



New Frontiers

The inauguration early next year of a Central American electricity grid decades in the making will be a big step forward for regional integration and the delivery of cheaper energy to a corner of the world that badly needs it.

The \$500 million system includes a transmission line stretching the length of the isthmus and will allow member countries Panama, Costa Rica, El Salvador, Nicaragua, Guatemala and Honduras to tap into neighbors' power surpluses, thereby reducing blackouts and insuring a more stable and efficient energy supply for the region's 40 million residents.

By expanding and integrating the regional electricity market, it is also hoped that the Electrical Interconnection System for Central American Nations, known by its Spanish acronym SIEPAC, will jump-start investment in green power generation, from wind power in Nicaragua to geothermal in El Salvador, in a region that is hydrocarbon dependent.

"To the extent the system encourages energy investment and exchange, especially in renewables, there is no doubt it could improve economic development in the region," said Victor Hugo Ventura, an electric power expert at the UN's Economic Commission for Latin America and the Caribbean in Mexico City.

Central America's power grid now totals about 10,000 MW or roughly equal to that of Colombia. But investment in generation and transmission until now has lagged because individual countries, acting alone, have lacked economies of scale. SIEPAC, the first phase in what promoters call Meso-American power integration that will some day include Mexico and Colombia, could provide some of that scale.

But as positive as SIEPAC's inauguration will be for Central America, much remains to be done to address energy inefficiency in the region. The high cost of imported hydrocarbons such as gasoline and fuel oil is an important factor in the region's stunted economic growth, Ventura said. That the region has addressed its power needs as six little markets and not a unified whole has been a handicap impacting the economic possibilities of the individual countries, said Carlos Trujillo, an energy analyst with the Inter-American Development Bank in Washington.

At startup, SIEPAC will provide countries with immediate access to 300 MW of electricity, which should reduce marginal power costs and shave up to 20% off the cost of electricity distribution, according to a recent paper by Jeremy Martin of the Institute of the Americas. Another 600 MW is to be added in a later phase.

In addition to a 1,100 mile transmission line and 15 power substations, the system will operate under a regulatory regime enforced by a commission in Guatemala. System operations will be based in El Salvador. The ownership entity is Costa Rica-based Empresa Proprietaria de la Red, or EPR, and shareholders include the member countries' power utilities, as well as those of Spain, Mexico and Colombia. The IADB is providing major financing.

If the system attracts new power generation capacity as hoped, SIEPAC could be providing 20% of Central America's power needs in the coming decades, Ventura said. The IADB's Trujillo said the system could provide the incentive for the construction of stalled coal projects in El Salvador and wind projects in Costa Rica.

Still problematic is the high price Central America pays for oil, and the relatively low share of the region's energy provided by hydropower and other renewables. Of the six nations, only Guatemala produces crude and the region imports virtually all of its gasoline, jet fuel and cooking oil. The only refinery of significant capacity is in Moin, Costa Rica, and is grossly inefficient, observers said.

The upshot is that Central American nations generally spend a disproportionate amount on energy, losing competitiveness and opportunity, said Trujillo.

With the backing of the UN and IADB, several refinery proposals have been floated in recent years to benefit Central American consumers, but none has materialized. Declining refining margins and financing difficulties have been cited recently for the failure of projects to move forward. The latest refinery proposal came from China National Petroleum Corporation to invest \$1.5 billion to expand the refinery in Costa Rica. Occidental Petroleum and Qatar considered a \$6 billion project in Panama before backing away. In 2006, then Mexican President Vicente Fox offered to supply 200,000 b/d of crude for a refinery to be built in Central America. But despite support from multinational lenders including the IADB, there were no bidders.

Other Central America energy proposals over the years have included a LNG gasification terminal in Panama, which would be connected to a trans-isthmus gas pipeline that might also be supplied by gas produced in Colombia. But Ventura believes such a project is a decade away at least. "Since there is competition between electricity and gas, it would be best for the success of SIEPAC if the gas pipeline idea happens later. In 10 or 15 years from now, such a project will take on more weight," Ventura said.—**Chris Kraul in Bogota**