INDIAN POWER SECTOR ANALYSIS

March - 2024

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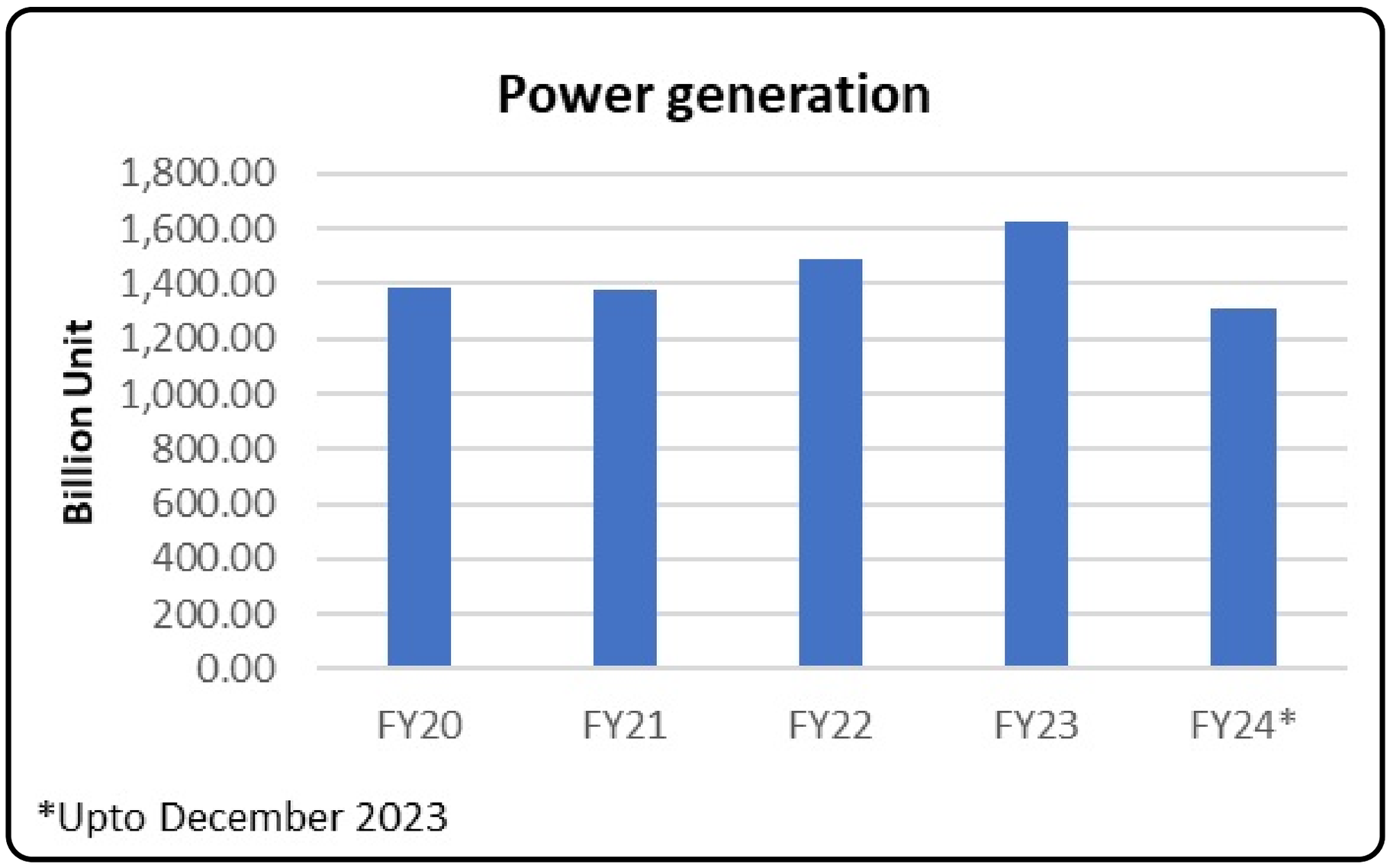
Power is one of the most critical components of infrastructure, crucial for the economic growth and welfare of nations. India's power sector is one of the most diversified in the world. The sources of electricity generation in India are broadly classified into conventional and non-conventional. The conventional sources of power generation are thermal (coal, lignite, natural gas, and oil), hydro and nuclear power, whereas non-conventional sources of power generation (renewable energy sources) include solar, wind, agricultural and domestic waste, etc. The demand for power in India has been on an upward trajectory, fueled by the country's rapid economic growth and the provision of new electricity connections to 2.86 crore households. The government has made significant efforts over the past few years to turn the country from one with a power shortage to one with a surplus by establishing a single national grid, fortifying the distribution network, and achieving universal household electrification. The remarkable growth of solar and wind energy capacity has cemented India's position as a global leader in renewable energy adoption. India currently stands 4th globally in Renewable Energy Installed Capacity, with 43% of its total installed electricity capacity coming from non-fossil energy sources.

