required), inaccessibility of the area, problems due to delays in land acquisition, and resettlement of project-affected families. Other constraints include technical (difficult investigation, inadequacies in tunnelling methods) and financial (deficiencies in providing long-term financing).

Exhibit 8. Development of hydro power in India



Source: Industry, JM Financial

As a result, there has been a consistent decline in the proportion of hydropower generation within the total grid-connected generation in the country, from over 40% in 1960-61 to nearly 10% now, including renewables.

The installed capacity of hydroelectric power plants (above 25MW) in the country is 46,850.2MW including 4,746MW of pumpedhydro storage (11% of the total installed power generation capacity of the country) and contributes 162BU which is 10% of the total power generation in the country from 197 hydroelectric power plants.

The resurgence of hydropower in India's energy planning

While hydro power's contribution to the overall portfolio has declined over the years, the sector is beginning to make a comeback. As discussed above, hydropower has unique features like quick ramping, black start capability, etc., which can play a vital tool in accomplishing the seemingly impossible task of matching grid electricity supply to demand on a second-by-second basis.

Initiatives for hydropower development

To renew the interest of investors in the sector, the Ministry of Power, Government of India (GoI) has taken various initiatives in the recent past to promote hydro-based generating stations.

Important policy interventions:

- Electricity Act, 2003: Changed the industry structure and laid the foundation for open access, which suits hydropower projects as they are naturally best suited to meet peak power requirements in the country.
- National Electricity Policy, 2005: Emphasised the full development of feasible hydropower potential. Issues of long-term financing, centre and state participation, etc. were addressed.
- National Tariff Policy, 2006: Differential rates for peak and non-peak power and uniform guidelines for SERC. Aimed to bring greater transparency in the power sector.
- National R&R Policy, 2007: Emphasises a need for a more transparent and participative rehabilitation and resettlement process in improving the quality of life of project affected persons (PAPs).
- Mega Power Projects Policy, 2008: Hydropower projects with a capacity over 500MW are given mega power project status. Such projects get several benefits including a 10-year tax holiday, and no customs duty on import of equipment, etc.
- Hydro Power Policy, 2008: Emphasised the development of hydropower capacity and increasing private sector participation.
- Land Acquisition Act, 2014: Replaced the archaic Act of 1894. Brought greater clarity to acquisition and R&R policies.
- Hydropower Policy, 2019: The policy had the following salient features
  - Large hydropower projects (>25MW) have been declared as renewable energy sources.
  - Declaring Hydropower Purchase Obligation (HPO) as a separate entity within total Renewable Purchase Obligation (RPO) to cover large HPs (small HPs are already covered under other RPOs).
  - HPO trajectory for the period 2022-23 to 2029-30 has also been notified by the Central government.

Exhibit 9. Trajectory of Renewable Purchase Obligation

Year	Wind RPO	HPO	Other RPO	Total RPO
FY23	0.81%	0.35%	23.44%	24.61%
FY24	1.60%	0.66%	24.81%	27.08%
FY25	2.46%	1.08%	26.37%	29.91%
FY26	3.36%	1.48%	28.17%	33.01%
FY27	4.29%	1.80%	29.86%	35.95%
FY28	5.23%	2.15%	31.43%	38.81%
FY29	6.16%	2.51%	32.69%	41.36%
FY30	6.94%	2.82%	33.57%	43.33%

Source: National Electricity Plan, JM Financial

- Tariff rationalisation measures include providing flexibility to the developers to determine tariffs by back-loading them after increasing the project life to 40 years, increasing the debt repayment period to 18 years, and introducing an escalation of tariffs by 2% per annum.
- Budgetary support for funding the flood moderation component of hydropower projects on a case-to-case basis.
- Budgetary support for funding the cost of enabling infrastructure, i.e., roads and bridges on a case-to-case basis as per actual, limited to INR 15 mn/MW for up to 200MW projects and INR 10mn/MW for above 200MW projects.

Opportunities through regional cooperation

The South Asia region is well endowed with natural resources and there is tremendous scope for cooperation in the field of energy. Two of India's neighbours, Nepal and Bhutan, have rich hydropower potential far over their domestic requirements. India with its large demand offers a ready market for these two countries.

Nepal

Nepal has over 6,000 rivers and rivulets across the country and a steep topography suitable for hydropower generation. The technical and economically feasible hydropower potential of Nepal has been estimated at 83GW and 42GW respectively. Nepal's big (4) river and some southern river basins have a total hydropower potential of 72,450MW comprising 18,750MW of Kosi river basin, 17,950MW of Gandak, 28,840 MW of Karnali (Ghaghra), 3,840MW of Mahakali (Sarda) and 3,070MW of other southern rivers. India has been assisting Nepal in developing its hydropower potential. Nepal has granted permission to **SJVN** for the development of the 669MW Lower Arun Hydropower project, the country's second hydropower project. **SJVN** is already working on the 900MW Arun-III hydroelectric project, a run-of-river project located on the Arun River in Eastern Nepal. Most recently, **NHPC** has signed an MoU with Nepal for the development of 480MW Phukot Karnali Hydro Electric Project.

Bhutan

Bhutan has a feasible hydro potential of 23,760MW from 76 hydro schemes (>10MW capacity). The present hydro installed capacity in Bhutan is about 2,326MW. Since early 1960, India has been generously contributing to harness hydropower potential in Bhutan, beginning with the Jaldhaka Agreement of 1961. As a result, a total of 2,136MW (336MW Chukha, 60MW Kurichu, 1,020MW Tala, 720MW Mangdechhu) has been developed with Indian technical and financial assistance. Further, 2,820MW (1,200MW Punatsangchhu Stage-I, 1020MW Punatsangchhu Stage-II, 600MW Kholongchu) is under-construction and 7,285MW is under various stages of development with Indian technical and financial assistance, which includes 570MW Wangchhu H.E. Project by **SJVN** and 770MW Chamkharchhu-I (Digala) by **NHPC**.

Economics of hydropower

Hydropower is a mature technology with a wide-ranging cost structure that varies according to a plant's size, characteristics and location. The largest portion of a hydropower project's cost (particularly for large reservoir plants) usually goes towards intensive civil works, including earthworks, tunnelling and dam and powerhouse construction. The second-largest share of expenditure is typically for all the electro-mechanical equipment, including turbines, generators and all auxiliary systems.

The various components of the estimated capital cost for a typical 4X200MW run-of-the-river along with a small pondage are:

Exhibit 10. Cost economics of hydropower plant

Particulars	INR bn
Civil works	45
Hydro-Mechanical works	6
Electro-Mechanical works	15
other costs	15
Total	**81**
MW	800
INR mn/MW	101

Source: JM Financial, IDC – Interest during construction; FC – Financing charges; FERV – Foreign exchange rate variation

Key terms and variables

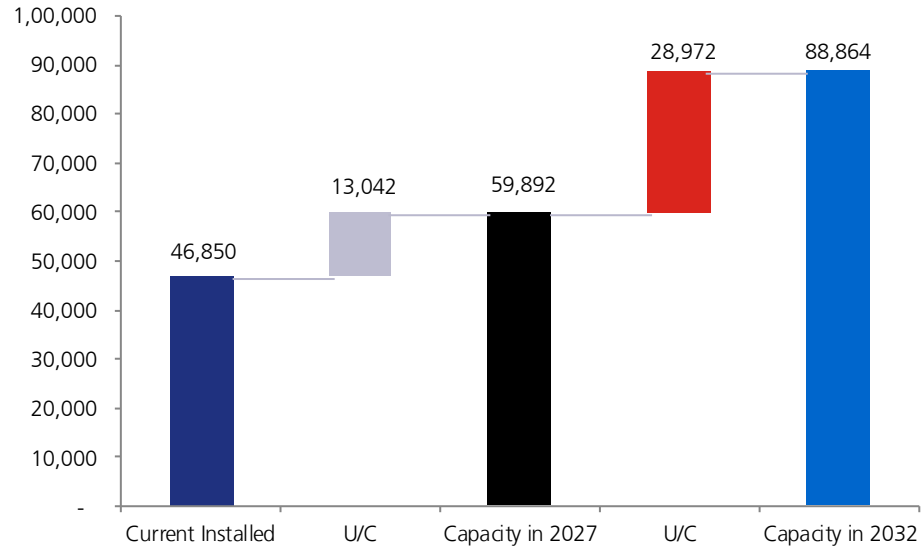
- **'Design Energy'** means the quantum of energy that can be generated in a 90% dependable year with 95% installed capacity of the hydro generating station;
- **'Run-of-River Generating Station'** indicates a hydro generating station that does not have upstream pondage;
- **'Run-of-River Generating Station with Pondage'** indicates a hydro generating station with sufficient pondage for meeting the diurnal variation of power demand;
- **'Storage Type Generating Station'** indicates a hydro generating station associated with storage capacity to enable variation of generation of electricity according to demand;
- **Useful life** of a hydropower station is considered as 40 years, however, it is much more.
- The **tariff** for the supply of electricity from a hydro generating station as calculated by CERC comprises capacity charge and energy charge.
- **Return on equity** is computed at the base rate of 15.50% for run-of-river hydro generating stations, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run-of-river generating stations with pondage.
- The **auxiliary power** consumption in a typical hydropower station is 1.5-2.0%.

The capital cost usually makes up 80-90% of a hydropower plant's levelised cost of energy (LCOE), similar to other renewable energy technologies that do not require fuel inputs. Operations and maintenance account for the remainder, which, on an average, amounts to about 3.5-5.0% of the initial investment cost annually but can vary considerably among regions and individual plants.

Looking ahead

With a current installed capacity of 46,850MW as of FY23, hydropower is poised to grow significantly in India over the next decade. The current under-construction capacity of 13,042MW is expected to be commissioned over the next 4 years, taking the total installed capacity to 59,892MW by the end of FY27. A balance capacity of 28,972MW will get commissioned by 2032, taking the total installed hydropower capacity of the country to 88,864MW. This presents a huge runway of growth for leading hydro utilities such as NHPC and SJVN.

