



## PROMOTING THE DEVELOPMENT OF ELECTRIC POWER SYSTEMS

Electricity is a basic building block of economic growth. Brown-outs, production slow-downs, and factory closures plague countries that have insufficient capacity to generate and distribute electricity. Because of this need, electricity and power projects are a core focus of the U.S. Trade and Development Agency's (USTDA) program.

USTDA advances economic development and U.S. commercial interests in developing and middle-income countries. The agency funds various forms of technical assistance, early investment analysis, training, orientation visits and business workshops that support the development of a modern infrastructure and a fair and open trading environment. USTDA's strategic use of foreign assistance funds to support sound investment policy and decision-making in host countries creates an enabling environment for trade, investment and sustainable economic development.

During fiscal year 2008, USTDA invested in 28 electric power projects and activities. The following is an illustrative list of USTDA-supported projects in this area:

### East Asia

China Southern Power Grid Emergency Management System – USTDA approved \$533,682 to assist China Southern Power Grid Co., Ltd. in implementing and procuring an emergency management system and associated communication equipment for a regional power grid in Southern China. The upgrades will foster greater efficiency and productivity, resulting in a more competitive energy market. Utility Consulting International is the contractor for this assistance.

China Coal Mine/Coal Bed Methane (CBM) Power Plant – USTDA approved \$502,850 to provide technical assistance on the construction of a 120-megawatt (MW) power plant in Shanxi Province that uses coal mine/CBM as a feedstock. The project is being implemented through a partnership involving Chinese coal mining and power utility companies, Caterpillar, Inc., and the Asian Development Bank. It will reduce pollutants through greater dependence on a clean fuel source. SCS Engineers was the contractor for this assistance.

### Europe and Eurasia

Romania Emissions Monitoring and Plant Performance - USTDA provided \$271,054 to Termoelectrica, the Romanian state-owned thermal power company, to determine the best plan to upgrade the emissions monitoring and control systems at 21 of their largest power plants. Worley Parsons Group, Inc. of Reading, PA is performing the study.

Serbia Belgrade District Heating Power Project - USTDA provided \$757,245 to evaluate a proposed co-generation

power plant for electricity and heat production. The study will advise the Serbian Ministry of Mining and Energy on whether to pursue a 200 or 600 MW option. Worley Parsons Group, Inc. is performing the study.

Serbia City of Nis CHP Plant – USTDA awarded a \$434,000 grant to the Serbian Ministry of Mining and Energy to develop construction plans for a new 100-150 MW gas turbine combined cycle cogeneration plant. The study will determine the best location for the plant, and will examine the size of the gas turbine and extraction steam turbine needed for the plant. Contractor selection for this activity is ongoing.

Turkey Germencik Geothermal – USTDA provided a \$259,621 grant to Gurmat Energy Investment and Trade Co. for a study on a geothermal power plant at Germencik, Turkey. Stone and Webster of the Shaw Group performed the study. Based on the study a 40 MW power plant is under construction, using more than \$23 million in U.S. exports.

Kyrgyzstan Datka-Kemin 500kV Transmission Line - USTDA is providing \$537,595 to the Ministry of Finance to fund a study for the National Electrical Grid of Kyrgyzstan to reduce overloading on the current 500 kV transmission line linking northern Kyrgyzstan with southern Kyrgyzstan. Auriga Corporation of Milpitas, CA, is conducting the study.

Tajikistan Fon Yaghnob Coal-Fired Power Plant – USTDA is providing \$875,378 to the Ministry of Energy and Industry for a feasibility study on the coal mining component of a proposed integrated coal mining and power generation project at Fon Yaghnob, Tajikistan. Contractor selection is ongoing.

### Latin America and the Caribbean

Colombia Civil Aviation Renewable Energy – USTDA provided \$700,000 to the Unidad Administrativa Especial de Aeronautica Civil (AeroCivil) to assist in the conversion of its power supply for remote air traffic control and weather monitoring facilities from diesel generators to renewable energy sources. The project will improve the reliability of remote power supply infrastructure, while reducing cost.

Colombia Geothermal Power Generation – USTDA is providing \$599,310 to ISAGEN S.A., a leading Colombian power company, to support the development of a 50 MW geothermal power generation project. The study will assist in diversifying Colombia's energy supply and limiting emissions from carbon-intensive gas and coal.

Costa Rica El Diquis Hydroelectric Power Geotechnical and Financial Analyses – USTDA is providing a \$300,000 and a \$200,000 feasibility study grant to the Costa Rican Institute of Electricity (ICE) that will support the geotechnical and

financial components, respectively, of a \$4 million feasibility study for the El Diquis hydroelectric power project. The project involves the construction of a 631 MW hydroelectric power plant that will meet Costa Rica's growing demand for electricity.

