

FIER: A Decade promoting integration

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Towards an integrated and sustainable energy planning

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The Latin American Energy Organization, OLADE (in Spanish) aware of the importance that energy planning has at the world and regional levels as a tool for the evaluation and monitoring of policies that will contribute to energy security, sustainable development and regional integration, has focused its efforts to strengthen this area, through the implementation of actions and the development of tools that foster the simulation, management and administration of energy information and the transfer of knowledge among our member countries.

Taking into consideration this mission, we next present the principal elements of the background that has brought about the development of the actions for planning from OLADE; the difference between the concept of policy and that of planning; the systematic approach to the planning process, the evolution of this concept and its relation to sustainable development. Likewise, there is a description of the tools that from OLADE are being used for planning, concluding with some considerations derived from the experience and activities that the Organization has carried forth within this scope, and which through these means are made available for providing service and knowledge in the region.

Background

—Energy planning in Latin America and the Caribbean has been somewhat limited due to frequent changes that have taken place in the last twenty years, generated by structural variations in the energy sector and global events associated with economic recessions, which affected investments in the regional energy sector. As a result of this, at the national level, units for energy planning were organized and dismantled several times, losing the continuity of strategic energy planning and the capacity for adaptation to the variations in the energy sector. It must be highlighted that this activity suffered the impacts of the precepts of the Minimum State that dominated the decade of 1980, and with greater emphasis during the decade of 1990, that brought about the existence in several countries of serious difficulties that hindered the timely design and effective application of public policies.

However, since the end of the decade of 1990, the application of policies better directed towards the preservation of natural resources and energy security with a regional focus, have permitted an increase in the levels of integration, cooperation and development in energy matters, thus strengthening a unanimous and equitable economic growth among countries, achieving a greater degree of state participation in the tasks of regulation, control and planning in the energy sector.

Energy and sustainable development in
Latin America and the Caribbean – A Guide
for the formulation of Energy Policies

Likewise, OLADE in compliance with its institutional objectives, associated with promoting an energy policy among its Member States, has undertaken important technical contributions directed to satisfying in a timely manner, the needs of the Ministries of Energy of Latin America and the Caribbean. Worthy of mention, as background information, the document “Energy and sustainable development in Latin America and the Caribbean – A Guide for the formulation of Energy Policies” jointly prepared between OLADE, GTZ and ECLAC at the end of the decade of 1990, that corresponded within a global context to the establishment of the criteria of sustainability in energy development, is in line with the agreements reached at the Earth Summit of Rio 92. At the world scale, these agreements determined different degrees and scope of the demands for countries. Even though the countries of the Region were not directly included in the commitments linked to the Framework Convention for Climate Change, the Access to different mechanisms for international cooperation and loans by multilateral organizations was affected by rules of an environmental nature. Additionally, several countries ratified other



