

Public Policies for Renewable Energy in Baja California, Chiapas and Oaxaca

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Abstract

The production of clean, renewable energy is one of the principal elements of the Mexican government's current public energy policy. Based on a literature review of state public policies, legal frameworks and government programs, the states of Baja California, Chiapas and Oaxaca have demonstrated institutional coherence in carrying out measures in a manner consistent with local and federal energy policies. In this regard, these three states have demonstrated firm institutional foundations capable of initiating large-scale measures in the sustainable use of renewable energies.

Keywords: public policy, renewable energy, state development plan, energy commission, Mexico.

1. Introduction

Fomenting sustainable social development through the use and promotion of public renewable energy policies is one of the principal elements of current policy planning in Mexico at the national level. The National Development Plan (PND, acronym in Spanish, 2013) for the period of 2013 – 2018 affirms in its section IV, entitled Prosperous Mexico, that “in 2011 half the electrical output was generated by natural gas, owing to its lower price per energy unit. In this context, electrical production technologies that utilize renewable sources of energy must face challenges of energy diversification and security. In spite of the potential and rapid growth of this kind of energy, it currently represents only 2% of the nation's total annual energy output” (PND, 2013: 79). Consequently, in order to foster the level of renewable energy production that Mexico needs, in recent years public policy has been advanced to encourage efficient renewable energy use, as well as the utilization of cutting-edge technologies to reduce the negative impacts of fossil fuel use. Nevertheless, in literature specializing in renewable energy, studies are lacking on how public policies, programmed actions and corresponding legal frameworks affect Mexico at regional, state and local levels (Torres and Gómez, 2006; Mendoza, 2006; Martínez, 2008). In this vein, the purpose of this article is to contribute to the identification of state public policies, programmed actions and legal frameworks that have conformed to institutional design at state, regional and local levels. Of particular interest is the utilization of sources of renewable wind energy in the states of Baja California, Chiapas and Oaxaca, states that are especially suited for wind energy production. Although renewable energy has national policy implications, one must not lose sight of the subnational context in which practices of state public policy and legal frameworks develop in response to the unique dynamics of institutional development at local levels.

The first part of this article is a conceptual exegesis on state public policy, legal frameworks and renewable energy. In the second, third and fourth parts, state public policy and programmed actions for renewable energy in the Mexican states of Baja California, Chiapas and Oaxaca are analyzed chronologically. Finally, conclusions are presented on current tendencies among state public policies for the development of renewable energy.

2. Theoretical foundation of the study

This section considers the basic concepts used in research in order to establish a common analytical nomenclature as a point of departure in understanding public policy, legal frameworks and renewable energy.

2.1 Public Policy

The goal of public policy analysis is to understand how actions taken by public authorities affect society (Ortegón, 2008). This endeavor comprises diverse disciplines, such as economics, sociology and political science. Edgar Ortegón (2008) indicates that public policies provide general conceptual orientations for the implementation of ideas embodied as dynamic, participatory, and systematic actions with objectives, instruments, actors and resources that seek change. It is noteworthy that public policies are linked to the role of the state in society, political processes and the institutions in which they evolve.

Mény y Thoenig (1992) maintain that the study of public policies is an activity that is carried out by public authorities within and in relationship to society. Similarly, Cochran and Malone (1999) argue that public policy is the study of governmental decisions and actions designed to deal with matters of public interest. Another conceptualization of public policy posits that it is a “set of interrelated decisions adopted by an actor or group of actors in relationship to the selection of objectives and the means to achieve them within the context of a specific situation” (Jenkins in Hernández, 1999:3). Aguilar Villanueva (1992), argues that to govern and administrate in the name and representation of the common good is to govern and administer through public policies.

2.2 Legal Framework

A legal framework guides administrative procedures in the implementation of public policy measures in compliance with a system of administrative procedures, whose very core is the law itself. The law “is a rule of conduct prescribed by an authority whom we must obey. Specifically, it is a rule of conduct emitted by a legislative body to which we are bound to accommodate our actions” (Rodríguez de San Miguel, 1998:392).

Thus, the law comprises “legal norms pronounced, promulgated and sanctioned by public authorities, even without the consent of individuals, that regulates all instances and circumstances that satisfy the conditions for which a given measure was passed into law” (Ponce, 2005:25).