POWER GENERATION

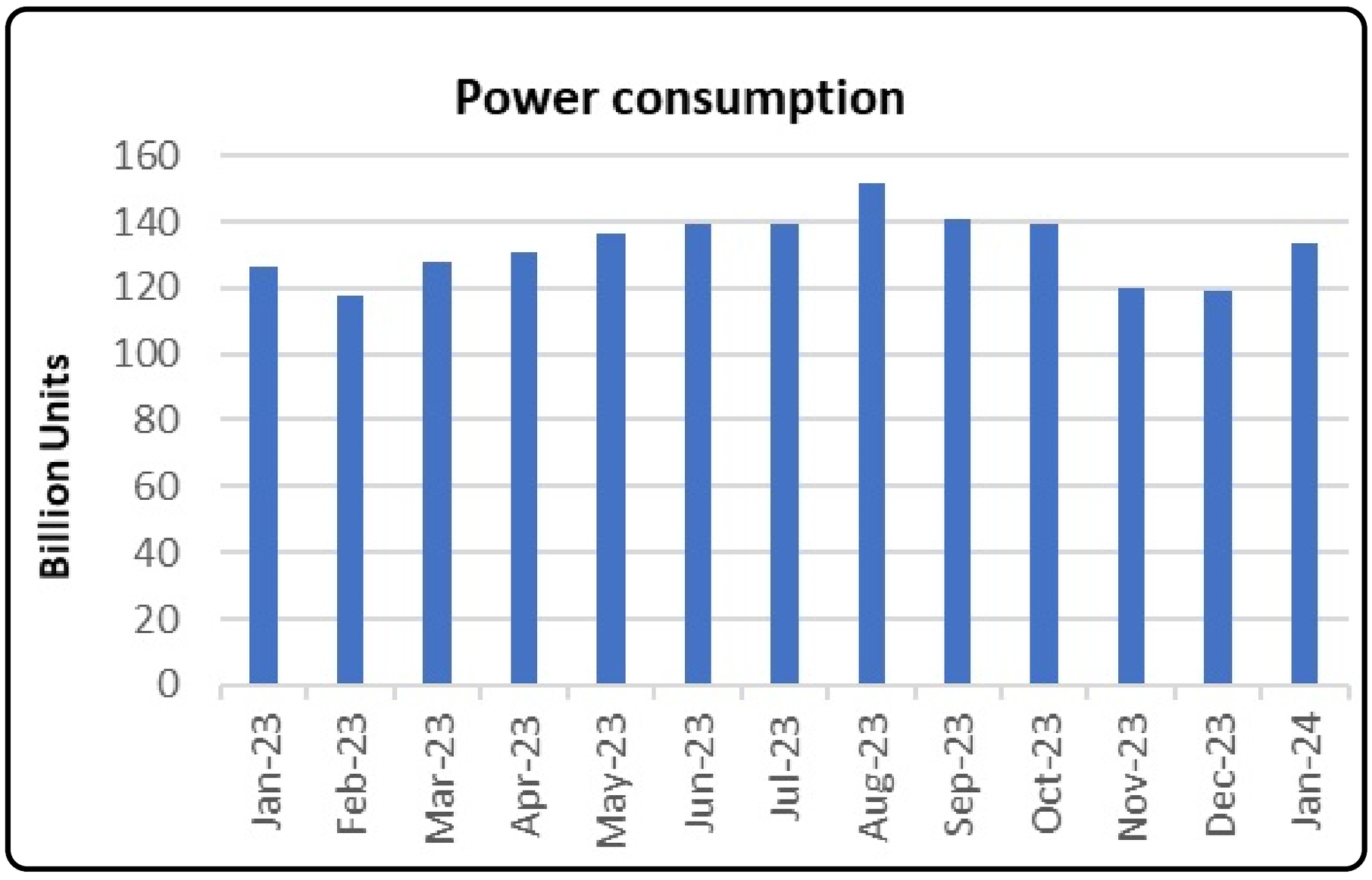
The overall power generation (including generation from grid connected renewable sources) in the country has been increased from 1110.46 Billion Unit (BU) during 2014-15 to 1173.60 BU during the year 2015-16, 1241.69 BU during 2016-17, 1308.15 BU during 2017-18, 1376.10 BU during 2018-19, 1389.10 BU during 2019-20, 1381.86 BU during 2020-21, 1491.86 BU during 2021-22 and 1624.47 BU during 2022-23. The electricity generation target (Including RE) for the year 2023-24 has been fixed at 1750 BU. i.e. growth of around 7.2% over actual generation of 1624.47 BU for the previous year (2022-23).



