

Assessment of the externalities of biomass energy, and a comparison of its costs with coal

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Abstract-

This paper has assessed the externalities of biomass for electricity production, and compared them with those of coal. The effects studied have been those on human health, CO₂ balance, soil erosion, non-point-source pollution, and the employment. The methodology used has been the one developed by the ExternE Project of the European Commission, which has been extended by CIEMAT to cover socioeconomic impacts. A more site-specific methodology for dealing with soil erosion and non-point-source pollution is also proposed. This methodology has been applied to assess the externalities of a proposed biomass power plant in Spain, and also to a hypothetical coal power plant in the same location. In spite of the high uncertainty involved in the assessment, results show that, when externalities are introduced into the cost analysis, the total costs of biomass electricity is lower than that of coal, under the assumptions used.

Index Terms- Externalities, social costs, biomass, energy, methodology

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