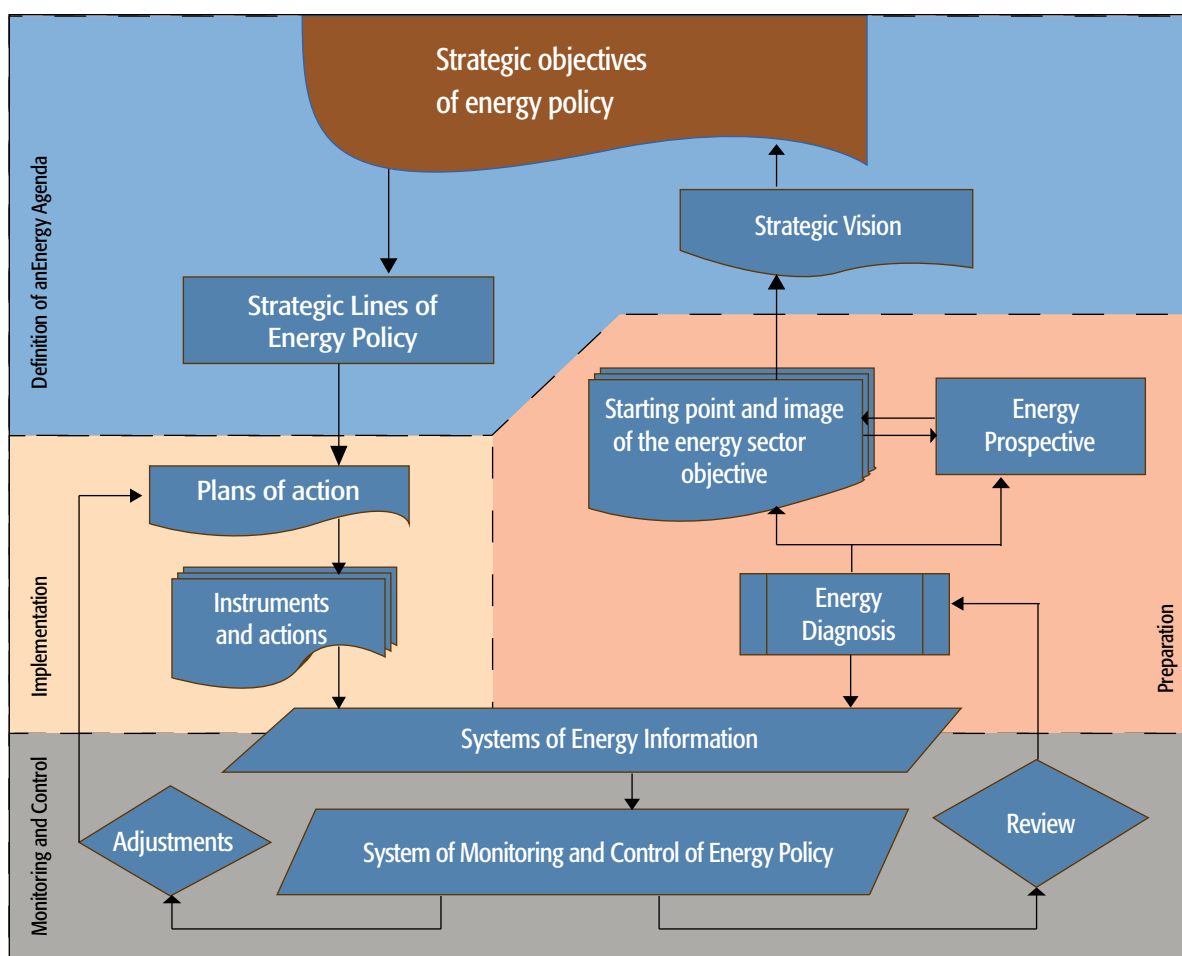
environmental Conventions of world scope that also were related to the energy sector. This generated the need of having available a guide for the formulation of energy policies that incorporated the focus of sustainable development. This matter was addressed in the above-mentioned document.

Energy Planning: Conceptualization

Planning is a strategic tool for sustainable development, regional integration and the formulation of stable energy policies, thus constituting a key instrument within energy policy and in turn it is a method and a practical discipline. As any other method, planning is a continuous process that deepens the institutional organization, to establish systematic procedures, by means of which it strengthens compatibility with regulatory issues, of investment and taxes between States, facilitating the sustainable exchange of energy resources.

The definition of the underlying objectives of an energy policy is one of the essential elements that must be present to be able to reach the sustainable development of a State. However, these objectives run the risk of not being reached without the support of a proper planning that guides resources, strategies and actions. From this perspective, we must not confuse planning

● General scheme of the process for the formulation of policies with the sections that must be included in an energy policy



Source: Practical Guide for Energy Policy, OLADE, preliminary version, September 2015.

with energy policy since the latter constitutes the framework within which the activities of energy planning must be placed. In this sense it is possible to characterize planning as a tool of energy policy.