Exhibit 11. Hydro capacity addition outlook (MW)



Source: National Electricity Plan, JM Financial; U/C: Under- construction projects

NHPC | BUY

Strong play in clean energy

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NHPC Ltd is the largest hydropower generating utility in the country with an aggregate installed capacity of 7,071MW (15% of India's installed hydropower capacity). With 9,314MW of projects under construction (hydro + renewables), the installed capacity of the company is set to grow by 3,420 MW by FY26 - an increase of c50% after a gap of 5 years. Accordingly, revenue/EBITDA/PAT are set to grow at a CAGR of 17%/21%/9% respectively over FY23-25E. It has a strategy to enhance share of renewables and pumpedhydro storage in its portfolio along with a dividend yield of 4.1%. We initiate coverage on NHPC with a BUY rating and a SOTP-based target price of INR 55/share.

- **A regulatory business model providing stable cash flows:** Hydroelectric plants (HEP) of NHPC operate on a regulated model, which provides a post-tax return on equity of 15.5-16.5% depending upon the pondage. The long-term power purchase agreements (PPAs) along with stable tariffs as determined by the Central Electricity Regulatory Commission (CERC) allow high cash flow visibility. NHPC's regulated equity stood at INR 129bn in FY23, and it is expected to increase to INR 226bn by FY25E on the back of the commissioning of 800MW Parbati-II HEP and 2,000MW Subansiri Lower HEP, thus aiding cash flow generation. NHPC's core return on equity (RoE) also benefits from the incentives earned through secondary charges, capacity charges and deviation charges.
- **Upcoming project commissioning to drive growth:** NHPC is presently constructing nine hydro projects aggregating to a capacity of 9,314MW. Work is progressing well despite challenges. The company expects two units of Subansiri to get commissioned by early 2024 and the balance of six units by 2QFY25. Parbati-II is expected to be completed by the end of FY24. NHPC has signed several MoUs/agreements for developing RE projects as well as new hydro projects, and it has made substantial progress in several other under-construction HEPs.
- **Energy transition and policy push augurs well for the company:** The increasing share of variable renewable energy in the energy supply mix makes it imperative for policymakers to swiftly enhance the contribution of flexible power generation and energy storage to avoid grid-related challenges in future. Amidst this, hydropower can provide solutions to these challenges to a large extent. It is a clean and mature technology and has an indigenous supply chain. These emerging circumstances, supported by various policy initiatives like considering large hydropower projects (>25 MW) as renewable energy; declaring Hydropower Purchase Obligation (HPO) as a separate entity within total Renewable Purchase Obligation (RPO); increasing the debt repayment period to 18 years are driving a decade-long upturn in hydro power's investment cycle.
- **Diversifying portfolio with entry into the solar, wind and pumped storage:** NHPC is diversifying its business and making efforts to harness opportunities from India's renewable energy growth story (500GW of non-fossil fuel by 2030). NHPC has entered into an MoU with the Maharashtra government for establishing energy storage systems (pumped storage systems) along with other renewable energy sources (like solar/ wind/ hybrid, etc.) with a total capacity of 7,350MW in Jun'23. GUVNL had issued an LoI dated 16th May'23 to NHPC for a 200MW capacity solar power project within GSECL's 600MW Solar Park at Khavda (GSECL Stage-1). It is also developing 500MW floating solar projects for the Odisha government. NHPC's subsidiary, NHPC Renewable Energy Limited (NHPC

Recommendation and Price Target	
Current Reco.	BUY
Previous Reco.	NR
Current Price Target (12M)	55
Upside/(Downside)	21.6%
Previous Price Target	NA
Change	NA

Key Data – NHPC IN	
Current Market Price	INR45
Market cap (bn)	INR452.0/US$5.5
Free Float	24%
Shares in issue (mn)	10,045.0
Diluted share (mn)	10,045.0
3-mon avg daily val (mn)	INR533.2/US$6.5
52-week range	48/29
Sensex/Nifty	63,385/18,826
INR/US$	81.9

Price Performance			
%	1M	6M	12M
Absolute	1.7	9.8	47.1
Relative*	-1.0	7.0	19.2

* To the BSE Sensex

Financial Summary					(INR mn)
Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Net Sales	96,479	91,888	1,06,074	1,28,660	1,45,726
Sales Growth (%)	-3.6	-4.8	15.4	21.3	13.3
EBITDA	53,746	51,874	62,681	78,995	92,459
EBITDA Margin (%)	55.7	56.5	59.1	61.4	63.4
Adjusted Net Profit	37,849	37,743	42,347	45,562	49,423
Diluted EPS (INR)	3.8	3.8	4.2	4.5	4.9
Diluted EPS Growth (%)	13.8	-0.3	12.2	7.6	8.5
ROIC (%)	5.8	7.7	6.1	6.7	6.7
ROE (%)	11.7	11.1	11.8	12.0	12.2
P/E (x)	11.9	12.0	10.7	9.9	9.1
P/B (x)	1.4	1.3	1.2	1.2	1.1
EV/EBITDA (x)	13.5	14.6	12.9	10.9	10.1
Dividend Yield (%)	4.1	4.0	4.1	4.2	4.3

Source: Company data, JM Financial. Note: Valuations as of 16/Jun/2023

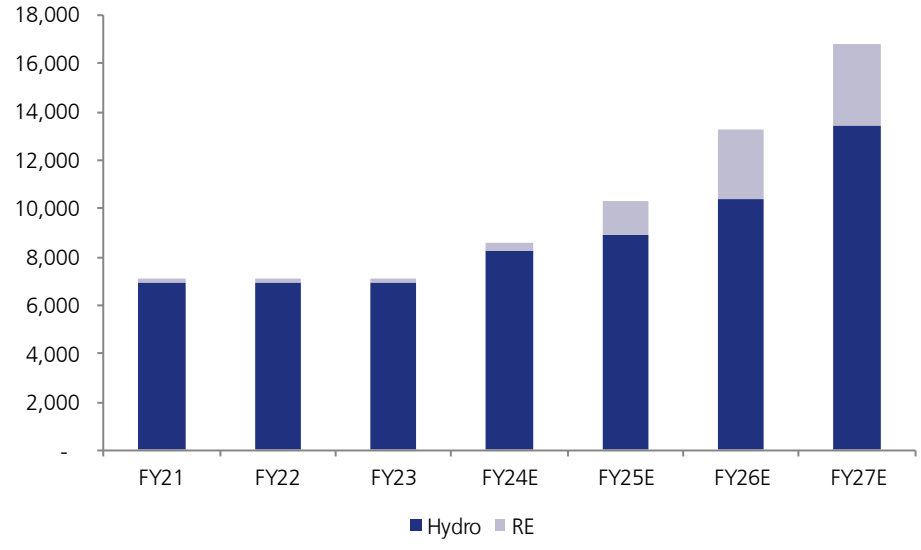
JM Financial Research is also available on:
Bloomberg - JMFR <GO>,
Thomson Publisher & Reuters,
S&P Capital IQ, FactSet and Visible Alpha

Please see Appendix I at the end of this report for Important Disclosures and Disclaimers and Research Analyst Certification.

REL), has signed an MoU with the Rajasthan government for the development of a 10GW ultra mega renewable energy power park in the state. It has a 1,201MW capacity under construction stage, 425MW under tendering and 1,200MW in the pipeline. These RE initiatives provide additional future growth levers for NHPC. NHPC is also exploring the development of pumped storage projects in the states of Andhra Pradesh, Odisha, Jharkhand, Karnataka, Madhya Pradesh and Maharashtra.

- **NHDC Ltd:** NHDC was incorporated as a joint venture of NHPC and the Government of Madhya Pradesh (GoMP) in Aug'00. NHPC holds a 51.08% stake in NHDC while the balance is divided between GoMP (26%) and its wholly owned subsidiary Narmada Basin Projects Company Limited (22.92%) respectively. NHDC has two operating power stations, viz., Indira Sagar (1,000MW) and Omkareshwar (520MW) in Madhya Pradesh. During FY23, NHDC generated 5,444 MUs from its power stations in FY23 as compared to 2,645 MUs last year.
- **The next trigger:** The Government of India is in the process of bringing together the diverse and unique expertise of the three Indian hydropower companies by merging NHPC, THDC India, and North Eastern Electric Power Corporation Limited (NEEPCO) to boost the country's hydropower sector.
  - **NEEPCO**, a 100% subsidiary of NTPC operates 6 hydro, 3 thermal and 1 solar power stations with a combined installed capacity of 2,057MW. It is embarking on a plan to generate power from non-conventional sources of energy, especially by tapping solar power and wind in the coming years.
  - **THDC India Limited** (74% owned by NTPC) operates and maintains the Tehri Hydro Power Complex and other hydro projects. At present, the company has 4 power plants in operation namely Tehri Dam (1000 MW), Koteshwar Dam (400 MW), 50 MW Wind project in Patan (Gujarat) and a 63MW Wind project in Dwarka (Gujarat). In addition, more than 10 projects are under various stages of construction. Tehri PSP (1000 MW), Vishnugad-Pipalkoti HEP (444 MW) and 1320 Khurja Thermal Power project are in advanced stages and expected to be commissioned by 2024.
- **Key risks:**
  i) Delays in the execution of projects on account of geological challenges, supply chain constraints, delay in government approvals, etc. can cause significant time- and cost overruns.
  ii) Adverse regulatory changes pertaining to regulated RoE.

