Balancing between Coal-fired Power and Renewables

Why in news?

The Ministry of New and Renewable Energy recently proposed 'reverse bundling' scheme for balancing between coal-fired power and renewables.

What is the bundling scheme?

- In 2015, the government had come up with a plan to 'bundle' solar energy with the then cheaper coal generation.
- The idea was to push sales of renewable power through a market-driven approach.
- The 'bundling' mechanism soon became obsolete as renewable energy cost started falling dramatically.
- The cost of electricity using solar photovoltaic fell to $38 per megawatt hour which is 14% lower than cost of coal-fired power in 2019.

What is the recent proposal?

- A new proposal now seeks to flip the 'bundling' scheme by using cheap renewable energy to subsidise costlier coal-fired power.
- It aims to ensure uninterrupted round-the-clock electricity.
- Under 'reverse bundling', "high cost thermal power'' is bundled with cheaper renewable energy to overcome the 'intermittent-ness' of green power.
- The draft policy stipulates supply of 51% renewable energy with or without energy storage bundled with 49% thermal power component.

What is the concern with the cost?

- The tariff for this bundled electricity could work out to be much higher instead of a simple average of cheap renewables and costlier coal supply.
- This is because renewable energy can only be supplied for 6-8 hours.
- On the other hand, battery storage plus thermal plants will cover power supply for the remaining 18-14 hours in a day.
- The cost of battery storage, although falling rapidly, could raise power tariff when supplying for several hours together.
- The high charge for a fixed amount of standby thermal power capacity needed for bundling will further add to the combined tariff.

What are the other concerns?

- Coal power generators in the country are evading deadlines year after year to retrofit their plants with emission controlling systems.
- Given this, using renewable energy to lower tariff of polluting power counters the climate objectives.
- Also, if thermal power is bundled with renewable energy without storage, the coal-fired capacity will have to be ramped up and down throughout the day.
- Otherwise, it has to be shut for a part of the day depending on renewable generation.
- This may not benefit the coal-fired projects due to inefficient operation.
- The capacity utilisation factor (CUF) of a solar project is only 20%.
- If 80% power is supplied from thermal capacity, the mechanism is still workable because the coal-fired plants will be utilised to a larger extent.
- Instead, necessitating renewables to form a 51% share of supply will make bundled power tariff expensive.
- The inability of power distribution companies (discoms) to buy enough electricity due to their poor financial health is at the centre of the tussle between renewables and coal-fired power.
- Simultaneously, coal thermal capacity utilisation has constantly been falling throughout the year.
- Reverse bundled power will thus have to face the test of being attractive to discoms, which cannot be forced to buy it.

What is the way forward?

- Electricity from renewable sources constitutes only about 10% of the country's total generation mix.
- There is thus a long way to go in achieving higher green power generation.
- Logically, coal will continue to dominate India's energy mix constituting 50% of generation by 2030 in spite of its installed capacity being lower than that of renewables.
- India's coal demand is expected to grow by more than that of any other country, in absolute terms, by 2024.
- This necessitates mechanisms to ensure more renewable projects come online, especially as India has barely reached the halfway mark in installing the targeted 175 gigawatts by 2022.

Source: Financial Express

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