When considering public policies, one thinks of them as directives emitted by an executive officer to guide governmental action. We can distinguish state policy from governmental policy in that the first is found in the body of law, including constitutional law. It provides the basic legal framework for governmental policy. The law is the foundation of state governmental policies and of actions related to these policies. In this regard, “the law guides governmental policy with objectives, concepts and criteria designed to insure that government develops policies that implement plans, programs, projects, social development as well as political, economic, cultural and environmental measures that are consistent with the law” (García, 2004: 7-87).

2.3 Renewable Energy

Renewable sources of energy are self-generating natural phenomena. They are processes and materials that are useful for human energy production, such as energy from the sun (solar radiation), wind energy (air currents), hydraulic energy (potential and kinetic energy from water currents), tidal wave energy (force of sea tides) geothermic energy (heat from the earth’s interior), among others. In response to the environmental impact of global climate change and the administration of energy security, the Mexican government has established specific policies for energy transition strategies: “Energy transition entails a change of focus in the energy sector. It is a process that facilitates the improved utilization of fossil fuels while it also develops and foments the use of renewable energy sources in order to diversify primary sources of energy and lessen adverse environmental impacts by decreasing greenhouse gas emissions produced by fossil fuels, which are currently the principal sources of energy worldwide” (Tech4CDM, 2009:7).

Additionally, central measures have been established to deal with renewable sources of energy included in the National Development Plan 2007-2012 (PND, 2007) in order to facilitate energy efficiency and the use of utilities that help reduce the environmental impact of traditional fuels, with the goal of harnessing Mexico's renewable energy potential. In this regard, we have encountered the following directives:

- Encourage the utilization of renewable sources of energy and biofuels by creating a juridical framework that establishes the means by which the state can manage its resources for the promotion of the nation's renewable energy potential.
- Intensify research activities in the energy sector by strengthening research institutions and other organizations' ability to orient their programs toward the development of renewable and efficient sources of energy (PND, 2013).

In this regard, new renewable energy sources are considered to be those that generate energy in a way that is viable for sustainable development, excluding large-scale hydroelectric projects, namely:

- "Small scale hydro-electric energy production (less than 30 MW¹ of installed capacity);
- All biomass energy: anaerobic bio-digestion gas production and combustion of vegetable oils for vehicles (biodiesel);
- Photovoltaic solar energy production of electricity;
- Wind energy generation of electricity" (Verdesio, 2003:25).

Now let's take a look at predominant renewable energy trends in public policy in the states of Baja California, Chiapas and Oaxaca.

3. Public policy for renewable energy in the state of Baja California

3.1 The Government of Baja California's State Development Plan for 2008-2013

In fulfillment of the principles of the Political Constitution of the Free and Sovereign State of Baja California (CPELSBC, acronym in Spanish, 2009), the 2008 – 2013 State Development Plan (PED, acronym in Spanish, 2008) outlines principal challenges and areas of opportunity as well as those matters that are problematic and require priority attention through a public development agenda. In order to achieve these goals, the government of Baja California proposes six strategic objectives: (1) security and comprehensive justice, (2) education for living, (3) sustainable regional development, (4) economic competitiveness, (5) human welfare and development, and (6) government that serves the public interest. Principal element 3. The objective of PED's sustainable development plan is to increase the availability, coverage and quality of housing, basic services, infrastructure and energy in order to permit the planned development of population centers in harmony with the environment. Baja California seeks energy self-sufficiency through governmental management in order to increase its contribution of renewable energy to industry and domestic consumption. Principal element 3 is divided into five sub-elements: (1) regional urban planning and development, (2) sustainability and the environment, (3) potable water and sanitation, (4) infrastructure and equipment and (5) energy. Sub-measure 3.5, Energy, which deals with wind potential, identifies Rumorosa as an ideal site for energy projects. In section 3.5.1, entitled Government Management, objective 3.5.1.1 is considered. Its goal is the creation of the State Energy Commission of Baja California. One of its functions will be to promote management and strategic planning in the energy sector as well as to develop the State Energy Program. Objective 3.5.3.1 involves the fomentation of energy, wind, solar and hydraulic sources of renewable energy by producing energy with wind and hydraulic sources in the State as well as promoting the use of solar energy in urban and other populations. As derived from measure 3, sustainable regional development proposes the Global Infrastructural Program for the Competitiveness of Baja California (PED, 2008).

