


XXXI Meeting of Ministers of OLADE: Political Forum for Energy in Latin America and the Caribbean




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The Ministers Respond



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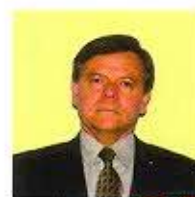
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


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The Ministers Respond

Bearing in mind that the energy sector of Latin America and the Caribbean in the nineties underwent a transformation process to respond to the new challenges that globalization of the world economy requires and since this process must be consolidated and built up in the next few years, the *Energy Magazine* of OLADE, on occasion of the Organization's XXXI Meeting of Ministers, to be held in Asunción, Paraguay, on October 13-14, 2000, has requested the Energy Ministers and Secretaries of its member countries to provide their viewpoints on the following two queries:

1. What is your assessment of the development of the energy sector in the region and especially in your country over the last 10 years?
2. What are the prospects for energy development in Latin America and the Caribbean and in your country over the next few years?

The answers that were obtained to these questions constitute valuable testimonies regarding regional energy development inasmuch as they come from those who have promoted these sector transformation processes. They are provided below by country.

Note: At the close of the present edition of the *Energy Magazine*, the contributions of Argentina and the Dominican Republic had not as yet been received, but we intend to offer our readers these articles in future issues.



Barbados



*Tyrone Barker
Parliamentary Secretary of the
Ministry of the Environment,
Energy and Natural Resources*

During the last ten years, this region in general and Barbados in particular have made significant strides in the energy field. Of interest is the modernization and privatization of some of the sector, which has led to greater investment and higher efficiencies. Perhaps the most pleasing development has been the deepening of integration in the energy field, which has resulted in greater cross-border activity, especially in the area of natural gas.

In Barbados, our focus has been to maximize the use of our hydrocarbon reserves as part of our mandate to bring reliable energy to the people at the best possible price. There has been a significant increase in local production of oil and gas, and this trend is expected to continue as drilling activity increases. We have extended the natural gas pipeline to enable industry, the tourism sector and more households to make greater use of this indigenous form of energy. We have also started a long-term program to determine the extent of any hydrocarbon reserves in our coastal waters.

This country has also been pushing ahead with the use of renewable energy. About one third of our households use solar energy for heating water, as well as of our hotels. We have also started a few projects using photovoltaic energy at schools, government buildings and Harrison Cave. Although there were no significant developments in the field of wind energy, studies

were undertaken to assess the potential in that area. A Centre for Renewable Energy is being established to coordinate developments in this field.

In the coming years, the focus of the entire region must remain on the question of energy integration. Improvements in the standard of living and indeed the development process will require vast amounts of cheaper energy. We would also like to see our region further exploit its vast hydro and other renewable potential as a means to reducing the production of harmful greenhouse gases.

The Caribbean region will continue to forego economies of scale because of size constraints, and to counteract this we must examine the feasibility of either a natural gas grid or an electric grid passing from island to island. In the case of natural gas, this line would connect the vast fields of South America with this region. In the case of an electric grid, we can envisage the use of cheap hydropower or indeed natural gas from South America, making cheaper electricity available to the island chain.

I would also like to see the use of renewable energy intensified in this region, especially the wind and the sun. The countries will need to pay more attention to research and development in order to maximize the enormous potential these forms have.

Assessment of the development of energy and hydrocarbons sector in the region and especially in Bolivia over the last 10 years

To speak of Bolivia's energy potential ten years ago and compare it to the current situation is an exercise that is highly useful because it shows not only the concrete actions that were taken by those governing Bolivia but also the consistency of the performance of all the regulatory actions that were taken for Bolivia 14 years ago.

Thus, recapitulating the most significant landmarks is an important task to acquire a historical overview and prospects for the future and to understand that, beyond political interests, the Presidents of Bolivia, each in turn, were able to envisage the country's future as an energy center for the region.

Although it is true that, at first, Bolivia did not have enough reserves, the government's decision to attract investments in exploration and exploitation activities was crucial for Bolivia to rank second, after Venezuela, in terms of natural gas reserves in South America.

As indicated, comparing our current energy reality with the one we had a decade ago highlights the sharp contrast that led to a series of wise decisions.

Vision of energy development in Latin America and the Caribbean and in Bolivia over the next few years

Without a doubt, the common denominator is called regional integration, exchange of experiences, and mutual cooperation.

The Government of Bolivia, on the basis of its new energy policy, can envisage a promising future as long as the following guidelines are applied and implemented in response to both the context of the region's policies and Bolivia's reality and objectives.

Fields of action

- Promoting energy integration with neighboring countries, a process in which Bolivia has been the leader and promoter of agreements that will be consolidating the country as the Energy Distribution Center of the Southern Cone.
- Search for new business opportunities in the sector such as electric power exports to Brazil generated from natural gas surpluses to cover the energy demand of this neighboring country, which has an annual growth of 3,750 MW, four times higher than installed capacity in Bolivia.
- Promoting exploration of areas with a high oil and gas potential,



Carlos A. Contreras
Vice-Minister of Energy and Hydrocarbons

principally in the nontraditional area of Bolivia.

- Promoting the industrialization of natural gas in Bolivia using Bolivian gas for exports purposes.
- Finally, it should be emphasized that to adjust the sector's regulatory framework, the Vice-Ministry of Energy and Hydrocarbons (VMEH) has set up a process of adapting and complementing the current regulations to ensure dynamism, continuity, consultation, equilibrium and transparency, in order to promote the participation of all sector players to reach agreements that benefit both the government and the private sector.

Oil and gas exploration and production are strategic activities aimed at consolidating the future of the oil industry, whose objective is to guarantee the domestic supply of liquid hydrocarbons such as natural gas and guarantee volumes of export, especially of natural gas, to foreign markets.



Brazil



Rodolpho Tourinho Neto
Minister of Mines and Energy

In Latin America and the Caribbean, economic growth is associated to the increase in commercial energy consumption. Urbanization and industrialization tend to promote energy-intensive use patterns, and an improvement in the standard of living of the population leads to the demand for new energy-consuming services.

Over the last few years, as a result of the growing supply of nobler energy sources, there have been major changes in the region's energy sector. In addition to being used intensively in the industrialization process, electricity, natural gas, and oil products will be substituting biomass in various applications.

Promoting universal coverage of electricity, especially in the rural sector, is a priority in all countries, because energy supply improves the quality of living of the citizen proportionally more.

Meanwhile, the growing concern about the depletion of natural resources and environmental impacts stemming from their use indicates that it is necessary to achieve sustainable development and guarantee that energy will be supplied on the basis of an efficient scheme aimed at preserving the quality of the environment.

Regarding this, an energy policy aspect that is increasingly important is regional and subregional integration, which changes the development and supply prospects of the energy system of the region's countries.

In Brazil, the search for *energy self-sufficiency*, adopted as a government policy in response to the oil crises of the seventies, was replaced by the concept of *significant energy invulnerability*.

Although energy self-sufficiency has a comparative advantage, the policy of significant energy invulnerability has the advantage of providing greater flexibility in and optimizing the management of national energy resources.

This major change in strategic approach, which arose after the successful experience with the hydropower station of Itaipú, gave rise to the energy integration process, whose first result was the building of the Brazil-Bolivia gas pipeline, which started up commercially in 1999.

External dependence has been defined in the context of market interconnection projects developed on the basis of existing energy complementation alternatives that enlarge markets and facilitate economies of scale and the achievement of objectives.

As a contribution to this integration process, it is important that the XXXI Meeting of Ministers analyze and approve the proposals of the Strategy and Programming Committee to enable OLADE to become more active and more highly structured so that it can perform its role as an energy policy-making cooperation and coordination agency and to ensure greater effectiveness in its role as a driving force behind projects that promote regional and subregional energy integration.



Over the last few years, the energy sector has undergone major structural changes both in the region and in my own country. In this process, it is possible to highlight four major transformations, which are still taking place in many countries of Latin America and the Caribbean, at different stages and levels of intensity.

First of all, there is a high and steady growth of the energy sector, measured in terms of investment and consumption. For Chile, for example, gross consumption of primary energy has grown between 1990 and 1999 at an annual average rate of 5.9%, whereas gross domestic product (GDP) has grown at 6.7%. *Second*, it is a sector where the State and the private sector have redefined their respective roles. This has taken place along with progressive modernization of the standard-setting and regulatory instruments, changes in legal ownership schemes, internalization of the environmental costs of energy projects, processes of energy sector liberalization, privatization and globalization, and greater competitiveness. In various cases, this has been complemented by a reduction in production costs and a gradual decline in prices, except for those countries that first of all have had to dismantle previously existing sector subsidies. *Third*, strong energy integration processes have been launched in the countries and with neighboring countries, tending toward more open, increasingly flexible systems that will help to set up more vigorous markets than those that can be set up by each country alone. *Fourth*, as a result of the above, in various countries there has been a structural change in the energy matrix, because growing integration enables resources



Vivianne Blanlot, Executive Secretary of the National Energy Commission

to be shared through international trade, with the resulting benefits in terms of costs and quality. In the case of Chile, for example, natural gas availability and consumption have increased considerably through imports from Argentina. Its consumption grew by 45.8% in 1998, and by the following year it had grown at 90.1%. In 1995, natural gas accounted for 8.5% of the national energy matrix, and by 1999 this share had increased to 20%.

None of these trends would have been possible without the institutional stability that is needed and which most of our countries now enjoy, with the establishment and operation of stable and transparent rules for all players, and growing confidence in the public and private sectors.

In our view, the central features of the energy sector's development in the decade we are about to begin provide a line of continuity and further consolidation of the trends indicated above, with a strong impetus toward integration. Without a doubt, the region will continue with its modernization and renewal of the regulatory frameworks, not only for the electric power sector but also the oil and gas sector, and cur-

rent trends are pointing toward market globalization and liberalization. The case of Chile, which was a pioneer experience in privatization and liberalization in the eighties both in Latin America and the world, is now in the process of redesigning this process in order to ensure a substantive leap for market liberalization and, at the same time, supply security and regulatory stringency, placing Chile at the leading edge of integration into the new economy during the decade that has just begun.

This modernization will tend toward market development and enlargement and, with the introduction of clear standards and conditions for contract accountability, it strives to ensure that industry itself will have adequate incentives to integrate its adaptation to a globalized economy appropriately, with a constant improvement in the service conditions and prices offered to the market. At the same time, we want industry to be capable of leading the international energy integration process and diversifying the energy matrix in a direction that is in keeping with sustainable use and respect for the environment.

