

Alagoas State Profile August 2001

Northeast Brazil



Introduction

Alagoas is the third smallest State of Brazil. The State is located North of the lower course of the San Francisco River (200 km), South of the State of Pernambuco and its coastline is along the Atlantic Ocean. The harbor in the capital, Maceió, is among the best of the country.

The territory of Alagoas has three differentiated areas: The flat lands of the coast, the high plateau in the northern part of the state and the depression in the central part. The climate is tropical hot and humid in the East with well distributed rainfall and hot and dry in the West.

Key Indicators

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|--|-----------------------------------|
| Capital | Maceió |
| Area | 27,933 km ² |
| Towns (Municipalities) | 101 |
| Population** | 2,817,903 inhabitants |
| Urban population** | 1,917,388 inhabitants |
| Rural population** | 900,515 inhabitants |
| Density of population | 100.88 inhabitant/km ² |
| Urbanization | 68.04 % |
| Total urban households | 436,251 |
| Total rural households (1999 IBGE/PNAD) | 216,149 |
| Non-electrified rural households** | 51,920 |
| Percent of Rural Households Unelectrified** | 24.02 % |
| People per household rural/urban | 4.2/4.4 |
| Illiteracy rate rural/urban % (1998) | 53.4/25.4 |
| GDP total ** | 6,137 million Reias |
| State GDP/capita * | R\$ 2,283 Reias |

*Current Prices

**Source: IBGE 1998 and PNAD 2000

1. Market Assessment

1.1 Potential Market

From the available information, the following data are to be considered for an estimation of the potential DEERB market in Alagoas:

- The total number of households without electricity in 1999, according to IBGE-PNAD has been 51,920 and according to CEAL in 2000 the figure should be 60,000.
- The program “Luz no Campo” foresees the connection of 14,000 rural homes in 2002.
- The rate of growth of the rural population in the State is in the order of 1.8 % p.a.
- In the next five years it can be expected an increase of about 5000 new households without electricity.

Thus, approximately 50,000 rural households will still need electrification in the next five years.

1.2 Ability to Pay

Currently, rural households are spending R\$ 9 to R\$ 16 per month for traditional energy sources.

1.3 Supply of Renewable Energy in Rural Areas

Under the Luz do Sol program and with a loan from Banco do Nordeste, a local Foundation “**Teotônio Vilela**” (FTV) in conjunction with local micro-entrepreneurs has installed over 2,700 PV solar home systems (SHS). The program has the following structure: FTV is responsible for procuring the equipment; installing the PV SHS; and, training of the micro entrepreneurs. The micro-entrepreneur takes responsibility for the loan; maintains the PV systems; and, collects the rental payments from the residential clients. To date, FTV has been working with over 90 micro-entrepreneurs.

In the framework agreement with Banco do Nordeste, financial support has been agreed upon for the “Luz do Sol” program through individual credits to micro-entrepreneurs up to R\$35,000 for 30 PVSHS, with 12 years term, 6 months of grace period and 6% p.a. interest rate.

In July 2001, a new institution has been incorporated to take over the responsibilities of the Foundation “Teotônio Vilela” in relation with the program of “Luz do Sol” and the cooperation agreements related to it: Instituto ECO-EGENHO de Tecnologia Aplicada ao Desenvolvimento Sustentável, a NGO, with head quarters in Maceió. This program is also working with Energia e Desenvolvimento Sustentável S.R.L. (EDS), a supply and installation company for PV systems.

2. Institutional and Regulatory Environment

2.1 Electricity Sector

Companhia Energetica de Alagoas, CEAL, incorporated in 1959, as Companhia de Eletricidade de Alagoas, has been federalized in 1997 and currently included in the privatization program (Programa Nacional de Desestatização, PND). It has the exclusive concession right for distribution in this State. The ownership of CEAL is 75.2 % of ELETROBRAS, 18.2 % of BNDESPAS, 3.4 % of the municipalities and 3.2 % of others.

The supply of energy for CEAL in 2000 was 97.5 % from CHESF, 1.01 % from CELPE and 1.44 % from ENERGIPE. The main industrial consumer, the chemical factory TRIKEN is directly served by the generation company CHESF.

The sub-transmission system of CEAL consists of 1484 km of 69 kV lines and 31 substations of 568 MVA.

The rural distribution system has 5640 km of lines and 197 MVA of installed capacity in transformers for 7,594 clients in 2000.

CEAL foresees the connection of 14,000 rural clients within the program “Luz no Campo” out of approximately 50,000 rural homes estimated as non electrified in the same year. For this program an agreement has been signed by CEAL with ITERAL (Instituto de Terras do Estado de Alagoas) for the register of all the land properties, with GPS and digitalized mapping.

Currently, the most important institution in Alagoas for rural electrification is CEAL, which is regulated by ANEEL under the Federal power sector regulatory framework. Under this framework the role of the generation transmission, distribution and independent power producing companies are outlined.