3.2 State Electrical Commission (CEE)²

The State Electrical Commission of Baja California was founded on July 25, 2008 (POEBC, acronym in Spanish, 2008) via a state governmental decree, designed to encourage the sustainable use of local energy resources to improve the quality of life of the State's inhabitants and the competitiveness of Baja California. The commission's goal for 2013 was to take advantage of the State's existing energy sources in order to cover 50% of the state government's electrical energy consumption.

¹ MW: One megawatt, equals one million watts.

² Comisión Estatal de Energía. CEE, for its acronym in Spanish.

Additionally, article 13 of chapter III of the Law of Renewable Energy of the State of Baja California (LEREBC, acronym in Spanish, 2012) indicates that the objective of the State Energy Commission is to coordinate, execute and promote actions that further the rational utilization of the Baja California's energy resources for the efficient use of energy production through conventional and renewable sources as well as to promote energy economy and proficiency in the State, in strict compliance with applicable norms. The commission also promotes, coordinates and supports mechanisms with competent federal energy resource authorities. In fulfillment of its objectives (LEREBC, 2012: 5-6), Article 14 of LEREBC (2012) empowers the commission to:

a) coordinate within the purview of its authority the development of Baja California's energy sector in compliance with the stipulations of the State Development Plan in compliance with the law and applicable norms, b) act as a normative and technical organization to provide advice, consultation and liaison functions on energy matters, for which corresponding congruent technical directives will be issued, c) design, implement, update and execute the State Energy Program, d) with the aid of competent federal energy organizations, develop, facilitate, promote and execute alternatives, strategies, policies, projects and actions for the utilization of conventional and renewable energy resources available in Baja California, for electrical energy production through methods previously indicated in pertinent normative standards, e) generate electrical energy through the use of conventional and renewable sources, according to the methods stipulated in pertinent normative standards, upon the granting of permission by competent federal authorities, f) generate and direct electrical energy according to the modality of self-supply on the part of departments and state public administrative institutions, municipalities and private parties in strict compliance with pertinent laws, g) additional faculties.

3.3 Law of Renewable Energy for the State of Baja California

It is also important to analyze other normative aspects of the Law of Renewable Energy for the State of Baja California (LEREBC, 2012). The LEREBC for 2012 affirms that its objective is to promote the coordination, implementation and utilization of renewable sources of energy that exist in the State in addition to promoting state energy sustainability for this purpose. Its mission is to foment economic competitiveness, improve the quality of life of the state's inhabitants as well as to preserve and protect the environment by promoting sustainable development in the region by encouraging energy transition (LEREBC, 2012, art. 1). Furthermore, the sustainable utilization of renewable sources of energy must be fomented by the State and its municipalities (LEREBC, 2012, art. 3). State and municipal governments will insure adherence to contracts and agreements in coordination with the federal executive branch in order to establish the participatory foundation for the utilization of renewable energy.

Article 6 of the aforementioned normative ordinance establishes that it is the prerogative of municipal governments to establish programs that promote activities geared to fomenting the use of renewable energy sources and energy sustainability in accordance with municipal development plans. Article 6 also foment activities that, a) disseminate, diffuse and promote awareness of renewable energy source technologies, b) celebrate contracts in fulfillment of the goals of the aforementioned article, c) implement mechanisms to promote the use of renewable energy sources and sustainable energy, particularly in the provision of municipal public services and administrative organizations, d) implement programs designed for the efficient utilization of renewable sources of energy in rural communities and public spaces. In addition the article 7 of LEREBC (2012) indicates that the, a) foment construction by promoting zones with high energy resource potential that are located within the municipality's territorial jurisdiction as well as promote the use of soil for such purposes, b) implement regulatory standards on the use of soil and construction in consideration of the interests of proprietors or occupants of land utilized as sources of renewable energy, c) obtain technical congruence directives from the commission for energy generation projects that utilize renewable energy sources, d) simplify administrative procedures for obtaining permission and licenses required for development projects for renewable energy source utilization. In the realm of state public administration, the Secretary of Economic Development is responsible for elaborating programs to foster the development of productive sectors related to energy sustainability and the application of renewable energy sources. It is also expected to foment projects destined for the application and utilization of renewable energy sources in production sectors as well as to elaborate a catalogue of the principal businesses related to the market of renewable and sustainable energy sources, with the purpose of promoting the provision of energy products and services.

