



Eletrobras

Energy Efficiency Policy

march 2010

Energy Efficiency Policy

1. Target audience

The target audience of the Energy Efficiency Policy (EE Policy) comprises the Eletrobras companies.

2. Purpose

The purpose of this Policy is to foster, guide and prioritize the energy efficiency in the Eletrobras companies, aligned to guidelines set forth by the principal shareholder and to the institutional context of each company, taking into account the energy chain and its different segments to optimize the investment and other business gains in the generation, transmission, distribution and consumption, in consonance with the strategic plan and the business plan of the Eletrobras companies.

3. Pillars

The Energy Efficiency Policy is supported by the following pillars:

- I. Guidelines set forth by the National Council for Energy Policy (CNPE) that sets forth policies for the Brazilian energy sector.
- II. The National Energy Plan that consolidates long-term plans for the Brazilian energy system based on policies and guidelines set forth by CNPE.
- III. The Ten-Year Energy Plan that presents challenges posed to the Brazilian energy sector for a ten-year period.

- IV. The Science, Technology and Innovation Action Plan for National Development that fosters scientific and technological development in Brazil.
- V. The Productive Development Policy that aims at helping long-term sustainable growth of the Brazilian economy.
- VI. The Transformation Plan of the Eletrobras System, coordinated by the Eletrobras Transformation Management Committee (CGTE), that helps increasing sustainable energy offer.
- VII. The Strategic Action Program – PAE 2009-2012 that gives corporate strategic guidance to the Eletrobras companies.
- VIII. The Research, Development and Innovation Policy (R&D+I Policy).
- IX. Eletrobras's positioning as market leader within the sector where it operates to strengthen its innovation capacity and to foster sustainable development.
- X. Integrated Resources Plan (PIR), an energy planning process addressing sustainable development pillars, where offer options (supply) are assessed compared to demand in order to provide for energy services.
- XI. Acknowledging that the companies' integrated generation expansion, transmission and distribution plan addresses energy efficiency as a high-priority resource.
- XII. Energy efficiency management of the Eletrobras companies as a short-, medium- and long-term corporate strategy, considered a critical element to combine sustainable development with social and environmental responsibility, fully

aligned and integrated to the strategic plan and business plan of the Eletrobras companies.

XIII. Energy efficiency management in the Eletrobras companies under the systemic vision that is guided by technological innovation via new generation technologies, the introduction of new products, new lower-consumption equipment or technologies and new management models for the production process.

4. Objectives

The objectives of the Energy Efficiency Policy are as follows:

- I. To strengthen Eletrobras in order to build an integrated, competitive and profitable company that will ensure greater agility, transparency and effectiveness in using resources.
- II. To create short-, medium- and long-term strategic energy efficiency investment plans aligned to the companies' strategies and to the strategic plan and business plan of the Eletrobras companies, in order to attain economy of resources and the possibility of postponing investments made for generation, transmission and distribution systems, as well as to reduce environmental impacts.
- III. To seek technological solutions that will enable the Eletrobras companies to carry out integrated and synergetic actions to manage energy businesses in order to yield improved results as a competitive agent using its own resources, those obtained from sectorial funds and/or from capital and financial markets in Brazil or abroad.

- IV. To drive the search for technological solutions within the energy sector by studying different types of social, economic and environmental impacts ensuing from different existing energy sources and the respective conversion technologies used.
- V. To increase competitiveness of the Eletrobras companies by using energy efficiency as an agent that fosters operational costs reduction (project, installation, operation and maintenance), leveraging the production of quality energy and fostering the reduction of the environmental impact.
- VI. To carry out sustainable development efforts with the purpose of using natural resources in order to minimize environmental impacts.
- VII. To help reduce the rate of carbon emissions in the energy production chain based on an environmentally sustainable model that meets the needs of the Eletrobras companies.
- VIII. To seek corporate energy efficiency excellence via efforts that address the whole energy chain and integrating the results attained by the Eletrobras companies.
- IX. To give its contribution for the expansion of energy offer at minimum cost by the Eletrobras companies, whereby a wider range of energy services may be enjoyed based on the same amount of fuel consumption and/or the same generation park.
- X. To influence the development of national and sectorial policies, programs and fiscal and non-fiscal incentives for energy efficiency, mainly those earmarked for the electric system, and to negotiate and obtain resources to carry out the objectives.

- XI. To develop qualitative and quantitative human, technical and management resources for the Eletrobras companies compatible to its requirements for energy efficiency.
- XII. To optimize energy efficiency investments within the Eletrobras companies via the systemic action carried out by the companies, aligned to their objectives and aiming at building networks and internal and external partnerships.