POWER CONSUMPTION

India's power consumption grew nearly 6 per cent to 133.83 BU in January 2024 as compared to the year-ago period. In January 2023, power consumption stood at 126.30 BU, higher than 111.80 BU recorded in the same month a year ago. Power consumption as well as demand improved in January as mercury fell sharply in the month, especially in North India. The cold wave resulted in increased use of heating equipment like heaters, blowers and geysers which led to increase of power demand as well as consumption.

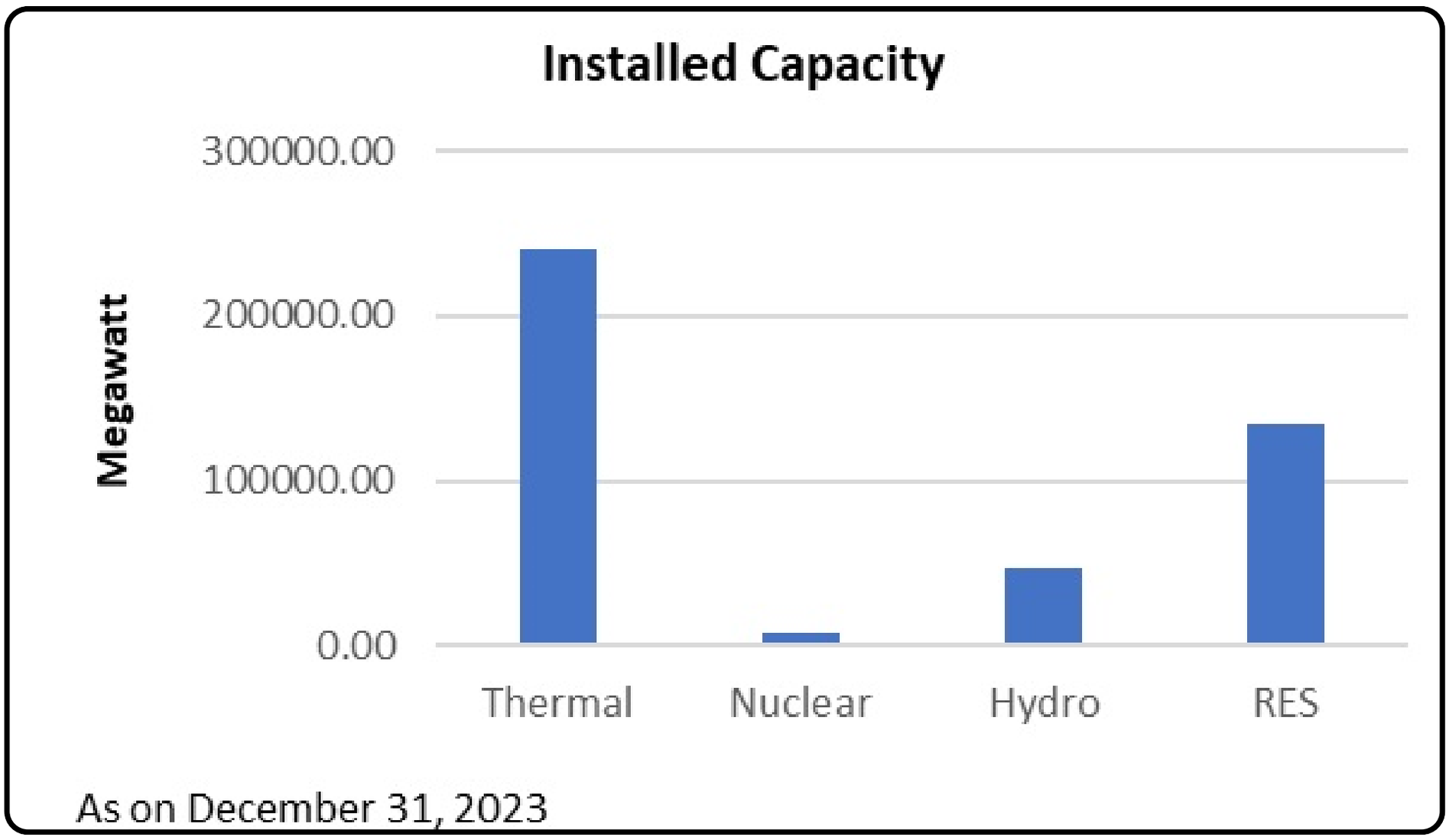
In the April-January period of fiscal 2023-24, the country's power consumption increased 7.5 per cent to 1354.97 BU from 1259.49 BU in same period last fiscal, indicating an uptick in economic activities across the country. It was 1505.91 BU in the entire fiscal year of 2022-23.



