

Biomass Pellets – Mittee Ugle Sona

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In order to promote use of the biomass pellets, all fluidized bed and pulverized coal units (coal based thermal power plants) except those having ball and tube mill, of power generating utilities, public or private, located in India, shall endeavour to use 5-10% blend of biomass pellets made, primarily, of agro residue along with coal after assessing the technical feasibility, viz. safety aspects etc.

Action Points from the meeting held on 10/09/2021 under the chairmanship of Secretary (Power): Pt. no7 : NTPC informed that terrified pellets can be utilized upto 5% ball and tube mill also without problem.

Raw Material for Pellet Manufacturing

- Base material for pellet manufacturing shall be agro residue which means the leftover portion of the agriculture produce such as stubble/straw/stalk/husk of those agro residue which are surplus and not being used as animal fodder such as paddy, soya, arhar, gwar, cotton, gram, jawar, bajara, moong, mustard, sesam, til, maize, sunflower, jute, coffee etc., groundnut shell, coconut shell, castor seed shell etc., pine needle, elephant grass, sarkanda and horticulture waste such as dry leaves and trimmings generated during the maintenance and pruning of trees and plants.
- Agro residue based biomass pellets can be manufactured by mixing single or multiple base material together.
- Mixing material such as byproduct of wood work factory such as wood chips, saw dust, furniture waste etc., bagasse, press mud, molasses, bamboo dust or natural additives/binder such as lignin, starch, and animal dung

may also be used with agro residue in limited proportion to enhance material properties and same shall be explicitly mentioned by supplier in consignment details.

- Wood obtained from tree cutting shall not be treated as agro residue and shall be not to be used as base material or mixing purpose whatsoever.
- Raw material for manufacturing of pellets should be sourced from Indian source only.

Present days electricity scenario when total generation has crossed 2 lakh MW considering 60% thermal generation it comes to 1,20,000MW specific coal of 0.6 kg/kwh SCC, per hour coal consumption is about 86,000 tonnes saving in coal is possible with about 5% blending of biomass.

Biomass for power generation can be used in two different forms – pelletized and non-pelletized. The non-pelletized form has been used for a long time for co-firing in coal thermal power plants or biomass power plants. FBC boiler was thought for such use with variety of biomass and coal. But number of such boiler is less in installed capacity in our country. Biomass pellets are good solution for use in agricultural waste in thermal power generation in existing boilers. Biomass pellets are now being used extensively driven by climate policy targets and thought to be carbon neutral. We can focus on this form of energy and estimate the potential for the use of biomass pellet production in India, and the potential for electricity generation from it.

Bharat is primarily agriculture driven economy which makes it the perfect for a bio-energy-led model of energy generation and sustainable development, utilizing the country's large volumes of leftover agricultural and forestry residues.

Agricultural and forestry residues have very important long term potential in India. Biomass pellets are important for socio-economic development also as it is generating wealth from waste. Hence, central and state governments and institutions have started working on specific strategies and

policies to support the exploitation of agricultural and forestry residues for energy purposes.

Biomass co-firing in thermal power station (TPS) has several benefits as under:

- i. Reduction in amount of coal used for power generation resulting in corresponding savings in CO₂ emissions. This would also reduce the sector's dependence on coal.
- ii. Production of electricity from a resource (biomass) which was earlier being wasted.
- iii. Income generation for farmers and job creation by pellet manufacturers.
- iv. Preservation of soil culture which gets destroyed in farm fires.
- v. Reduction in air pollution due to reduction in stubble burning.

Efforts are being made to meet the demand for 5% co-firing in TPS across the country. With the Government policy in force and multiple initiatives taken to strengthen supply chain

infrastructure, pellet/briquette manufacturing capacity is expected to rise in near future.

But it has some issues and challenges also.

Issues

- Transportation from pellet plant to thermal power station.
- Infrastructure for storing, handling.
- Use in wet areas
- Low strength of pellet hence creation of dust in handling.

Challenges

- Motivating farmers to use residue of agricultural waste for wealth creation.
- Minimization of cost of pallet.
- Long transportation causing more use of petroleum.
- Regular availability of Biomass.