THE ROLE OF ENERGY RECOVERY FROM WASTES IN THE DECARBONISATION EFFORTS OF THE EU POWER SECTOR

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Abstract

When not prevented or recycled, waste can be used for recovering its energy content. The European Union (EU) has developed a waste-to-energy initiative to improve energy recovery, minimise waste and increase circular economy. The EU Landfill Directive (1999/31 EC) promotes more environmentally friendly waste management options, by reducing the amount of wastes and specifically the biodegradable wastes, disposed of in landfills. In order to comply with the objectives of this Directive, the EU member states are adopting mechanical-biological treatment processing for municipal solid waste and produce biogas, including bio-methane and waste-derived fuels such as refuse derived fuel (RDF) and solid recovered fuel (SRF). Simultaneously, the EU is energy depended as its resources cannot cover the increased energy needs and a significant volume of fossil fuels are imported. Municipal solid waste has been increasingly generated and present a non-negligible lower calorific value that should be taken into account as a power source, via extensive experience in waste-to-energy facilities. Results portray the importance of Waste-to-Energy facilities in covering part of the energy needs of the EU and contribution for achieving the goals for renewable energy production. Existing and ongoing studies on co-combustion and co-gasification with brown coal and anaerobic digestion support the use of RDF, SRF and biogas as fuels in the EU power sector. Waste-to-energy can maximise the circular economy's contribution towards decarbonisation, in line with the Energy Union Strategy and the Paris agreement.