Thus, the priority issues in the future will be: the consolidation of environmental protection processes and mechanisms, and along with these concerns, the search for energy efficiency, the development of renewable sources of energy, the introduction of major breakthroughs in management, guaranteeing quality and energy supply security, and a more egalitarian availability of energy for consumers, especially for the poorest sectors of the population.

Colombia



Carlos Caballero
Minister of Mines and Energy

Energy sector development in Latin America and Colombia in the nineties

The last 10 years have been a period of change in the Latin American region, and the energy sector is the one that has undergone the most transformations in this evolution. Energy continues to be a fundamental factor for the economic performance of Latin America and the Caribbean, not only because of the huge investment required for developing available resources and suitably ensuring supply to meet the demand for this input that is essential not only for economic growth and improving the living conditions of the region, but also because of

the sector's participation in generating exports and State revenues.

In a world context of globalization, the countries of the region have been promoting a process of structural change in their economies, at different paces, using the market as the principal element for resource allocation, with the growing leadership of the private sector and with the role of the State focusing on regulation and the supply of public goods and specific services, such as justice, national security, and public education and health. In this process, a large number of countries has achieved progress in enlarging the involvement of private capital to tap available resources and deliver energy services that were previously the responsibility of the State. During these years, the progress made in furthering regional energy integration, especially through interconnections of electricity and natural gas supply systems and the coordination of regulatory schemes, is noteworthy.

In the case of Colombia, the energy sector has become increasingly important, not only in terms of its contribution to the production of goods and services and exports but also in terms of generation of national and local public revenues. The GDP of the energy sector grew in the nineties at an annual average rate of close to 5%, compared to an annual average rate of 3.6% for the economy as a whole. During the same period, oil displaced coffee as the principal export product. Royalties and taxes coming from the production of fossil resources and fuel consumption are also an important

source of state revenue, at both the national and regional level, for financing public investments in the construction and maintenance of transportation facilities, health, education, and environmental improvement. The country has increased the linkage of private capital not only in sector production and export activities, but also in activities for supplying and distributing oil products, natural gas, and electricity. As an example of this evolution, at present 58% of the capacity for electric power generation is private, compared to the year 1995 when 100% was in the hands of the State. In the last 10 years, Colombia has also made progress in integrating its electric power infrastructure with Venezuela.

Prospects of the energy sector in Latin America and Colombia

In the future, one can envisage a promising scenario for the energy sector of Latin America and the Caribbean as a result of growing regional integration and coordination of energy infrastructure and trade, which will enable this group of countries to be consolidated as an important and coordinated bloc in the process of expanding globalization in this sector.

Colombia aspires to become a major leader in this process and in the region's new energy situation, for which it intends to set up new interconnections for its electricity and gas infrastructure with neighboring countries and to increase the participation of different energy sources in Latin American trade.

Costa Rica



*Elizabeth Odio Benito
Second Vice-President of the
Republic and Minister of the
Environment and Energy*

Costa Rica and Latin American Energy Development

In a world context, where development models change and globalization is a process that is gathering momentum, each Latin American and Caribbean country should search for better options that would enable it to benefit from their comparative advantages and thus guarantee a sustainable future development.

Energy as such is obtained from natural resources. Therefore it is necessary to implement a policy for the rational use of energy. As a result, the major challenge is to strike a balance between the two positions, so that we can enjoy the natural wealth we possess, ensuring the sustainability of the resources that are to be tapped, without destroying them but repairing the damages that are caused.

The development of energy resources should be respectful not only of other human uses of resources but also of the need for these resources that other living beings that are sharing the planet with us may have. Because of this, we can assert that conservation and development are not objectives as such, because they are leading us to the conclusion that when planning energy development, one must have a comprehensive vision of the resources to be developed.

The challenge is therefore quite impressive: how can we strike a balance among these variables that seem to involve such a sharp conflict of interests? This is a query for which our countries must find an equitable answer that would enable the needs of both present and future generations to be met.

Over the last decade, Costa Rica experienced a series of reforms in the national energy sector, especially in the electric power industry, which started with the enactment in 1990 of Law No. 7200 for autonomous or parallel generation and its respective amendment, Law No. 7508. This law has been considered highly successful by some sectors since it has led to the development of 26 hydropower projects that have helped the Costa Rican Electricity Institute (ICE) to supply electric power. Likewise, the first project using a BOT scheme has been developed, using geothermal energy, with a capacity of 27 MW, which was commissioned in 1999. In addition, with support from private-sector investors, new and renewable sources of energy have been developed. At present, our country has 42.5 MW in wind energy projects, which have contributed to reducing greenhouse gas emissions.

On December 13, 1994, Law No. 7447 for the Regulation of Rational Use of Energy was enacted; it is aimed at set-



ting up an instrument to implement the country's different production activities so as to promote its efficient use in order to take full advantage of the energy investments that the country has available not only from the supply side but also from the demand side, since the efficient use of energy could become our country's most important clean energy source. Enforcement of this law has generated considerable energy savings for our country, amounting to US\$8 million per year. Nevertheless, I believe that much has yet to be done since this legislation has various constraints that require constant revision.

Central American energy integration has been promoted through the Central American Integration System (SICA) by means of specific projects, which are the Electric Power Interconnection System of Central America (SIEPAC) for electric power matters and the Regional Gas Pipeline for hydrocarbons.

Ratification by the parliaments of five Central American countries of the Framework Treaty of the Central American Electric Power Market as part of the actions aimed at consolidating the SIEPAC, permitting the countries of the area to undertake commercial power transactions in order to achieve greater energy and trade integration of the Isthmus, is noteworthy.

Likewise, with support from the Economic Commission for Latin America

and the Caribbean (ECLAC), the Central American countries are seriously considering the possibility of building a regional gas pipeline that would enable them to benefit from natural gas coming from Mexico for thermoelectric production, using a clean and cheap energy source.

Regarding electricity coverage in Costa Rica, it should be indicated that, by the end of the nineties, we had achieved a degree of electrification amounting to 94.7% of the territory and the country's population. This achievement merits a reformulation of the strategy for supplying electricity to communities that as yet do not have this service since rural electrification for low population densities is very costly and burdensome.

In the reformulation of the strategy, the use of new and renewable sources of energy (mini hydro, solar collectors, and wind energy) has been established as an alternative means for electrification, a project that is supported by the United Nations Development Programme (UNDP) and in which 32 communities requiring this service have been identified.

There is still much to be done. That is why the exchange of know-how and experiences between our countries and the advisory services of specialists in the field of energy and the environment are key aspects to suitable policymaking for the planning of this sector.



*Marta Lomas Morales
Minister for Foreign Investment and
Economic Collaboration*

Latin America: Assessment of its evolution and prospects

The energy sector of Latin America underwent major reforms that promoted better operating performance of the companies and their capitalization. Investment in the sector has been fostered and the quality of energy services has improved, although without significantly increasing the coverage of this service. There are 70 million Latin Americans and Caribbeans who have no access to electricity. More than 15 countries have coverage indices that are below 70%. The pace of electrification has slowed down, especially in rural areas. Household spending for energy has been adversely affected by price adjustments, in addition to the other social impacts stemming from adjustment processes.

As for energy efficiency, as a whole there has been no progress, and the region's energy intensity has hardly changed. At the same time, there have been changes that are not favorable for the purposes of technological development and environmental sustainability.

Among the changes mentioned above, there are predominant privatization processes and changes in operating schemes with less involvement of the State, inasmuch as the State has not played a guiding, coordinating, and regulatory role required for energy planning and expansion viewed as a systemic process of a strategic nature and has not built up the institutional capacity needed to dismantle the corresponding barriers. The objectives that have prevailed have been short-term returns and it has not been possible to secure major long-term sources of financing. The absence of solutions to the problem of insufficient access to energy by poor sectors (40% of the population) is a factor that undermines the possibility of environmental protection, especially owing to deforestation.

Looking toward the future, the most important challenges to development and sustainability are social equity and availability of financing to expand the energy infrastructure, since incentives for private-sector participation will

decline as privatization processes come to an end.

The State should strengthen regulatory agencies to guarantee an authentic scheme of competitiveness, protecting to a greater extent the interest of users from the action of powerful interest groups and foreign interests and forcefully assuming functions for the common good, such as the development of natural resources, ensuring that the neediest sectors of the population gain access to energy, mitigating environmental impacts, and harmonizing energy policies in order to accelerate incipient regional energy integration processes, which is the suitable way to sustain autonomy of action in the face of globalizing processes, enhancing negotiating capacities on the international market and contributing significantly to resolving local energy problems, bearing in mind especially the high energy potential for the region.

Cuba: Evolution and prospects

Energy policy measures played an important role in tackling the crisis of the



early nineties. These measures involved refocusing the strategy for energy development, giving priority to the development of national sources of energy and enhancing energy efficiency.

The liberalization of the sector to permit foreign capital investment for oil exploration and production using a risk exploration contract scheme contributed to attracting investments on the order of US\$450 million, which in the present decade led to a sixfold growth of the oil and gas extraction volumes, which by the year 2000 amounted to about 3 million tons of oil equivalent. There was also an important process of technological development in oil and gas activities. It is expected that the volume reached can almost be duplicated over the next five years and amount to 10 million tons by the end of the next decade. Work is being done in association with PETROBRAS for offshore oil exploration in the northern part of the country, and Cuba has recently allowed foreign investment in its Exclusive Economic Zone located in the Megabasin of the Gulf of Mexico.

The use of heavy crude and domestic gas (in the latter case with highly positive economic-environmental impacts, including the production of sulfur) is yet another relevant aspect. Next year, 70% of electricity will be generated by

national sources and over the next three to four years, this share will have increased to 90%. The number of consumers benefiting from these national resources, which include the cement and nickel industries among the most important, continues to grow. In view of the foreseeable increase of extraction, various technological alternatives for the use of heavy oil, including its refining, are being studied.

The electric power sector is also open to foreign participation in power generation activities, with mixed enterprises being set up as independent producers for gas-fired power generation (the transmission and distribution stages will remain entirely in the hands of the State) and a BOOT-type business scheme. The Eastern European technology of thermoelectric stations has been upgraded, and this has enhanced the efficiency of national crude oil consumption and enabled the sector to benefit from the technical availability of these facilities.

