

Furnas - A Company Driven by Challenges



FURNAS was born to overcome challenges. The construction of Furnas, the first large hydroelectric power plant in the country, was its first mission; since then, the company has risen to be a backbone of the electrical system. Today, FURNAS is spread over 14 States, and is responsible for the production of 10% of the electricity used in Brazil. The company operates a transmission park of continental dimensions, through which more than 40% of all energy consumed by Brazilians runs.

Furnas is also a national reference in competence and technical excellence. Through its pioneering and innovative core spirit, it envisages offering more clean and renewable energy in support of the country's sustainable development.

FURNAS' generation park sums 21 hydroelectric power plants, three Eolic parks in SPCS and two conventional thermal plants, which supplies the Brazilian market with more than 18 thousand MW of installed capacity. The transmission system is comprised of 77 substations and 28 thousand kilometers of transmission lines, adding to more than 102 thousand MVA conversion capacity.

In the last few years, three large hydroelectric plants went on complete operation: Santo Antônio, in Rondônia, with 3.568 MW; and Teles Pires, in Mato Grosso/Pará, with 1.819 MW. In December 2017, the first generation unit at São Manoel Hydroelectric Plant was concluded. The Itaipu Transmission System was powered in 1984. With the experience gained in its construction, operation and maintenance, FURNAS participated in the deployment of direct current systems that dispose the electric energy produced at the Madeira river Power Plants, in Rondonia, and Belo Monte, in Pará. With 2,094 km, the Belo Monte Transmission Line, inaugurated in December 2017, is the longest direct current line in Latin America.

Today, besides performing improvements and reinforcements in its transmission units, with the installment of 4.133 new devices and protection, control and telecom systems, in order to offer more safety to the electrical system, FURNAS is also diversifying its generation portfolio. The company participates in Rei dos Ventos I and III and Miassaba III Eolic parks, located in the state of Rio Grande do Norte. FURNAS is currently building Nossa Senhora de Fátima (30 MW), Jandaia (30 MW), Jandaia I (22,5 MW), São Clemente (22,5 MW) and São Januário (22,5 MW) parks in Ceará State. Boa Esperança, the first Brazilian thermochemical power plant in Minas Gerais, will be the result of FURNAS' R\$ 32 million investment in a Research and Development project that ▶



involves Fluidized Bed Gasification, an innovative social and environmental solution that produces energy from urban waste, created in Brazil. FURNAS also invests in research and development projects aiming to add photovoltaic solar generation and tidal power to the Brazilian Energy Grid.

All this is made possible through FURNAS' mastery of modern technologies associated to energy transmission, control systems, digital supervision and telecom, including engineering of the proprietor; hydraulic studies in scaled models; Dam Safety; Technological Control of construction materials; concrete and soil lab analysis; transmission line, substation and power plant operation courses, electric systems performance analyses made through Real Time Digital Simulator (RTDS); and measurement, testing and calibration services.

When building its power enterprises, FURNAS takes into consideration environmental management procedures, both to comply with legal regulation and to prevent pollution and minimize impacts to the environment and risks to public health. Besides considering various plans and programs in the planning of new projects and in daily operation, FURNAS also associates biological methods to engineering and geology techniques to recover degraded areas and to monitor erosive processes. The company also carries reforestation actions around reservoirs and transmission lines: in 2017, FURNAS recovered the equivalent of 320 soccer fields. To achieve this, FURNAS produces around 750 thousand seedlings of native tree species in its orchards. In 2017, the company started a partnership with the

Furnas Lake Municipality Association, to recover riparian forests around 400 water sources, minimizing the impact of the water crisis over the Furnas Power Plant reservoir, in Minas Gerais. The company also develops initiatives to reduce the emission of greenhouse gases, and is a cofounder of the Brazilian GHG Protocol, which established an internationally accredited methodology to elaborate an inventory and manage those emissions, which was granted its fifth Golden Seal in 2017.

FURNAS' Social Responsibility Policies seek the promotion of citizenship and human development. Through partnerships with public agencies, institutions, universities and non-profit organizations, FURNAS also works to attain the United Nations Development Program (UNDP) Sustainable Development Objectives (SDOs), envisaging the eradication of poverty, social and gender inequality and conservation of natural resources. In the last ten years, FURNAS developed projects focusing education, promotion of citizenship and rights, work and revenue generation and food safety. The company also sponsors arts and entertainment, sports and Electric Sector technical events. FURNAS mobilized its workforce in a program that carried out 235 voluntary actions in the past two years, benefiting more than 13,5 mil people. In 2017, those actions focused on SDOs.

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