

THE EFFECT OF FEX FUEL VEHICLES IN THE BRAZILIAN LIGHT ROAD TRANSPORTATION

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Abstract

The retaking of the ethanol program in the year 2003 as a fuel for light road transportation in Brazil through the introduction of flex fuel vehicles fleet was a good strategy to overcome the difficulties of the ethanol production sector and did work to increase its market share relative to gasoline. This process, however, may cause a future disequilibrium on the food production and on the refining oil derivatives structure. In order to analyze the substitution process resultant of the competition between two opponents fighting for the same market, in this case the gasoline/ethanol substitution process, a method derived from the biomathematics based on the non-linear differential equations (NLDE) system is utilized. A brief description of the method is presented. Numerical adherence of the method to explain several substitution phenomena that occurred in the past is presented in the previous author's paper, in which the urban gas pipeline system substitution of bottled LPG in the dwelling sector and the substitution of the urban diesel transportation fleet by compressed natural gas (CNG) buses is presented. The proposed method is particularly suitable for prospective analysis and scenarios assessment.

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