In this context, energy planning is a continuous process, dynamic and adaptable to the evolution of uncertain variables within the social system in which it operates (that changes under economic variables, technological progress, political changes, etc.). Energy planning is carried forth with a systematic and analytical methodology that conveniently processes the information of the demand, transformation and supply of energy, and based on these elements it generates plans of action. Thus, finally planning within the scope of the definition of strategies is what permits the achievement of the objectives that have been determined in energy policy. Both planning as well as energy policy must be established through a systematic approach, considering the group of productive energy chains and all endogenous as well as exogenous interactions, both in the upstream, in the centers of transformation and at the level of final consumption, providing special attention to the disputability between nodes of intermediate and final consumption. In function of this, planning must focus on a general and integrated plane of the energy sector, specifying its acts at the sub-sectorial sector, observing the strategic guidelines determined in policies (this implies taking into consideration general and specific objectives, goals and strategic lines defined in relation to each specific objective, as well as the instruments set forth in order to provide an operative sense to such strategies)

Therefore the role of planning is to make concrete determinations and provide operability in a coherent manner to the guidelines established within energy policy. The analysis of an energy system that is required for planning has to be of a much wider scope and in great detail, both at the global level as well as the sub-sectorial level for its consolidation in national plans that start with the preparation of an energy diagnosis, an analysis of the energy policy of each country, the design of an Energy Agenda, prepared on the basis of the national social, economic and energy objectives, and which sets forth the strategic lines that must be implemented for their execution. Once this stage has been concluded, we then start with the development of the Energy Prospective, as a tool that provides assistance to the energy policy, by means of the construction of the social/economic and energy scenarios, using specific models and tools. Prior to the execution of the stages mentioned, it is important to form a professional team, the profiles and the creation of the capacities that must be developed, for which it is necessary to have a clearly defined objective as well as the scope of such training.

Tools for Energy Planning

Energy planning requires tools that provide support to the actions taken by the managers of energy in the sense of satisfying the objectives of the present and future supply of energy systems. Therefore, it is necessary to have tools that are capable of replicating the complexity of the energy system in an organized manner. In this context, the use of a energy planning requires the strategic definition of the objectives set forth in the implementation phase. That is to say that the authority responsible for formulating energy policies must have incorporated all of the capacities of energy modeling to thus clearly define the goals for the use of each instrument.