2.2 Tariff Structure

Current tariffs foresee cross subsidies for low income and rural consumers. For instance the tariff class B1, up to 30 kWh per month charges R\$ 0.05626 per kWh and a minimum of R\$ 1.69 per month, while the residential consumer with a monthly range of consumption from 101 kWh to 140 kWh per month has a tariff of R\$ 0.14463/kWh.

Similarly the rural electrification tariff B” for rural residential consumers is fixed in R\$ 0.09959/kWh, for cooperatives (B2) 0.07038 and for public irrigation systems (B2) R\$ 0.09158/kWh.

Additionally, for low income users up to 136 Ah/month a tariff of R\$ 0.012409 is charged and for 137 to 341 Ah/month the tariff is 0.019627.

The tariff regulations include a differential tax treatment, i.e. residential low income consumers are exempt of ICMS (value added tax) and other consumers have to bear 17% to 25% of taxes for this concept.

2.3 Government Programs

- “Luz no Campo” foresees for Alagoas, according to the official information of ELETROBRAS, to increase the coverage of rural electrification from 13% in 2000 to 39% in 2002, with the connection to the grid of 14.000 rural homes (64.000 inhabitants) with an investment of R\$ 36.000.000, with a financing of R\$ 27.250.000 from ELETROBRAS.
- PRODEEM, according to the information of the General Coordinator of the program foresees in 2001 the installation of 580 PV Systems in municipalities of Alagoas with the lowest HDI (0.320 to 0.692), i.e. 240 schools, 48 health centers and 240 water pumping systems. In 2002 the number of installed systems should be twice as much and in 2003 three times the number of units of 2001.
- This program is a complement of the previous program “Programa Alvorada”, that in 85 municipalities of Alagoas has reached 759 schools out of a total of 814 centers.
- Programa de Desenvolvimento e comercialização de Energia de Pequenas Centrais Hidroelectricas. It is a program to enable the implementation of refurbishment of small hydropower plants where ELETROBRAS guaranties the purchase of the produced power and BNDES provides the corresponding financing. The program is applied within the interconnected system.

2.4 Main Energy Stakeholders

- Federal Ministry of Mining and Energy in charge of the national energy policy and the energy development of the country, related (non subordinating) with ANEEL, the National Electric Energy Regulatory Agency. Currently, although the law foresees the existence of decentralized State regulatory agencies, for the law enforcement, complementary regulation activities and control of installation and services, there is no State agency in Alagoas, delegated by ANEEL.
- The National Coordination Committee for the expansion of the power systems (CCPE) in substitution of the Coordination Group for Power System Planning.
- The National Program for the Energy Development of the States and the Municipalities (PRODEEM).
- The Rural Electrification Program “Luz no Campo”.
- Centrais Eletricas Brasileiras S.A. - ELETROBRAS.
- Public, state owned holding of the companies, that are concessionaires of power generation, transmission and distribution. In Alagoas, the companies are CHESF and CEAL.
- Under the responsibility of ELETROBRAS is CEPEL, Centro de Pesquisas de Energia Eletrica and the operation of PROCEL, “Luz no Campo” and PCH-COM,

Development and Marketing of Small Hydro Power Plants. ELETROBRAS also provides loans for the power sector and guaranties.

- Secretary of Infrastructure of the State of Alagoas

3. Investment Climate

In principle and in general the government policy as well as the attitude of the population is favorable to the private investment. Private sector investment is needed to meet the needs of the current population. FTV's program to develop PV SHS supply, installation and leasing business in the rural area has demonstrated the role micro-entrepreneurs and the private sector can play in meeting the energy needs of rural populations.

There are federal and municipal taxes, that should be taken duly into consideration in order to select the enterprise type, best adapted to the nature of the entrepreneurial activities to be promoted by DEERB.

4. Technology

Renewable energy technologies in Alagoas, specifically PV technology, is working reportedly satisfactorily. Given the availability of solar energy and the accumulated experience, there is potential to expand the implementation of renewables. There is an important potential for biomass, based in agricultural residuals, mainly sugar cane, but also different types of husks and shells.

In Brazil in general there is a well developed experience with small hydro power units, in project engineering, and manufacture of mechanical and electric equipment. There is practically no technology barrier in this field.

Wind energy technology is also well represented in Brazil, and the Atlantic coast areas, with high potential are familiar with the use of this technology.

4. Possible Stakeholders for DEERB

This section lists possible stakeholders related to the eventual development of DEERB in Alagoas. The list might be subject to revisions following additional fact finding.

-PRODEEM

Ministerio de Minas e Energia

-Luz no Campo

Eletrobras

State Government of Alagoas

-Banco do Nordeste

-Eco-Eghenio, formerly FTV. E&Co invested in FTV in 1999 and has a working relationship with the project developers. Working with the developers to expand the micro-entrepreneur program is a good opportunity for DEERB.

-There are no NGOs registered with Associação Brasileira de Organizações Não Governamentais.