Exhibit 12. Installed generation capacity trend (MW)



Source: Company, JM Financial

Exhibit 13. Projects under operation

Project	Installed Capacity (MW)	State	Type of the project	Design Energy (MU)
Standalone Hydro Projects				
Baira Siul	180	HP	RoR + Pondage	709
Loktak	105	Manipur	Storage	448
Salal	690	UT of J&K	RoR	3,082
Tanakpur	94	Uttarakhand	RoR	452
Chamera I	540	HP	Storage	1,665
Uri I	480	UT of J&K	RoR	2,587
Rangit	60	Sikkim	RoR + Pondage	339
Chamera II	300	HP	RoR + Pondage	1,500
Dhauliganga I	280	Uttarakhand	RoR + Pondage	1,135
Dulhasti	390	UT of J&K	RoR + Pondage	1,907
Teesta V	510	Sikkim	RoR + Pondage	2,573
Sewa	120	UT of J&K	RoR + Pondage	534
Chamera III	231	HP	RoR + Pondage	1,108
Chutak	44	UT of Ladakh	RoR	213
TLDC III	132	West Bengal	RoR + Pondage	594
Nimoo Bazgo	45	UT of Ladakh	RoR + Pondage	239
Uri II	240	UT of J&K	RoR	1,124
Parbati III	520	HP	RoR + Pondage	1,963
TLDP IV	160	West Bengal	RoR + Pondage	718
Kishanganga	330	UT of J&K	RoR + Pondage	1,713
Total (A)	**5,451**			**24,601**
Renewable Energy				
Wind Power	50	Rajasthan		94
Solar Power	50	TN		106
Total (B)	**100**			**200**
Subsidiary projects				
Indira Sagar	1,000	MP		1,423
Omkareshwar	520	MP		736
Total (C)	**1,520**			**2,160**
Grand Total (A+B+C)	**7,071**			**26,961**

Source: Company, JM Financial

RoR – Run of River; Pondage - Storage

Status of critical projects

Exhibit 14. Subansiri Lower Hydro Electric Project (8X250MW)

This is a critical project for the performance of NHPC; it is situated in the Lower Subansiri District of Arunachal Pradesh/ Assam. The project is designed as a run-of-the-river (with diurnal storage) facility on the River Subansiri/ Brahmaputra. The installed capacity of the project is 2,000 MW (8x250 MW). The revised cost estimate (RCE) for the project is INR 212bn, which is under examination.

Award of Works:

- Dam Works: BGS-SGS-SOMA JV
- Power House Complex: Patel Engineering vide LOA dated 01.09.2020
- Hydro-mechanical works: Texmaco Rail & Engineering Ltd., Kolkata
- Electro-mechanical Works: GE Ltd.

Progress of the project:

- Dam Works: 13,264cu.m. concreting placed during May'23. Cumulative concreting of 2,042,043cu.m. has been done out of 2,056,804cu.m. (99.28% achieved).
- Power House Civil Package works: 39,122cu.m. concrete placed in powerhouse during May'23 and cumulative quantity achieved is 792,847cu.m. out of 971,614cu.m. (81.60% achieved).
- HRT Overt lining (7,102m) has been completed in May'23 and only 175 m invert lining is remaining.
- HM Works: Testing and commissioning of all 8 intake service gates has been completed. Fabrication of ferrule and erection work of Penstock Liner is in progress (80.73% completed).
- Radial Gate: Operation of Radial Gate-1, 2 & 3 successfully carried out. Erection of all 4 Trunnion assemblies completed in all 9 Spillway bays except one Trunnion assembly in S-4 bay. Erection of wall plates, Skin plates and Arms of radial gates have been halted due to overflow of water over dam spillway w.e.f. 2nd May'23 and will be resumed after the water recedes during the lean season.
- Unit-1: Boxing up completed, erection of MIV and GSU transformer is in progress.
- Unit-2: Erection of Stator and Rotor are completed. Turbine, MIV and GSU transformer erection works are also in progress.
- Unit-3: Assembly of Stator and Rotor are in progress.
- Unit 4, 5, 6 & 7: Erection of Draft Tube up to part-2 completed.
- Unit-8: Erection of Pier Noses completed.
- Erection and testing of 400KV pothead yard completed.
- Transmission line up to Biswnath Chairaili has been charged.
- Erection of 220V DC system and drainage & dewatering completed.
- Erection of GIS system, fire fighting system and cabling works etc. are under progress.

Source: MOSPI, GOI, JM Financial

Exhibit 15. Parbati II HEP (4X200) HP

Another critical project for NHPC, the Parbati Hydroelectric Project (Stage-II) is a run-of-the-river scheme conceptualised to harness the hydro potential of the lower reaches of the river Parbati. The river is planned to be diverted with a Concrete Gravity Dam at Village Pulga in Parbati Valley through a 31.52km long Head Race Tunnel and the Power House will be located at Village Suind in Sainj Valley. Thus, a gross head of 863 m between Pulga and Suind will be utilised for generating 800MW power.

Award of Works:

- Civil: Gammon / Valecha
- HM: Om Metals
- E&M: BHEL

Progress of the project:

- Civil Works: All the major works of project completed except 149.18m HRT excavation (excluding 40.72m rock plug), and 2,899m Concrete Lining. Total 46 m HRT excavation carried out during May'2023. 46m HRT has been excavated from DBM face during May'23. Progress during May'23 slowed down due to multiple rocks bursting resulting in cavity formation. Excavation is in progress with adoption of all safety precautions. TBM is under repair w.e.f. 11.04.2023 due to breakdown of components of TBM, viz., Gripper cylinders, spherical bearing, etc. resulted in complete stoppage of excavation. TBM is being made boring-worthy by replacement of spherical bearings which are custom made.
- E&M Works: Due to fire incident in Power house on 29th Jul'20, generation got suspended. After restoration works, Unit-1 & 2 synchronised with grid on 17th Aug'20 and 29th Aug'20 respectively and generation was restored. Further, after completion of restoration works, Unit#3 & #4 also synchronised with the grid on 3rd Mar'23 & 21st Apr'23 respectively.
- HM Works: Completed

Source: MOSPI, GOI, JM Financial

Exhibit 16. Other projects under construction

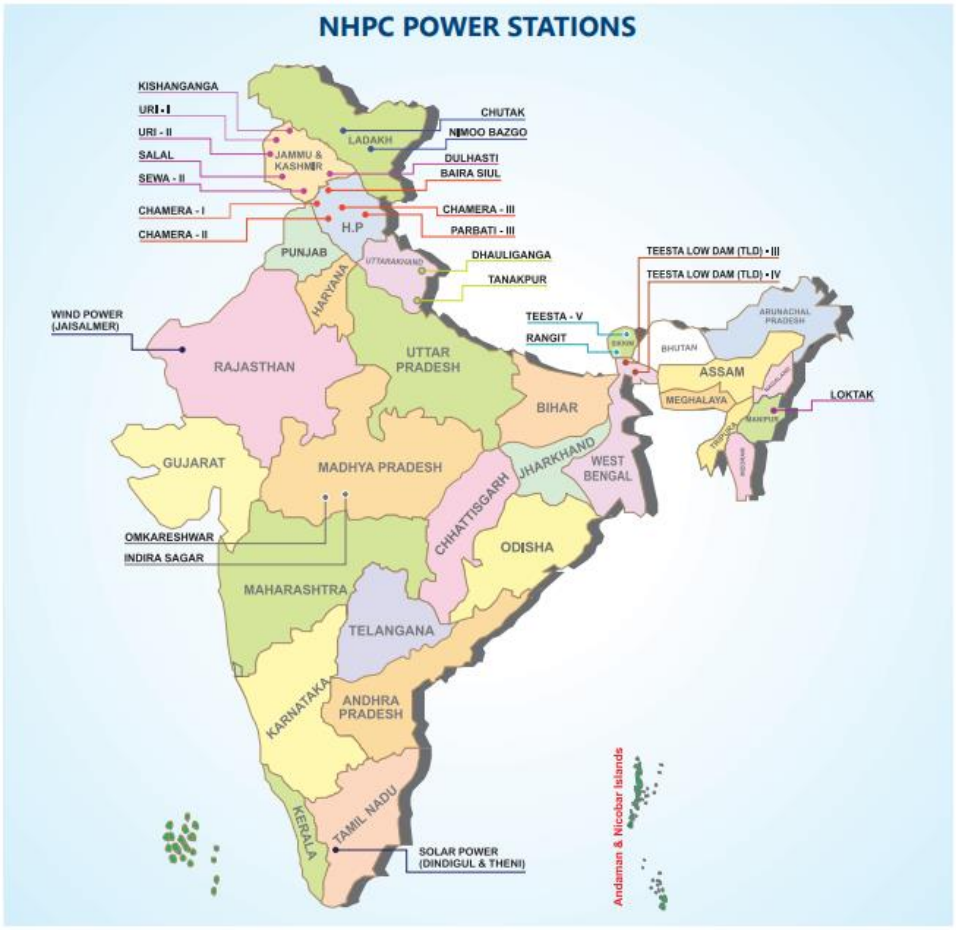
Project	MW	Type of the project	Contractor	Original Comm. Sch. (revised)	Status, Apr'23
Standalone					
Subansiri Lower (8X250) Assam/ Arunachal Pradesh	2,000	Run of River with small pondage	Civil: BGS-SGS-Soma JV HM: Texmaco E&M: GE	FY24 (FY24 & FY25)	As above
Parbati II (4X200) HP	800	Run of River with small pondage	Civil: Gammon / Valecha HM: Om Metals E&M: BHEL	FY 23-24 (Mar'24)	As above
Dibang (12X240) Arunachal Pradesh	2,880	Hydropower cum flood moderation scheme	Civil: Patel Engineering, GR Infra JV E&M: BHEL	FY 31-32 (Mar-32)	New project
Total (A)	**5,680**				
JV with Chenab Valley Power Projects Limited (CVPPL)					
Pakal Dul (4X250) J&K	1,000	Run of River	Civil: Afcons- JAL-JV L&T,JAL HM: PES E&M: Voith Hydro Ltd	FY26 (Sep'26)	Dam & HRT work in progress & are critical. HM, Power house construction, work in progress. EM Works - E&M equipment's manufacturing/supply/inspection is in progress. Service bay has been completed.
Kiru (4X156) J&K	624	Run of River	Civil: Patel Engg. HM: PES Engineers E&M: Andritz Hydro	FY24 (Jul'26)	The project is in initial stage of construction. Dam, diversion tunnel, HM, power house work in progress.
Kwar (4x135) J&K	540	Run of River	Civil: Patel Eng	FY27 (Nov'26)	Civil package awarded in May'22. 4-5% civil work completed. Tendering for award of EM package in process.
Total (B)	**2,164**				
Subsidiary					
Teesta-VI (4X125) Sikkim	500	Run of River	Civil: JAL & Gammon E&M: Alstom	FY13 (Jul'25)	90% barrage, 50% HRT, 87% power house civil work completed. HM & EM work in progress.
Rangit-IV (3X40) Sikkim	120	Run of River with small pondage	Civil: Ritwik proj HM: PES E&M: Andritz	FY12 (Aug'24)	More than 60% work completed in Dam & HRT. Supplies for EM & HM package in process. Completion of HRT works due to Poor Geology, a critical monitorable.
Ratle (4X205+1X30) J&K	850	Run of River	Civil & HM : GVK E&M : Alstom	FY18 (May'26)	Peripheral civil works like construction of roads, downstream bridge and diversion tunnels in progress.
Total (C)	**1,470**				
Total (A+B+C)	**9,314**				

