

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?

