

# Espaço Energia

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Editorial

In the last few years, utilities and the energy sector in general have been increasingly concerned, based on world movements and policies, with the fallibility of current energetic resources. It is commonly said that oil reserves are about to be exhausted and can come to an end by the next decades. This fact, along with the environmental issue, has a particular role in paving a new way for the generation of the energy necessary to run the world and, at the same time, maintain it healthy, keeping alive our hope to provide our descendants with a favourable environment in which they can live. The term that has permeated the world energetic scenario is, therefore, sustainability, not only in the financial sense but also in the social and environmental senses. The challenge of the energetic industry consists thus of a change in mentality, investments in new areas, development of new disciplines and, above all, a new attitude.

Research and development projects in the energy sector start now to address, consequently, new energy sources, focusing on sustainability by means of renewable resources and taking into consideration their potential environmental impacts. One of the papers of this edition of Espaço Energia addresses this theme, reporting results achieved from an analysis with regard to the viability of the use of forest cultivation to produce electric energy. The work presents a simulation model aiming at analysing the relationship among several variables involved in the cultivation process as well as in the electric energy generation process, claiming that this energetic option is viable and contributes to the search for a sustainable and renewable energetic matrix, both under ecological and social aspects.

Some aspects of the implementation of wireless broadband systems are analysed in one of the papers of this edition, in the context of the State of Paraná, Brazil, and particularly in that of its capital city, Curitiba. The article focuses primarily on the WiMax technology, which has already been approached in this periodical. Based on tests carried out with this technology, a coverage study is presented, whose aim is to prepare the way for the implementation of this technology in the proposed region.

Support to decision making in the context of subtransmission systems reconfiguration is addressed in another work of this issue, which puts forward a mathematical model that is used to help in system reconfiguration when contingency occurs. When this activity is performed based on human experience, not all of the aspects involved are considered due to the intrinsic limitation of the human mind as far as performance and versatility are concerned. The work uses a mixed integer linear model which allows for the consideration of several parameters in the decision making process.

Figueira Thermal Power Plant, located in the State of Paraná, Brazil, is the object of a paper whose purpose is to evaluate its current operating condition. The work describes an analysis based on the theory of exergetic costs, which allowed for the identification, location and quantification of the main inefficiency sources of the plant. Another engineering application is described in the work which deals with scale effects in the definition of rockfill size for end-dump river closure. Due to the complexity of theoretical and experimental studies, reduced scale modelling constitutes one of the best options for obtaining good results. However, this technique presents some problems concerning the similarity between model and prototype, namely, the scale effects. An experimental research work was developed in order to obtain results and draw conclusions about these phenomena.

We hope that all five articles brought to you by the fourth issue of Espaço Energia be of great value and contribute to the interchange of knowledge and experience in our search for sustainable development within the energy sector.

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Editor-in-chief