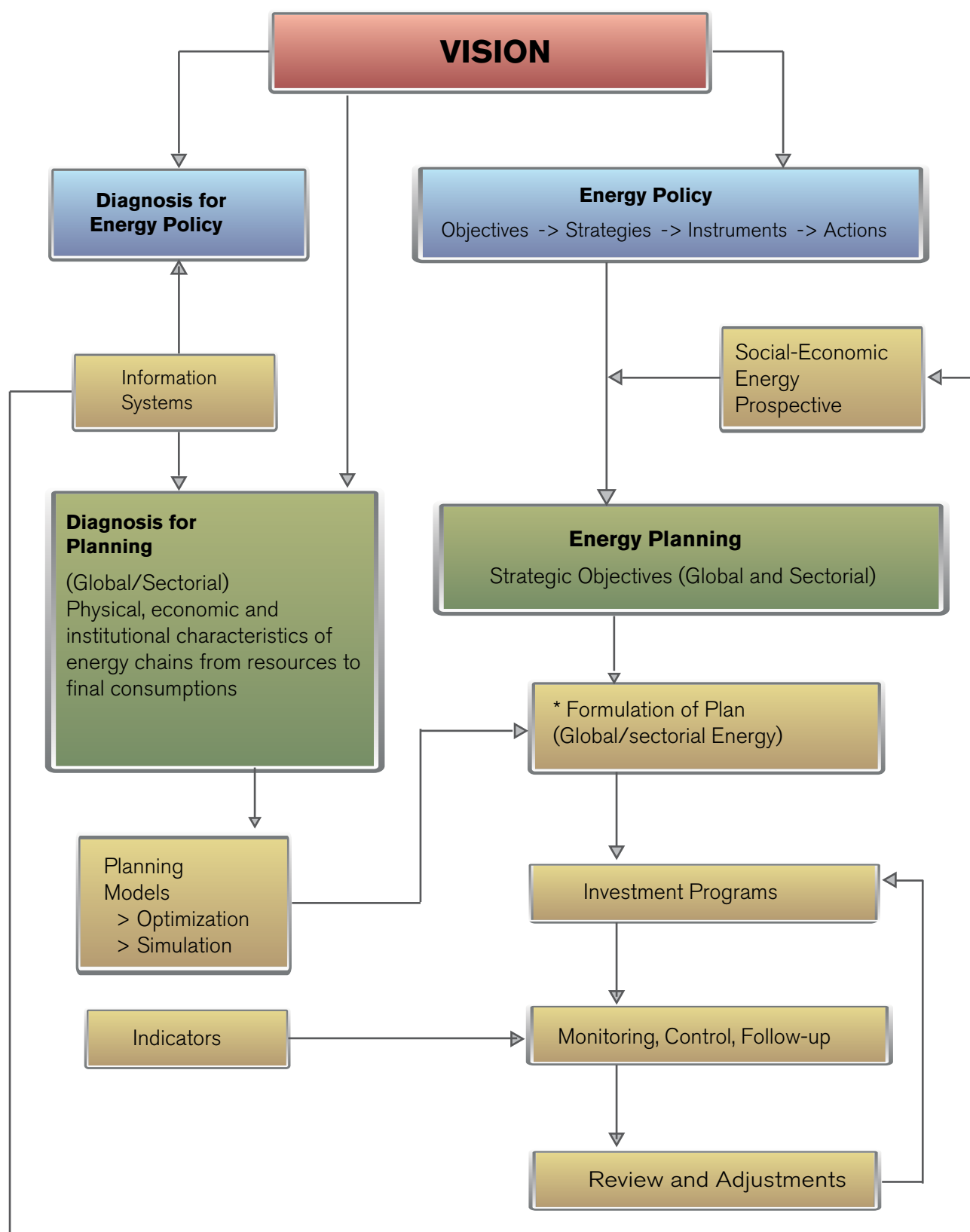
Among the tools for energy planning we can highlight the following:

- a) Energy information systems
- b) Models for the construction of prospective energy scenarios
- c) Models for evaluation and multiple criteria decisions

Relative to the management and administration of the statistical energy information that is required for planning, we must highlight that OLADE has more than 40 years of experience in this field, and has available related tools, within which stand out the System of Economic-Energy Information (SIEE, in Spanish), The Legal Energy Information System (SIEL, in Spanish) and its Regional Energy Information Platform (SIER, in Spanish). Several specialized tools have also been developed for Energy Planning and Prospective such as the Regional Electric Unified Planning System (SUPER, in Spanish) and the System for Simulation and Analysis of the Energy Matrix (SAME, in Spanish); as well as manuals and guides relative to the matter of energy planning and its inherent processes.

¹ Ndaye B. (2009). Energy Planning in Developing Countries. Doctoral Thesis, Universidad Politécnica de Valencia. Spain.

● Figure 2: Stages of energy planning and their link to the tools for energy modeling



Source: Energy Planning Manual, OLADE, 2014

Manual for Energy Planning and Practical Guide for Energy Policy

During the last 4 decades, OLADE has been working jointly with other organizations in initiatives and programs that contribute to the strengthening of energy planning both at the level of energy matters as well as the issue of resources. In this sense, since 2012 with the support of the Government of Canada in the Project “Development of Capacities in Energy Planning”, by means of the execution of the phases described in Fig. 2 (with the exception of investment programs), it has been possible to obtain tools for the analysis and conformation or re-establishment of energy planning units in the member countries, as a result of which the Manual for Energy Planning was produced, which constitutes a unique guide in the region and will be an instrument for decision makers. This guide was prepared by prestigious specialists of the region and its first version was revised by the “Group of Advisors on Energy Planning and Prospective of Latin America and the Caribbean” at the Workshop that took place on March 26 to 28 of 2014, which had the participation of: Argentina, Bolivia, Brazil, Colombia, Ecuador, Nicaragua, Panama, Paraguay, Peru and the Dominican Republic.

