Innovative Energy & Research
ISSN: 2576-1463

Editorial Open Access

Coal Energy an Overview

Enrico Cogno*

Polytechnic University of Milan, USA

Biomass comprises any organic matter of either plant or animal origin. Biomass energy is that the stored solar power, carbon and hydrogen captured initially through photosynthesis into chemical bonds as organic matter. Biomass accounted for the most important share of renewable energy resources. Biomass may be a vital source of energy for household and industrial energy requirements. Biomass has always been a crucial energy source for the country considering the advantages it offers. Thus, the aim of this review paper is to focus onto detailed aspects of biomass as a source of renewable energy.

Biomass is often converted into electrical power through several methods. Other options include gasification, pyrolysis, and anaerobic digestion. Gasification creates a blend gas with usable energy content by warming the biomass with less oxygen than required for complete burning. Pyrolysis yields bio-oil by rapidly heating the biomass within the absence of oxygen. Anaerobic digestion produces a renewable gas when organic matter is decomposed by bacteria within the absence of oxygen.

Different methods work bet with differing types of biomass. Typically, woody biomass like wood chips, pellets, and sawdust are combusted or gasified to get electricity. Corn stover and wheat straw residues are baled for combustion or converted into a gas using an anaerobic digester. Additionally, most other sorts of biomass are often converted into bio-oil through pyrolysis, which may then be utilized in boilers and furnaces.

Converting biomass to energy: Biomass is converted to energy through various processes including, Direct combustion (burning) to supply heat, Thermochemical conversion to supply solid, gaseous, and liquid fuels, Chemical conversion to supply liquid fuels, Biological conversion to supply liquid and gaseous fuels. Direct combustion is that the commonest method for converting biomass to useful energy. All biomass is often burned directly for heating buildings and water, for process heat, and for generating electricity in steam turbines. Thermochemical conversion of biomass includes pyrolysis and gasification. Pyrolysis entails heating organic materials to 800–900°F (400-500°C) within the near complete absence of free oxygen. Biomass pyrolysis produces fuels like charcoal, bio-oil, renewable diesel, methane, and hydrogen. Hydrotreating is employed to process bio-oil (produced by fast pyrolysis) with hydrogen under elevated temperatures and pressures within the presence of a catalyst to supply renewable diesel, renewable gasoline, and renewable jet fuel. Gasification entails heating organic materials to 1,400–1700°F (800–900°C) with injections of controlled amounts of free oxygen and/or steam into the vessel to supply a carbon monoxide gas and hydrogen rich gas called synthesis gas or syngas. Syngas is often used as a fuel for diesel engines, for heating, and for generating electricity in gas turbines. It also can be treated to separate the hydrogen from the gas, and therefore the hydrogen is often burned or utilized in fuel cells. Biological conversion includes fermentation to convert biomass into ethanol and anaerobic digestion to supply renewable gas. Ethanol is employed as a vehicle fuel. Inexhaustible petroleum gas—likewise called biogas or biomethane—is created in anaerobic digesters at sewage treatment plants and at dairy and animals' activities. It also forms in and should be captured from solid waste landfills.

***Corresponding author:** Enrico Cogno, Polytechnic University of Milan, USA, E-mail: enric@dvi.edu.cn

Received May 11, 2021; **Accepted** May 18, 2021; **Published** May 25, 2021

Citation: Cogno E (2021) Coal Energy an Overview. Innov Ener Res, 10: e124.