Negotiations are taking place for the participation of foreign capital in tapping renewable sources of energy, especially the use of the energy stemming from sugar cane bagasse. Other renewable sources of energy have continued to be developed basically to support rural electrification.

Energy intensity has declined by 15% in the decade; two thirds of the reduction was possible thanks to the implementation of an Energy Saving Program that was launched at the end of the decade. Volumes far higher than the cumulative amounts invested in the three decades previous to the nineties have been invested in energy efficiency. The ratio between imported energy supply and GDP has declined by about 37% during the period, as a result of the development of national sources and the rise in energy efficiency.

The population has continued to expand its access to commercial sources of energy (more than 95% of the population with electric power service) and a gasification program, which over the next few years is expected to bring benefits to 3 million persons, is being implemented. By the end of the next decade, it is hoped that 75% of the population will be consuming gas (almost 80% consumed kerosene in 1998).

It is envisaged that, thanks to the above, there will be a significant increase in the country's energy self-sufficiency. To achieve this, the planning of the economy, the active role of the State, and the consolidation of its regulatory and oversight functions have played a central role.



Pablo Terán Ribadeneira
Minister of Energy and Mines

Ecuador started implementation of its liberalization policy to encourage the private sector to invest as a partner with the State in the oil and electricity sectors, among others, as a viable solution for the development of the economy.

Over the short term, the optimal use of oil and gas resources constitutes the best and fastest solution to the crisis, since it requires major investments of fresh capital, fosters the generation of employment, gives greater impetus to production and contributes to introducing new resources. The country has the resources but lacks capital and technology for their development.

Development of the oil and gas sector will enable Ecuador to obtain resources to reactivate its production sector, generate funds for the many social projects that have been planned, and contribute to the country's transformation and modernization on the basis of the efficient use of the hydrocarbons that have been discovered and those that are as yet untapped, the exploration of new frontiers to consol-

idate the country's export status, and also maintenance of high-quality fuel supplies to the domestic market.

Construction of the heavy crude oil pipeline (Oleoducto de Crudos Pesados—OCP) is one of the largest projects over the last 20 years; it will permit a reactivation of the oil sector, which is currently depressed owing to the absence of fresh investment.

The process is irreversible and according to the timetable that has been set, once there are clear laws and regulations for implementation, it is expected that construction will begin in January 2001.

The Government determined that, in the view of the lack of own resources to carry out this project and the scarcity of public funds which are being aimed primarily at social works, it should be the private sector that should take the risk of building this project without any state backing.

It is expected, however, that the economic earnings stemming from the installation of the OCP will be aimed at meeting pressing social needs.

Construction of the oil pipeline to carry heavy crude is a project that, in addition to contributing to the reactivation, optimization, and increase of oil production in the major oil fields of Petroecuador, will promote the production of new oil reserves in the southeastern area of the country.

Some economic data underscore the benefits of this project: US\$500 million in new investments, which is the amount needed for building the project, and between US\$1 billion and US\$1.5 billion in investments to increase crude oil production.

Furthermore, there will be a net additional income of US\$4 billion for Ecuador during the years the OCP is being built and as production increases. The increase in oil exports in four years, estimated to be about US\$3.1 billion, will avoid the loss of US\$1 billion, since it will enable current oil reserves to be suitably tapped.

For not having already built this project, Ecuador has suffered a loss of income of about US\$1.4 billion over the last five years.

As for the social benefits, this project will exert a direct and indirect multiplier effect on the country's gross domestic product (GDP) and employment.

It will generate about 30.000 new jobs.

About US\$250 million will be aimed at paying the salaries of the project's workers.

It will promote the development of the economy, infrastructure and social programs in the provinces of the Amazon region.

The public institutions receiving oil revenues will benefit from the increase in economic resources available.

Since large amounts of new revenues will become available, there will be more schools, more hospitals, and better highways, teachers and physicians will be paid on time, and social care for children and the poor will improve.

It will definitively enable the extraction of the country's wealth located underground to put an end to the misery that has spread above ground.

El Salvador



*Ernesto Lima Mena
General Superintendent of Electricity
and Telecommunications*

Energy sector development in El Salvador and its integration into the region

In El Salvador, energy resources are scarce and limited. Because of this, the country's development has always been closely tied to regional development and has fostered the development of economic and energy integration initiatives for many years, facilitating the achievement of significant progress that has enabled it to address globalization jointly with the Central American Isthmus.

In the past, the energy sector of El Salvador was characterized by a high degree of State interventionism. The functions of planning, regulation, and operation are concentrated in a few institutions. Until 1989, energy policy-making, development planning, and the establishment of standards were concentrated in autonomous state institutions. Nevertheless, in the nineties, major reforms were carried out in the sector, competitiveness was

introduced, important energy assets were privatized, new regulatory institutions were created, and modern laws for the electricity subsector and the environment were enacted, permitting the development of power market and greater environmental protection.

The structural changes that have taken place in the energy sector over the last five years have led to a dynamic electric power market that includes the harmonious participation of the private and state sector, where regulatory activities are being increasingly consolidated, guaranteeing clear rules for operators, greater efficiency, and more competitiveness.

The objectives of introducing competition and private-sector participation in the energy sector in El Salvador have been combined with the objectives of achieving greater energy integration with the Central American Isthmus region. In this context, the country has participated actively in regional projects such as the Honduras-El Salvador power interconnection, which is estimated to end in the year 2001, and in the development of the project Electric Power Interconnection System of the Central American Countries (SIEPAC), which provides a vision of the future for the region with the gradual development of the power market of the countries.

SIEPAC is of the utmost importance for the Latin America and Caribbean region, since by the time the project has concluded in the year 2006, Cen-

tral America will have achieved energy integration with Mexico and Colombia in a short lapse of time and there will be a free flow of trade between the region's countries.

Another important aspect of the gradual development of electric power market of Central America is the ratification in 1998 of the Framework Treaty of the Electric Power Market of Central America by the legislatures of the countries of the Central American Isthmus. This regional legal instrument permits the gradual growth of the power market and creates regulatory and operating entities for the regional market, namely, the Regional Electric Power Interconnection Commission (CRIE) and the Network Operator Entity (EOR), respectively.

The Framework Treaty and the operation of the market regulatory and operational entities in Central America will facilitate international transactions and guarantee greater energy integration between the countries.

The experience and achievements of energy integration in Central America are proof that Latin America and the Caribbean are aiming their energy development toward greater integration, where all the players who are participating can develop their skills and energy services will be high quality and low cost. This will be the principal challenge for the region over the next few years, namely, to ensure that the population can benefit from integration.

Grenada



Gregory Bowen
Minister of Energy

The principal component of primary energy supply in Latin America and the Caribbean is oil, which accounts for close to 50%. The region's energy supply and demand have been marked by positive growth rates throughout the past decade, with demand exceeding supply by approximately 0.2% on average. Total oil exports of the region are approximately 5 million barrels per day, whereas imports amount to 1.15 million barrels per day.

Over the past ten years, the energy sector of Latin America and the Caribbean has been characterized by the achievements in privatization of the electric sector and greater openness (liberalization) of the hydrocarbons sector to private investments.

In Grenada, the State relinquished its control over the electricity power sector in 1984, when it sold the island's only power utility, (Grenlec). Our installed capacity has moved from 18 MW (1990) to 27.23 MW (1999).

The quantum of electricity subscribers has grown from 19,196 (1986) to 34,292 (1999) over the last decade in this country, as a result of our rural electrification drive in the mid-eighties. This in itself provides an indication of the greater welfare of our population.

Today, the national electric grid covers the entire island, with the exception of small villages, within a three miles distance from the said grid.

The progress made under the framework of energy integration projects is commendable. The US\$2.033 billion, gas pipeline between Brazil and Bolivia, the pipeline between Argentina and Uruguay, the interconnection projects between Colombia and Ecuador with a capacity of 30 MW, and the renewal of the San Jose Accord are just a few shining examples of progress made to improve the standard of living of our peoples.

In Grenada, a country that relies on imported petroleum products to satisfy her energy needs, attention has been given to the sensitization of consumers in the areas of energy conservation and rational/efficient use of energy. We have benefited considerably from the technical assistance for the installation of solar water heaters in all our public hospitals and the conducting of energy audits at selected institutions.

In contrast to the last ten years, the structure of our energy prices in the nineties has been modified to reflect real market prices. The prospects for energy development in Latin America



and the Caribbean over the next few years appear to be quite positive. The challenge of expanding and modernizing the national energy sector is one that needs to be embraced affirmatively by all stakeholders.

The energy sector has been benefiting increasingly from the change in technology and the deregulation processes that are being experienced globally. In fact the structural changes and investments in this sector have contributed considerably to institutional strengthening and capacity building, and in particular, its capacity to address present and future challenges.

Over the next few years, there will be numerous opportunities for new energy integration projects in the areas of hydrocarbons (natural gas and oil products) and renewable energy (geothermal, hydropower, etc.). Data generated by the SIEE indicates that the region's final energy demand is characterized by the predominance of hydrocarbons, which accounted for more than 50% of final domestic demand. It is expected that projects like the Caribbean Renewable Energy Development Project (CREDP) will provide the necessary technical assistance

to enable the region to eliminate the barriers to the application of new and renewable energy, thereby contributing to a greater energy mix.

In order to enhance the prospects for energy development, consideration must be given to the formulation and development of an appropriate policy environment for informed decision making. In Grenada our existing legal framework will be speedily updated and modernized and new policies and legal frameworks for energy efficiency and renewables incorporated therein.

It is anticipated that the progress made in liquefied natural gas (LNG) research and development will present new opportunities for further transformation and development, and in some cases (including Grenada) revolutionize not only our energy sector, but our entire economy.

In this respect, the process of continued Maritime Boundaries Delimitation Negotiations with the Republics of Trinidad and Venezuela is critically important to the initiation of petroleum exploration and development activities in Grenada.



Raúl Archila
Minister of Energy and Mines

Energy Sector: Assessment of the Development Achieved and a Vision for the Future

Until the eighties, the energy sector had evolved in an environment where state actions prevailed as a result of the consolidation of monopolistic structures where the most important schemes were planned development, vertical integration, economies of scale, expansionism and oftentimes heavy political intrusiveness. Likewise, the State was in charge of company activities, which led to financial, operating, regulatory, and standard-setting problems.

