INVITED LECTURE
THE UTILIZATION OF MODELS ON THE ECONOMIC AND ENVIRONMENTAL ENERGY SECTOR OF ACTIVITY

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ABSTRACT

In general we must assume two kinds of models on economic and environmental energy sector, according with the kind of data we intend to use. The *top-down* models using chronological series, normally concerns with macro-economic information, like consumption, earnings, work participation tax, etc… on annual base, while the *bottom-up* models use more detail information respecting, for example, the characterization of dwellings in aspects like: number of members and children, type, localization and size of dwelling, quality of construction materials, etc…

Statistically we analyze the economic and environmental energy sector effects, normally using multiple regression analysis, engineering and neural network models, depending on the quantity and quality of data in use. Econometrically is possible to use, depending on the information, for example the Probit, Logit, ARIMA and other more sophisticate models.

Some of the national models used in several countries use these types of statistical techniques, and can not only analyze and characterize the phenomenon during a period of time, but also forecast for periods of time the way, for example, production or consumption will be and consequently estimate the CO2 effects on the environment. If we work with renewable energy systems is possible to estimate the effect on the trade balance equilibrium of a country, resulting from the no consumption of fossil fuels