Haiti Electricity Generation, Transmission, and Distribution – USTDA provided \$350,000 to Electricité d'Haiti (EDH), the state-owned national electric company, to support the development of new investment and priority reconstruction projects for electricity generation, transmission, and distribution. EDH will utilize the assistance to set the stage to revitalize and modernize Haiti's electricity infrastructure.

Mexico CFE Environmental Management Project — USTDA is providing \$640,500 to Mexico's Comisión Federal de Electricidad (CFE) to strengthen environmental management at its power plants, substations, and power transmission and distribution facilities. The assistance will help CFE meet its long-term needs for environmental management at its operating facilities.

Uruguay Brazil Electrical Interconnection Project – USTDA provided \$490,000 to the National Directorate of Energy and Nuclear Technology to fund analysis, recommendations and software tools with which the Uruguayan government can conclude the structuring of a \$200 million electrical interconnection project and carry out its implementation jointly with their Brazilian government counterparts.

#### **Middle East and North Africa**

Jordan National Electric Power Company Reactive Compensation and Transmission Loss Reduction - USTDA is funding the development of an optimal planning approach to reduce transmission loss and manage reactive power sources for existing transmission lines in Jordan.

Morocco ONE reorganization – USTDA is providing \$820,000 to the Office National de l'Electricite (ONE) to optimize its internal reorganization to meet the requirements of upcoming electricity sector liberalization. The reorganization will facilitate the creation of an open electricity market by ensuring competition and transparency in a regulated industry.

Yemen National Rural Electrification Program – USTDA is providing \$515,214 to the Yemen Ministry of Electricity and Energy to design the legal and regulatory framework necessary to support national rural electrification. The technical assistance will also develop a comprehensive legislative proposal to establish a new rural electrification agency and support the formation of local electric cooperatives. The assistance will culminate in the demonstration of a model electric cooperative to be formed in the Ibb Governorate of Yemen.

#### **South and Southeast Asia**

Indonesia Seulawah Agam Geothermal Power Plant - USTDA is providing \$589,000 for a study of a proposed geothermal power plant in Aceh Province. Aceh's power generation capabilities were severely damaged during the 2004

earthquakes and tsunamis, and the plant could present a reliable, environmentally advantageous method to restore power to the area. Stone & Webster/Shaw Group is the contractor for this study.

Philippines Rural Electrification Financing Project – USTDA provided \$404,510 to support the Rural Electrification Financing Corporation's (REFC) efforts to improve distribution systems and implement associated financing plans for rural electrification operations in the Philippines. The National Rural Electric Cooperative Association International was selected to perform the technical assistance.

India North Delhi Power Limited (NDPL) Distribution Automation – USTDA is assisting the recently privatized NDPL in reducing electric power losses through the implementation of its Automation Roadmap. The project will be a model for India as it improves the delivery of sufficient and reliable electricity to domestic and industrial users. KEMA was selected to provide the technical assistance.

#### **Sub-Saharan Africa**

Cameroon Limbe Gas to Electricity Technical Assistance - A \$695,000 grant to Cameroon's Ministry of Energy and Water Resources will fund a study on the proposed conversion to gas of an existing 85 MW heavy fuel-oil burning reciprocating power plant and the concomitant green-field construction of a 315 MW combined cycle gas-turbine power plant. In addition, the study will examine the transformer banks and power lines needed to deliver the power generated to the national power grid.

Democratic Republic of Congo Nzilo 2 Hydropower Plant - USTDA is providing \$553,534 for a study to examine the technical and economic viability of constructing the Nzilo 2 hydropower facility in the Democratic Republic of the Congo. Implementation of the project would provide Katanga province with a reliable source of energy that will enable re-development of the mining industry in the region. The contractor will be chosen competitively.

South Africa Coega LNG Regasification and Power Generation Project - USTDA is funding an orientation visit to the United States for key decision makers associated with the LNG regasification and power plant project in Port Elizabeth, South Africa. The visit will enable the delegates to meet with U.S. suppliers and potential private sector partners. Global Marketing and Communications will organize the visit.

Tanzania Capacity Building for the Energy and Water Utilities Regulatory Authority – A \$623,580 USTDA grant is supporting efforts to promote private investment and growth in the Tanzania's energy sector. The grant to the Tanzanian Energy and Water Utilities Regulatory Authority (EWURA) will assist in establishing operational protocols in the implementation and enforcement of electricity, petroleum and natural gas regulations based on international best practices. Contractor selection to carry out the assistance is in progress.