Globalization, worldwide market liberalization, the decline of energy rates and prices, the absence of incentives for efficiency, and the depletion of traditional financing sources triggered a shift in approach, one based on the introduction of efficiency and competitiveness, looking for a model that would contribute to the economic, social, financial, and environmental sustainability of the countries.

In the nineties, the majority of the Latin American and Caribbean countries started making efforts to transform the structures of the energy sector. These efforts are especially evident in the electric power subsector, where, albeit with delay and the application of different schemes, there was a vertical breakup of electric power activities and the creation or consolidation of entities

in charge of energy tariffs and prices, standard-setting, trade, and system operation. This scheme opens up opportunities for private-sector participation, especially in the area of power generation and distribution and so that the State could carry out with greater impetus the work of subsidiarity, indicative planning, and ensuring that the players carry out their activities with respect for the principles and spirit of the frameworks that were established.

Although progress has been considerable, there is still much to be done. In short, it is evident that the following has to be done: take up the challenge of ensuring that political players contribute to the consolidation of the reforms that were undertaken; support and strengthen the activities of the institutions in charge of managing the sector, especially the regulatory entities; increase human resource training programs for more effective decision making in the new tasks they must undertake; extend and diversify energy coverage, in the amount and with the quality that are required, especially in the rural area; increase the small and large-scale use of renewable sources of energy to reverse the trend of using technologies that consume oil products; provide incentives for attracting the capital that is needed to fund the sector; and undertake the integration of the region's energy infrastructure and markets.

Guyana



*Joseph O'Lall
Energy Coordinator of the Guyana
Energy Agency*

In the past decade, the energy sector of Latin America and the Caribbean (LAC) has been greatly constrained. LAC countries all have one common problem, that is, individually they do not possess the financial capacity to meet the demand for the development of their energy sectors. Attempts were made to create energy institutions, but they were not successful in their implementation for various reasons, mainly because the assets contributed were from the developed countries and other multilateral donor agencies.

Guyana is a country rich in natural resources, having a vast potential for new and renewable energy. These include solar, wind, biogas, biomass and hydropower, the latter two being the most attractive. Their development, however, has not been in keeping with their potential, since the country still remains heavily dependent on petroleum energy products as its major source of energy. In order to foster its development, new and innovative financing mechanisms must be

found, because without financial power, we are but a voice in the wind.

The development of an energy bank will solve this problem. The assets of the bank will be derived from an energy fee of 1 U.S. cent per kWh, which will be applied to consumers throughout LAC.

The benefits are enormous, since annual gross assets accrued to the bank will be in the vicinity of US\$8.7 billion.

- This will ensure that about 4,000 MW of new energy can be installed in Latin America and the Caribbean per year.
- With every new MW of power installed and energy sold, more money comes into the bank.
- The bank will finance a university second to none.
- Excess green energy will be sold to North America at competitive prices moving closer towards a sustainable environment, which is



in keeping with OLADE's regional integration plan.

- The Caribbean isolated island states will have access to new energy as per demand.
- The petroleum industry of LAC will benefit tremendously by having access to capital to research and develop new oil fields and to develop new refining capability to be able to market a very refined product at lower costs, the cost of capital being negligible as a result of borrowing from the Energy Bank.

The Latin American and Caribbean Energy Organization (OLADE) at the XXX Meeting of Ministers held in Rio de Janeiro in June 1999, focused on the central topic *Energy Interconnection and Regional Integration in Latin America and the Caribbean*. In Guyana, initially, buying power is a necessity, but the ultimate goal is to sell power to Latin America and the Caribbean. It is perceived that energy costs will be much lower than the energy sources currently available. In the meantime, hydropower and other alternative energy sources will still be developed.

The Government of Guyana is committed to the development of the country's energy resources through private sector local/foreign partnerships. An international transmission line inter-

connection at the Guyana-Brazil border will guarantee a load demand since this line can also serve to supply the Latin American market. A proposal for a feasibility study to establish an international interconnection, which will interconnect Guyana, Brazil, Venezuela and Suriname, has already been put forward to OLADE. The establishment of such a line is critical to the development of Guyana's vast hydropower resources and it also gives the impetus needed for investment.

It is my strong belief that all energy sectors should have renewable energy development as their main focus, even if the energy sector is driven by conventional energy. Regional energy sector objectives must adapt to the imminent changes in energy sector development globally. Limited fossil reserves being the main reason, with the numerous negative effects from global warming to climate change being only the secondary effects. We presently have the ability to develop sustainable alternatives rather than exhaust existing natural fossil reserves.

This is the time to pool our resources together to benefit OUR people.

Haiti



*Serge Raphaël
Minister of Public Works,
Transportation, and Communications*

Over the last decade, the energy sector of Latin America and the Caribbean has attracted 52% of the world's energy investments. The start of the new millennium should witness the consolidation of the success of the integration efforts coordinated by the Latin American Energy Organization, in view of the large amount of natural resources available in the region, namely, 13.4% of the world's oil reserves; 5.5% of the world's natural gas reserves; and 2% of coal reserves, as well as a high hydropower and geothermal potential, calculated at 620,000 MW.

Regarding Haiti, the energy sector has not been able to attract investments owing to the scarcity of natural energy resources, which has forced decision makers to adopt a demand-side management policy. The country's development is conditioned by two factors that are directly related to improving the living conditions of the population.

- a. Supply of more thermal energy services for the residential

sector and for small enterprises with less pressure on wood resources.

- b. The supply of sustainable services of electricity to consumers at an economical price and in sufficient amounts.

With respect to these two factors, importing oil products exerts an adverse impact on the country's balance of payments.

Thermal energy services

The high level of environmental deterioration in Haiti hampers all efforts to improve the quality of living. There are many causes for this deterioration; nevertheless, the predominant factor continues to be deforestation, which is affecting agriculture and hydroenergy production. Among the elements influencing the deforestation process there is, first of all, the growing demand for charcoal and firewood by cities and marginal urban sectors.

Electric power services

Haiti's current electric power supply cannot meet demand or contribute to economic and social development. The national power utility fulfills its objective mainly in urban centers. The

national power coverage rate is on the order of 15%, with huge problems in distribution, service supply security and financing capacity. Over the years 1989-1996, production as a whole has been marked by major fluctuations. During this period, production has increased by 6%, although technical and nontechnical losses have also risen at the same pace.

Haiti's future energy development

From the geographical point of view, Haiti is part of the Caribbean. Nevertheless, its energy potential is very different from the potential of other countries of the region. This is a very specific characteristic that should be taken into consideration in the development of the country's energy sector. In the current context, in order to fulfill its obligations to provide universal coverage of electricity, the Government envisages energy sector development in three phases: legal reform of the power sector with the establishment of an autonomous regulatory entity; modernization of the national power utility; and a power supply program in rural areas and remote villages. The substitution of charcoal and firewood for other fuels continues to be a short- and medium-term objective.



Xiomara Gómez de Caballero
Secretary of State for Natural Resources
and the Environment

Energy Sector Evaluation: Latin America and Honduras

In the last decade, the energy sector has become the driving force behind the socioeconomic development of the countries of Latin America and the Caribbean. Although our governments have made efforts to define the role of the State as the promoter of sector development, the economic phenomenon of globalization indicates that energy supply cannot be managed separately, and because of that integration is an essential element to guarantee regional energy complementarity and sustainability. Financial constraints and debt problems have been and continue to be one of the major obstacles to meet the region's energy demand, forcing countries to take economic and political measures to promote, by means of a suitable legal framework, the participation of private investment in the sector.

In Honduras, as in the rest of Latin America, energy policies and strategies have been introduced over the last decade to promote development by

means of the following: increase in the availability of electricity in the interconnected system to contribute to rural electrification; facilitate industrial expansion offering incentives to private investment through energy policies that include: a) tax exemptions for the introduction of fuel for energy production, b) incentives for the generation of renewable sources of energy, with tax exemptions for the introduction of equipment, as well as income tax exemptions during the first five years of commercial operation and mandatory purchase of energy by the National Electric Power Utility; and c) the promotion of projects that include carbon certification costs in their financial analysis.

Despite the above, in the specific case of the electric power subsector, by the end of the decade private-sector participation in generation had been ensured. Although this was done initially in thermoelectric stations, it has led to the current interest in power generation using renewable sources of energy. Likewise, as a result of the disaster that Hurricane Mitch left in its

wake, the State of Honduras proposed the National Reconstruction and Transformation Plan, providing strategic guidelines to consolidate the electric power subsector and to compensate for the losses that, among the power generation facilities alone, amounted to US\$16.7 million and to provide incentives for the use of alternative sources of energy. This has led to the submission of 72 requests to the present Secretariat from private-sector investors for power generation projects using clean sources of energy, amounting to a total power capacity of 1023 MW, which could be incorporated into the system over the short term.

As signatories to the Kyoto Protocol, we are committed to developing rational and efficient use of energy policies for the reduction of greenhouse gas emissions, which damage our environment. As a result, in its search for sustainable development, the State is promoting social, economic, environmental and equity actions aimed at improving energy distribution and use.

Jamaica



Some Regional Energy Sector Development Strategies

As our productivity in Latin America and the Caribbean has increased, living standards have risen in the last ten years and so has commercial energy demand. For this reason, in the future we need to pay greater attention to energy development as a function of economic growth. I will mention four areas, in particular, that require greater attention:

- The matter of energy security
- Energy efficiency improvements
- Capacity building of the private and public sector
- The environmental benefits of cleaner fuels

Security

In the Caribbean, a major need is to extend electricity service to unserved populations as well as service the demands of agriculture, transport and urban-industrial growth. We have tended to view energy security since 1973 as merely reducing dependency on oil consumption and imports. However, in today's market environment, energy security is an issue shared by both importing and exporting countries.

Our energy security can be enhanced by:



*Robert Pickersgill
Minister of Mining and Energy*

- The ability, through the state or private sector, to access foreign energy resources and products that can be freely imported through ports, pipelines and electricity networks where relevant. This can be assisted by charters, energy treaties, and other trade agreements.
- Keeping adequate country or regional reserves to strategically make up for any transient interruption, shortages or unusual high demand.
- Developing indigenous renewable energy resources that can be a part of the local energy mix.
- Diversifying import sources and types of fuels.

To ensure security in many Caribbean countries, electricity supplies are bolstered by standby plants on the consuming premises. Attaining a reasonable standard of energy security in the public system is essential not only to

improve security, but also to limit the wasted resources on standby plants and unused reserves. This can be improved by better system planning and by investment in training and maintenance, rather than only investing in system extension.