INSTALLED CAPACITY

India's total installed power generation capacity stood at 428299.27 megawatt (MW) as on December 31, 2023. As the country has large reserves of coal, thermal sector contributed maximum towards the total installed capacity. As on December 2023, total thermal installed capacity in the country stood at 240022.92 MW. Besides, Nuclear installed capacity stood at 7480 MW, while the hydro installed capacity was 46910.17 MW. RES (Renewable Energy Sources) installed capacity stood at 133886.18 MW. RES include Small Hydro Project, Biomass Gasifier, Biomass Power, Urban & Industrial Waste Power, Solar and Wind Energy.

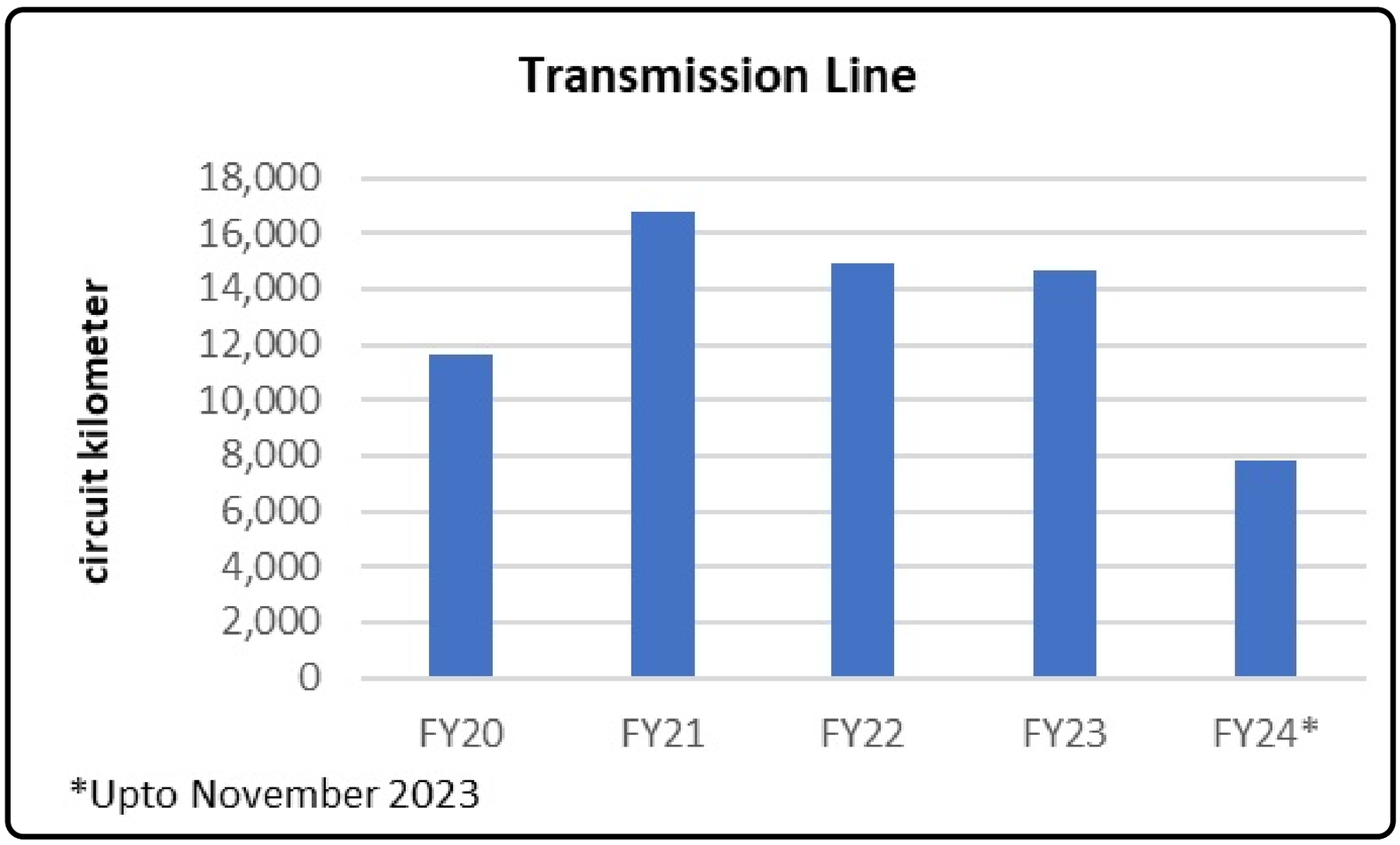
As on December 2023, the maximum generation capacity was added in Western region i.e. 139992.77 MW, followed by 127378.8 MW in Southern region and 120705.7 MW in Northern region, while capacity of 34893.79 MW and 5168.53 MW were added in Eastern and North Eastern regions respectively.