The Secretary of Infrastructure and Urban Development must elaborate programs and implement measures whose objective is to promote energy transition toward renewable energy sources within the State among its municipalities and other communities while fostering the use of renewable energy sources among public services, such as departments and institutions answering to the Secretary of Infrastructure and Urban Development. It is also responsible for implementing programs geared to the application of renewable energy sources and their efficient use in rural communities and public spaces. Chapter V refers to a state sustainable renewable energy program, which will establish the objectives, goals, strategies and measures for the distribution, promotion, fomentation, investigation and evaluation of the utilization of renewable energy sources and energy efficiency in affected communities, with the participation of the State, municipalities as well as private, social and public sectors, with the aim of guaranteeing compliance with the same law (LEREBC, 2012, art. 17).

4. Public policy for renewable energy in Chiapas

4.1 The Commission of Energy and Bio-combustibles of the State of Chiapas

The Commission of Energy and Bio-combustibles of the state of Chiapas is a decentralized state public administrative organization. It is legally incorporated with its own assets and is affiliated with the Secretary of the Treasury. Its objective is to coordinate, execute and promote measures related to the utilization of the Chiapas's energy resources for industrial and commercial development through the application and transformation of alternative, renewable and bio-combustible energy sources as well as the generation, conduction, transformation, distribution and supply of electrical energy while fostering energy self-sufficiency and a culture of conservation of non renewable resources that use lean, non-contaminating technologies that have a positive impact on the environment. At the same time, efficient production measures are sought for exploiting conventional and renewable sources, as well as to carry out activities that encourage savings and efficiency in the state's energy resources. According to article 3, the legal framework of the Commission of Energy and Bio-Combustibles (SSG, acronym in Spanish, 2009) of the state of Chiapas, has, among others, the following attributes:

- “Design, formulate and implement projects and programs to foster the industrial and commercial development of bioenergy capital goods; the use, application and transformation of alternative, renewable and bio-combustible energy sources as well as the production, conduction, transformation, distribution and supply of electrical energy;
- Create new financial plans with the participation of private enterprise and the producers of innovative projects for the industrialization and commercialization of biogenetics and alternative, renewable and bio-combustible energy sources;
- Coordinate measures among the federal government, other federal organizations, the Federal District and municipalities in corporation with social and private sectors, for the development, industrialization and commercialization of biogenetics as well as alternative, renewable and bio-combustible energy sources;
- Foment and implement the use of photovoltaic cells for electrical energy production for domestic use in those population centers and communities that lack public electric service, in accord with articles 36, section I and 29 of the Law of Public Electrical Energy Service.” (SSG, 2009:2-4).

4.2 Law for the Adaptation and Mitigation of Climate Change in the State of Chiapas.

The objective of the Law for the Adaptation and Mitigation of Climate Change in the state of Chiapas (LAMCCCH, acronym in Spanish, 2010) is to establish cooperation between the State and its municipalities in the formulation and implementation of public policy that mitigates the adverse effects of climate change, protects the populace and assists in sustainable development (LAMCCCH, 2010, art. 1). Among the articles that are specifically related to wind energy in LAMCCCH (2010), section 43, subsection b states that “design and implement incentives for the installation and use of electric generation systems fall within the State's purview for providing renewable energy sources (wind, photovoltaic, biomass, mini-hydroelectric and tidal wave) for public services as well as for private businesses and housing...” (LAMCCCH, 2010: 27). Likewise, subsection b considers the creation of an Inter-sectorial Climate Change Coordination Commission for the State of Chiapas (LAMCCCH, 2010, art. 13), to be made up by the State's public administrative, departmental and institutional heads (LAMCCCH, 2010, art. 13). With respect to the coordination between the State and its municipalities, the state government will carry out measures necessary for mitigation and adaptation to climate change, in coordination with the municipalities (LAMCCCH, 2010, art. 18).

In order to comply with the above article, municipalities are empowered in their respective jurisdictions to (1) formulate, approve and administer municipal plans and programs for climatic change as well as other programs derived from these in addition to evaluate and monitor their compliance, in accord with applicable legislation, (2) enter into contracts and agreements with the State, other municipalities in the State and with private parties for the purpose of coordinating and harmonizing efforts toward achieving the goals and priorities established in the State Strategy Plan and (3) permanently disseminate the application of plans and programs for municipal urban development that anticipate potential environmental risks to the populace (LAMCCCH, 2010, art. 20).

