



Renewables:

Redefining Energy Sources in Central Europe

The energy sector is going through a critical period of reform in the member states of the European Union (EU), but it is also a period of transformation in the EU aspirants of Central Europe

Market rules are being rewritten, transmission grids and the potential for intra-regional trading are being expanded and, of course, the major state-owned utilities are being reorganized and privatized. Liberal economic thinking, modern management practices and just plain good sense are driving much of this change, but the competitive and rule making demands of EU accession are just as important.

The EU accession process is also driving important reforms in the governing rules and financial support for environmental areas such as water and air quality, solid waste disposal and more. A confluence of these reform movements in the energy and environmental sectors can be found in the production of electricity using renewable fuels, and this development is improving the economic viability of renewable energy projects.

The EU has issued several directives on energy production that have encouraged activity in the renewable energy sector. The first is the Integrated Pollution Control Directive 96/61/EC, which mandates that any power generation facility greater than 50 megawatt (MW) capacity using a combustion technology must obtain a permit proving that it is using the best available technology for the reduction of pollution. This

directive also applies to the incineration of municipal and hazardous waste.

Another directive is 2001/77/EC, which was derived from the EU white paper, "Energy for the Future: Renewable Sources of Energy (1997)." This directive established a goal to derive 12 per cent of the energy consumed in the EU from renewable energy sources by 2010. In addition, the directive set a target to increase energy efficiency by 18 per cent over 1995 levels by 2010. As countries in Central Europe prepare for EU accession, they must comply with this directive by expanding their use of renewable energy sources. The exact contribution of renewable energy and the timetable for compliance is being set individually for each country during accession negotiations.

Biomass, including municipal solid waste (MSW), is expected to be the EU's largest source of renewable energy, producing eight per cent of the energy consumed in the EU by 2010. It is anticipated that wind will be the second largest source, producing 2.8 per cent. Solar (photovoltaic) and geothermal resources are expected to account for less than 0.2 per cent.

MSW is expected to become a significant contributor to biomass sources of renewable energy because utilization of MSW in waste-to-energy



Clockwise from far left top:

Top left - Mr. Steven Zwolinski, CEO of GE Wind, gave a keynote address at USTDA's Waste-to-Energy and Renewable Energy Regional Conference in December 2002 entitled "Wind Energy Today - a GE Perspective."

Top right - Over the past three years, USTDA has awarded 13 grants in the renewable energy sector in Central and Eastern Europe. In December 2002, USTDA General Counsel Leocadia I. Zak (seated left) and Slovnaft a.s. Deputy General Manager for Strategy Pavol Parák (seated right) signed a grant agreement for an incinerator upgrade project in Slovakia.

Bottom - U.S. Secretary of Energy Spencer Abraham (seated center) looks on as U.S. Ambassador to Hungary Nancy Brinker signs as a witness to a USTDA grant agreement partially funding a feasibility study on a wind farm project in Hungary.

projects contributes to reaching renewable energy and waste reduction goals simultaneously. European Commission directive 99/31/EC governs the handling and disposal of waste in the EU, and has several articles about the use of MSW in renewable energy applications. For example, EU member nations are no longer able to landfill whole used tires and will not be able to landfill shredded tires after 2005. In addition, 99/31/EC also requires member states to reduce the volume of biodegradable MSW to less than 50 per cent of their 1995 levels by 2010.

All of this means the market dynamics for renewable energy generation are improving. Offtake prices for electricity are guaranteed at above market rates, limits on solid waste disposal force up tipping fees, recycling requirements create new demand for MSW to transform it into energy, emissions regulations force the closure of old dirty power plants, etc. This changing market dynamic means that renewable energy projects will become increasingly commercially viable.

Where market-based opportunities are not available and commercial financing mechanisms are not able to fully fund all the development and capital costs of a renewable energy plant, there are many sources of public money available to help. The U.S. Trade and Development Agency (USTDA) can help by issuing grants for feasibility studies and other project planning or policy support activities. Details on some of this agency's activities are outlined below. Several EU programs also are available to support renewable energy projects in the region to enable the accession countries to adopt and implement environmental elements of the *acquis communautaire*, the EU's common body of law in the environmental sector. Most countries in the region also have special funds or agencies to encourage development of environmental projects.

Several international organizations also support the cleaner power generation and greenhouse gas emissions reductions inherent in waste-to-energy and renewable energy projects. Currently, the European Bank for Reconstruction and Development (EBRD) is actively seeking potential renewable energy investments in Central Europe. The Global Environment Facility, the United Nations Development Programme, United Nations Environment Programme, and the World Bank

provide grant and concessional funds for projects that address climate change, biological diversity, international waters, and the depletion of the ozone layer. Waste-to-energy and renewable energy projects usually address one or more of these concerns. The Prototype Carbon Fund and the Joint Implementation Mechanism focus on providing funding for projects that reduce greenhouse gas emissions. Most renewable projects reduce greenhouse gas emissions (Links to all these organizations can be found on USTDA's website).

The U.S. Trade and Development Agency believes that now is the time for the agency to play a facilitative role in helping countries in the region to comply with EU energy and environmental directives and to meet their national energy and environment policy goals. The agency specializes in helping project sponsors in developing and middle-income countries gain access to U.S. expertise in the planning and development of priority capital projects and related capacity-building activities. In carrying out its mission, USTDA seeks to identify projects that promote economic development and represent an opportunity for the application of U.S. goods, technology and services during the implementation phase.