Of all the energy forms, crude oil is still the most important for energy security. OPEC has the power to influence oil prices through supply allocation, and its influence has increased recently. However, oil prices are now too high, and this is proving to be a burden to some economies.

Natural gas is gaining importance and should become an integral part of the energy mix in the Caribbean, whenever it is technically and economically viable.

Energy Efficiency

We have traditionally underestimated the economic potential of energy efficiency and its positive impact on the economy, the environment and employment.

Realizing our energy efficiency potential is not only beneficial for the consumer, but also benefits the economy by the re-spending of saved energy cost, the substitution of energy imports by locally produced efficiency goods and services, as well as growth



in employment, construction and technical innovations.

Among the energy efficiency policy recommendations are:

1. Energy audits in all medium and large enterprises.
2. Fostering cogeneration in industry.
3. Customs tariff relief on imported equipment related to energy conservation.
4. Setting energy standards for consumer equipment with restrictions placed on the sale of low efficiency equipment.
5. R & D programmes in energy efficiency as a distinct component of the science and technology plan.
6. Intensifying efforts in creating awareness on energy conservation.

The commitments of the Kyoto Protocol are major drivers of energy efficiency, because about 70% of greenhouse gases are related to energy use.

Capacity Building

A challenge lies in capacity building with respect to public awareness and human resources development. Our task is to provide training, both at the technical and policymaking level; to

raise awareness and provide information. We need massive public education programmes, with the participation of a full range of social actors in the public and private sectors.

The capacities that are required in our countries include the local manufacture and marketing of appropriate technologies. We need to provide education and further training for public and private managers and supervisors, operators and maintenance workers and research scientists and technologists. Capacity building will require institutional reforms that include savings and investment institutions, regulatory frameworks and enforcement procedures, as well as standards and certification. The important message is that too often poor information and training, low awareness, and general inertia result in policy failures.

Unless substantial improvements in capability and capacity building are made, our problems will not likely be resolved. Perhaps the time has come to consider a regional approach to training and capacity building on a formal basis.

Environment

Fuel use is the major cause of urban air pollution. I am pleased to indicate that in Jamaica, although the regulations allow for a phase-out period of lead in gasoline up to July 2003, we fast-tracked our commitment and phased

out lead in gasoline in April 2000. This is in response to a commitment made at the Summit of Americas meeting in 1994.

The use of cleaner fuels is part of our commitment to control environmental pollution as we move toward a sustainable energy system.

Conclusion

When energy prices rise rapidly, a serious deficit in balance of payments occurs in many Caribbean countries. Indeed, the debt burden from the seventies persists to this day in many of our countries and our people continue to feel its effects.

Affordable and accessible energy services could dramatically improve standards of living and economic growth. Electricity prices to consumers in Caribbean countries range from a high of 35 U.S. cents per kWh to a low of 5 U.S. cents per kWh. In Jamaica, it is approximately 12 U.S. cents per kWh. It is clear that we need to reduce energy intensity and where possible, energy prices.

Our strategies throughout the region must include capacity building in both human resources and finances, in order to harness appropriate supply and end-use energy technologies. But further, we must convert our strategies into policies, wielded by effective policy agents. Therein lies our challenge.

Mexico



*Luis Téllez K.
Secretary of Energy*

Latin America and the world energy revolution

Over the last decade, progress in computer technology has accelerated world globalization and trade processes. Greater flows of information at increasingly faster speeds have transformed economic structures, the way in which markets and governments are organized and operate, and how economic players and nations interact. The most advanced energy sectors are currently deeply involved in this shift, which is also called the "new economy". By dismantling barriers to entry and using tools such as Internet, this new economy is revolutionizing the way of providing services and creating wealth.

Energy sectors have also been deregulated to stimulate competition. This has revolutionized the way of operating companies, attract fresh investment, and reduce the prices of goods and services. Thus, industries that formerly were set up as monopolies have now been broken up, fostering higher levels of competitiveness, as has occurred in the electric power industry in power generation, distribution, and marketing processes. Likewise, in the natural gas

industry, there are new competitors working in natural gas extraction, transport, storage and distribution. In oil, the technological breakthroughs have tended to favor the vertical integration of the companies and mergers aimed at reducing costs.

As for the users, they have witnessed a rise in the number of options for comprehensive energy goods and services. This has led to the consolidation of competition in the sector and, as a result, higher quality and lower prices.

Over the last decade, in Latin America, a large number of energy markets have been modernized, including the electric power industries of Argentina, Bolivia, Colombia, El Salvador, Guatemala, Panama, and Peru, which have joined Chile in setting up more open markets; in the natural gas industry in the above-mentioned Andean countries, plus Venezuela and Brazil, where exploration and production activities have been especially deregulated; and in Mexico where there is new private-sector participation in natural gas transport, storage, and distribution; or in the oil industry in those South American countries and Ecuador that have

attracted new private-sector investments.

Energy interconnections have also increased with gas pipelines and transmission lines, as in Bolivia, Brazil, Argentina, and Chile; in electric power interconnection projects in North America, where Mexico is participating albeit to only a limited extent; or in the gas pipeline project between Mexico and Central America, which will be consolidated in coming years.

In the future, the challenge of Latin American energy sectors will be to keep up their competitiveness as primary suppliers in the face of new world trends. In particular, Mexico and the remaining countries with energy potential in the region should use the new technologies in order to transform their way of organizing and operating their sectors in order to attract more private-sector investment; consolidate deregulation processes to ensure the transparency and optimization of the operation of their markets; and provide increasingly comprehensive energy services to compete globally with a sufficient supply of high-quality and low-cost energy inputs.

Nicaragua



*Luis Velázquez Molieri
Executive Secretary of the
National Energy Commission*

Assessment of the Regional and National Energy Sector

For Central America, the most important change is without a doubt the consolidation of democracy in the region. As a result, we now have peace in the region, which is a highly important element to ensure social and economic development of our corresponding societies. Fratricidal wars and bloody conflicts are now things of the past. At present, thanks to peace and democracy, these societies and governments can dedicate themselves to working harmoniously and peacefully to ensure social progress and build up the economy for their citizens and thus working together in eliminating the poverty that continues to beset large sectors of the population.

Modernization of the energy sector in the region is a direct result of the installation of democracy and peace. Today we are witnessing vigorous growth of the region's energy sector, which has become highly diversified and is aware of the importance of environmental protection. At the same time, along with economic growth, healthy growth of demand has also been observed. Of equal importance, we see with satisfaction an increasingly tighter integration of regional energy markets, through the proposal of projects such as the Regional Mexico-Central America-South America Gas Pipeline and the regional electric power interconnection project known as SIEPAC.

In Nicaragua, the most important change is the creation of a new electric power market with the liberalization of the national energy sector permitting private-sector investment. Before the Electric Power Industry Law (LIE) was adopted, this sector consisted of a state monopoly, which was totally integrated in generation, transmission, and distribution, but with the enactment of the LIE, a new national power market was created, privatization of the power utility was provided for, and rules for operating and managing the new national power market were defined for all the economic agents involved. This liberalization for private-sector investment has led to the consideration of new topics that had never before been dealt with in the sector. At present, some of the improvements that have

taken place include technical and economic efficiency, healthy competitiveness, better equity in service distribution, and the gradual shift of the national energy matrix to new nonconventional energy sources.

From the standpoint of the institution, the Electric Power Industry Law (LIE) established the National Energy Commission (CNE) as the entity in charge of governing the energy sector, energy policymaking, indicative planning, rural electrification project development where there is no involvement of the private sector, and promoting sector investments. The Law also provides for the Nicaraguan Energy Institute (INE) as the agency for regulating and overseeing the electric power market. The process of change is under way and the date for receiving bids for the privatization of ENEL, the national power utility, has been set for September 2000.

Outlook for the next 20 years

In the regional energy market, the next 10 years will be bringing greater impetus in terms of competitiveness, efficiency, and equity. The role of governments will be to facilitate these changes, and the private sector will be the driving force behind this process of sector transformation and modernization. The governments are working very actively to ensure greater regional energy integration, use new fuels, promote more and better energy efficiency projects, and develop nonconventional



sources of energy. New projects (SIEPAC and the regional gas pipeline) will be intensifying competition and the technical and economic efficiency of the region's energy sector.

In the specific case of Nicaragua, the process of modernizing the sector, which started with the adoption of the Electric Power Industry Law (LIE) in April 1998, must be consolidated. In this context, the most urgent tasks are capacity building of these institutions and the consolidation of the process itself of creating the new national energy market. Over the short term, we will also be experiencing a diversification of energy sources available in the region, the use of new and more efficient fuels and equipment, and the promotion of national policies that are increasingly aimed at ensuring energy saving, energy efficiency, and environmental protection. This energy growth will be based on the huge potential of renewable energy that exists in the region and Nicaragua, such as geothermal energy, hydroenergy, wind energy, biomass. Along with this energy diversification program, it is estimated that energy demand will grow between 8% and 10% over the next 10 years.

The second most important aspect in Nicaragua is the need for a significant increase in national electric power service coverage. At the start of the pre-

sent government administration, hardly 45% of the country's population benefited from electricity service, but now it has been estimated that, by the end of next year, this coverage will be close to 55% of the national population. Precisely with those funds coming from the privatization of the power utility, the government has decided to finance a program for the massive expansion of rural electrification in the country, which would bring the national coverage index to rates that are more or less comparable to our neighbors, because within five years this coverage should be on the order of 85% to 90% of the nation's population.

In order to favor this energy development and the use of these renewable sources of energy, the National Energy Commission is formulating energy policies, preparing indicative growth plans, and actively promoting the efficient and rational use of electricity in the country. There is as yet much to be done to ensure stronger and more effective integration with our neighbors and much has to be done to attract investment, find new sources of financing, and promote the technical, financial, and political viability of these projects, but we are confident in the future and optimistic.



*Joaquín E. Jácome Díaz,
Minister of Commerce and
Industry*

elimination of price controls, permitting the free play of market forces, the participation of new players, and the dismantling of barriers such as customs, subsidies, and other price distortions.

With the formulation and implementation of environmental policies, the consolidation of environmental management, and the use of cleaner fuels and gas emission control systems, among others, concrete actions were taken to preserve the environment.

