

ENERGY AND CLIMATE CHANGE: A DISCUSSION ABOUT THE BRAZILIAN ENERGY MATRIX AND THE IMPORTANCE OF TRANSPORTATION SECTOR

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In the current climate change debate the main question that has been placed on the agenda of discussion concerns the role of human activity on this issue. Through their production processes and consumption patterns the mankind would be accelerating the occurrence of adverse climatic events which according to the Intergovernmental Panel on Climate Change (IPCC) is associated to increased emissions and concentrations of greenhouse gases (GHG) in the atmosphere, especially in the last two hundred years. The main reason for this increase in GHG emissions would be the high consumption of fossil fuels by the world economy which is currently very dependent on this source of energy.

In order to make the energy matrix sustainable several solutions have been proposed such as world widely replacing the current energy pattern by a dependent-less model of fossil fuels and the rationalization of energy consumption. These suggestions aim to induce the economic system into a "low carbon" regime where economic needs and environmental constraints would be compatible.

Due to the fact that Brazil has an energy matrix with a large share of renewable energy, the debate surrounding the sustainability of the Brazilian energy matrix is often marginalized. Thus, this work has discussed about the sustainability of the current structure of supply and consumption of energy in Brazil, from the standpoint of GHG emissions, and made a case study for the transportation sector, the main consumer of fossil fuels in the country. In addition, we discussed the social and environmental impacts from the production of renewable energy (hydropower and biofuels).

It was concluded that, contrary to common sense, there is strong evidence pointing to the unsustainability of energy use in the country, and there is a tendency of worsening in this situation considering the official forecasts of economic growth and of energy supply and consumption expansion.