4.3. Action Plan for Climate Change in the State of Chiapas.

The government of the state of Chiapas through the Secretary of the Environment and Natural History in collaboration with the International Conservatory (IC), the University of Arts and Sciences of Chiapas (UNICACH, acronym in Spanish), economic support from the British Embassy in Mexico and the participation of civil society have all worked together since 2009 on the formation and elaboration of a program that fosters actions designed to diminish the risks generated by climate change. The Action Program for Climate Change of the State of Chiapas was issued in 2011 (PACCCH, acronym in Spanish, 2013) in order to establish a scientific basis and general components to permit the integration, coordination and fomentation of governmental performance in the State in its efforts to reduce greenhouse gas emissions (GGE) and increase carbon sequestration. In strategic measure VI, adaptation to the transformation and use of energy is referred to, which recognizes that Chiapas “is a state with almost no emissions in the production of electrical energy because its production is hydroelectric. Nevertheless, increased use of air conditioners, to site one example, may be the result of increased average temperatures, and this involves greater demand for electricity at the national level. If we add to this the present increase of sediments in hydroelectric plants, it becomes evident that it will be necessary in the near future for the State to explore new energy sources that are viable alternatives under the new conditions of climate change” (PACCCH, 2011: 97-98).

4.4 State Development Plan for the Chiapas Government of Chiapas (2013-2018)

In the presentation of the State Development Plan for the State of Chiapas (PED, acronym in Spanish, 2013) for the political cycle of 2013 – 2018, the governor, Manuel Velasco Coello, stated that the PED (2013) “establishes aspirations and proposals for each sector of the population” to create the kind of a state that they desire. The PED (2013) is made up of four principal elements: Firstly, agovernment close to the people; secondly, the Chiapas family; thirdly, a successful Chiapas, and fourthly, a sustainable Chiapas. It is in the last element, a sustainable Chiapas, where a policy of environmental conservation and income creation has been established. It is noteworthy that the new governmental policy is geared toward the attention and mitigation of climatic change (PED, 2013). The Sectorial Program for Environmental and Ecological Regulation, 2013 – 2018 (PSMAOE, acronym in Spanish, 2013) “seeks to foster a culture of environmental sustainability; protection, conservation and restoration of forests; sustainable management of hydraulic resources; conservation and protection of the natural capital of the State; management for environmental protection and the mitigation of and adaptation to the effects of climate change.” (PSMAOE, 2013:7)

Also referred to are rising global temperatures, which are attributed to increasing levels of global atmospheric contamination (increase of greenhouse gases), that are caused by human activities. Chiapas’s contribution to climatic change comes from three sectors. The first is in “the use of soil – considered to be the principal emitter – in relationship to changes in its use in forest management, deforestation, and the degradation as well as the transformation of forest areas into agricultural land and pasture for livestock. The second factor is the range of emissions in agriculture, including animal husbandry, which results from the use of fertilizers and the production of intestinal fermentation (livestock digestion), an emitter of nitrous dioxide (N₂O) and methane (CH₄), respectively. Finally, the third sector is energy, where the principal source of emission is the burning of fossil fuels, principally for transportation” (PSMAOE, 2013:103-109).

4.5 Chiapas Biodiesel

The exposition of motives in the decree that created Chiapas Biodiesel (DDBC, acronym in Spanish, 2013) indicates that one of the central elements of public policy in Mexico is sustainable development. Point VI.4 of Prosperous Mexico, objective 4.6 of the National Development Plan 2013 – 2018 stipulates the need for an efficient supply of quality energy at competitive prices along the full length of the productive chain.

Strategy 4.6.2. Insures the rational supply of electrical energy throughout the country, with an action plan to promote the use of renewable energy sources via the adoption of new technologies and the implementation of better practices. In this context, the State's executive branch favors a policy that foments sustainable development and the use of renewable energy sources (hydraulic, solar, wind, maritime, biomass).

This requires the updating of the decentralized public institution called Chiapas Biomass while changing its name to the "Renewable Energy Institute of the State of Chiapas," which comprises a governing board, general management and a public delegate (DDBC, 2013, art. 7). The governing board is made up of a president appointed by the governor. It also has a technical secretary, a public servant chosen by the governing board as well as three representatives from the Secretary of the Economy, the Secretary of the Treasury, and the Secretary of Rural Affairs (DDBC, 2013, art. 9). The fundamental objective of the institute is to disseminate, foment and develop project measures for the utilization of the State's available renewable resources for the generation of energy and to develop diverse methods for its promotion and supply for industrial and commercial development. Furthermore, the institute is responsible for renewable energy research that promotes a culture of natural resource conservation as a means of positively affecting the environment (DDBC, 2013, art. 3).