The Manual for Energy Planning is comprised by 8 chapters, that describe the activities that any Institution must consider in order to carry out Energy Planning with the goal of establishing National Energy Plans.

In a parallel manner and derived from the specific assistance in energy planning being provided by OLADE, the countries have expressed their strategic need of strengthening the capacities in the institutions that are responsible for the energy sector in the areas of analysis and formulation of public policies. In this sense, the “Practical Guide for Energy policy” has been developed, in which are indicated the steps and essential procedures that must be followed for the formulation of energy policies, respecting the autonomy and sovereignty that the States have to select the most adequate manner and most appropriate guidelines to establish their policies. This guide constitutes a complementary document to the Manual for Energy Planning and has the intention of serving as a reference regarding the procedures and tools that may be useful to carry forwards the processes for the formulation of policies.

Implementation of the Manual for Energy Planning

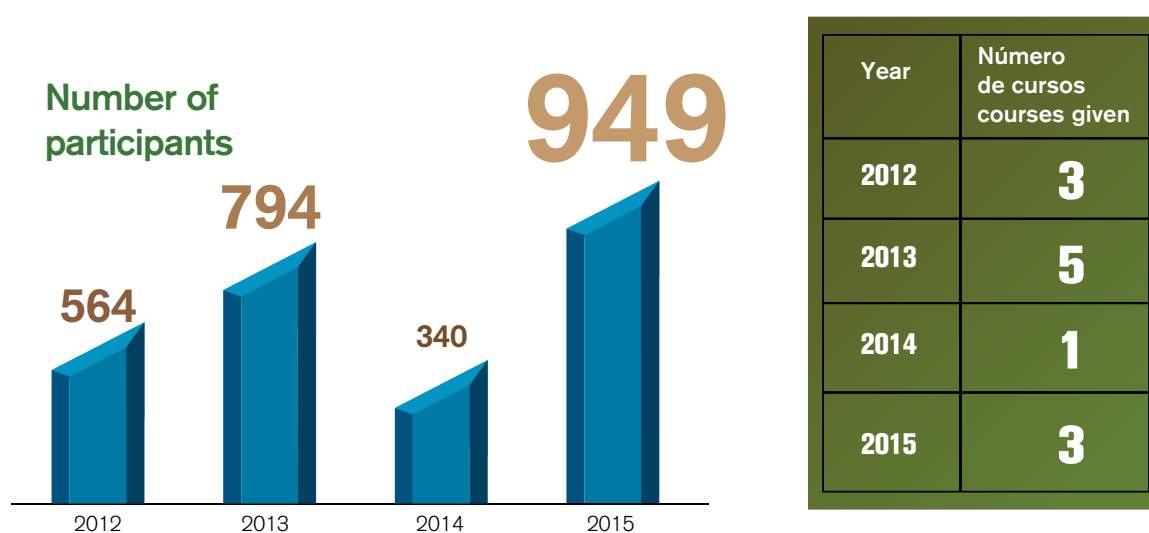
With the purpose of verifying the applicability of the Manual for Energy Planning developed by OLADE, its implementation is being carried out in phases; the first was executed in Bolivia and Honduras and a second one in Nicaragua. It is estimated that during 2016, the implementation continues in two additional countries of the region. The implementation of the Manual constitutes a practical exercise and its applicability represents a reference at the regional level. The countries in which the Manual is being applied exhibit different structures, both at the energy level as well as the scope of legislation y regulation, presenting different degrees of progress and difficulty that constitute valuable inputs that could lead to preparing a manual that will take care of needs and sets forth procedures that can be adjusted. Once the first stage concludes, there will be available a set of observations that will permit the preparation of the final Manual for Planning, to be disseminated among the entities of the sector, universities and energy research institutes so that it may constitute a contribution in the area of energy planning.