Source: Company, JM Financial

Business Overview

NHPC is a Miniratna Category-I PSU and was incorporated in 1975 to promote the integrated and efficient development of hydroelectric power in the country. NHPC is the largest hydropower generating company in the country with an aggregate installed hydropower capacity (including subsidiaries) of 7,071MW as of 31st Mar'23, which is around 15% of installed hydropower capacity in India. NHPC is present in 16 states and currently operates 24 hydropower stations (including two through its subsidiary), with a 1,000MW in Madhya Pradesh its single largest station. It currently has 10,515MW of projects under construction.

Exhibit 17. Geographical footprint



Source: Company, JM Financial

Investment Rationale

Two of NHPC's large projects, i.e., 800MW Parbati II and 2000MW Subansiri Lower are expected to be commissioned over the next 2 years. Along with these, seven other hydro projects under construction are slated to get commissioned by 2030. Capacity expansion on this scale is happening after a long period of 5 years, which will lead to significant growth in earnings, going forward. Various government measures to promote hydro as well as renewable energy also bode well for the company. NHPC remains a strong play in clean energy, which is in alignment with the national objective of becoming emission net-zero. We arrive at a fair value of INR 55/share for the company based on discounted cash flows. We have also factored in the upcoming RE capacity addition along with the book value of cash and cash equivalents.

Exhibit 18. SOTP-based target price

Particulars	Equity Value (INR mn)	Value per share (INR)
Hydro Projects	489,496	49
Renewables	33,117	3
Cash & Cash Equivalents	26,936	3
Total	**549,548**	**55**

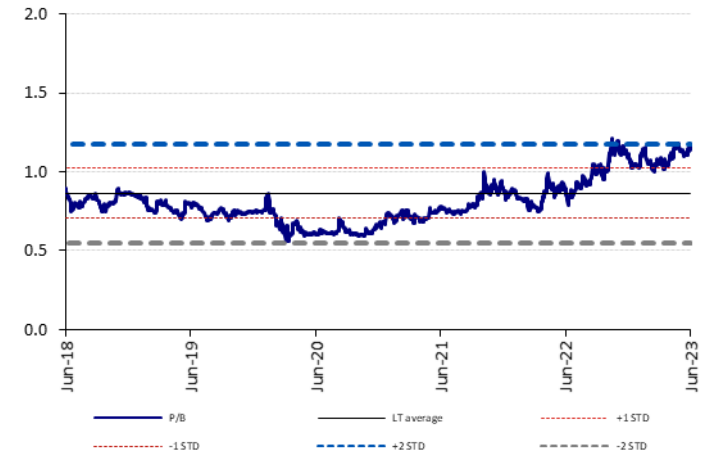
Source: JM Financial

Valuation Bands

Exhibit 19. EV/EBITDA

Source: Company, JM Financial

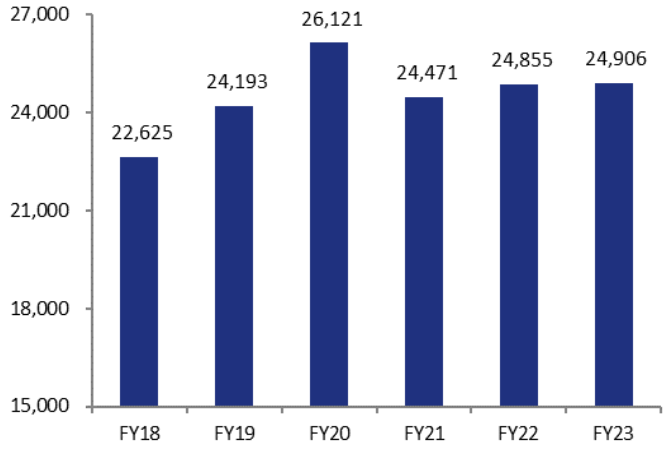
Exhibit 20. P/B



Source: Company, JM Financial

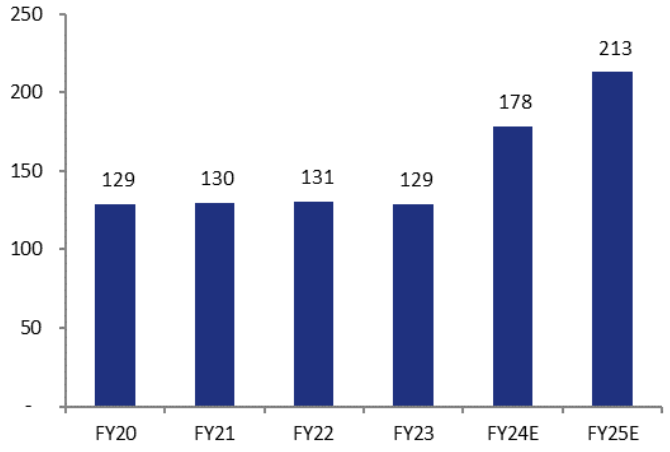
Key Charts

Exhibit 21. Generation trend (MU)



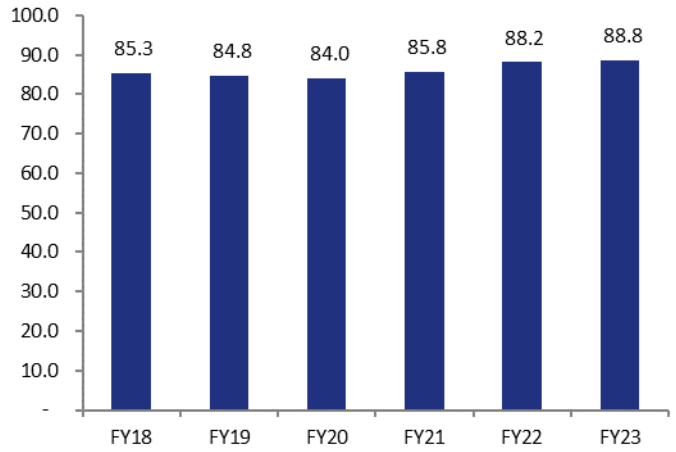
Source: Company, JM Financial

Exhibit 22. Regulated equity - Hydropower(INR bn)



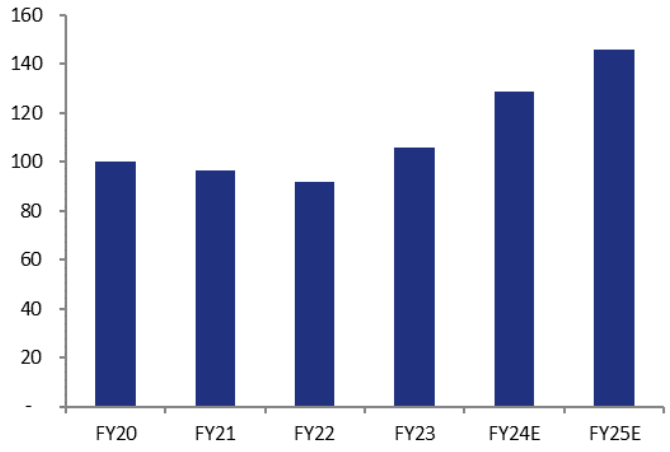
Source: Company, JM Financial

Exhibit 23. Plant Availability Factor (PAF) (%)



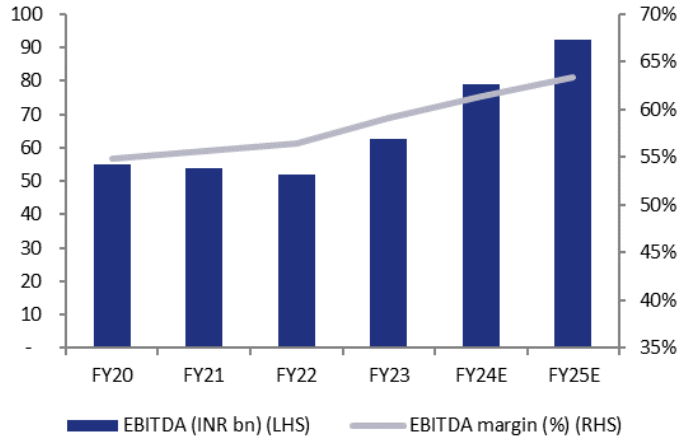
Source: Company, JM Financial

Exhibit 24. Revenue trend (INR bn)



