Alternative energy from biomass of sugar cane

(5) Sustainability

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1. Introduction.

With growth scenarios of the Brazilian economy for the coming years the demand for energy will grow proportionately. The ratio of energy / GDP for Brazil is expected to grow due to increasing incomes and industrial production. The challenge is to produce energy sustainably.
This study aims to characterize the participation of the biomass of cane sugar energy production in Brazil, especially energy power. This effort is motivated in the current challenges to humanity related to the generation and energy use, that enlace environmental, social and economic aspects, within a context based on the dependence of energy for socioeconomic development and the need to seek alternative technologies and dominant sources of energy. In this sense, biomass energy is gaining ground on the the discussion. At first, as an alternative to fuels in the transportation segment, the ethanol and biodiesel, and more recently as raw material for generating electricity. The called bio-energy, generated from bagasse, a residue from ethanol and sugar, has been worked within the processing plants for some time, in a conversion process that aimed to supply the needs of the plant itself, or co-generation, with positive developments along the compensatory instruments as those contained in Clean development Mechanism (CDM) and Incentive Program for Alternative Sources of Energy (Proinfa). Currently this well successful way of energy production arise others possibilities, among them the completion of the national electric power system, whose participation has been regulated for the auction electricity from biomass. The new scenario brings opportunities and challenges for the sugarcane or sugar-ethanol industry, so to achieve the objective proposed here, this study relies on collecting information on agricultural production of cane sugar and your by-products for the electric power generation, realized with the official bodies and studies that address limitations and the technological challenges for sustainability of this system of power generation power.

2. Results

The results show the great potential biomass yield of cane sugar, as can be seen in Table 1. These values are accompanied by the generation of energy onsumption plant itself in a percentage around 30%, thus, this information meets the options disposal of "waste" the surplus.

Table 1 Potential of dry waste harvesting sugar cane in Brazil in million tonnes.

Local	Sugarcane Production	Potential of Sugarcane Waste (Dry weight)[1]
	million tonnes	
St. Paul	363	50,82
Center-South	560,7	78,5
North-East	64,3	9
Brazil	**624,9**	**87,48**

[1] was used as reference 140 kg of dry bagasse per ton.
Source: Prepared by authors from IEA (2011) and CONAB (2011).

In this sense, the options are for the bagasse diverse, but most often intended to own power generation companies in the next plants as animal feed and power generation supplied to the electric transmission system. However, the harnessing the full potential of energy production of cane sugar, was hampered by several obstacles, especially those of a technological and economy. In the main technological aspect challenges are present in the stage of conversion biomass and the efficiency of utilization of energy potential, the solutions are sought in efficiency of boilers in the gasification and integration with the hydrolysis process, in addition, the recovery of straw placed on the field after mechanical harvesting, is another challenge. Straw Besides being a raw material for energy is also organic material for soil protection, the question involves reconciling the two benefits with economic viability (WALTER, 2010). Side economic sustainability are the costs of deployment of these processes, estimated at U.S. $ 75.00 / MWh. (HASSUANI, 2005). Thus, the balance between an environmentally beneficial option, necessary in the context of renewable energy and can make possible social gains from the moment becoming an alternative to maintaining the energy security, and has the technological variables significant economic bottlenecks to overcome.

3. Bibliography

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