State's peak electricity demand may cross 7,000 MW by 2026-27

To be largely driven by a surge in the demand for air conditioning, according to Energy Management Centre report. It suggests Kerala develop over 7 GWh of energy storage capacity to manage peak demand effectively

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Kerala's peak electricity demand is likely to exceed 7,000 megawatts (MW) by 2026-27, largely driven by a surge in the demand for air conditioning, according to a report by the Energy Management Centre - Kerala (EMC) which functions under the Power department.

The energy demand from air conditioners is estimated to grow at a compound annual growth rate (CAGR) of 15% over the next three years, the report, 'Analysing Viability of Energy Storage Systems (ESS) at the Sub-national level,' says.

"Considering the impact of increased demand due to electric vehicle charging and air conditioner, peak demand is expected to rise at a rate of 10.5%, which is significantly higher than the historical rate of 4.6%. Peak demand is projected to increase by over 1,800 MW in 2026-27, reaching 7,164 MW, compared to 2023-24. This represents a year-on-year growth of approximately 530 MW-700 MW over the next three years," it says.

The report, handed over to the State government on Wednesday, notes that Kerala's total generation capacity as of March 2024 stood at 6,669 MW.

Highlights of report

- Kerala faces challenges with regard to energy security, energy transition and energy access
- EV charging, induction cook stoves, AC use are the three key factors driving electricity demand
- The State's energy requirement and peak demand have risen rapidly
- Battery Energy Storage Systems better placed to handle storage demands in the short term

- Globally, battery costs have dropped over the last decade, a trend that is expected to continue

Renewable energy

This volume covered both installed capacity and the State's allocated share. The renewable energy share in the electricity mix has risen from 8% (413 MW) to 20% (1,365 MW). Air conditioners aside, electric vehicle charging and induction cook stoves are the other two "key factors" contributing to the rising electricity demand. The State has witnessed a 55% increase in EV registrations from 52,241 in 2022-23 to 80,913 in 2023-24. EVs, induction cook stoves and air conditioners are projected to contribute an additional energy demand of 339 million units (mu), 340 mu and 1,208 mu respectively by 2026-27.

Short-term solution

The report recommends large-scale deployment of battery energy storage systems (BESS) and pumped storage projects (PSP) for handling this rising demand.

The report suggests that Kerala must develop over 7 GWh of energy storage capacity to manage peak demand effectively.

It however, notes that the BESS are better suited to handle the State's energy storage requirements till 2026-27, given the longer gestation period for PSPs.

BESS viable

"PSPs require over five years to develop, making them unsuitable for meeting peak demand by 2026-27. On the other hand, the BESS provide a swift, efficient, and commercially viable alternative to address energy storage needs within the required time frame," the report says.

The EMC carried out the study in 2022-23.

The report, which was to handed over to K.R. Jyothilal, Additional Chief Secretary (Power), is intended to guide policymakers in leveraging energy storage systems (ESS) to ensure grid stability and meet future power needs, EMC director R. Harikumar says.