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What are flue gas desulphurisation units ?

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Context

• On June 4, The Hindreported that a committee of experts, chaired by **Principal Scientific Advisor (PSA)** Ajay Sood, 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 Desulphurisation

• 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.

• There are **three common types** of FGD systems around the world — d**ry sorbent injection, wet limestone treatment, and using sea water** 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**

• 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**

Issue with FGD

• **SO2 is one of the major greenhouse gases** that cause global warming, and can cause respiratory problems in humans.

• 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.**

• It takes around **two years to install an FGD unit.**

• Installing FGD units is a **costly affair**. According to the Central Electricity Authority, FGD costs approximately **?1.2 crore per MW to install.**

• As of April 2025, India’s installed coal capacity stood at 2,19,338 MW, which is more than 46% of the country’s total electricity installed capacity. This is expected to rise in the coming years. In his statement at a June 10 press conference, Union Power Minister Manohar Lal Khattar said, “About 97,000 MW of power will be added, and implementing FGD means an additional expense of ?97,000 crore.