Flue gas desulphurisation units

Prelims: Current events of National and International Importance

Why in News?

The committee of experts has recommended that India do away with a decade-long policy of mandating Flue Gas Desulphurisation (FGD) units in all coal-fired thermal power plants (TPPs).

- **Flue Gas** - Flue gas is emitted as a byproduct of combustion of fossil fuels.
- It mainly contains pollutants such as carbon dioxide (CO2), sulphur dioxide (SO2), nitrogen oxides, particulate matter, etc.
- FGD units specifically target the SO2 emissions in flue gas.
- SO2 is an acidic gas, and is usually treated with a basic compound in the FGD unit to neutralise the pollutant.
- **Types of FDGs** - Dry sorbent injection, wet limestone treatment, and using seawater to remove SO2.
- The dry sorbent injection method involves adding a powdered sorbent like limestone to the flue gas, where it reacts with SO2.
- The resultant compound can be removed by using an electrostatic precipitator, or a fabric filter.
- The wet limestone treatment method also uses limestone to remove SO2, but instead of using it in a powdered form, it uses a limestone slurry.
- Passing SO2 through this slurry results in the formation of gypsum, which is a stable compound and has wide applications in industries like construction.
- This is the commonly used technology, and has very high efficiency.
- Sea water treatment is used in plants located near coastal areas.
- Sea water first absorbs SO2 from flue gas, and then the water is treated to make it suitable to be discharged back into the sea.

• SO2 is one of the major greenhouse gases that cause global warming, and can cause respiratory problems in humans.
• Sulphur dioxide can also lead to the formation of other oxides of sulphur in the atmosphere, which can in turn react with other compounds to form particulate matter.
• It has been established in several modelling studies that 15% of India's ambient PM2.5 is attributable to coal.
• A significant share of this (80%) is in turn attributable to secondary particulate matter formed from the SO2 that is released when coal is burned.

- **Status of FGD units in India** - In 2015, the Union Environment Ministry issued a policy that mandated all 537 coal-fired TPPs in India to install FGD units to reduce SO2 emissions.
- Further, it has extended to 2027, 2028, and 2029, respectively, depending on the

category of the thermal power plant. It takes around 2 years to install an FGD unit.

- **Alternative to FGD -** There is no alternative to FGDs itself to remove SO2 that is released from the burning of coal.
- Washing of coal does not remove the sulphur that is embedded within the physical structure of the coal.

Reference

The Hindu | What are flue gas desulphurisation units?