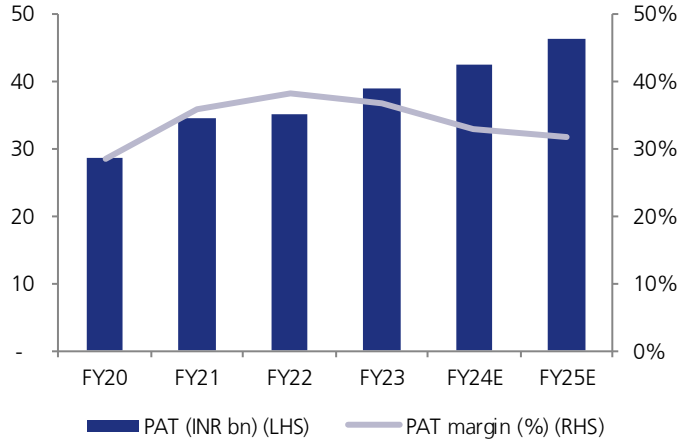
Source: Company, JM Financial

Exhibit 25. EBITDA & EBITDA margin



Source: Company, JM Financial

Exhibit 26. EBITDA & EBITDA margin



Source: Company, JM Financial

Financial Tables (Consolidated)

Income Statement					(INR mn)
Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Net Sales	96,479	91,888	1,06,074	1,28,660	1,45,726
Sales Growth	-3.6%	-4.8%	15.4%	21.3%	13.3%
Other Operating Income	0	0	0	0	0
Total Revenue	**96,479**	**91,888**	**1,06,074**	**1,28,660**	**1,45,726**
Cost of Goods Sold/Op. Exp	10,699	8,887	9,396	11,579	12,970
Personnel Cost	15,203	15,548	14,353	14,927	15,524
Other Expenses	16,831	15,580	19,645	23,159	24,773
EBITDA	**53,746**	**51,874**	**62,681**	**78,995**	**92,459**
EBITDA Margin	55.7%	56.5%	59.1%	61.4%	63.4%
EBITDA Growth	-2.2%	-3.5%	20.8%	26.0%	17.0%
Depn. & Amort.	12,925	11,903	12,147	15,299	20,454
EBIT	40,821	39,971	50,534	63,696	72,005
Other Income	10,630	9,641	6,775	7,453	8,943
Finance Cost	5,720	5,323	4,743	12,806	15,402
PBT before Excep. & Forex	45,731	44,288	52,567	58,342	65,545
Excep. & Forex Inc./Loss(-)	1,122	-12,101	-406	-1,071	-2,972
PBT	46,852	32,187	52,161	57,271	62,573
Taxes	8,949	-5,570	9,762	11,658	13,099
Extraordinary Inc./Loss(-)	-1,850	0	0	0	0
Assoc. Profit/Min. Int.(-)	3,226	2,494	3,397	3,028	3,028
Reported Net Profit	32,718	35,236	38,900	42,483	46,345
Adjusted Net Profit	**37,849**	**37,743**	**42,347**	**45,562**	**49,423**
Net Margin	39.2%	41.1%	39.9%	35.4%	33.9%
Diluted Share Cap. (mn)	10,045.0	10,045.0	10,045.0	10,045.0	10,045.0
Diluted EPS (INR)	**3.8**	**3.8**	**4.2**	**4.5**	**4.9**
Diluted EPS Growth	13.8%	-0.3%	12.2%	7.6%	8.5%
Total Dividend + Tax	18,488	18,182	18,583	18,955	19,334
Dividend Per Share (INR)	1.8	1.8	1.9	1.9	1.9

Source: Company, JM Financial

Balance Sheet					(INR mn)
Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Shareholders' Fund	3,30,533	3,49,210	3,68,993	3,92,522	4,19,532
Share Capital	1,00,450	1,00,450	1,00,450	1,00,450	1,00,450
Reserves & Surplus	2,30,083	2,48,760	2,68,543	2,92,071	3,19,082
Preference Share Capital	0	0	0	0	0
Minority Interest	28,353	28,629	48,151	48,151	48,151
Total Loans	2,70,014	2,97,720	3,36,365	3,85,867	4,66,191
Def. Tax Liab. / Assets (-)	-25,939	-27,896	-27,347	-27,347	-27,347
Total - Equity & Liab.	**6,02,961**	**6,47,663**	**7,26,162**	**7,99,192**	**9,06,527**
Net Fixed Assets	4,11,602	4,43,475	5,34,941	6,12,457	7,26,386
Gross Fixed Assets	3,98,613	4,07,755	4,23,025	5,96,918	7,66,712
Intangible Assets	0	0	0	0	0
Less: Depn. & Amort.	1,78,681	1,89,504	2,01,651	2,16,950	2,37,404
Capital WIP	1,91,670	2,25,224	3,13,567	2,32,489	1,97,078
Investments	18,422	23,865	3,472	3,472	3,472
Current Assets	2,29,210	2,33,018	2,55,637	2,61,652	2,75,436
Inventories	1,337	1,404	1,612	1,955	2,214
Sundry Debtors	51,334	51,758	66,341	76,942	83,156
Cash & Bank Balances	22,568	19,584	26,936	22,007	29,318
Loans & Advances	525	610	608	608	608
Other Current Assets	1,53,446	1,59,661	1,60,141	1,60,141	1,60,141
Current Liab. & Prov.	56,274	52,695	67,889	78,389	98,767
Current Liabilities	33,073	32,520	38,001	48,501	58,879
Provisions & Others	23,200	20,175	29,888	29,888	39,888
Net Current Assets	1,72,936	1,80,323	1,87,748	1,83,263	1,76,670
Total – Assets	**6,02,961**	**6,47,663**	**7,26,162**	**7,99,192**	**9,06,527**

Source: Company, JM Financial

Cash Flow Statement					(INR mn)
Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Profit before Tax	43,826	44,274	52,516	58,292	65,494
Depn. & Amort.	12,925	11,903	12,147	15,299	20,454
Net Interest Exp. / Inc. (-)	0	0	0	5,353	6,459
Inc (-) / Dec in WCap.	1,229	16,907	-7,968	-10,444	3,905
Others	0	0	546	-4,150	-6,051
Taxes Paid	-7,281	-8,367	-9,772	-11,658	-13,099
Operating Cash Flow	**50,698**	**64,718**	**47,468**	**52,692**	**77,163**
Capex	-20,580	-50,117	-49,588	-92,815	-1,34,383
Free Cash Flow	30,118	14,601	-2,119	-40,123	-57,220
Inc (-) / Dec in Investments	-4,201	-4,337	3,794	0	0
Others	8,710	4,793	3,333	17,453	18,943
Investing Cash Flow	**-16,071**	**-49,660**	**-42,461**	**-75,362**	**-1,15,440**
Inc / Dec (-) in Capital	0	594	2,001	0	0
Dividend + Tax thereon	-18,488	-19,478	-22,629	-18,955	-19,334
Inc / Dec (-) in Loans	2,065	27,726	29,728	49,502	80,325
Others	-14,153	-15,225	-17,057	-12,806	-15,402
Financing Cash Flow	**-30,576**	**-6,383**	**-7,957**	**17,741**	**45,588**
Inc / Dec (-) in Cash	**4,051**	**8,674**	**-2,949**	**-4,929**	**7,311**
Opening Cash Balance	18,517	10,910	29,885	26,936	22,007
Closing Cash Balance	22,568	19,584	26,936	22,007	29,318

Source: Company, JM Financial

Dupont Analysis					
Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Net Margin	39.2%	41.1%	39.9%	35.4%	33.9%
Asset Turnover (x)	0.1	0.1	0.1	0.1	0.1
Leverage Factor (x)	2.2	2.2	2.2	2.3	2.4
RoE	11.7%	11.1%	11.8%	12.0%	12.2%

Key Ratios					
Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
BV/Share (INR)	32.9	34.8	36.7	39.1	41.8
ROIC	5.8%	7.7%	6.1%	6.7%	6.7%
ROE	11.7%	11.1%	11.8%	12.0%	12.2%
Net Debt/Equity (x)	0.7	0.8	0.8	0.9	1.0
P/E (x)	11.9	12.0	10.7	9.9	9.1
P/B (x)	1.4	1.3	1.2	1.2	1.1
EV/EBITDA (x)	13.5	14.6	12.9	10.9	10.1
EV/Sales (x)	7.5	8.3	7.6	6.7	6.4
Debtor days	194	206	228	218	208
Inventory days	5	6	6	6	6
Creditor days	18	20	20	21	22

Source: Company, JM Financial

SJVN Ltd. | BUY

Generation set for multifold growth

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SJVN, one of the largest hydropower utilities of India, with an execution/ operational track record of 35 years aims to have a capacity of 5/25/50GW by FY24/30/40 from a diversified portfolio including renewables. With an installed hydro capacity of 1,912MW and under-construction projects of 7,519MW (hydro, renewables & thermal power), the company's total generation is set to grow by 3x in FY26. We expect revenue/EBITDA/PAT to grow at a CAGR of 47%/45%/12% respectively by FY23-25E led by strong capacity addition along with a continued dividend yield of 4.5%. We initiate coverage on SJVN with a BUY rating with a SOTP-based target price of INR 50/share.