TRANSMISSION LINE

India added 14,625 circuit kilometres (ckm) of transmission lines in FY23, which was 1.81 per cent lower than the 14,895 ckm added in FY22. Despite the focus on boosting electricity transmission amid India's energy transition journey, the growth in extending power transmission lines has slipped in FY23.

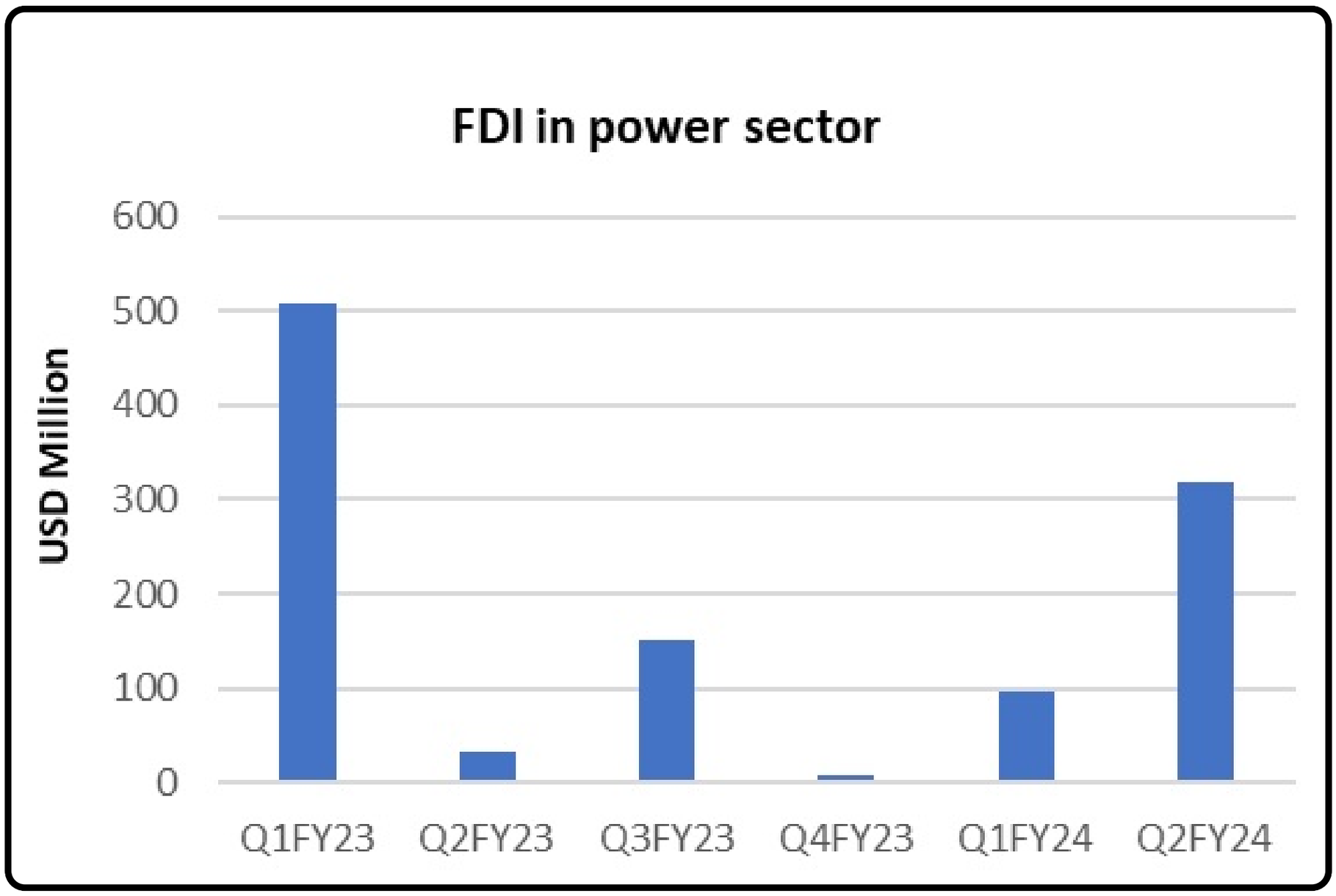
A total of 7,844 ckm of transmission lines (of 220kV or above) were added during the first eight months (April to November) of FY24. During the fiscal so far, a total of 1810 ckm of transmission line has been set up under the central sector, while 3830 ckm was set up by state government enterprises. The private sector sets up 2204 ckm of transmission lines.
For the full year FY24 (April to March), the target for transmission line addition, covering all voltages (above and including 220kV), is 16,602 ckm as against the actual addition of 14,625 ckm in FY23.



