



Co-Firing Biomass Pellets in Thermal Power Plants

For Prelims: [Biomass Co-firing](#), [Revised Biomass Policy](#), [Thermal Power Plants](#), [Central Pollution Control Board](#), [Priority Sector Lending](#), [Government e-Marketplace](#), [Renewable energy](#).

For Mains: Advantages of Biomass Co-firing, India's Net Zero Emission Target

Source: [PIB](#)

Why in News?

Recently, the Union Minister for Power and New & Renewable Energy provided valuable insights into the **Revised Biomass Policy** and **47 Thermal Power Plants that have successfully incorporated the co-firing of coal with biomass pellets derived from agro residues** during a written reply in the Rajya Sabha.

- According to **Ministry of Power**, approximately **1,64,976 Metric Tonnes** of agri residues-based biomass has been co-fired in 47 coal based thermal power plants till May 2023

What is the Revised Biomass Policy?

- **About:**
 - The Ministry of Power and Ministry of New & Renewable Energy (MNRE) have taken significant steps towards **integrating agro residue-based biomass pellets into the operations of [Thermal Power Plants \(TPPs\)](#)**.
 - This marks a crucial step towards **transitioning the energy sector to a more sustainable and environmentally friendly** direction.
- **Revised Policy:**
 - On June 16, 2023, the **Ministry of Power** issued a modification to the **biomass policy dated October 8, 2021**.
 - The revised policy **mandates a 5% biomass co-firing in Thermal Power Plants (TPPs)** starting from the fiscal year **2024-25**.
 - The biomass co-firing obligation will further increase to **7% from the fiscal year 2025-26**.

What are the Government Interventions Related to Biomass Co-firing?

- **Financial Assistance:**
 - The **MNRE and [Central Pollution Control Board \(CPCB\)](#)** have introduced Finance Assistance Schemes to support biomass pellet manufacturing units.
 - The **[Reserve Bank of India \(RBI\)](#)** has approved '**Biomass pellet manufacturing**' as an **eligible activity under [Priority Sector Lending \(PSL\)](#)**, fostering financial viability for such endeavors.
- **Procurement and Supply Chain:**
 - A dedicated **Procurement Provision of Biomass Category** has been established on the

[Government e-Marketplace \(GeM\) portal.](#)

- Ministry of Power has introduced a **Revised Model Long-Term Contract for Biomass Supply**, ensuring a consistent supply chain.
- The **provision of Udyam Aadhaar on the National Single Window System** streamlines administrative processes for biomass-related projects.
 - The Udyam Aadhaar registration process is based on the concept of **self-declaration**, enabling MSMEs to **register themselves for free and obtain the Udyam Aadhaar number.**

What is Biomass Co-Firing?

▪ About:

- Biomass co-firing is a process in **which biomass-based fuels are combusted together with traditional fossil fuels (such as coal, oil, or natural gas)** in the same power plant or industrial boiler to generate energy.

▪ Advantages of Co-firing Coal with Biomass Pellets:

- **Carbon Emission Reduction:** The concept behind biomass co-firing is to **reduce the environmental impact** of energy generation by substituting a portion of the fossil fuel with biomass, **which is considered [carbon-neutral](#) over its lifecycle.**
 - Substituting **5-7 % of coal with biomass** in coal-based power plants can save 38 million tonnes of carbon dioxide emissions.
- **Renewable Energy Integration:** Co-firing helps in integrating **[renewable energy sources](#)** (biomass) with conventional energy sources (coal), **aiding in the transition to a cleaner energy mix.**
- **Economic and Regulatory Benefits:** Co-firing can help power plants meet environmental regulations and carbon reduction targets without requiring significant infrastructure changes.
- **Utilization of Biomass Waste:** Co-firing provides a valuable use for agricultural and forestry residues that **might otherwise go to waste.**

▪ Agro Residues for Biomass Pellet Production:

The Ministry of Power has identified various surplus agro residues that can be utilized for biomass pellet production. These include:

◦ Crop Residues:

- Agro-residues from crops such as Paddy, Soya, Arhar, Gwar, Cotton, Gram, Jawar, Bajra, Moong, Mustard, Sesame, Til, Maize, Sunflower, Jute, Coffee, etc.

◦ Shell Waste:

- Waste products like Groundnut Shell, Coconut Shell, Castor Seed Shell, etc.

◦ Additional Biomass Sources:

- Bamboo and its by-products, horticulture waste, and other biomass materials like Pine Cone/Needle, Elephant Grass, Sarkanda, etc.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Consider the following: (2019)

1. Carbon monoxide
2. Methane
3. Ozone
4. Sulphur dioxide

Which of the above are released into atmosphere due to the burning of crop/biomass residue?

- (a) 1 and 2 only
(b) 2, 3 and 4 only
(c) 1 and 4 only
(d) 1, 2, 3 and 4

Ans: (d)

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