- **Cost-plus model ensures stable cash flow visibility:** The two hydroelectric power plants – 1,500MW Nathpa Jhakri Hydro Power Station (NJHPS) and 412MW Rampur Hydro Power Station (RHPS) – of SJVN operate under the cost-plus return on equity framework outlined by the CERC, which ensures 16.5% return on equity. Both plants continue to operate efficiently and have 100%+ availability compared to normative parameters, which helps SJVN earn higher capacity incentive income and unscheduled interchange income.
- **Strong capacity addition to drive future growth:** The capacity of 5GW is expected to get commissioned by FY25E across hydro, RE and thermal sources, an increase of ~240% over the company's existing capacity. The key projects are the 1,320MW Buxar Thermal Power Plant in Bihar (expected commissioning, FY25), 900MW Arun-3 HEP in Nepal (expected commissioning, FY25) and 2.6GW solar. The company has a vision to achieve an installed capacity of 25GW by FY30 and 50GW by FY40. SJVN is also targeting around 5,000MW of pumped hydro storage capacity in the coming 7-10 years with funding by a combination of internal accruals and debt. Moreover, the company is in the process of securitising a part of the cash flows from NJHPS.
- **Increasing the share of renewables:** SJVN is fast expanding its footprint in the field of renewables and aims to add 1.0-1.5GW capacity annually to give a thrust to its renewables endeavours, SJVN registered a wholly owned subsidiary SJVN Green Energy Limited in Mar'22. Its renewables portfolio at present stands at 3.74GW, which includes operational (103.2MW), under construction (1,270MW), pre-construction (850MW), survey & investigation (1,489MW) and pre-award (33MW) projects. Along with a stable portfolio of hydro assets (installed + upcoming) SJVN, has set an ambitious target of achieving 19GW of solar capacity by 2040, which will constitute 39% of its total installed capacity.
- **Improving receivables cycle:** On the back of the implementation of the LPS Rules 2022, the company's receivable days have reduced significantly – from 93 days in FY21 to 53 days in FY23 – led by higher collections and on-time payment by discoms.
- **Recent wins:** SJVN recently signed a MoU with the Maharashtra government for the development of 5,000MW RE projects which include hydro, pumped storage, wind, solar, hybrid and green hydrogen projects. SJVN recently bagged a few other RE projects under

Recommendation and Price Target	
Current Reco.	BUY
Previous Reco.	NR
Current Price Target (12M)	50
Upside/(Downside)	29.9%
Previous Price Target	NA
Change	NA

Key Data – SJVN IN	
Current Market Price	INR39
Market cap (bn)	INR152.5/US$1.9
Free Float	13%
Shares in issue (mn)	3,929.8
Diluted share (mn)	3,929.8
3-mon avg daily val (mn)	INR274.8/US$3.4
52-week range	42/26
Sensex/Nifty	63,385/18,826
INR/US$	81.9

Price Performance			
%	1M	6M	12M
Absolute	5.4	4.4	45.0
Relative*	2.7	1.8	17.5

* To the BSE Sensex

Financial Summary					(INR mn)
Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Net Sales	24,854	24,170	29,384	32,667	63,682
Sales Growth (%)	-7.8	-2.8	21.6	11.2	94.9
EBITDA	17,989	17,264	22,302	26,241	46,733
EBITDA Margin (%)	72.4	71.4	75.9	80.3	73.4
Adjusted Net Profit	19,392	10,131	13,889	14,203	17,082
Diluted EPS (INR)	4.9	2.6	3.5	3.6	4.3
Diluted EPS Growth (%)	16.7	-47.8	37.1	2.3	20.3
ROIC (%)	8.8	6.5	7.0	5.7	6.6
ROE (%)	15.8	7.8	10.3	10.0	11.3
P/E (x)	7.9	15.1	11.0	10.8	9.0
P/B (x)	1.2	1.2	1.1	1.0	1.0
EV/EBITDA (x)	9.0	11.2	11.5	12.7	9.5
Dividend Yield (%)	5.9	4.0	4.4	4.4	4.6

Source: Company data, JM Financial. Note: Valuations as of 16/Jun/2023

JM Financial Research is also available on:
Bloomberg - JMFR <GO>,
Thomson Publisher & Reuters,
S&P Capital IQ, FactSet and Visible Alpha

Please see Appendix I at the end of this report for Important Disclosures and Disclaimers and Research Analyst Certification.

TBCB such as a 200MW wind power project from SECI, a 100MW solar power project from RUVNL, a 200MW grid-connected solar power project in Khavda Solar Park, Gujarat, and a 100MW wind power project from GUVNL.

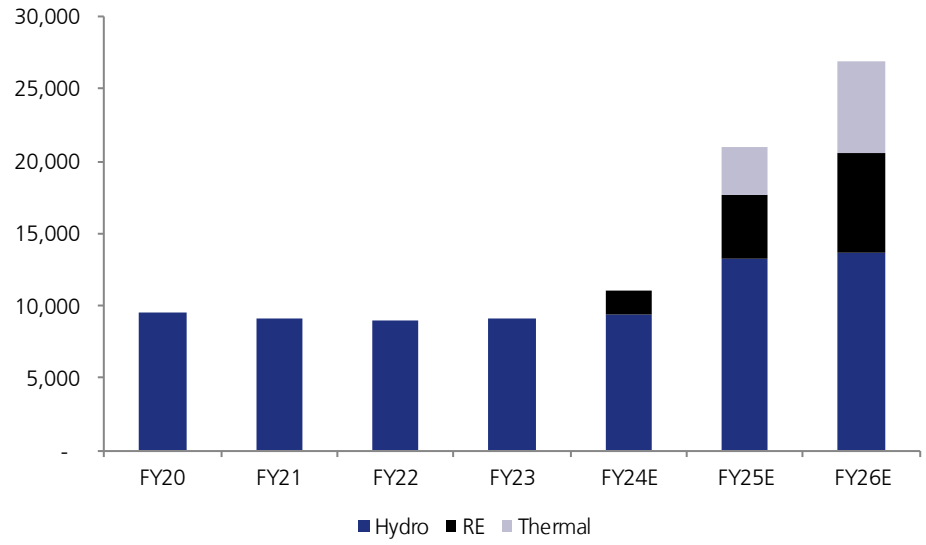
- **Key risks:**

  i) Delay in the execution of projects on account of geological challenges, supply chain constraints, delay in government approvals, etc. can cause significant time- and cost-overruns.

  ii) The below-average financial health of many state distribution utilities can affect the timely realisation of revenue, which remains a cause of concern for power-generating companies, including NHPC. However, the recently announced LPS Rules 2022 will help mitigate this risk to a considerable extent.

  iii) Adverse regulatory changes pertaining to regulated RoE.

Exhibit 27. Power generation trend (MU)



Source: Company, JM Financial

Exhibit 28. Projects under operation

Project	State	Installed Capacity (MW)
Hydro Projects		
Nathpa Jhakri Hydro Power Station	HP	1,500
Rampur Hydro Power Station	HP	412
Total (A)		1,912
Renewable Energy		
Wind		
Khirvire Wind Power Plant	Maha	47.6
Sadla Wind Power Plant	Guj	50
Total (B)		97.6
Solar		
Charanka Solar Power Plant	Guj	6
Grid-connected SPP at NJHPS	HP	1.3
Parasan Solar Power Plant	UP	75
Total (C)		82
Grand Total (A+B+C)		**2,092**

Source: Company, JM Financial

Exhibit 29. Projects under construction

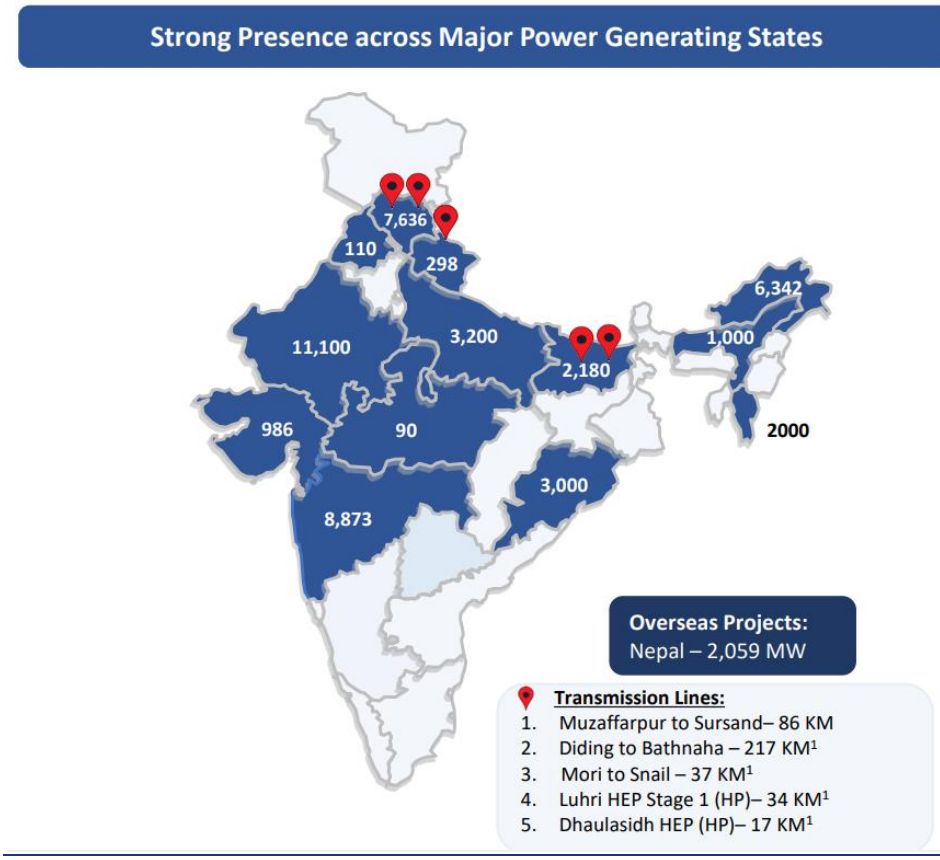
List of Projects	State	Installed Capacity (MW)
Hydro		
Naitwar Mori HEP	Uttarakhand	60
Arun- 3 HEP	Nepal	900
Dhaulasidh HEP	HP	66
Luhri Stage-I HEP	HP	210
Sunni Dam HEP	HP	382
Jakhol Sankri HEP	Uttarakhand	44
Lower Arun HEP	Nepal	669
Total (A)		2,331
Wind		
SECI Wind Power Project	Gujarat	100
GUVNL Phase V WPP	Gujarat	100
Total (B)		200
Solar		
23 projects under construction	Pan India	3,008
Total (C)		3,008
Thermal		
Buxar Thermal Power Project	Bihar	1,980
Total (D)		1,980
Grand Total (A+B+C)		**7,519**

