Justice, social exclusion and indigenous opposition: A case study of wind energy development on the Isthmus of Tehuantepec, Mexico

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ABSTRACT

The southern Isthmus of Tehuantepec is one of the windiest places on Earth and the scene of a large-scale wind energy development plan conceived by the Mexican government in conjunction with multinational companies. We analyze the national wind energy development policy, and the negotiation processes, alliances and popular local indigenous resistance created by what is known as the Isthmus of Tehuantepec Wind Energy Megaproject. We observe how the Mexican government, in its eagerness to grant control of regional wind energy resources to private sector companies, generated social schisms and conflicts in regional indigenous communities. These arose largely due to the absence of land use planning rules and conflict resolution mechanisms of the property rights issued for communal and social control, heritage of the Mexican revolution in the 1910's. We describe recent government initiatives implemented in response to this dynamic and aimed at reviving construction of a wind farm previously blocked by popular indigenous protests. This unsuccessful attempt exposed a lack of institutional interest in guaranteeing local involvement in project planning and in correcting existing top-down political and operation practices. Wind energy development in Mexico resembles an extractive model, with no consideration of local cultures or organizations, or the potential for joint ventures with local stakeholders that would treat rural indigenous populations as assets in the national energy transition, begun in 2007 for wind private projects in the region.

1. Introduction

According to the Mexican Wind Energy Association (Asociación Mexicana de Energía Eólica - AMDEE), 46 wind farms currently operate in Mexico with 4005 MW installed capacity, and growth in the sector could bring this capacity up to 14,000 MW by 2022 [1,2]. To support this growth, the Mexican government has proposed an energy transition that would result in 35% of national electricity generation from clean sources by 2026, with about 40% of that capacity from wind [3]. Wind energy generation capacity has been growing steadily since 2008 (Fig. 1) [1,4], with 82% of current capacity installed in the southern Isthmus of Tehuantepec region (Fig. 2) [5]. This is one of the windiest regions on the planet, where average annual wind speed exceeds 10 m/s. Indeed, the United States National Renewable Energy Laboratory estimates the area’s wind energy generation potential at over 44,000 MW [6].

Once a regulatory framework was in place to facilitate public/private alliances for wind energy projects development, twelve wind farms were built in the area from 2008 to 2012. These formed part of a large-scale renewable energies project designed by the federal government and operated by large multinational companies. This rapid development led to an abrupt change in the region’s landscape and modifications in the organizational structures of the local indigenous communities. Our intention is to analyze the beginning of the Isthmus of Tehuantepec Wind Megaproject (Mega Proyecto Eólico del Istmo de Tehuantepec; “Megaproject” hereafter), highlighting the main operational instruments and the political processes generated in the impacted communities. Using this case study, we hope to better understand the...
challenges facing Climate Change mitigation and energy transition programs in contexts such as in Mexico. Government accompaniment of social transformation processes and conflict moderation in impacted communities is notably weak in this example, which finally slows importantly the proposed national energy transition urged in the name of Climate Change.

2. Energy transition in indigenous territories

In recent decades, the decline of conventional oil reserves first, and then a global ecological and climatic crisis, have placed energy at the center of public debate, not only for rich economies but also in emergent and less developed economies [7]. A transition from fossil fuels to alternative energy sources has catalyzed social worries facing a development in the middle of economical and environmental interests [8,9]. As some authors point out, large energy projects are frequently seen as politically complicated, especially when the energy needs of governments and transnational industries are perceived as threats to local development [10-12].

Considered as a central alternative in the fight against Climate Change, renewable energies do not escape from oppositions and controversies. Renewable energies face a paradox: the need for urgent implementation in the context of the current climate crisis, and the need to make them reconcilable with local development. In the name of climate urgency, international agencies and governments implement a development model that leads to authoritarian control of territories and practices that are not compatible with human rights [10]. Faced with this position that seems to privilege a global interest over local interests, another position considers it is necessary to reconcile the development of renewable energies with some principles of climate and environmental justice [13]. For some authors, it is about making really compatible certain principles of sustainable development with the major energy projects, specifically, the definition of more participatory and democratic mechanisms for harnessing energy [14]. Others advocate to consider the ethical sensitivities of populations, that is, considering how populations judge and understand energy issues [8].

Following the line of these authors, in this work it is proposed to go beyond the great narrative of renewable energies as a synonym of sustainable development, observing the reality of their development in the territories, highlighting how certain aspects or qualities of local communities should be considered or rejected by the planning schemes, in order to contribute to an urgent energy transition. In many cases, social oppositions to renewable energies have been stigmatized with the term NIMBY (not in my backyard), which is considered irrational or selfish because it is said that this type of protests seeks to prevail local interests over a global interest (the mitigation of Climate Change) [15]. However, literature in the social sciences has shown that this term lacks a heuristic or analytical value to analyze social opposition. Thus, several authors that we take in this paper intend to analyze the way in which oppositions are embodied in the local people and territorial reality, in terms of the distribution of the risks, and the costs and benefits in the population and its environment [16-19]. Regarding this last, global benefits of renewable energies against Climate Change are contrasted with local costs on landscapes or biodiversity [20,21].