Likewise, the inflow of private capital investments to the energy sector supported by technology development and human resources training has been facilitated, thus contributing to the consolidation and competitiveness of this sector inside and outside the region.

The energy integration initiatives promoted by the Latin American Energy Organization (OLADE) over the past decade, aimed at ensuring the joint implementation of works and investment projects among the region's countries, are especially noteworthy.

In addition, the energy development of Latin America, as envisaged for the next few years, will be very much influenced by access to modern technologies, the application of know-how obtained from other parts of the world, environmental protection, and above all market forces and how they affect energy costs, variety, quality and use.

Future demand for energy in the region will have to be met by the energy sources that are currently available, and fossil fuels will be handling the majority of this demand. Therefore, greater efforts and higher investments in oil and gas exploration and production will have to be made to reduce the dependence on imported oil.

The construction and operation of large-scale energy projects, such as the Mexico-Central American Isthmus and the Colombia-Panama gas lines will provide major benefits and contribute to regional development.

As for Panama, the prospects are highly promising since within three to four years we will have higher energy supply available, owing to new investments in hydropower generation to be installed by the private sector, as is the case of the hydropower project Estí, which will be supplying about 130 MW, in addition to the installation of new combined cycle thermal plants. These new projects, which are still in the process of being implemented, are expected to meet the country's demand for electricity over the short term.

Also in the oil and gas subsector, the start-up of new fuel storage and supply projects for ships going through the Canal and for re-export that are to be installed next to the Panama Canal is expected to exert a positive impact.

Energy Development of Latin America

The energy sector has been a key support for the economic development and growth of the region's countries. Nevertheless, over the last decade, it was necessary to undertake fundamental changes inside our countries in order to consolidate an effective energy sector capable of meeting the needs of a growing population.

Indeed, among the important transformations in the energy sector of Latin America and the Caribbean, the privatization of power utilities and some oil industry activities, which for many years were in the hands of the State, is noteworthy. Likewise, there were the liberalization of oil markets and the

Paraguay



*Helio Benito Pereira Domenech
Vice-Minister of Mines and
Energy*

Insertion of Paraguay in the Energy Integration of CONOSUR

Long before Argentina, Brazil, Paraguay, and Uruguay signed the Asunción Treaty (1991) to establish the MERCOSUR bloc, these countries had taken concrete and effective steps toward energy integration with the interconnection of their large transmission networks connecting the binational projects developed on the shared segments of international rivers such as the Uruguay River and the Paraná River in the Plate River Basin.

Thus large-scale electric power corridors were established, bringing to the respective borders the full carrying capacity required to adequately develop this big hydropower production supernode, which provides about 20,000 MW and more than 120,000 GWh per year to the region's power market. Though hard to believe, due to the lack of a modern and transparent energy regulation framework that offers reliable prospects for private investment, Paraguay has stopped sponsoring interesting businesses stemming

from its unbeatable position in this electric power corridor between the large market of Brazil's southern central region and that of Argentina.

It is essential for our country to enter the field of international electric power transactions with high competitiveness, efficiency and professionalism.

The gas corridors must also be added to this situation. They are enhancing the possibility for production and trade in the region, progressively integrating Bolivia and Chile to the Energy Mercosur and including Paraguay on the route of the best and most convenient gas pipelines and also as one of the potential customers for gas-fired power generation.

This is yet another reason for definitively promoting political actions in Paraguay aimed at endowing the energy sector with a legal and institutional framework that would enable the safe participation of private-sector initiatives in these undertakings without any invented constraints or unconfessed obstacles.



*Jorge Alfredo Chamot Sarmiento
Minister of Energy and Mines*

Assessment of the energy sector's development in the region and especially in Peru over the last 10 years

The Region

For Latin America, the last decade has provided an inevitably necessary response to the eighties, which is known as the "lost decade." Economic indices grew, requiring substantial development of the region's energy resources to meet the growing demand for energy.

The urgent need to have reliable, permanent, and low-cost energy sources and supply led the different States not only to ensure the development of their own energy sources but also to look for these sources in neighboring countries in order to meet domestic demand.

It was necessary to adopt domestic institutional, legal, and procedural measures, for the purpose of tackling this new reality, and attracting private domestic and foreign investment. The government administrations had to adopt measures to foster a change of mentality among the citizens, so that they would realize the benefits of

establishing mutual relationships between our countries to facilitate and permit actions aimed at achieving the common good of our people.

The objective of our governments was to take reliable, permanent, and low-cost energy to users in order to offer individual development of each one of them and, as a whole, the development of our nations.

These factors have contributed and will continue to contribute to the process of achieving energy integration for the region. Regarding this objective, irreversible steps of common interest have been taken, using bilateral and multilateral schemes that are currently being implemented.

The nineties has been the decade for transforming the region's energy schemes, and energy development is a milestone in the region's history of joint efforts aimed at developing our countries.

Peru

Our country has always been involved in the dynamics of the region. At the start of the decade, Peru was experi-



encing the worst crisis of its history, as a result of the impacts of the country's political and social instability. In the energy sector, state-owned monopolies hindered the participation of the private sector.

The electric power subsector had a supply deficit of up to 50% in Lima and 26% nationwide. Although private-sector participation was allowed in upstream activities and oil and gas production met domestic demand, the oil and gas subsector was governed by an obsolete legal scheme, which was incapable of attracting private investment, whether national or foreign. Clean and renewable energy sources, were hardly ever dealt with if at all and environmental regulations, as well as those for the indigenous communities, were not in line with the modern needs of the sector.

The government's decision, at the start of 1990, was to restructure the energy sector to ensure its modernization. Its political objectives were aimed at ensuring that the private sector would be more involved in its development and that the public sector would be dedicated to institutional, standard-setting, and supervisory activities and would intervene in areas requiring development but where the private sector would not be interested in becoming involved, such as rural electrification.

In order to meet political objectives, new legislation such as the Electric Power Concession Law, the Law Governing Hydrocarbons, the Law for Geothermal Energy and the Law for

Promoting Natural Gas, the Law Promoting Private-Sector Investment, among others, was enacted. The political decision of transferring to the hands of the private sector the economic units currently operating but owned by the State in the sector, through a variety of internationally contract schemes, was adopted.

In the electric power subsector, the measures and actions adopted have led to an increase in reserve levels, reaching percentages above 30%. Among other achievements, integrated, enlarged, and upgraded transmission systems have increased by more than 40% in terms of length, and during September 2000 the National Interconnected System will be starting up. Rural electrification has moved ahead dramatically, with the electric power frontier expanding until a national electrification coefficient of 75% has been reached by the end of the year 2000. Investment in the electric power subsector now amounts to over US\$4 billion.

In the oil and gas subsector, the achievements have been no less important than those in the power subsector. At present, PETROPERU has more than 40 hydrocarbons exploration contracts. PETROPERU, after a transparent privatization process, whereby it has transferred to the private sector its service stations, storage and dispatch plants, as well as blocks where it had exploration/production activities and a majority shareholding in the La Pampilla Refinery, has been successfully operating the Talara and Conchán Refineries, as well as the Nor-Peruano Oil Pipeline.

Finally, production of the natural gas fields of Camisea, which hold the largest hydrocarbons reserves in the country, has been granted to the private sector with a licensing contract.

As for the institutional framework, the Energy Investment Supervisory Agency (OSINERG) was created as a regulatory and supervisory entity for the sector, with the Directorates General for Hydrocarbons and Electricity of the Ministry of Energy and Mines in charge of energy standard setting and monitoring. Furthermore, for the sector's institutions, modern procedures have been elaborated and put into practice to enable users to benefit from efficient service and problem solving.

As for the environment, specific and exclusive norms have been provided for the sector's activities and the relationships between the sector's different entities, including private players who conduct activities with indigenous community, are optimal.

Vision of energy development in Latin America and the Caribbean and in Peru over the next few years

The Region

The expectations of harmonious economic development for the countries of the region are being envisaged as a reality toward which all of the countries are working. As a result, the energy development of Latin America and the Caribbean will continue to follow this trend without any other alternative solution.



encing the worst crisis of its history, as a result of the impacts of the country's political and social instability. In the energy sector, state-owned monopolies hindered the participation of the private sector.

The electric power subsector had a supply deficit of up to 50% in Lima and 26% nationwide. Although private-sector participation was allowed in upstream activities and oil and gas production met domestic demand, the oil and gas subsector was governed by an obsolete legal scheme, which was incapable of attracting private investment, whether national or foreign. Clean and renewable energy sources, were hardly ever dealt with if at all and environmental regulations, as well as those for the indigenous communities, were not in line with the modern needs of the sector.

The government's decision, at the start of 1990, was to restructure the energy sector to ensure its modernization. Its political objectives were aimed at ensuring that the private sector would be more involved in its development and that the public sector would be dedicated to institutional, standard-setting, and supervisory activities and would intervene in areas requiring development but where the private sector would not be interested in becoming involved, such as rural electrification.

In order to meet political objectives, new legislation such as the Electric Power Concession Law, the Law Governing Hydrocarbons, the Law for Geothermal Energy and the Law for

Promoting Natural Gas, the Law Promoting Private-Sector Investment, among others, was enacted. The political decision of transferring to the hands of the private sector the economic units currently operating but owned by the State in the sector, through a variety of internationally contract schemes, was adopted.

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At present, we have made commitments at different levels, all of which converge toward a single common element to ensure the linkage between the economy and energy. This element is called integration in all of the elements that are part of energy activities.

The development of internal elements in each one of our countries should be increasingly considered as part of the environment comprised of the countries that belong to the region. Because of this, it is indispensable to know what each one of our countries has and to inform about our needs. Domestic development is not possible unless the assets and liabilities of our regional neighbors are also considered. In this development, we must improve information mechanisms.

We believe that the new impetus that the Member States are giving to OLADE to modernize it and to enhance the Organization's purpose as an eminently political entity is the point of departure to achieve a better inter-relation between our States for the consolidation of our energy development.

Peru

Our country, as a member of the region, is observing on a permanent basis the energy developments of the countries of Latin America and the Caribbean.

We believe that the technological potential, the processes, the professionals, the research and other elements in our countries can contribute significantly to our development.

This year, we have aggressively started international activities aimed at discovering in our countries what we can offer and what can be provided to us in the field of energy. We are already enjoying the first results of these efforts and we believe that, as time goes by and our inter-relation progresses, the benefits will become even more substantial. Regarding this, the projects that are being implemented with our neighbor Ecuador are sound proof of our commitment.