In order to achieve the renewable energy objectives outlined in DDBC, 2013, art. 4, this institute is empowered to do the following:

- "Design, formulate and develop projects and renewable energy programs as well as others for the use, application and transformation of renewable energy;
- With the help of competent federal authorities, develop and promote the projects, options, strategies, policies and actions for the utilization of the State's available renewable energy resources in order that electrical energy be generated by means of renewable sources in accord with the modalities stipulated in existing normative standards;
- Promote the production of electrical energy through the use of renewable sources, contingent upon authorization by the competent federal authorities and also promote the allocation of electrical energy under a self-supply regime to departments and institutions of state and municipal public administrations by means of joint public-private projects;
- Promote the participation in the development of renewable energy projects and measures among municipal governments in the State" (DDBC, 2013, art. 4).

4.6 Educating with Environmental Responsibility (EER)

Educating with Environmental Responsibility (ERA, acronym in Spanish) is a program of the Secretary of Education of the state of Chiapas. The EER and the Institute of Renewable Energy of the state of Chiapas cooperate to provide a workshop that seeks to promote a green Chiapas entitled "In Chiapas We Educate with Environmental Responsibility." The workshop is directed to students and teachers from diverse municipalities. In the first stage, which includes thirty primary and ten secondary schools, 1,400 students and 40 teachers receive training (SDPnoticias.com. 09/11/2013)

5. Public Renewable Energy Policy in Oaxaca

5.1 The Law for the Coordination of the Fomentation of the Sustainable Use of Renewable Sources of Energy in the State of Oaxaca

The objective of The Law for the Coordination of the Fomentation of the Sustainable Use of Renewable Sources of Energy in the State of Oaxaca (LEFEREO, acronym in Spanish, 2010) is intended to establish the means of coordinating federal management initiatives to promote the rational development and use of sources of renewable energy in the state of Oaxaca as well as harmonize the relationship among various project participants in this area. Furthermore, the law is an instrument for promoting sustainable development, economic competitiveness, improved quality of life and the protection and preservation of the environment. It is also a means of achieving energy efficiency and diversification in Oaxaca (LEFEREO, 2010, art. 1).

Based on LEFEREO (2010), competent authorities in the area, the governor and the Secretary of the Economy will be able to do the following: I. Develop strategies to promote the sustainable use of the State's renewable resources; II. Fortify the coordination among national and foreign governments, businesses and educational organizations in the development of local capacity; III. Promote technological progress through the development of Knowledgeable and Innovative Cities to foster industrialization in the State; IV. Implement strategies and policies focused on the rational use and reasonable consumption of energy.

In accord with the plans, programs and projects of the state government, the governor is empowered to a) carry out those actions with resources required for the promotion, development and use of renewable energy in the State, b) work with federal and municipal authorities as well as representative agrarian organizations, permit holders and private parties that demonstrate a legitimate interest in the implementation of work projects or the realization of any other socially beneficial activity in the use, fomentation and use of renewable energy in the State and c) other activities approved by LEFEREO (2010) in accordance with its applicable provisions. Additionally, according to article 6 of the same law, the Secretary of the Economy is responsible for the following:

I. "Promoting the comprehensive development of Oaxaca by means of benefits derived from the utilization of the State's renewable sources of energy; II. Managing national and international resources that foster improved utilization of renewable energy with the purpose of promoting energy efficiency and sustainable development in the State; III. Coordinating its efforts with the federal government and municipalities in order to foment the efficient utilization of renewable sources of energy in the State in accord with the pertinent terms of contracts and agreements celebrated on the matter; IV. Assist the Nation with guidelines that are conducive to energy diversification; V. Initiate the celebration of cooperative agreements with national and international organizations and institutions that specialize in research and development of technologies applied to the use of renewable sources of energy; VI. Assist the federal government to promote and guarantee investments in the State that are related to the manufacture of components, parts, equipment and support services for projects that exploit renewable sources of energy; VII. Assist in establishing minimal parameters for establishing consideration among holders of rights and permits to land that is subject to contractual terms.