FDI IN SECTOR

Under the current Foreign direct investment (FDI) policy, renewable energy sector investments are permitted up to 100% through the automatic route. The government has implemented various initiatives to encourage both domestic and foreign investment in this sector. These initiatives include setting up a Project Development Cell to facilitate investment, establishing Ultra Mega Renewable Energy Parks, and implementing new transmission lines under the Green Energy Corridor Scheme.

During July-September quarter of FY24, the country has attracted $318.49 million FDI in Power sector, showing around three-fold jump as compared to $96.8 million in previous quarter. The rise in FDI in the renewable energy sector can be attributed to the government's ambitious target of achieving 500 GW of renewable energy capacity by 2030, attracting significant interest from foreign investors and showcasing the sector's vast potential.



GOVERNMENT INITIATIVES

- **GOVT TO ASSIST TERI IN SETTING UP CENTRE FOR ENERGY TRANSITION IN HYDERABAD:**

The government has unveiled a collaborative endeavour with The Energy and Resources Institute (TERI) to establish Centre for Energy Transition in Hyderabad. The institute would be expected to play a pivotal role in identifying pathways for sustainable energy transition and fostering innovation in the renewable energy sector.

- **GOVT ALLOCATES ADDITIONAL POWER TO J&K TO MEET WINTER ELECTRICITY DEMAND:**

The government has already allocated 1500 MW from Central pool to meet the winter requirements of Jammu & Kashmir (J&K). Further, 472 MW is also allocated under Shakti policy. Overall, 1972 MW of additional allocation has been made by the government to take care of the urgent power requirement of the Union Territory.

- ## INDIA SIGNS MOU WITH SAUDI ARABIA:

India and Saudi Arabia have signed a Memorandum of Understanding (MoU) in Riyadh, in the fields of Electrical Interconnections, Green / Clean Hydrogen and Supply Chains. This MoU aims to establish a general framework for cooperation between the two countries in the field of electrical interconnection; exchange of electricity during peak times and emergencies; co-development of projects; co-production of green / clean hydrogen and renewable energy; and also establishing secure, reliable and resilient supply chains of materials used in green / clean hydrogen and the renewable energy sector.

- ## GOVT LAUNCHES DASHBOARD FOR DATA ON ADOPTION AND FORECASTS OF ELECTRIC VEHICLES:

The government has launched a brand-new EV-Ready India Dashboard (evreadyindia.org) in New Delhi. The dashboard is a free digital platform focussed on near real-time Electric Vehicle adoption and forecasts, associated battery demand, charging density, and market growth trends. The dashboard is expected to facilitate greater inclusion across audiences, for the industry, policymakers and end users of electric vehicles. The platform leverages the power of data and AI and seeks to address the need for macroeconomic data and analysis on India's massively growing electric mobility segment.