Source: Company, JM Financial

Business Overview

Incorporated in 1988, SJVN is a listed Miniratna central public sector entity under the Ministry of Power, Govt of India. SJVN operates two hydropower plants (1,912MW) in Himachal Pradesh, two wind power projects (97.6MW), and two solar power plants (7MW). In addition, it operates an 86km, 400kV transmission line across the Indo-Nepal border through a joint venture. SJVN is primarily a hydropower generation company that is diversifying into other energy technologies such as thermal, solar and wind projects as well as power transmission. A wholly owned subsidiary SJVN Green Energy Limited (SGEL) was incorporated in Mar'22 for expanding the renewable energy portfolio of the group and work on new business ventures such as solar parks, biomass, small hydro, hybrid energy, green hydrogen and battery energy storage systems (BESS). SJVN is implementing hydro, thermal and solar power projects in Himachal Pradesh, Uttarakhand, Bihar and Gujarat in India and a few neighbouring countries - Nepal and Bhutan. Presently, projects worth 39,262.9MW capacity are under the survey and investigation phase, 4,438MW are under construction and 3,081MW are in the pre-construction phase.

Exhibit 30. Geographical presence



Source: Company, JM Financial

Exhibit 31. Company's vision

Particulars	FY23	FY25E	FY40E
Hydro + PSP	1,912	2,872	27,506
RE	180	2,898	19,388
Thermal	-	1,320	1,980
Total installed capacity (MW)	**2,092**	**7,090**	**48,873**

Source: Company, JM Financial

Investment Rationale

SJVN Ltd, primarily a hydropower generation company, has over the years diversified into other energy technologies such as thermal, solar and wind projects as well as into power transmission. Large capacities are expected to come online over the next few years on the back of the commissioning of under-construction hydro projects, RE addition and thermal capacity at the Buxar power plant. This, in turn, will lead to strong growth in profitability. The company has set a target of achieving 50,000MW of installed capacity by 2040 with 96% contribution from non-fossil fuels. We value the company on discounted cash flow basis and arrive at a fair value of INR 50/share, translating into an upside of 30% from CMP.

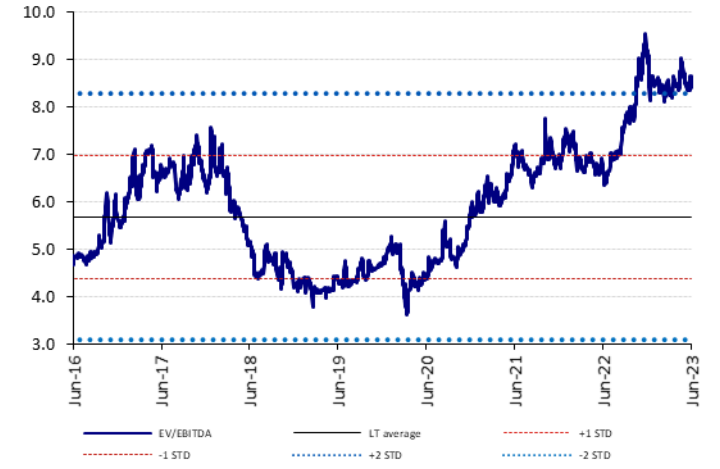
Exhibit 32. SOTP-based target price

Particulars	Equity Value (INR mn)	Value per share (INR)
Hydro Projects	137,002	35
Thermal	10,037	3
Renewables	13,690	3
Cash & Cash Equivalents	37,314	9
Total	**198,043**	**50**

Source: JM Financial

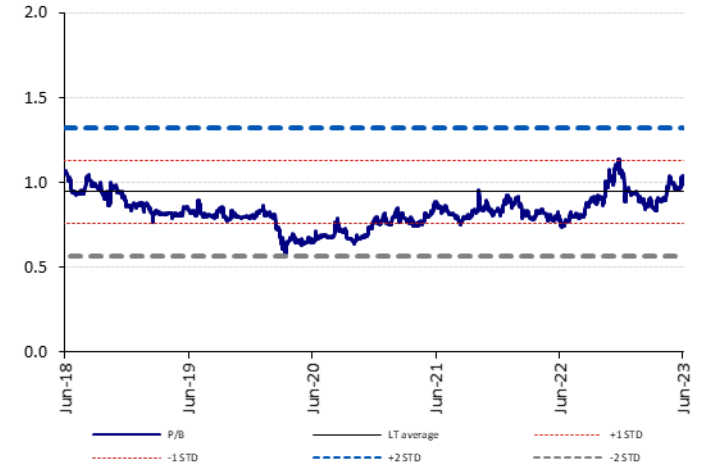
Valuation Bands

Exhibit 33. EV/EBITDA



Source: Company, JM Financial

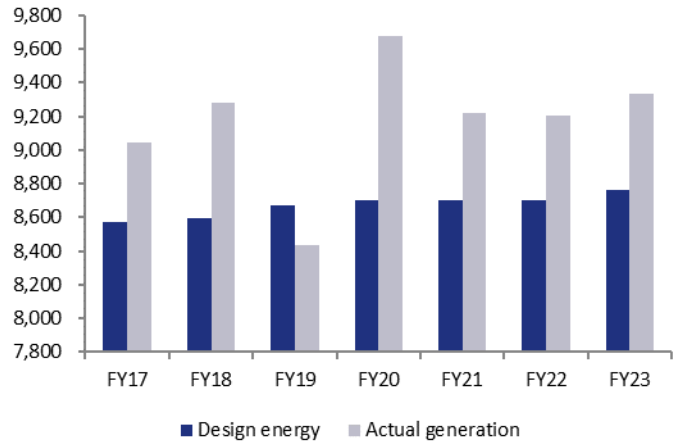
Exhibit 34. P/B



Source: Company, JM Financial

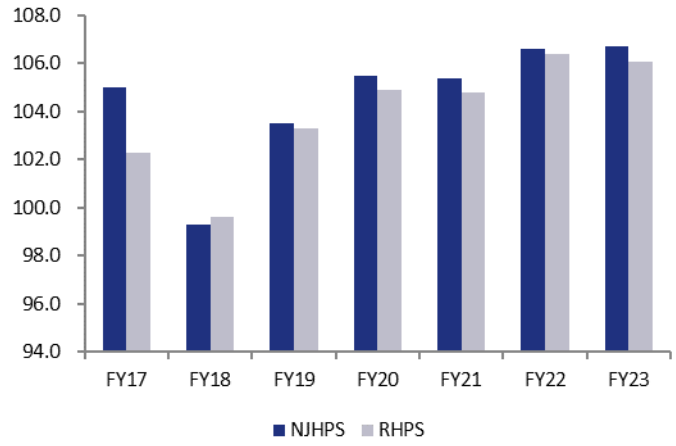
Key Charts

Exhibit 35. Gross power generation (MU)



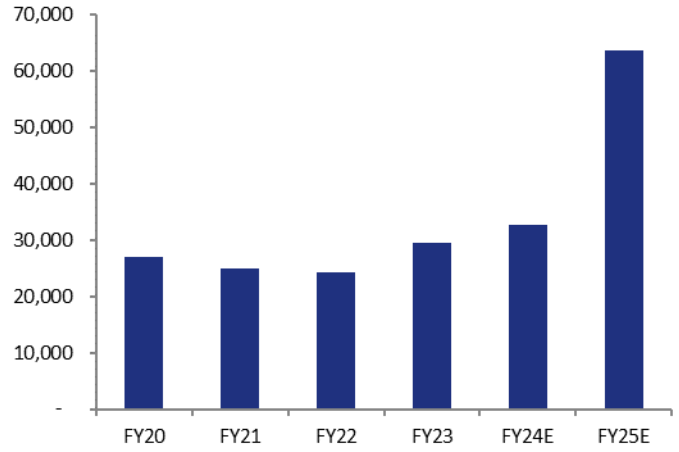
Source: Company, JM Financial

Exhibit 36. Plant Availability Factor (PAF %)



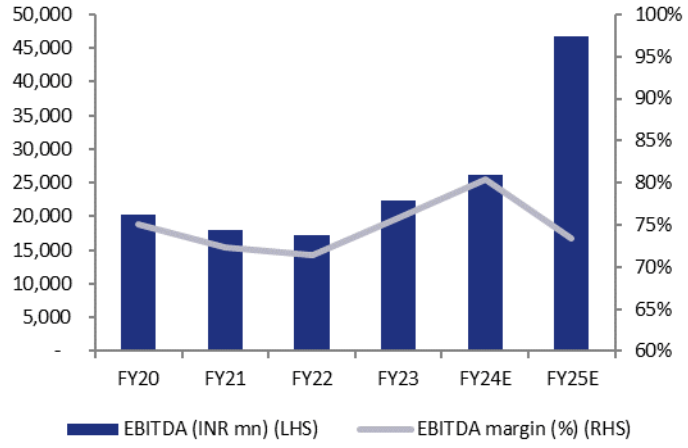
Source: Company, JM Financial

Exhibit 37. Revenue trend (INR mn)



