

Modernization Perspectives of the São Paulo State Sugarcane Sector Through the Clean Development Mechanism and Potential Carbon Credits Generation

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Abstract - The world-wide necessity of Greenhouse Gases (GHG) mitigation and the intergovernmental mobilization to reach the objectives established by the United Nations Framework on Climate Change (UNFCCC) has opened space for the renewable energy increase in the world's energy matrix. In Brazil, the solid sugarcane industry currently develops business in the scope of the Clean Development Mechanism (CDM) under the Kyoto's Protocol, by means of 18 biomass-based projects, with renewable energy generation through bagasse cogeneration at 20 São Paulo State's sugarcane production units. The projects activity's consists of increasing the efficiency in the bagasse cogeneration facilities, qualifying the units to sell surplus electricity to the national grid, avoiding the dispatch of the same amount of energy produced by fossil-fuelled thermal plants to that grid. The reduced emissions are measured in carbon equivalent and can be converted into negotiable credits. The objective of this study was to build a "state of art" scenario, calculating the potential emissions reduction through CDM projects for the sugarcane sector of São Paulo State, in which we consider the adherence of all the production units of the State to the CDM projects. The technological parameters used to elaborate the scenario were provided by the São Paulo State Government Bioenergy Special Commission and the baseline factor used of 0,268 tCO₂e/MWh was the adopted by the CDM projects in operation in the State. The sugarcane database for the calculations was the production ranking provided by UNICA for the 2006/2007 season. In the most conservative scenario (40 bar bagasse) 131 units could generate 607 MWm of surplus power avoiding the emission of 1.404.593 tCO₂e/year. For the 92 bar (bagasse and straw) scenario, the units could generate 3.055 MWm of surplus power avoiding 12.199.443 tCO₂e/year.

Index Terms - Brazilian Sugarcane Sector, Carbon emissions reduction, carbon credits generation, industry residues utilization.

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