Peru views energy as the most important element for fulfilling its principal objective of ensuring human development for the direct benefit and welfare of its population. To reach this objective, our policy and actions are aimed at:

- a. Promoting energy development on the basis of the active participation of the private sector.
- b. Continuing with our purpose to supply on a permanent basis reliable and low-cost energy to our entire population.
- c. Developing our new energy sources, which in our country still remain virtually untapped.
- d. Emphasizing the development of clean and renewable sources of energy.
- e. Developing inter-relation mechanisms with the countries of the region to find topics of common interest that are mutually beneficial.

Suriname



Franco Rudy Demon
Minister of Natural Resources

The energy sector has played a very significant role in society after the crisis of the seventies as a result of adjustments in energy production and consumption patterns in the world.

As we had to face drastic changes, there were financial and economic constraints in the availability of reliable energy. The past 10 years, energy sector development in the region went through new organizational structures and, as we all know, environmental concerns along with globalization led to a new framework to face the challenge of the energy sector. OLADE, as our regional organization, has the best approach to regional energy development.

The case of Suriname, over the last decade, has been similar to that of the overall development of the region but of course with some characteristics specific to the country. Suriname has a considerable potential of energy resources like oil, hydropower, biomass, and solar energy. There are also prospects for potential offshore oil and/or gas reserves. The production of crude oil went from some 80,000 TOE in 1990 to some 300,000 TOE in 1999. In 1997, some refinery activities were carried out, and the production of residual fuel oil, diesel, and heavy vacuum gasoil together went from 3,000 TOE to some 90,000 TOE. Importation of oil products went from 460,000 TOE in 1990 to 502,000 in 1999.

Electricity consumption went from 1,500 GWh/year in 1990 to 1,480 GWh/year in 1999 with a peak of 1,750 GWh in 1997.

Electricity generation by the government-owned power company (EBS) is thermal (52 MW) and the bauxite company operates a hydropower plant (140 MW). The government purchases some 65 MW from SURALCO. There are also some small thermal plants, providing electricity to people in remote areas. These plants have an annual production of some 50 GWh per year.

As for the prospects for energy development in the next 10 years, we would like to stress the fact that, due to the economic reforms, including the restructuring of the energy sector and a significant stimulation of the production and export sector, the Government of Suriname will see to it that energy production would serve and stimulate this goal. Within OLADE, the SIEE Program will be of great significance for this purpose. At this stage, we cannot give exact figures of the planned prospects for the next 10 years as we are in the process of evaluating the different studies that lay before us.

We have adopted some practical figures from a recently finalized study, whereby growth rates are estimated as business as usual. In the oil production sector, we are considering the possibility of total production rising from 700 (in the year 2000) to 1,700 x 1,000 TOE in 2010 and crude oil exports from 200 to 1,200 x 1,000 TOE.

As the Surinamese economy is still dominated by the bauxite industry (15% of GDP and 70% of export earnings), prospects for the medium term will depend on renewed commitments to monetary and fiscal policies and structural reforms, as well as impacts from energy demand.

On average, energy consumption in the past ten years amounted to about 1 million TOE, of which hydrocarbons accounted for 70% and hydroelectric energy for 26%, with biomass accounting for the rest. Changing the pattern so that our own production accounts for a larger share of supply is one of our goals. Imports of hydrocarbons are estimated to grow by 2% per year. Electricity consumption will, on average, grow by some 6%. Increasing oil production on the basis of new investments will enable this sector to grow from 13,000 bbl per day to approximately 30,000 bbl per day in 2010.



*Finbar K. Gangar
Minister of Energy and Energy
Industries*

To the people of the Latin American and Caribbean region, I wish to extend greetings from the Government and people of Trinidad and Tobago. It is indeed a pleasure to be afforded the opportunity to share some thoughts with you on the performance of the region's energy sector over the past decade and some discernible trends for the future.

The region now contributes some 6% of the world's energy supply, representing an increase in supply of some 9.7%, or 6.1 billion BOE, in 1998 over the 1990 figure. Of greater significance over the past decade was the formulation of energy policies in the region, which led to energy sector reform, modernization, integration and cooperation at regional, subregional, multilateral and bilateral levels, development of regional, subregional and national information systems, dissemination of information and movements towards regional self-sufficiency and sustainable development.

Synergies resulting from the implementation of regional energy projects are now significantly contributing to economic development in the region and a better quality of life for its people. In this context, the Latin American Energy Organization (OLADE) plays a pivotal role in energy sector development in the region. Another notable development is the movement towards the use of cleaner energy options, particularly in the growing use of natural gas in the region and renewable energy in the Caribbean. This trend augurs well for future sustainable energy development.

Considerable energy activity has been taking place at subregional levels. In the Caribbean energy subgroup, a Caribbean Energy Information System (CEIS) is in operation, a Caribbean Energy Action Plan (CEAP) has been established and other initiatives have been taken. The most significant one for the region is the Caribbean Initiative by Trinidad and Tobago to make its natural gas widely available for use in the Caribbean. This initiative by the Government of Trinidad and Tobago is supported by technological developments in the transport and use of the product. The recent capacity to

process and export LNG by Trinidad and Tobago will play a significant role in this development. Already the country is supplying LNG to Puerto Rico for electricity production. The use of this cleaner and more efficient fuel in the region will have a positive environmental impact. Plans are currently being made to convene a Meeting of Caribbean Energy Ministers to address pertinent energy matters in the region. This is due to take place before the end of the year 2000.

Trinidad and Tobago has since 1996 been producing more natural gas than crude oil based on energy equivalence, and the trend continues. The country is now essentially a gas province both in terms of reserves and production. Natural gas production between 1990 and 2000 has increased from 643 million cubic feet per day to 1407 million cubic feet per day, an increase of 119%. With the commissioning of LNG trains II and III, this production level is projected to increase to 3 billion cubic feet per day by 2005. Further exploration initiatives under production sharing contracts are projected to increase the reserve base and further support regional energy cooperation.

Uruguay



Assessment of the energy sector's development in the region and especially in Uruguay over the last 10 years

The energy sector in Uruguay over the last decade has undertaken transformations in keeping with what has occurred in the rest of the region and world, aimed at modifying its classical structured based on highly protected monopolistic state enterprises. In this sense, the first step involved transferring gas distribution via a pipeline in the city of Montevideo to a private company. Afterwards, the new regulatory framework for the power industry was approved; this framework separates the different stages of electric power business and dismantles the monopoly on generation, with power transmission and distribution services still remaining in the hands of the public sector. Although the new framework has not as yet been provided with all the necessary regulations, one can assert that it is a milestone in the change of the general conception of the sector and the role of the State.

This trend has continued with the development of natural gas, an energy source that was not part of Uruguay's energy matrix, but which was effectively introduced in the year 2000 in a framework that has nothing to do with the old structure and is developed with the impetus of private-sector companies, although some of these companies are minority shareholders of state companies.



Sergio Abreu
Minister of Industry, Energy
and Mining

The trend continues on the basis of a general premise, which consists of opening the sector up to private-sector participation, without requiring the sale of state assets or the elimination of the old state enterprises. The aim is to enhance the managerial skills of these companies so that they can participate and compete under a private-sector scheme, with some of them undertaking projects abroad.

The preliminary results are beginning to be felt in the gas sector, where there is dynamic development and strong competition with other sources of energy, all of which has brought benefits to the end-user.

In short, over the last few years, the energy sector of Uruguay has started to take steps to reformulate its structure, with as principal objective the explicit separation of the roles of the State and opening up to private capital, in order to meet the needs of the end-user, with lower prices, higher quality, and supply security while diversifying the country's energy matrix.

Vision of future energy development in Latin America and the Caribbean and in Uruguay over the next few years

The major challenge for the energy sector in the country and region will continue to be contribution to sustainable development. It can be said that what has changed is the way of tackling the problem and finding solutions. Today, the tools to achieve this objective are market integration and openness to private-sector capital, for which purpose the development of market regulations is needed, leading to the explicit differentiation of the roles of the State.

In Uruguay's subregion, the various countries are at different points of departure and have different sector realities, but all of them are focusing on the external sector in order to find opportunities for complementation to secure the necessary supply and place their surpluses. All of this is being done essentially with the impetus of companies that use the criteria and rules of the game of the private sector, without this necessarily implying that the ownership is no longer in the hands of the State.

The future that is being envisaged will be different. Over time there will be a faster or slower pace of natural integration, with the regions consolidating this complementation, beyond the political boundaries that separate them, driven by the economic rationale of the decisions they take.

Venezuela



Ali Rodríguez Araque
Minister of Energy and Mines

The subject of regional and subregional integration, especially energy integration, is a recurrent one. The governments have agendas to resolve the most pressing problems of their countries, which are usually short-term problems, but not to forecast and tackle integration problems, which are slow to mature and long-term. We are firm advocates of the integration processes being undertaken by Latin America and the Caribbean. We understand that that ultimate goal of these processes must be man, in other words, the ongoing improvement of the living conditions of all the inhabitants of the region. As Latin Americans reach higher levels of development and the interdependent ties of our nations increase and improve, we will be contributing to the definitive solution of old, persistent problems such as poverty, unemployment, illiteracy, low levels of schooling and living standards in general, as well as new problems such as the region's incorporation into a globalized economy under the best trade conditions possible. In Hispanic America, reforms have been promoted to surmount these obstacles and overcome these difficulties. It has been possible to reestablish and renew democracy and to foster citizen participation in decision

making. Liberalization of the economy has given greater importance to the market and redefined the role of the State. In the majority of the countries, energy sector reform has taken place and private-sector participation in energy activities has increased.

The overlapping of energy with economic and social development is incontrovertible. The region's countries are permanently searching for an adequate supply structure and level for their energy needs. This search involves improving some performance indicators, such as achieving a higher product per unit of energy, maintaining adequate levels of reserves of resources compared to production, and establishing price levels that enable all players of the energy chain to obtain suitable earnings, without undermining the economic well-being of consumers. These elements are, or should be, included in the countries' energy strategies, since in reality the intent is to enhance the sector's productivity, by optimizing the production of resources, rationalizing consumption, diversifying energy sources, using appropriate technologies, and ensuring remuneration for these activities.



