

# Bio-energy in Mexico: challenges and opportunities

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Bioenergy represents 10 % of global energy demand (47 EJ/yr), 23 % of the energy demand in developing countries, and 77% of total renewable energy use worldwide. The global potential is estimated between 100-300 EJ/yr, or about 2-6 times its present use.

Bioenergy feedstock sources include forest, agricultural and livestock residues, short-rotation forest plantations, dedicated energy crops, algae, and municipal organic waste. These feedstocks, through a variety of biological, chemical and physical processes produce energy carriers in the form of solid fuels (such as fuelwood, charcoal, chips, pellets, briquettes, and logs), liquid fuels (e.g., methanol, ethanol, butanol, biodiesel, and hydrocarbon fuels), and gaseous fuels (synthesis gas, biomethane, and hydrogen). These fuels can then be used to produce transportation fuels, electricity and heat.

Sustainably designed and implemented, bioenergy systems can contribute to climate change mitigation and at the same time provide large co-benefits in terms of local employment and regional economic development. Bioenergy options may help increase biospheric carbon stocks and reduce GHG emissions from fossil fuel-based systems by displacing them in the generation of heat and power (for example by gasifying biomass in combined heat and power (CHP) systems, or in the provision of liquid biofuels such as ethanol instead of gasoline.

In Mexico, bioenergy represents only 6% of current energy use, but the potential reaches 40-60% of this last figure. The carbon mitigation potential is also very significant. Several technical options are cost-effective at present, particularly for the generation of heat and power, and it is expected that more options -such a second-generation biofuels- become commercial in the near future. The large-scale expansion of bioenergy in Mexico depends on adhering to strict sustainability criteria, which, for example, preclude the clearance of forests for establishing bioenergy plantations, allow establishing the right feedstocks to do not compete with land for food production, and improve the participation of small producers.

The future development of bioenergy in the country also heavily depends on improving the present policy framework (for example, by establishing clear financial incentives), strengthening the current research networks and projects with strategic short, medium and long-term goals, and making a large effort in the training of qualified human resources. The Mexican Network of Bioenergy (REMBIO), which has 150 members throughout the country, is working in this direction.