In the framework of these implementations, a series of workshops have been carried out as well as visits to the pilot countries and it has been possible to obtain important products, highlighting among theses the transfer of knowledge and the determination of lines to be considered for the development of national energy plans. In the case of Honduras, the execution of each one of the stages of planning started in September of 2014 and in Bolivia in November of 2014 and it is estimated that these will conclude in October and November of 2015. Figure 3 offers a schematic representation of the principal products and activities executed during its implementation.

Training tools

— One of the fundamental components in energy planning is the human resource. Therefore the importance of forming integrated teams with the ideal profiles. Acting under this premise, OLADE has been the pioneer in the creation of spaces that permit the exchange of knowledge and experiences, achieving an important positioning both at the national as well as regional levels through in-presence and virtual Training Programs and Networks of Experts among others. Worthy of mention is the fact that during the last years 12 courses and four Executive Development Programs in Energy Planning have been offered, directed to officials from the Caribbean, Central America and Mexico and South America; during the period 2012-2015, in the matter of training for planning, assistance has been provided to a total of 2.647 officials; Figure 4 presents the annual evolution of the participation in such training courses:

● Figure 4: Evolution of the participation of specialists of the region in virtual and in-presence courses provided by OLADE in Energy Planning.



Considerations: Medium and long term Vision for regional energy planning

OLADE is an organism for integration, cooperation, coordination and advisory functions in energy for Latin America and the Caribbean. Among its work axes are the promotion of an energy planning that will promote regional integration among energy policies, leading to sustainable development and regional integration, in accordance with that established in the Lima Agreement (1973), in the articles next mentioned:

"Article 2.- The Organization is an entity for cooperation, coordination and advisory services, with its own legal standing, that has as its fundamental purpose the integration, protection, conservation, rational use and marketing and defense of the energy resource of the Region".

"Article 3.- Objectives and functions: Promote the formation and development of common energy policies as a factor for regional integration".

Based on this premise and on the experience and results that have been obtained during these last few years, OLADE works on the medium term basis to become consolidated as the Latin American and Caribbean Center for Energy Planning at the service of its member countries, to provide technical advice in the different stages of planning, to promote the exchange of experiences and to contribute to the strengthening of the units for planning as a fundamental axis of energy policy.



PHOTOGRAPH: PARTICIPANTS PROGRAM FOR THE DEVELOPMENT OF EXECUTIVES IN ENERGY PLANNING FOR CENTRAL AMERICA, HELD ON AUGUST 25 TO 29 OF 2014 IN TEGUCIGALPA, HONDURAS.

This center provides space for the participation of prestigious specialists of the member countries of OLADE and it will strengthen the technical team of the Organization. This will contribute to the development of long term plans that reflect the situation of each one of the countries, the analysis of which and proposals guided by those responsible for making decisions, will contribute to a greater energy security both at the national as well as regional levels. Likewise, it will continue to generate synergies for the definition of methodologies and information models with the purpose of providing tools that offer a greater degree of reliability, theoretical coherence and robustness, thus decreasing the uncertainty in the modeling of energy systems within a long term horizon where most of the input variables are uncertain.

Finally, under this mission it will contribute to the professionalization of officials and to the strengthening of a culture of energy planning, through properly structured programs for training, guaranteeing the continuity of planning in the countries of the region. ●

Related documents:

- [1] OLADE, Manual for Energy Planning, first edition, July 2014.
- [2] OLADE, Practical Guide for Energy Policy, preliminary version, September 2015.
- [3] OLADE, Models for Energy Planning for Latin America and the Caribbean, 2014
- [4] OLADE, CEPAL and GTZ, Energy and Sustainable Development in Latin America and the Caribbean– Guide for the Formulation of Energy Policies –, 1990

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