5. Overall action guidelines

The overall action guidelines to implement the Energy Efficiency Policy are the following:

- I. To allocate the energy efficiency areas of the Eletrobras companies in a strategic in a manner in order to report it directly to a company high-management.
- II. To assess, share and replicate results from energy efficiency efforts between the Eletrobras companies, in order to maximize their competitiveness that reflects on the production of good quality energy.
- III. To carry out efforts that are integrated to guidelines under the R&D+I Policy in search of new solutions that address energy efficiency for each Eletrobras company.
- IV. To foster the Energy Efficiency Plan by integrating different segments under the energy chain of the Eletrobras companies in order to postpone investments, mitigate environmental impacts, guide the rational use of resources and partially meet the increasing demand for energy.

- V. To identify opportunities and possibilities to optimize the supply and control of consumption and demand of energy resources via energy efficiency actions.
- VI. To study the regulatory context and foster applicable actions so that results ensuing from investments on projects that improve generation efficiency, transmission capacity and loss reduction are acknowledged by regulating agencies.
- VII. To foster interdisciplinary committee actions involving Research, Technological Development and Innovation areas, experts in the scientific area and professionals from private companies and the government to invest in new technologies that seek greater efficiency for the energy chain of interest for the Eletrobras companies.
- VIII. To foster cooperation mechanisms between governmental agencies, class associations, suppliers, energy efficiency programs and the Eletrobras companies, to mention but a few.
- IX. To seek partnerships with foreign institutions, where applicable, in order to meet the strategic demands of the Eletrobras companies and to foster technological development in energy efficiency.
- X. To create Measuring & Checking Programs (M&V) for all segments in the energy chain, expanding the instrumentation structure in order to quantify their own consumption and energy efficiency results.
- XI. To consolidate and expand current metrological structure to support the measuring and checking of energy efficiency performance while maintaining strategic technical-scientific

tific knowledge of the Eletrobras companies and integrating it to the hierarchy of the National and International Metrological System.

XII. To work integrated to the Network of Laboratories under the Eletrobras System (Relase) in order to optimize resources.

XIII. To foster energy diagnostics actions in the Eletrobras companies, identifying losses and guiding programs that address the rational use of energy resources.

XIV. To define an energy efficiency management indicator system in order to assess results obtained by different projects, processes and/or programs.

XV. To establish guidelines that include energy efficiency in specifications and acquisitions involving any part of the energy chain.

XVI. To foster measures conducive for the better compliance with this Policy by the companies, as follow:

- i. integrating the energy chain inter and intra companies, aligning all areas involved in energy efficiency activities;
- ii. integrating energy efficiency initiatives within the scope of the Eletrobras companies in order to set up major lines for research and business opportunities;
- iii. registering partners to develop energy efficiency projects together with the Eletrobras companies;
- iv. standardizing procedures, models of contracts and agreements and documentation of results ensuing from energy efficiency projects among all the Eletrobras companies;

- v. defining selection and prioritization criteria for energy efficiency projects.

XVII. To create and implement a Dissemination Plan integrated to the Communication Plan of the Eletrobras companies that disseminates energy efficiency benefits, results and opportunities.

6. Instruments

The instruments to be developed, improved or strengthened under the Energy Efficiency Policy are as follows:

- I. Technological Strategic Plan for short-, medium and long-term horizons (5, 10 and 15 years, respectively).
- II. Energy Efficiency Action Plan that addresses the joint action of the Eletrobras companies.
- III. Normative Instruction that provides guidelines to standardize management processes for energy efficiency related activities in the companies.
- IV. National Electrical Energy Conservation Program (Procel), using the expertise provided by it.
- V. Research Center for Electric Energy (Eletrobras Cepel) and laboratories under Release as a source of technical and metrological support.
- VI. The Energy Efficiency Integrated Committee of the Eletrobras System (Cieese), coordinated by the Technology director of

Eletrobras with the purpose of coordinating, discussing and exchanging information within the areas that manage energy efficiency in the Eletrobras companies to support process improvement and the synergy between actions.

- VII. Technology Board of Eletrobras (DT) that coordinates the energy efficiency management of the Eletrobras companies by using coordination mechanisms between the other Board of Directors of Eletrobras, companies, government, partner institutions, universities and research institutes, with the competence of integrating efforts to implement this Policy.
- VIII. Organization processes defined within the companies' for energy efficiency management, in order to set up an innovative organizational environment focusing on sustainability, to include:
 - i. the mapping of internal and external competences;
 - ii. the mapping of energy chain resources;
 - iii. the strategic management of the energy chain resources portfolio;
 - iv. the management of technological know-how, including its dissemination.
- IX. A specific information system and the Energy Efficiency Portal, including, among other factors:
 - i. database of energy efficiency researchers;
 - ii. database of experts in each company per area of expertise;

- iii. energy efficiency projects proposed, ongoing and concluded;
- iv. specific legislation;
- v. energy efficiency norms and procedures;
- vi. energy efficiency management discussion forum;
- vii. energy efficiency agenda of the Eletrobras companies;
- viii. energy efficiency management and consumption indicator system.