- ## CABINET APPROVES VGF SCHEME FOR BATTERY SYSTEMS:

The government has approved the Viability Gap Funding (VGF) scheme for development of Battery Energy Storage Systems (BESS). The approved scheme envisages development of 4,000 Megawatt Hour (MWh) of BESS projects by 2030-31, with a financial support of up to 40% of the capital cost as budgetary support in the form of VGF. A watershed moment in the long list of pro-environment measures taken by the government, the move is expected to bring down the cost of battery storage systems increasing their viability. Designed to harness the potential of renewable energy sources such as solar and wind power, the scheme aims to provide clean, reliable, and affordable electricity to the citizens. The VGF for development of BESS Scheme, with an initial outlay of Rs 9,400 crore, including a budgetary support of Rs 3,760 crore, signifies the government's commitment to sustainable energy solutions. By offering VGF support, the scheme targets achieving a Levelized Cost of Storage (LCoS) ranging from Rs 5.50-6.60 per kilowatt-hour (kWh), making stored renewable energy a viable option for managing peak power demand across the country. The VGF shall be disbursed in five tranches linked with the various stages of implementation of BESS projects.

- **GOVT SIGNS MOU WITH GOVERNMENT OF ARUNACHAL PRADESH:**

The government of India and the Government of Arunachal Pradesh have come together to rejuvenate and execute 12 stalled hydro-electric power projects in the state. Towards this, Memorandums of Agreement (MoU) have been signed on August 12, 2023, wherein 12 hydro-electric projects of cumulative Installed Capacity of about 11,517 MW have been allotted by the state government, to Hydro PSUs under the Union Ministry of Power. Development of these projects will contribute towards achieving the declared Nationally Determined Contribution (NDC) target of achieving 500 gigawatts (GW) non-fossil energy capacity of India by 2030. Hydro Power will also be an effective contributor to the objective of achieving Net Zero carbon emissions by the year 2070. These projects are also expected to create huge employment opportunities in the region and boost the local economy as well as foster skill development and technical expertise in the region. The projects are expected to result in an estimated investment inflow of about Rs 1,26,500 crore to the state of Arunachal Pradesh.

OUTLOOK

Indian power sector is likely to perform well in coming time on back of strong focus by the government on promoting renewable energy and implementation of projects in a time bound manner. India's rapid economic growth and burgeoning population have ushered in a significant demand for energy, prompting the country to undergo a transformative shift in its power sector. The electricity consumption is likely to grow at an average annual rate of 4.9 per cent through to 2032, underpinned by population growth, rising urbanisation as well as increased demand from the construction, manufacturing, and services sectors. The central government has a huge ambition in terms of energy transition and plans to have 500 GW of non-fossil-based electricity installed capacity by 2030. The government will focus on setting up more coal-fired power projects as well as keep adding renewable generation capacity to achieve 24x7 electricity supply for all in 2024 amid economic expansion and the need to ensure energy security in these times of rising geopolitical uncertainties. Besides, the implementation of the Electricity (LPS and Related Matters) Rules, 2022, has led to a substantial decrease in outstanding dues owed by distribution companies (DISCOMs), plummeting from Rs 1.4 lakh crore in June 2022 to less than Rs 50,000 crore as of January 2024.

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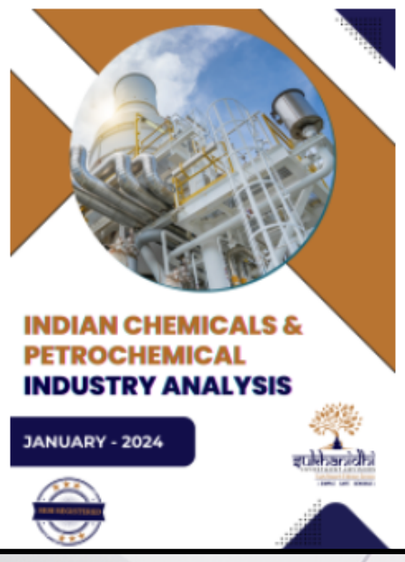

Indian Tyre Industry Analysis

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