A New Policy Framework to Ensure Sustainable Biomass Production

The use of renewable energies is one of the most important alternatives that can be implemented to reduce greenhouse gas emissions and ensure a sustainable energy supply. The EU has committed to a 12% target for renewable energy by 2010. Biomass is the major renewable energy source in Europe, providing two thirds of the total energy produced from renewables, and meeting 4% of the total EU's primary energy consumption in 2003. Biomass is organic matter, including trees, arable crops, algae, agricultural and forest residues, effluents, sewage sludge, and manure, which after a conversion process can be used to provide heat, electricity or transport fuel depending on the conversion technology and the type of biomass. Nevertheless, a substantial rise in biomass consumption and consequent production from agriculture, forest and waste might introduce additional pressure on farmland and forest biodiversity as well as on soil and water resources. It could also counteract other future environmental policies aiming at waste minimisation or environmentally orientated farming.

A recent report by the European Environment Agency has assessed how much biomass could technically be available for energy production in Europe without increasing pressures on the environment. To this end, the authors have developed a set of environmental criteria to be met in order to minimise any additional pressure on the environment from biomass production. These criteria were used as assumptions for modelling the production of environmentally-compatible biomass production potential for the EU-25 for 2010, 2020 and 2030.

The main findings of the report were:

- Europe could produce 190 Mtoe (million tonnes of oil equivalent) of primary biomass, in an environmentally viable manner, by 2010. This could reach almost 300 Mtoe by 2030. These estimates would be sufficient to reach the European renewable energy targets.
- The main drivers of the increase in biomass production are productivity increases and the assumed liberalisation of the agricultural sector, which would result in additional areas available for the production of biomass.
- In the short term, the largest potential for biomass production comes from the waste and residue sectors; however long-term it is likely to come from agriculture.
- It is crucial that Europe manages any rise in the production of biomass in line with other EC policies and objectives aiming to protect biodiversity and reduce waste.
- There are also possibilities for synergies between the large scale production of biomass and nature conservation. For example, innovative biomass crops systems and use of perennial grasses and short rotation forestry could combine high yields with relatively low environmental pressures. They can even be beneficial as they could add diversity and reduce pesticide use.

According to the report, complementary assessments should be performed at a more regional and local scale. Further research should also be carried out regarding the impacts of climate change on the availability and production of biomass.

The report concludes that, technically, significant amounts of biomass can be made available to meet the EU renewable energy targets, even if stringent environmental constraints are applied. However, in order to achieve this, environmental guidelines need to be introduced as part of the planning process at local, national and European level.


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