Editorial

The European Union produces an annual report, entitled “Industrial R&D Investment Scoreboard", which contains important data related to investment in research and development (R&D) made by companies all over the world, classified by their area of expertise, as well as other economic and financial data referring to the last four fiscal years. In the latest issue, from 2011, which provides information for the year 2010, 1400 companies are listed, ordered by their total investment in R&D. Out of this total, 400 companies are headquartered in the United States and 1000 in other countries. The top listed company has invested 7,181.11 million Euros, whereas the last company in the list has invested 30.70 million Euros.

There are twenty companies categorized as “electricity companies” in the report. The first one on this list has invested 520 million Euros, representing 4.7% of its net operating income (NOI). The last one on this list, in turn, invested 34.30 million Euros, representing 0.2% of its net sales. It should be noted, however, that this short list of twenty companies in the electricity sector contains two companies whose investment value, although significantly higher than 30 million Euros, corresponds to 0.1% of its net sales. Noteworthy is also the fact that only four of these companies have investments in R&D equal to or greater than 1.0% of its net sales.

Launching an analytical look at the situation of the Brazilian electric sector when compared with the abovementioned numbers, some questions may arise, which deserve some reflection: What is the general situation of R&D, considering both compulsory and spontaneous programmes? Considering the hypothesis that the compulsory R&D programme, regulated by ANEEL, encompasses the largest investments in the sector, what are the effects of regulation on programmes of this nature? What is the role of the regulated R&D programme?Was it the main (and maybe the only) catalyst for innovation in the electricity sector? What are the steps needed for the country to become independent ofregulation with respect to investments in R&D, and acquire a long term view, aiming atthe development and, ultimately, at the insertion of the country as a technology leader in this context? What are the structures that must be changed to make it happen? What is the effective contribution that a regulated R&D programme can give to the country? Are the competitive achievements and innovations generated in its context substantialin relation to spontaneous programmes? Would the distance between academy and business be higher in Brazil than in other developed countries? If so, what can be done to change this attitude? What is the impact of the monitoring process on the degree of boldness that a company, an institution or an R&D group can have on a specific project? Would the monitoring bodies involvedbe prepared to deal with the boldness of certain projects and the often intangible nature of their results, which nevertheless contribute to a sustained competitive advantage over time?

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Considering that the R&D investment made by a power utility company, according to the programme regulated by ANEEL, varies between 0.4% and 1.0% of its net sales, and that only four companies listed in the abovementioned report make investments equal to or greater than 1.0% of their net sales, which is the most appropriate strategy for the country to get a more privileged position with regard to innovation? Increase the level of investment? Encourage the development of spontaneous programmes and focus on results obtained in this context? Allow fulluse of competitive advantages achieved by R&D projects so that their quality will increase, generating a greater number of innovations?

It is necessary to progress in strategies aimed at the development of the country and, in particular, the Brazilian electrical system, once it becomes clear that a discrepancy between the goals of government and the various sectors of society exists. More than ever, it is time to consolidate a strategy of cooperation between the various components of this intricate puzzle.

This issue of Espaço Energia has three papers dealing with very different issues. The first examines the issue of socio-economic and environmental impactsin the deployment of hydropower plants, which is a very relevant issue in the context of electric power in Brazil, given the plants that are being planned and those already under construction. Particularly, the paper analyses the use of a method for economic valuation of damages arising out of such enterprise, in order to discuss the financial compensation calculation and distribution for the use of water resources.

The second paper explores the concepts of multidisciplinary systems in the context of projects within the R&D programme regulated by ANEEL, aiming at offeringa new view regarding the proposal and management of new R&D projects, based on well-established techniques for the development of industrial products, considering all due adaptations to the nature of such enterprises.

The third paper, with a more technical nature, deals with the performance of compacted fills in power substations, proposing the establishment of control parameters for the construction of substations in order to provide an adequate support and settlement fill behaviour. The work includes data collection at six sites with different soil types and analyses for validation of the control parameters based on field tests and laboratory.

This scientific journal has been consolidated as a major vehicle for technical and scientific dissemination within the Brazilian power sector. The editorial board would like to thank for the contributions received both by the support groups and by the authors. We hope the papers published in this issue are of value to its entire audience.

Klaus de Geus
Editor