



LATIN AMERICAN SECTION OF THE AMERICAN NUCLEAR SOCIETY

Background

THE BRAZILIAN ENERGY SYSTEM AND NUCLEAR POWER

Diversity of energy sources, attainment of fuel cycle technology and reserves:

Although a large proportion of Brazil's energy needs are met by hydropower, there is a need for thermal power generation to ensure steady and sustainable economic development.

Thermal power may be obtained from various sources, including natural gas, oil and nuclear.

Brazil possesses the world's sixth largest uranium reserves. The country has mastered fuel cycle technology, from extraction at mines up to the building of nuclear power plants. There is no doubt that Brazil's energy supply needs to be supplemented with new thermal generation, and nuclear clearly cannot be left out of the equation.

Cost of energy produced and environment impact of building and operating nuclear power plants:

According to the Ministry of Mines and Energy's **2006-2015 Ten-Year Electricity Expansion Plan**, Brazil will need to boost the supply of thermal electricity by around 10.5 GW (gigawatts) over the course of the period, of which nuclear power will supply 13.5%. It is estimated that the price of power generated by Angra 3 will not exceed USD\$70 per MWh (megawatt-hour), which places nuclear at a comparative advantage when compared to the cost of alternative thermal sources.

From the environmental point of view, each megawatt generated by nuclear represents savings in greenhouse gas emissions. When nuclear power replaces fossil fuel power, it contributes significantly to cutting the output of these gases.

In addition, although hydro plants produce very little greenhouse gases, on the other hand they have major impacts on the local environment and society, given the size of the dams and reservoirs and alterations to the surrounding ecosystems, even in the case of small hydro projects. Nuclear power plants do not have these drawbacks.



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NUCLEAR POWER'S SUSTAINABILITY

From social perspective:

- Nuclear power could provide millions of Brazilians, especially in the North and Northeast regions, with physical and financial access to electricity, with universalization of access. Nuclear power stations can be located close to centers of consumption, reducing transmission losses, and from a social standpoint they are superior to hydro plants, whose reservoirs dislocate people from their homes. Nuclear power also creates the conditions for generation of income and infrastructure, encouraging people to remain in the region.

From environmental perspective:

- Nuclear power is clean, it does not pollute nor contribute to rising levels of CO² in the atmosphere. It enables lower output of greenhouse gases;
- Its environmental impact is lower both in terms of ecosystem changes and climate change.

From technological perspective:

- Nuclear power promotes investment in research and development for the diversification of the country's energy supplies, contributing to local expertise and domestic content in plant and equipment;
- It stimulates the supply of education and training in the sector – covering construction, operation and maintenance – at universities, technical schools and other institutions, thereby increasing the supply of qualified professionals in the area; and
- It renews the country's technical and scientific expertise in the sector, avoiding a gap between generations of specialist professionals and the waste of resources that have already been invested.

Finally, the building and operation of nuclear plants meets present and future expectations as to four key issues that demand immediate responses:

- The depletion of fossil fuels;
- Achieving lower levels of CO² emissions;
- The short-term difficulties associated with the mass use of renewable power;
- Improved safety levels of the new generation of reactors.



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FEATURES OF THE PROPOSED PROJECT

Given the planet's environmental crisis, the current energy system based on fossil fuels, particularly petroleum and its derivatives, will become increasingly unsustainable, both in terms of resource depletion and damage to ecosystems. The signs are evident, in terms of global warming, the melting of ice-caps, and more frequent heat waves, floods and droughts. The consequences are clearly perceptible and are already affecting the quality of life of people and other living beings on Earth.

The **2010 LAS SYMPOSIUM** and **2010 NUCLEAR ENERGY TECHNOLOGY EXPO** will be important events as they intend to:

- Raise the profile, domestically and internationally, of the country's technological capabilities in the production of clean energy by means of nuclear power;
- Intensify Brazil's and Latin America's participation in the technical and scientific community in terms of the development of nuclear power technologies;
- Intensify the exchange of information and technological cooperation between Latin American countries and those with expertise in the sector such as France, India, Japan and China, among others;
- Raise the visibility of domestic expertise in terms of the safe operation of nuclear power plants and the logistics and treatment of nuclear waste;
- Demonstrate the sustainability of this form of energy, through analysis of modern technologies developed for the nuclear fuel cycle.



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Nuclear Energy Technology Expo

The event is a biannual trade fair, which for its first edition is being organized in conjunction with the Annual Symposium of the Latin American Section (LAS) of the American Nuclear Society (ANS), from 21 to 24 June 2010. The main objective is to showcase the nuclear technology developed in Brazil, Latin America and other countries from the Americas, Europe and Asia, with emphasis on the production of clean energy. It will feature an exhibition of products, equipment and services related to nuclear power plants.

Other objectives are the exchange of information in the field of modernizing methods and processes, safety systems, waste logistics, training and human development, communications and public relations, focusing on the production of energy without contributing to global warming and climate change.

The LAS-ANS symposium in 2010, whose theme is "New Technologies for Nuclear Fuel Cycle" will consist of three distinct but interrelated modules.

The first module will be a space for the presentation of programs and strategies to deploy nuclear generation in Latin America, new technologies of fuel elements, fuel cycles and systems of safeguards in Latin America and qualification of domestic manpower for nuclear projects.

The second module will be an exhibition of products, equipment and services related to the operation, support and maintenance of nuclear power plants and plants of the cycle of nuclear energy.

Finally, the third module will be a space for the presentation of other applications of nuclear technology, such as those related to medicine, agriculture, geology, mining and the production of radiopharmaceuticals.



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Organizers



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