The economic dimension of energy should be directly related to its political and social dimensions. As for the political aspect, the majority of the Latin America nations have undertaken institutional and legal reforms in the energy sector, which are aimed at breaking up political and economic power, whether public or private. Therefore, there is a substantial rise in the number of players, as well as improvements in the regulatory capacity of the States. As regulatory differences are minimized, integration of subregional energy systems will speed up.

As for social aspects, inequalities continue to persist among the different social strata of our countries. Poverty has risen considerably. The figures are truly distressing, since there are countries with 86%, 80, and 70% of their population considered to be poor. To the traditional poor must be added a group referred to as the "new poor", comprised of middle-class sectors that have been impoverished by macroeconomic adjustment programs. There is no fairness in access to services provided by energy or to other basic services. The most important challenge that the governments must address is overcoming this situation of inequity.

Energy strategies must envisage new and participatory forms of delivering energy services to the neediest sectors of the population.

As for Venezuela, major transformations in its energy sector have been undertaken, starting with the new Constitution, which provides for the Nation's ownership over the country's hydrocarbons and mining resources and exclusive shareholding of its oil industry, even when private-sector participation is allowed in business activities involving hydrocarbons and minerals. For the electric power subsector and for natural gas, specific laws will be enacted to modernize activities and the business that is conducted in these sectors. Private-sector investment is permitted, open market competition is being developed except in those activities involving natural monopolies, which should therefore be regulated, and the steady growth of both sectors is being fostered. Likewise, the interests of the consumers in terms of supply, security, quality, and price of these energy sources are guaranteed. On the basis of this legal framework and the firm political commitment to transform the energy sector, the sector hopes to attract investments to contribute to its expansion and modernization.

Successful holding of *Eurolac 2000*



Organized by the Latin American Energy Organization and the European Commission, the Europe, Latin America and Caribbean Energy Conference and Exhibition (**Eurolac 2000**) focusing on energy efficiency and renewable resources took place in Cartagena de Indias, Colombia on June 19-20, 2000.

The Conference was sponsored by the Ministry of Mines and Energy of Colombia and organized by OLADE, the Institute for Energy Diversification and Saving (IDAE) of Spain, and the National Technical University of Athens, Greece.

Eurolac 2000 was inaugurated by the Minister of Mines and Energy of Colombia, Dr. Carlos Caballero-Argáez, and was attended by Ministers, Secretaries of State, and representatives of

the governments of Latin America, the Caribbean, and the European Union.

The 200 participants at the event represented public and private enterprises working in the energy sector of Europe, Latin America and the Caribbean, suppliers of energy sector goods and services, cooperation agencies and financing institutions of the two regions, as well as experts, researchers, university professors and students, all of whom, through the exchange of experiences and the analysis and discussion of the topics that were presented, achieved the objective of **Eurolac 2000**: promoting the development of renewable sources of energy and energy efficiency in a new framework of competitiveness in the energy sector of Latin America and the Caribbean.

When the Conference ended, the participants approved the following recommendations:

To favor sustainable development, it is necessary to make a special effort to promote efficiency not only in energy production but also in its consumption. The use of renewable sources of energy must be stimulated in order to take advantage of local resources and contribute to supplying energy to remote areas. In addition, actions to reduce the impact on the environment in urban areas stemming from energy consumption and production, must be taken.

This process can include as its principal player the private sector on the basis of the business opportunities that have been created. To do this the governments must create the necessary

market conditions so that these opportunities can become a reality with the establishment of specific legal frameworks for energy efficiency, cogeneration and renewable sources of energy, as well as the creation of an appropriate environment where financing sources can play an important role in energy development.

Regarding cooperation between Europe, Latin America, and the Caribbean, it was asserted that renewable sources of energy and energy efficiency contribute considerably to both environmental and social and economic sustainability and can help to attain the global objectives of the Kyoto Protocol, whose Clean Development Mechanism (CDM) can create new and interesting opportunities for economic and social development.

The participants of *Eurolac 2000* observed and emphasized that the process of energy sector liberalization and privatization of Latin America and the Caribbean opens up perspectives for the use of new strategies that can contribute to sustainable development. Regarding this, the principal issues are: the promotion of energy efficiency, the development of rural electrification, improvement of the environment in the city, which are also of interest for the economic and social development of Latin America and the Caribbean, which can also be promoted by exchanging experiences with Europe, which has a greater focus on environmental concerns.

They underscored Europe's growing interest in developing energy cooperation possibilities with Latin America and the Caribbean, and the wide range of experience that it has accumulated in this field. These are excellent points of departure for increasing the scope of this dimension.

The Meeting suggested consolidating OLADE's ties with the European Commission and the establishment of national information networks between the two regions, as well as facilitating and promoting contacts and the exchange of experiences between the players of the two regions.

As a rule, the participants considered that, as part of a liberalized and open energy system, one has to induce market conditions to ensure the economic viability of the actions that favor sustainable development.

The participants concluded that, to develop energy efficiency, democracy and economic stability are indispensable premises.

They also concluded that it was necessary to continue cooperation efforts in the energy sector between the two regions and underscored that both the European Commission and OLADE should continue carrying out actions in this direction, and suggested that the next *Eurolac* event should take place in the year 2002.

OLADE Supports Ecuadorian-Peruvian Energy Integration

The Third Meeting of the Technical Committee of the Binational Energy and Mines Commission was held on June 26, 2000, in the city of Cuenca, Ecuador, in the presence of the Ministers of Energy and Mines of Ecuador and Peru, Messrs. Pablo Terán and Jorge Alfredo Chamot, respectively, the Executive Secretary of OLADE, Dr. Julio Herrera, the principal authorities of the city, and the 200 participants, among whom executive officers and technical experts of the energy sector of the two countries.

This Commission, set up in the framework of the Enlarged Border

Integration, Development, and Good Neighbor Agreement aimed at consolidating the peace process between Ecuador and Peru, focuses on electricity, hydrocarbons, mining, the environment, and community aspects.

As OLADE is the forum that is most suitable for promoting these activities and the exchange of experiences, the Organization has made available to the two countries, which are members of the Organization, its facilities so that it can become the forum where the Commission's objectives can materialize.

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El Salvador:

Bidding process for two geothermal concessions

El Salvador, the smallest of the Central American countries, with a surface area of only 21,000 square kilometers and population density of 286 inhabitants per square kilometer, has managed to develop a stable, reliable economy, as indicated by a country risk rating of Baa3 granted to it by Moody's Investor Services and a rating of BB+ by Standard and Poor's.

At present, the country is highly attractive for foreign investors, especially because of its suitable legal framework for private-sector investment.



San Vicente Geothermal Field

Among its objectives, the General Law for Electricity and its Regulations is aimed at developing a competitive market in electric power generation, transmission, distribution, and marketing activities. To tap hydropower and geothermal resources for electric power production purposes, a concession has to be granted by means of a bidding process. Once granted, the concession is permanent, transferable, and awarded to the entity that bids the best price. The electric power that is generated by the concession holder can be sold on the basis of contracts with different customers, such as other power generation utilities, intermediary firms or brokers, end-users (domestic or international), and/or the spot market.

In this framework and considering the current economic policy for public sector modernization, the Government of El Salvador, through the General Superintendence of Electricity and

Telecommunications (SIGET) has started up the process for prequalifying the firms that are interested and capable of participating in international bidding processes for two concessions aimed at producing electrical energy by ensuring the complementary exploration, development, and production of the San Vicente and Chinameca geothermal reservoirs, both of which have a probable minimum potential of 30 and 54 MW, respectively, and a probably maximum potential estimated to be 108 MW for each reservoir.

Specifically for the projects, a suitable level of scientific information for both geothermal reservoirs will be provided, including essential groundwork determining their feasibility and the outcome of the financial assessments and reappraisals, which have been favorable. Furthermore, it is expected that the market will be offering interesting prices for electrical energy on both the contract and spot markets.



La Viejona, Chinameca Geothermal Field

For more detailed information of interest to potential investors or independent power producers, regarding the country, the geothermal reservoirs to be awarded, and the process to be conducted, please ask for the illustrated brochure available from SIGET or its web site: www.siget.gob.sv Inquiries can also be made directly to the Electricity Manager's Office in the Department of Technical Standards and Concessions, Gerencia de Electricidad, Departamento de Normas Técnicas y Concesiones, phone (503) 288-0066, fax (503) 288-0069, or e-mail siget@siget.gob.sv

Executive Secretary of OLADE delivers an address to the ambassadors of the Latin American group of countries



The Executive Secretary of OLADE, Dr. Julio Herrera, made a presentation on the new strategic orientation of the Latin American Energy Organization and its projections on the globalization scene to the ambassadors and diplomatic representatives of the Latin American

Group (GRULA) accredited with the Ecuadorian Government.

The presentation took place at the home of the Ambassador of the Oriental Republic of Uruguay in Ecuador, Dr. Duncan Croci.

Ambassadors of Jamaica and Panama visit OLADE headquarters



The Ambassador of Jamaica to Venezuela and Ecuador, Dr. Paul Anthony Robotham (photo above), whose office is in the city of Caracas, visited the headquarters of the Permanent Secretariat of OLADE on June 29. He was received by the Executive Secretary of OLADE, Dr. Julio Herrera, who apprised him of the projects that the Organization is implementing to promote energy development in the countries of the Caribbean.

The Executive Secretary of OLADE also welcomed the Ambassador of Panama to Ecuador, Dr. Armando Terán Morales (photo to the right), with whom he reviewed the actions carried out by the Organization in Panama and the Central American Isthmus.



Africa-Latin America Energy Meeting is being organized for the year 2002

The Ambassador of Algeria to Venezuela and Ecuador, Dr. Mohamed Ghalib Nedjari, visited the headquarters of OLADE's Permanent Secretariat on September 15 to inform that the Ministry of Energy and Mines of Algeria has proposed that an Africa-Latin America energy meeting be organized in Algeria in the year 2002.

The meeting, which would bring together the Ministers and top-level authorities of the energy sectors of the countries of both regions would be aimed principally at laying the groundwork for new forms of energy cooperation and establishing an

association between the energy administrations, organizations, and companies of both the public and private sectors of African and Latin American countries.

The Ministry of Energy and Mines of Algeria expects that the African Petroleum Producers Association (APPA) and the Latin American Energy Organization (OLADE) will be in charge of organizing this important event, with support from international and regional financial institutions such as the World Bank and the African Development Bank.



Ambassador Mohamed Ghalib Nedjari (right) gives documentation to Juan José Castro, Head of the Executive Secretary's Office