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## An Endgame for New Coal Power Projects?

### Why in news?

An expert committee appointed by the Union Power Ministry has tabled a plan to stop new coal-fired capacity additions following India's pledge at COP 26 to have net zero emissions by 2070.

### What are the key findings of the committee?

- The committee was headed by former Central Electricity Authority (CEA) chairman Gireesh Pradhan.
- **Renewables-** It has found that the addition of low-cost renewable energy capacity would handle the expected growth in electricity demand.
- It emphasizes on accelerating the decarbonisation of India's power system and recommends technologies that could operate flexibly to support integration of 450GW of variable renewables (VRE) by 2030.
- **Underutilisation of coal fleets-** It also found the overall coal fleet was underutilised, averaging 55% capacity utilisation.
- **Integration-** Power storage such as batteries and pumped hydro, aligned with conventional thermal (gas and coal) and hydro units could operate as peakers to provide energy to the grid.

### How do flexible generation sources integrate?

- Flexible generation is characterised by the ability to quickly start up, rapidly ramp up and ramp down the generation, then just as quickly shut down.
- **Gas-fired power plants-** Combined Cycle Gas Turbines (CCGT) in general rate better on flexibility parameters with quicker ramp up and ramp down rates and minimum generation levels.
- CCGT plants can ramp up net generation at 12% per minute compared to coal and lignite, 9% and 8% for respectively.
- CCGT plants can operate at a minimum load of 30% compared to coal and lignite, 10% and 20% for respectively.
- The lack of a domestic gas supply has limited the 25GW of gas-fired capacity to extremely low utilisation, below 20%.
- **Batteries-** In terms of flexibility, battery storage is the most proven technology to provide fast ramp-up and ramp-down energy dispatch and fast frequency service.
- Batteries ramp-up to full load in a minute and can also absorb excess power from the grid.
- Continuing a decade-long deflation in costs, solar plus batteries are cost competitive with new coal-fired plants in markets such as the US and Australia.
- In India, new projects backed by tenders from government-owned entities such as NTPC and Solar Energy Corporation of India (SECI), are executed.

- The government is striving to support the localisation of batteries' value-chain with a Production Linked Incentive (PLI) scheme for 50GWh of battery storage for electric vehicles (EVs) and stationary battery storage.
- The local manufacture could reduce the cost of batteries.

## What is the key for transitioning to a modern and cost-effective power economy?

- Optimised power assets, both energy and grid services, is essential for transitioning to a modern and cost-effective power economy.
- Coal and gas-fired power with favourable cost economics could be retrofitted to operate flexibly, enabling a diversified pool of assets to compete to provide energy and grid ancillary services.
- Flexibility can be induced by
  - Regionally co-optimising energy and ancillary services
  - Simultaneously creating two different value (revenue) streams
  - Bringing down system level cost
  - Potentially driving investment into the assets that could provide flexibility

### Reference

1. <https://www.thehindubusinessline.com/opinion/is-the-indian-government-seriously-considering-the-endgame-for-new-coal-power-projects/article64941620.ece>



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