To accomplish its goals, the agency provides grants to host country sponsors for feasibility studies, technical assistance and capacity-building initiatives. Under the terms of USTDA grants, recipients use the funds to contract with U.S. firms to conduct the USTDA-funded activity. In addition to these grants, USTDA also hosts conferences and orientation visits (reverse trade missions) where U.S. technology can be viewed first hand.

One of the hallmarks of USTDA is its ability to forge effective partnerships between host country project sponsors and U.S. firms. In this regard, renewable energy projects present excellent opportunities to develop partnerships in the design, implementation, and sustainability of successful projects. USTDA has been active in renewable energy projects around the world for the past several years. Since 1981, they has provided over \$25 million to promote the development of renewable energy projects worldwide. These include 13 renewable projects in Central Europe over the last three years. These grants represent a continuation of USTDA's commitment to work with project sponsors in Central Europe in this sector and reflect the importance of the region to USTDA in carrying out its mission.

An example of a project in the renewable energy sector is the Prvni Dubska Investorska a.s. (PDI) plasma gasification project in the Czech Republic. PDI, a leading private Czech company specializing in renewable energy production from waste and biomass, is seeking to build the first plant in the Czech Republic for the treatment of industrial and



municipal solid waste, including plastics and tires, to produce a renewable source of energy. The plant would use a "clean gasification" method in compliance with EU mandates. Utilizing a cutting-edge plasma technology, which operates at temperatures in excess of 1000 degrees Celsius in an oxygen-deprived reducing atmosphere, the plasma gasification vitrification reactor is neither an incinerator nor a combustion system, but rather a method that gasifies organic materials, paper and plastics and vitrifies glass and metals. USTDA provided a grant of \$302,115 to PDI to partially fund a feasibility study on this project. The feasibility study is being performed by Solena Group, Inc. of Washington, DC, which is contributing \$452,460 toward the cost of the study. The study has an expected completion date of November 2003.

In Poland, USTDA award a \$233,000 grant to the Municipality of Che_m to partially fund a feasibility study on a waste-to-energy project using MSW to generate electric power and hot water. The project is a strong developmental priority for the municipality, enabling it to purchase inexpensive electricity, upgrade its environmental standards and reduce its reliance on its

existing, nearly full landfill. PCI Energy International, Inc. of Schaumburg, Illinois is performing the study and is contributing \$233,000 toward the cost of the study. The study has an expected completion date of July 2003. If implemented, this project will be the first gasification renewable energy project in Poland.

During the visit of U.S. Secretary of Energy Spencer Abraham to Europe in March 2003, USTDA awarded a grant to Greenergy Kft., a private Hungarian company, to partially fund a Phase I feasibility study on a wind farm project. Greenergy is planning to develop wind parks with 80-100 MWs of installed capacity in Hungary. A U.S. firm will be competitively selected by Greenergy to undertake the study. One of the U.S. firms that is interested in providing equipment to the project is GE Wind Energy, LLC. The company's CEO, Mr. Steven Zwolinski, was a keynote speaker at a regional conference on renewable energy in Prague, Czech Republic, in December 2002, which featured the Greenergy project.

The USTDA-sponsored conference highlighted over 30 projects in the renewable energy sector from Estonia,



In December 2002, USTDA sponsored a Waste-to-Energy and Renewable Energy Regional Conference in Prague. Pictured here are members of the regulatory issues panel from the conference: (standing) Ryan Pletka, EBRD Renewable Energy Study Manager of Black and Veatch; (seated from left to right) Pavol Parák, Deputy General Manager for Strategy of Slovnaft a.s.; and Piotr Kukurba, Vice President of Agencja Rynku Energii S.A. in Poland.



Czech Republic, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia. The projects presented are valued from \$1 million to \$250 million, and represent significant potential for partnerships with U.S. firms specializing in the transformation of refuse products into useable resources, and in the use of renewable energy, such as wind, solar, and geothermal.

While renewable energy projects are an important strategic focus for USTDA in Central Europe, the agency is also active in a wide variety of other energy initiatives in the region. For example, USTDA is currently considering new feasibility study grants in electricity generation, transmission and distribution in Bulgaria and Romania. USTDA also has been engaged in the oil transport sector, funding several feasibility studies of oil pipeline routes that would by-pass the crowded and environmentally sensitive Bosphorus straight. In June, the Romanian Minister of Industry and Resources will head an energy sector delegation of Romanian public and private sector officials on an orientation visit funded by USTDA to three U.S. cities. USTDA is also funding a visit to the United States by a delegation of district heating officials from Ukraine, Romania, Bosnia and Herzegovina, Bulgaria, and Serbia and Montenegro to attend the International District Energy Association annual conference.

USTDA believes that renewable energy projects are becoming increasingly attractive as commercially viable environmental investments in Central Europe. Replacement of generating capacity in the region to comply with the Integrated Pollution Control Directive and other related directives has provided an excellent opportunity for implementing renewable energy technologies. These developments also create significant opportunities for partnerships between U.S. industry leaders and their counterparts in Central Europe that can enable U.S. technologies and know-how to help countries in the region to achieve their energy objectives.

The U.S. Trade and Development Agency (USTDA) advances economic development and U.S. commercial interests in developing and middle income countries. The agency funds various forms of technical assistance, feasibility studies, 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. Operating at the nexus of foreign policy and commerce, USTDA is uniquely positioned to work with U.S. firms and host countries in achieving the agency's trade and development goals. In carrying out its mission, USTDA gives emphasis to economic sectors that may benefit from U.S. exports of goods and services.

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