Propose to municipalities the criteria and means of establishing construction licensing fees and land use permits applicable to the exploitation of renewable energy." (LEFEREO, 2010: 5)

5.2 Secretary of Tourism and Economic Development

The Secretary of Tourism and Economic Development was established in article 13 of the Constitutive Law of the Executive Power of the State of Oaxaca (LOPE, acronym in Spanish, 2010). Among other empowerments, the Secretary is entitled to do the following:

I. "Plan, regulate and foment tourism as well as economic development in the State by promoting productive activities that create jobs; II. Fortify productivity and the competitive position of micro, small and medium-size private and social businesses; III. Promote, orient and stimulate the establishment and development of businesses and industry in the State while guaranteeing the fair participation of women; IV. Further commercial relationships among strategic participants at national and international levels in collaboration with the General Coordinator of International Finance and Entailment in order to facilitate the exchange of successful experiences in addition to promoting the productive investment and exportation of Oaxaca products; V. Develop and update an Investment Catalogue for the state of Oaxaca, which will help facilitate national and international investment in the State; VI: Foment the involvement of diverse prominent participants from the business sector as well as forums and meetings that propose and analyze superior alternatives for developing tourism infrastructure in the State, in addition to projects that facilitate sustainable economic development in the State; VII. Promote national and international investment in the development of tourism infrastructure and projects that facilitate sustainable economic development in the State; VIII. Establish mechanisms to make the State the very best tourist destination at national and international levels and fortify development at the local level; IX. Promote strategic, innovative and sustainable projects that foster respect for the cultural and tourism wealth of Oaxaca while attracting investment and creating jobs in the State; X. Promote ongoing training of service providers in order to generate a culture of tourist service and assistance; and, XI. Foster a permanent strategy to enhance the image of tourism and opportunities for national and international investment in the State" (LOPE, 2010, art. 25).

5.3 State Development Plan for the State of Oaxaca 2011- 2016

The State Development Plan for the State of Oaxaca 2011-2016 (PED, acronym in Spanish, 2011) is the document that will guide public policy during the current administration of the government of Oaxaca (2011-2016). The document presents the four principal elements that are the focus of administrative activities: 1) the Rule of Law, governability and security, 2) economic growth, competitiveness and employment, 3) social and human development, and 4) honest government that produce results.

With regard to renewable energy, chapter 2 of the PED (2011) is worthy of consideration. Section 2.2.5 of the government agenda indicates that renewable energy “consists of the application of new forms of energy conversion by employing renewable natural resources to replace traditional non-renewable sources (fossil fuels). Among these forms of energy are solar, wind, biomass and combustible hydrogen cells [...]. Oaxaca has great potential to develop wind energy [...] Given the fact that la Ventosa provides ideal test conditions, it is also possible that in addition to installing generators, it may be possible to advance their improvement by lowering cost, which is still high while the energy generated is low” (PED, 2011:34).

5.4 State Law of Private-Public Associations

The goal of article 1 of the State Law of Public-Private Associations (LEAPP, acronym in Spanish, 2013) is to regulate the preparation, validation, development, approval and celebration of contracts for the execution of infrastructure projects or for the provision of public services by means of public-private associations in which either the state of Oaxaca or its municipalities participate to implement projects with the goal of improving social welfare or the levels of investment in the State. This can be managed by the Oaxaca’s executive branch or through units of centralized public administration, publically owned administrative organizations, autonomous organizations, trusts that are not considered to be public entities in addition to city governments and public par-municipal administrative entities.

5.5 Oaxaca Institute of Renewable Energy³

The Oaxaca Institute of Renewable Energy is an organization structured for the transparent management of private investment, including that destined for wind energy. The institute will comprise authorities from all three levels of government, investors, and legitimate communal land representatives from affected communities (*Noticias Voz e Imagen de Oaxaca*, 04/20/2013). According to the government of the state of Oaxaca, the Oaxaca Institute of Renewable Energy will assiduously attend to the demands that businesses and communities will make before the government. According to the state government, the Oaxaca Institute of Renewable Energy will be responsible for responding to enquiries directed to the government on the part of businesses and communities. The institute will offer professional accompaniment for investments as well as follow ups to foster improved coordination between businesses and communities. From this institute diverse productive projects can be implemented in communities of the Isthmus wherever renewable energy projects are sought. The fundamental objective of the institute is to coordinate and assistance efforts among federal, state and municipal governments in order to facilitate the process of granting licenses and permits for investments in affected communities in the most efficient manner possible. Also of importance is the monitoring of the contributions that businesses make and the commitments that they acquire with the community, with the purpose of establishing transparent, satisfactory and just negotiations for all parties.