7. Mechanisms and funding sources

Possible mechanisms and funding sources under the Energy Efficiency Policy are the following:

- I. Self-owned budget resources of the Eletrobras companies.
- II. Resources provided for under Law 9,991/2000 and amended by Law 10,848/2004.
- III. Resources from specific sectorial fund – the National Scientific and Technological Development Fund (FNDCT), under the specific program category called CT-ENERG, as set forth by Law 9,991/2000 and Decree 3,897/2001 that regulates that law.
- IV. Resources from multilateral organisms and other international funding sources for technological development, such as the World Bank, BID and GEF, to mention but a few.

- V. Resources obtained from the Global Reversion Reserve (RGR), as provided for by item II, art. 13 of Law 9,427/1996.
- VI. National and/or state budget resources and other funding mechanisms for energy efficiency to be used for sectorial technological production.
- VII. Resources ensuing from Clean Development Mechanism (MDL) projects (carbon credits).

8. Responsibilities

Responsibilities are allocated as follows:

Board of Executive Officers of Eletrobras – Approve the Energy Efficiency Policy and facilitate its implementation.

Technology Board of Eletrobras – Coordinate and support other Boards in implementing this Policy.

Board of Executive Officers of the Eletrobras companies – Implement the Energy Efficiency Policy.

Energy Efficiency Integrated Committee of the Eletrobras System (Cieese) – Coordinate actions between the Eletrobras companies in order to facilitate the implementation of the Energy Efficiency Policy.

Energy Efficiency Department of each Eletrobras company – Coordinate and/or perform energy efficiency activities ensuing from this Policy in their company, aligned with the other Eletrobras companies.

Research Center for Electric Energy (Eletrobras Cepel) – Provide support to the Technology Board of Eletrobras and its companies in the implementation of this Policy.

9. Glossary

Inter-American Development Bank (IDB)

Is the principal source of multilateral funding and know how for sustainable economic, social and institutional development in Latin America and the Caribbean. The IDB Group is comprised of the Inter-American Development Bank, Inter-American Investment Corporation (IIC) and the Multilateral Investment Fund (MIF). The IIC addresses funding of medium and small-size companies, whereas MIF fosters the growth of the private sector by providing for non-reimbursable technical cooperation investments, focusing on micro companies.

Energy Chain (or energy system)

Is a sequence of processes through which energy provided from nature is progressively obtained, converted, transmitted and eventually stored.

Sustainable Development

Is the integration of the responsible management of ecosystems with human development in order to attain well-being for present and future generations. [Sustainable Development International Institute]

Global Environmental Facility (GEF)

Worldwide network of partners founded in 1991 by 178 countries, international institutions, non-governmental organizations and the private sector to give support to developing countries via the funding of environmental protection and sustainable development initiatives.

Distributed Generation

Any small or medium scale unit of electricity generation located near consumers, which may or may not be directly connected to the distribution grid.

Normative Instruction

Normative act that systematically defines and specifies the procedure to carry out a given company activity.

Energy Losses

Defined as the difference between consumed energy and the ensuing energy result. Loss can be reversible, when resulting from the conversion of heat-work and vice-versa, and irreversible when caused by actual inefficiencies. The latter is divided into technical and commercial losses.

Energy Resources

Are energy reserves or flow available in nature and that can be used to supply the demand of human beings. They are classified as fossil resources and renewable resources.

Fossil Resources

Are stock of materials that store chemical energy accumulated mainly from solar radiation in geological eras (oil, mineral coal, turf, natural gas, bituminous schist), as well as storing atomic energy as fissil material (uranium, thorium).

Renewable Resources

Are natural flows, such as those of solar energy (in its many forms), hydraulic energy, wind energy, wave energy and biomass energy, as well as energy flows that depend on planet movement (tide energy associated to tides and geothermal energy).

Energy Services

Are responsible for supplying major social demands, such as environmental conditioning, water heating, cooking, lighting, transport and moving force that are materialized via end-use technologies, such as bulbs, stoves, refrigerators and vehicles, to mention but a few.

10. Effectiveness

This Policy will be effective as of 4 March 2010 as set forth by the Executive Board of the Eletrobras companies via RES-0222/2010.



Eletrobras