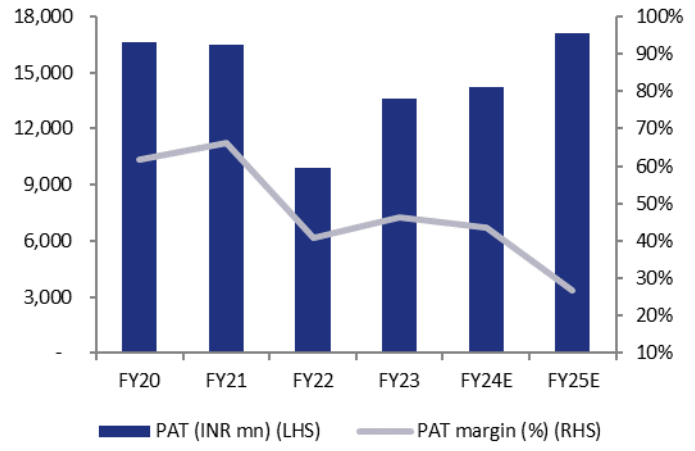
Source: Company, JM Financial

Exhibit 38. EBITDA & EBITDA margin



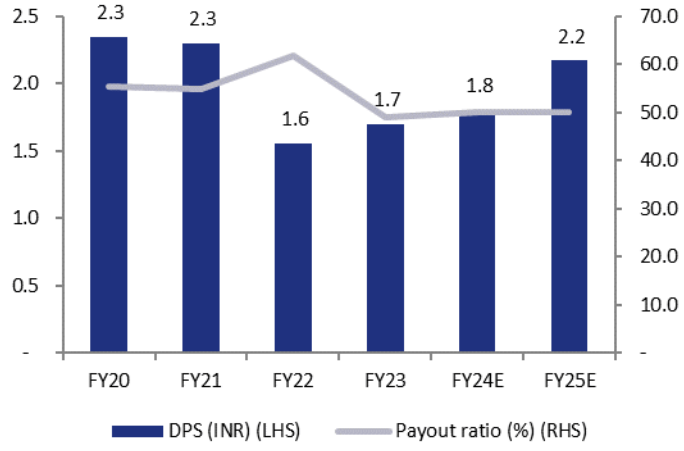
Source: Company, JM Financial

Exhibit 39. PAT and PAT margin



Source: Company, JM Financial

Exhibit 40. Consistent dividend payout



Source: Company, JM Financial

Financial Tables (Consolidated)

Income Statement (INR mn)

Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Net Sales	24,854	24,170	29,384	32,667	63,682
Sales Growth	-7.8%	-2.8%	21.6%	11.2%	94.9%
Other Operating Income	0	0	0	0	0
Total Revenue	**24,854**	**24,170**	**29,384**	**32,667**	**63,682**
Cost of Goods Sold/Op. Exp	0	0	0	0	7,515
Personnel Cost	3,172	2,906	2,869	3,012	3,163
Other Expenses	3,693	3,999	4,213	3,414	6,272
EBITDA	**17,989**	**17,264**	**22,302**	**26,241**	**46,733**
EBITDA Margin	72.4%	71.4%	75.9%	80.3%	73.4%
EBITDA Growth	-11.1%	-4.0%	29.2%	17.7%	78.1%
Depn. & Amort.	3,933	4,043	3,964	5,535	14,131
EBIT	14,056	13,222	18,338	20,706	32,602
Other Income	10,088	1,740	3,339	4,646	4,878
Finance Cost	-29	1,613	4,149	7,187	15,626
PBT before Excep. & Forex	24,173	13,348	17,527	18,165	21,854
Excep. & Forex Inc./Loss(-)	-2,934	-233	-296	0	0
PBT	21,239	13,115	17,231	18,165	21,854
Taxes	4,821	3,262	3,681	4,006	4,818
Extraordinary Inc./Loss(-)	0	0	0	0	0
Assoc. Profit/Min. Int.(-)	39	45	43	44	45
Reported Net Profit	16,457	9,898	13,593	14,203	17,082
Adjusted Net Profit	**19,392**	**10,131**	**13,889**	**14,203**	**17,082**
Net Margin	78.0%	41.9%	47.3%	43.5%	26.8%
Diluted Share Cap. (mn)	3,929.8	3,929.8	3,929.8	3,929.8	3,929.8
Diluted EPS (INR)	**4.9**	**2.6**	**3.5**	**3.6**	**4.3**
Diluted EPS Growth	16.7%	-47.8%	37.1%	2.3%	20.3%
Total Dividend + Tax	9,040	6,110	6,680	6,818	7,004
Dividend Per Share (INR)	2.3	1.6	1.7	1.7	1.8

Source: Company, JM Financial

Balance Sheet (INR mn)

Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Shareholders' Fund	1,27,913	1,31,703	1,38,595	1,45,981	1,56,059
Share Capital	39,298	39,298	39,298	39,298	39,298
Reserves & Surplus	88,615	92,405	99,297	1,06,683	1,16,761
Preference Share Capital	0	0	0	0	0
Minority Interest	0	0	0	0	0
Total Loans	21,736	69,062	1,40,593	2,20,086	3,49,458
Def. Tax Liab. / Assets (-)	-14,844	-13,383	-12,725	-12,855	-13,217
Total - Equity & Liab.	**1,34,805**	**1,87,382**	**2,66,464**	**3,53,212**	**4,92,301**
Net Fixed Assets	1,22,774	1,62,135	2,41,539	3,54,811	4,45,557
Gross Fixed Assets	1,08,704	1,11,275	1,21,599	2,03,982	4,24,065
Intangible Assets	0	0	0	0	0
Less: Depn. & Amort.	28,912	32,835	36,799	42,333	56,464
Capital WIP	42,983	83,695	1,56,739	1,93,162	77,957
Investments	2,221	2,752	358	358	358
Current Assets	34,894	54,215	68,488	72,016	1,10,852
Inventories	562	627	728	809	1,578
Sundry Debtors	5,219	5,750	2,768	3,078	6,000
Cash & Bank Balances	13,059	29,020	37,314	40,452	60,597
Loans & Advances	217	226	237	237	237
Other Current Assets	15,836	18,591	27,440	27,440	42,440
Current Liab. & Prov.	25,084	31,720	43,921	73,973	64,467
Current Liabilities	9,002	11,471	7,536	7,588	8,082
Provisions & Others	16,082	20,249	36,385	66,385	56,385
Net Current Assets	9,810	22,495	24,567	-1,957	46,385
Total – Assets	**1,34,805**	**1,87,382**	**2,66,464**	**3,53,212**	**4,92,301**

Source: Company, JM Financial

Cash Flow Statement (INR mn)

Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Profit before Tax	21,851	13,067	17,252	18,210	21,900
Depn. & Amort.	3,933	4,043	3,964	5,535	14,131
Net Interest Exp. / Inc. (-)	-1,342	490	2,737	2,541	10,748
Inc (-) / Dec in WCap.	-1,792	7,441	-3,145	29,662	-13,197
Others	709	2,549	-1,230	0	0
Taxes Paid	-3,011	-3,652	-3,379	-4,006	-4,818
Operating Cash Flow	**20,348**	**23,938**	**16,198**	**51,941**	**28,764**
Capex	-20,657	-44,278	-68,439	-1,18,806	-1,04,878
Free Cash Flow	-309	-20,340	-52,241	-66,866	-76,114
Inc (-) / Dec in Investments	7,738	-17,326	-5,321	0	0
Others	1,474	288	4,993	4,516	-10,483
Investing Cash Flow	**-11,446**	**-61,317**	**-68,766**	**-1,14,291**	**-1,15,361**
Inc / Dec (-) in Capital	0	0	0	0	0
Dividend + Tax thereon	-9,037	-6,105	-6,680	-6,818	-7,004
Inc / Dec (-) in Loans	-615	43,895	68,215	79,492	1,29,372
Others	-1,398	-1,096	-5,943	-7,187	-15,626
Financing Cash Flow	**-11,050**	**36,694**	**55,592**	**65,488**	**1,06,743**
Inc / Dec (-) in Cash	**-2,147**	**-685**	**3,024**	**3,138**	**20,145**
Opening Cash Balance	15,207	29,705	34,291	37,314	40,452
Closing Cash Balance	13,059	29,020	37,314	40,452	60,597

Source: Company, JM Financial

Dupont Analysis

Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
Net Margin	78.0%	41.9%	47.3%	43.5%	26.8%
Asset Turnover (x)	0.2	0.1	0.1	0.1	0.1
Leverage Factor (x)	1.3	1.5	2.0	2.6	3.3
RoE	15.8%	7.8%	10.3%	10.0%	11.3%

Key Ratios

Y/E March	FY21A	FY22A	FY23A	FY24E	FY25E
BV/Share (INR)	32.5	33.5	35.3	37.1	39.7
ROIC	8.8%	6.5%	7.0%	5.7%	6.6%
ROE	15.8%	7.8%	10.3%	10.0%	11.3%
Net Debt/Equity (x)	0.1	0.3	0.7	1.2	1.9
P/E (x)	7.9	15.1	11.0	10.8	9.0
P/B (x)	1.2	1.2	1.1	1.0	1.0
EV/EBITDA (x)	9.0	11.2	11.5	12.7	9.5
EV/Sales (x)	6.5	8.0	8.7	10.2	6.9
Debtor days	77	87	34	34	34
Inventory days	8	9	9	9	9
Creditor days	24	20	24	30	22

Source: Company, JM Financial

APPENDIX I

JM Financial Institutional Securities Limited

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Definition of ratings	
Rating	Meaning
Buy	Total expected returns of more than 10% stocks with market capitalisation in excess of INR 200 billion and REITs* and more than 15% for all other stocks, over the next twelve months. Total expected return includes dividend yields.
Hold	Price expected to move in the range of 10% downside to 10% upside from the current market price for stocks with market capitalisation in excess of INR 200 billion and REITs* and in the range of 10% downside to 15% upside from the current market price for all other stocks, over the next twelve months.
Sell	Price expected to move downwards by more than 10% from the current market price over the next twelve months.

* REIT refers to Real Estate Investment Trusts.

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