There is an abundant literature that accounts for the conflicts in the development of wind energy projects. Making a revision of it, we enumerate some of the most important causes that generate oppositions all around the World in relation to the development of wind projects. Wind planning is problematic when it is deployed in a top-down and uniform manner, without considering the specific variables of the local contexts (variations on local regulation, land tenure, human rights, territorial vision, etc.). It is also problematic when the development of the projects provokes a perverse interaction among the implied actors, in the absence of a dialogue or consensus. Finally, it is the origin of conflicts when it raises a perception of injustice in the procedure: lack of transparency (information), of exchange (participation), of neutrality (from public actors), and imbalance in the distribution of costs and benefits [14].

We propose our study in the analytical framework proposed by some authors that seek to observe the way in which mitigation measures to Climate Change have fostered the emergence of conscience and social movements of resistance that demand environmental justice [10,22]. The aim of this work is to reveal the power relations ( ergonomic power) [8,23] established between communities, government and companies in the development of wind energy in the indigenous region of the south of the Isthmus of Tehuantepec, Oaxaca, Mexico, where according to some experts the most ambitious wind energy development in the World is operating [10]. Oppositions against the wind farms in this region reveal part of the historical struggles and resistances of the indigenous populations towards various initiatives of the Mexican government to modernize the region. The population of this region has perceived these developments as a threat to their survival because they violate territorial rights and impose new logics on the exploitation of natural resources.

Due to the extent of the wind farms deployed in the region of the Isthmus of Tehuantepec, and those that are in the process of being installed, this region (Fig. 2) may be considered as a social laboratory to observe how the Mexican government will reconcile the interests of local populations and businesses in the context of the energy transition. In this region, as well as in other regions of the country, the debate on renewable energies goes through the debate on indigenous rights. This population has territorial, political, cultural,
environmental, and human rights, collective or individual, that are recognized by an international normative framework adopted by the Mexican government.

It is not an exaggeration to say that the situation of the south of the Isthmus of Tehuantepec in relation to wind energy, with its mobilizations and demands, mark the political agenda of renewable energies in the country. We decided to focus our analysis on this case study because we believe that the situation merits a detailed approach to the problem that can be extrapolated to the understanding of other realities in Latin American countries and beyond, where the energy transition faces similar problems: dispossessed indigenous populations that resist to the projects with arguments of environmental justice, formulating new scenarios of adaptation. This case study allows us to reflect on the challenges that the energy transition entails in countries with a developing economy, where a reflection on democracy and the participation of the local population in the processes is necessarily evoked. Many times, renewable energy projects in these places are developed in a neoliberal context, with the absence of State institutions to address local problems. In that sense, it is convenient to observe the way in which those political regimes in process of democratic consolidation face these projects and interact with the local populations. We believe that the lessons of the Mexican case could be used to analyze the political dynamics of other countries. For instance, we did observe similar cases with indigenous people in Honduras [28]. Specially, international rights for indigenous people are considered in the Biodiversity Framework, but not in the UN Climate Change Framework [29].

Our analysis perspective adopts an approach from the anthropology of energy that seeks to understand the way local populations experience, conceptualize and evaluate energy social and political relations [8,10,16]. With an ethnographic methodology [29–34] based on stakeholders’ matrixes, interviews and focus groups, this case study offers a global picture about energy transition in a country with an important indigenous population [35], and a history of conflicts with large-scale renewable energy projects since the 1970’s [36]. Bibliographic and journal review was a procedure to know similar cases in other regions where the local communities resist the technologies from wind energy infrastructure. To achieve our objectives, we analyze the wind power projects as a process with three moments: A) First, we analyze the design and operation of the instruments through which the Mexican wind policy is deployed; here we focus on understanding the effects it imposes on power relations in the territory. B) Immediately, through ethnographic research carried out in four communities, as well as interviews with different actors (companies, communities, and local authorities), we reconstruct the vision of wind development in the region, the emerging conflicts and the power relations that are generated. In this process we distinguish two stages: the stage prior to the installation of the wind park, that has to do with the negotiations between the companies, the government and the communities; and the stage of construction and operation of the projects, that opens another moment of power relations between different actors. C) Finally, we analyze the political crisis that is unleashed around the installation of a wind project, and the strategies and instruments that the Mexican authorities put in place to resolve the conflicts. In the conclusion, we characterize the

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Hydro energy for electricity production was started early in Mexico since the XIX century [37], but very soon it was importantly diminished by the oil industry. The 1970’s global oil crisis induced a new exploration and exploitation of hydro resources with large-scale electrical plants; nowadays, these hydro plants represent in Mexico 10 % of the national electricity production, and 62 % of the electricity from renewable energies [26]. Indeed, large-scale hydro power plants have represented local environmental and social conflicts [36], and even at the beginning of the XXI century, organized rural population in Mexico achieved to stop a dam project in the state of Guerrero [38]. It is important to consider the social conflicts caused by hydro energy projects, since they are an antecedent to the beginning of wind power large-scale projects in the country. Siciliano et al. [9] analyze the social conflicts from hydro energy in some other countries in the global South.
elements of power (energopower) that emerge from the interrelation between different actors and the lessons that this case study offers. There is an important analysis performed previously by Huasca-Pérez et al. [39,40] identifying the social impacts of wind energy projects in the Isthmus of Tehuantepec, although the methodologies and focuses are different with respect to the present work.