The Oaxaca Institute of Renewable Energy will have the following reach: a) Foment the development of human and technological resources that strengthen the federal agenda in the renewable energy sector; b) Foment sustainable development in affected communities; c) Coordinate socially responsible projects that businesses have committed themselves to develop in every affected community, and, d) Act as promoter of renewable energy projects developed within the State.

Table 1 Summarizes public policy planning, legal frameworks and organizations for promoting the use of renewable in the states of Baja California, Chiapas and Oaxaca.

³ Information from the portal of the Secretary of Tourism and Economic Development of the Government of the State of Oaxaca (STyDE, acronym in Spanish, 2013). Available at <http://www.styde.oaxaca.gob.mx/#&panel1-1>. Consulted on 10/16/2013.

Table 1. Public Policy Planning, legal frameworks and organizations for promoting the use of renewable energy in the three cases of study.

State	State Development Plan	Law	State Energy Commission
Baja California	Sub-provision 3.5 Wind energy potential	Law of renewable energy	State Energy Commission
Chiapas	Sub-provision 4. Sustainable Chiapas	Law for the adaptation and mitigation of climate change.	Institute of Renewable Energy.
Oaxaca	Chapter 2, Government perspective	Law to coordinate the fomentation of sustainable uses of sources of renewable energy and the state law for private-public associations.	The Oaxaca Institute of Renewable Energy.

Source: the author of this article

5.6 Electric at Home

Electric at Home is a project proposed by the company ACCIONA to the state executive branch. Its objective is to provide basic electrical lighting service by using small domestic photovoltaic systems, which will use solar energy as a renewable source of energy. In order to formalize the agreement, the ACCIONA project and the state government signed a collaborative framework agreement on May 8, 2013. Of particular interest, a collaborative memorandum between The Secretary of Tourism and Economic Development (STyDE, acronym in Spanish) and the Spanish Agency for International Cooperation for Development stipulates that both institutions shall provide lighting for Oaxaca homes by using renewable sources of energy (STyDE, 2013).

Table 2 Summarizes typology on current tendencies in state public policy in relationship to the type of permission granted to generate clean energy in Baja California, Chiapas and Oaxaca.

Table 2 Typology on current tendencies in state public policy in the three cases of study.

State	Self-sufficiency *	Independent producer**	Renewable energy
Baja California	State government and municipality		Wind energy
Chiapas	State government and municipality		Wind energy
	Permit holders		Biodiesel
Oaxaca	Businesses	Businesses	Wind energy
	State government and businesses		Photovoltaic

Source: the author of this article.

*It is the utilization of electrical energy to satisfy the permit holder's own needs or those of a group of co-owners or partners (RLSPEE, 2012, art. 10).

** It is the generation of electrical energy at plants with a capacity greater than 30MW, energy which is destined for sale to the supplier or for exportation (LSPEE, 2012, art. 36, fr. III, section C).

6. Conclusion

By having joined the national strategy for energy transition, the governments examined in this study have replicated the public policy measures of the federal government, with the intention of regulating the utilization of renewable sources of energy and clean technology in order to generate electricity in ways distinct from traditional means of providing electrical energy as a public service. The institutional frameworks of local renewable energy efforts during various administrations have been noteworthy in this regard.

In Baja California and Chiapas, organizations have been created to disseminate, develop and foment measures for the utilization of renewable energy resources that exist in these states. In Chiapas this organization has the capacity to foster the participation of municipal governments in the State in their efforts to develop renewable energy projects. Increasingly, the state governments of Baja California, Chiapas and Oaxaca have designed institutional mechanisms at the state level in order that their measures coincide with those taken by federal government on matters relative to the utilization of renewable energy. The new renewable energy dynamic in state policy consists of, as we have demonstrated in this article, insuring that these institutional changes respond to specific contexts in each state in its management of renewable energy. In this sense, what remains to be seen is the actual impact that the aforementioned state policies will have. Their first step will be to lay institutional foundation that will facilitate concrete actions on the part of state governments' management of renewable energy use that is sustainable and environment friendly in its generation of clean energy at a low cost.

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