

## GESEL/UFRJ

<http://www.gesel.ie.ufrj.br/>

The Study Group on the Electric Energy Sector (GESEL) of the Economics Institute of the Rio de Janeiro Federal University (UFRJ) was set up in 1997 with a view to promoting a greater understanding of electric energy issues in Brazil as well as overseas.

GESEL's analytical strengths derive from its multidisciplinary nature. It is staffed by lectures and researchers coming from a varied pool of Brazilian and foreign higher education institutions. These include the Alberto Luiz Coimbra Institute for Post Graduate Work and Research on Engineering – COPPE-RJ; University of São Paulo – USP; Santa Catarina Federal University – UFSC; and the following Portuguese institutions: University of Coimbra, University of Porto and University of Minho.

GESEL is presently doing work on a variety of issues dealing with regulatory innovation. GESEL's academic output is centered on research and development projects sponsored by ANEEL (the national regulatory body for energy and electricity matters) and publishes specialized reports as well as non-technical material for the lay public. An additional line of activity includes organizing national and international seminars, workshops and panel discussions. The aim is to bring together public agencies as well as private sector companies directly involved in the electricity field. In this way GESEL provides a clearinghouse and a sounding board for debate on public policy, planning, regulation and financing models relating to electric energy in Brazil.

GESEL is one of the major academic *think tank* in Brazil in the field of economic analysis of the electric industry. It is presently developing lines of research in the following fields:

- i. Regulation
- ii. Economy and Finance
- iii. Electrical integration
- iv. Innovation Economy

The academic staff of GESEL covers both undergraduate and post-graduate work (Masters and Doctors Degree in the Public Policy and Development Program of the Economics Institute of UFRJ (PPED/UFRJ)). It also offers short term courses for the staff of electric industry firms.

The projects in its Research and Development Program are one of GESEL's seminal activities. These include academic studies in partnership with firms in the electric industry, the aim being to foster greater understanding within the private sector concerning the long-term issues and challenges facing the electric industry both in Brazil and worldwide. Among the major research and development activities covered by the Program, the following are especially noteworthy:

- i. "Energy for the City of the Future" discussed the long term impact (up to 2030) of technological change on expansion plans for the electric industry;
- ii. "Panorama and Comparative Analysis of Electricity Rates in Brazil and in Selected Countries, in light of the Existing Institutional Model";
- iii. "Evaluation of Policies and Incentives for Technological Innovation in the Electric Industry: analysis of the international background and proposals for Brazil". This paper focuses on suggestions to enhance efficiency and cost effectiveness; and

- iv. “Establishing Criteria for Economic and Financial Sustainability of Electricity Distribution Companies”. This paper proposes to develop a methodology to test the commercial robustness of companies active in electric energy distribution.

Alongside these research and development projects, GESEL is also involved in the following initiatives in collaboration with overseas agencies and institutions foreign:

- i. “Comparative Analysis of Bi-national Hydroelectric Dams”, in partnership with the Itaipu Dam Authority, provides an overview of the major international experiences in developing bi-national hydropower plants. It provides a synthetic review of the political and economic backdrop, as well as analysis of the salient juridical and contractual aspects, financing structure, price-setting, marketing arrangements and regulatory framework; and
- ii. “Study of the Bolivian Electric Industry Model”, as part of an on-going collaboration (since 2011) in helping revamp the Bolivian Electric Industry Model.

In addition since 2007 GESEL has published a total of 62 “Discussion Papers on the Electric Industry” (all texts are available free at the GESEL site). These include the following titles:

- i. TDSE 15 – Considerations on the Enlargement of Complementary Generation in the Brazilian Hydropower System;
- ii. TDSE 17 – Financial Risks for the Brazilian Electric Industry arising from Prolonged Drought Conditions;
- iii. TDSE 19 - Considerations on the Brazilian Electricity Model;
- iv. TDSE 21 – The Dynamic Balance and Market Conditions of the Brazilian Electric Industry;
- v. TDSE 31 – Energy Markets in Electricity Grids with High Renewable Energy Participation; and
- vi. TDSE 50 – Expansion of the Brazilian Electric Grid and the Hydropower Potential of the Amazon Region.

Finally GESEL does continuous follow-up work on the Brazilian and overseas electric industry through a daily edition of the “Digital Digest on the Electric Industry” (IFE). It provides a wide-ranging compilation and analysis of the relevant news and data on the electric industry available in the main print and web media.