

CHALLENGES

Water and energy resources are plentiful in Brazil, but highly unevenly distributed. Hydropower represents 83% of the country's installed capacity, while new energy needs are expected to be met by thermal plants fueled by natural gas. A recently completed natural gas pipeline from neighboring Bolivia was seen as a solution to future energy needs, but this contract is now likely to be renegotiated. Complicating the country's energy scenario is a partial privatization of the power sector, and a recent drive by President Lula and his administration to stabilize electricity tariffs.

As in other developing countries, Brazil is striving to respond to the challenges posed by rapidly growing urban populations. In Brazil's southeast, the cities of Rio and Sao Paulo strain under the weight of providing urban services to some of the largest urban slums – *favelas* - in Latin America. In the country's drought prone northeast, economic growth is concentrated along the coast, pushing those in the region's interior toward opportunities in the cities of Recife, Salvador, Fortaleza and Natal.

BACKGROUND

Brazilian water utilities struggle to balance existing infrastructure with the changing demands presented by unplanned housing growth. As in other parts of the world, poor Brazilians lack urban services that more affluent Brazilians take for granted. When it comes to water supply, *favela* dwellers often resort to the services of water vendors, paying water prices that are several times higher than those paid by inhabitants with formal water service. To address these challenges the Alliance seeks to provide water utilities with a variety of **Watergy efficiency** tools. Watergy is a global program of the Alliance to Save Energy that provides water utility managers with the knowledge and tools to make their systems more efficient, improving water service, expanding water access, and saving considerable quantities of water, energy, and money. In the process, the strain on ground and surface water sources is reduced, as well as the environmental

impacts associated with generating the energy needed to pump and treat water.

Early Alliance efforts in Brazil focused on individual utility partnerships. The longest standing of these partnerships was launched in 2001 with the water and wastewater utility of the state of Ceará in the country's arid northeast. The kick-off of this partnership coincided with a severe power crisis, due to a drought and the country's heavy reliance on hydropower electricity generation. Through Alliance assistance the Ceará utility – CAGECE - was able to meet state imposed power rationing goals set at reductions of 20% over normal usage. As a result of this partnership the Alliance and CAGECE emerged from the challenges of 2001 with a strong case to advance **Watergy efficiency** at the national level.

OBJECTIVES

Today the Alliance's efforts in Brazil focus on taking the Watergy efficiency message to a larger national audience. To accomplish this, the Alliance created the Brazilian Association of Water and Energy (ABAE). ABAE is an independent Brazilian non-profit established in 2004 consisting of private sector equipment and service providers, federal, state and local government, existing water and energy focused associations, and water utilities from across the country. As part of the effort to establish a strong local institution focused on Watergy efficiency, the Alliance is also developing innovative financing models to facilitate a commercially viable Watergy efficiency market tailored to the needs of the water and wastewater sectors.



APPROACH

With the establishment of ABAE, the Alliance has created an independent Brazilian organization driven by local objectives related to energy and water efficiency. Early support for ABAE was voiced by the Brazilian federal energy efficiency organization PROCEL. From this early declaration the Alliance



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guided a process to position ABAE as a catalyst for efficiency, joining forces with the private sector to tap its extensive knowledge of energy and water efficiency, and moving the entire water sector towards improved service and lower costs. Today, equipment and service providers representing a variety of technologies and approaches are helping water utilities across the country address specific efficiency challenges. ABAE does this through technical seminars focused on efficiency topics, like metering and monitoring, pump and motor efficiency, system automation, and water loss reduction. Recent ABAE partnerships have brought in power utilities aimed at developing demand side management initiatives targeting the municipal water sector.

Running in parallel with ABAE work, the Alliance is demonstrating successful approaches for water utilities to take Watergy projects from project design and development through to financial closure with private partners. The Alliance has created partnerships with privately held water utilities in an effort to develop innovative models than can be adopted by other Brazilian utilities. Current activities include identifying viable projects and project developers and connecting them to energy service companies, financial institutions and government allies.

RESULTS

The four year Alliance-CAGECE partnership has saved 88 GWh of energy thus far and added 88,000 new residential connections to the CAGECE network. The energy savings translate into savings of more than US\$2.5 million, with an initial investment by CAGECE of US \$1.1 million.

Since receiving the formal license to operate as a Brazilian non-profit organization in the summer of 2004, ABAE has established important relationships with key water utility partners across the country. Existing water utility partners include CAGECE from Ceará state, as well as state utilities from Minas Gerais, Sergipe, Pará, Paraíba, Goiás, Bahia and the Federal District. This work is being led by a recently hired

Executive Director. Part of this position's focus is to refine ABAE's business plan and to fully engage the broad spectrum of water and energy representatives participating as ABAE board members. A recently established partnership with the Minas Gerais state power utility – CEMIG - will focus on the development of an energy efficiency week including technical presentations from institutions across the country, as well as taking the energy efficiency message to people across the state. The Alliance and ABAE are supporting CEMIG in this undertaking.

The effort to establish Watergy business models is now in the project identification phase, and will soon begin securing financing for these efforts. A variety of contacts with energy and water efficiency technology and service providers as well as energy service companies has led to increased opportunities for cooperation and new project identification. Four projects have been identified to date. Project approaches include peak shaving, motor exchange, pressure management, and application of variable speed drives.

For More Information:

Eduardo Nunes de Lima
abae@abae.org
Belo Horizonte, Brazil

Alexander Filippov
afilippov@ase.org
Washington, D.C.

<http://www.watergy.org>
<http://www.abae.org>

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Watergy: Helping cities manage water and wastewater efficiently, saving energy, water and money