3. Instruments of operation of Mexican wind policy and political dynamics in territories

Wind development in Mexico began in 2000 as a strategy to mitigate Climate Change driven by international organizations such as the Global Environment Facility (GEF), the United Nations Development Program (UNDP), and the World Bank (WB). These agencies provided technical advice and financial support to the Mexican government in order to form a wind market through the participation of private companies in the national electricity system [41]. Prior to this, in 1992, the Mexican government published the Public Electricity Service Law. This allowed private participation in the electricity industry through different generation schemes, as self-supply, co-production and independent production. Over 95% of the wind energy currently produced in the country follows the self-supply scheme [5]. Under this scheme, a licensee (commonly, a transnational company that builds the wind park) produces electricity that supplies to a group of industrial, commercial or service consumers located anywhere in the country [41].

Until recently, a key instrument in Mexico for development of alternative energy projects was the Open Season (OS) for Electric Energy Transmission and Transformation Reserve Capacity (Temporada Abierta de Reserva de Capacidad de Transmisión y Transformación de Energía Eléctrica)⁶. This involved a complex exercise in which wind farm developers who intended to use the resources in a given region informed the Energy Regulatory Commission (Comisión Reguladora de Energía - CRE), the federal entity responsible for regulating the Mexican energy market, of their electricity transmission and transformation requirements. The CRE then informed these needs to the Federal Electricity Commission (Comisión Federal de Electricidad - CFE), a state-run company, which the Public Service Law grants control over production services and a monopoly on electrical service distribution and marketing in Mexico. Based on these reports, the CFE had to design the necessary infrastructure and calculated its total cost, which was shared proportionally among the developers [5]. After evaluating the technical and financial specifications of the wind farm projects participating in the OS⁷, the CRE granted them permits to produce electricity and to connect to the national electricity grid.

The first tender process through this instrument took place in 2006. A total of 12 self-supply projects were registered, with a total close to 2000 MW of authorized capacity, and an estimated annual generation of over 7500 GW h (see Table 1). In addition, five projects as independent electricity producers (PIE) were included in the CFE wind program with a total capacity of 507 MW were also included. Given the reserved capacities, private companies jointly covered 80% of the total cost of the works, while the remaining 20% was covered by the CFE [41].

Because the permits granted through this instrument are in fact territorial occupation permits, it defines the nature of the political relations that developers and government authorities build around the territories. The literature on wind farms shows us a series of problems associated with this tender model, which is present in many countries and that defines the power dynamics of the Mexican energy transition [14,20]. This model is part of a top-down planning scheme in which the central government defines the general parameters of the wind policy (the inputs, that is, the design of the technical and financial instruments that motivate the investment) and the local authorities try to solve the effects of the arrival of technology in the territories (the outputs) [20,42]. In the case of the Isthmus of Tehuantepec, it is possible to observe that the local authorities do not have the necessary mechanisms (instruments, policies) to solve the problems coming from the arrival of the wind farms in the territory. As an instrument of an eminently technical and economic nature, the OS does not consider the environmental and social variables when issuing the permits previously referred to the companies [41].

Regarding environmental regulation, each project presents an Environmental Impact Assessment (EIA) to SEMARNAT, the federal Ministry of Environmental and Natural Resources, which is responsible for regulating the country’s environmental policy. The review of some of these EIA documents regarding the individual wind farm projects, points out technical deficiencies and incomplete information for the assessment of impacts, related with a lack of standardized guidelines to evaluate them, and most of the time with a short knowledge of the territories by the consultants who present the EIA only with a review of the general literature. In addition, these EIA studies are done for each project and there are no mechanisms that help to evaluate the cumulative and synergetic effects of the set of wind farms on the territories [43,44].

On the other hand, EIA do not include the mechanisms to integrate local environmental visions and concerns into the design of projects, which is seen by the population as something that violates their human and territorial rights. Once companies obtain environmental permits, environmental management programs do not include the participation of the local population. In that sense, some civil organizations claim that the EIA of renewable energy projects in the country, do not provide effective means to integrate environmental factors into the planning and decision making procedures, so that the negative consequences could be minimized for the environment [44]. To summarize, we can affirm that the permits issued through the OS did not constitute development proposals adopted and approved by the communities within the framework of their local democracy institutions [43].

4. Power dynamics generated by the planning of wind farms in the territories

Between 2001 and 2004, a series of meetings were held, convened by the GEF, UNDP and WB as part of a program to help wind development on the Isthmus of Tehuantepec (International Colloquium on Wind Energy Development Opportunities in the Isthmus of Tehuantepec Wind Corridor). The idea of these meetings was to attract investment and facilitate the arrival of companies in the region. This is how the wind developers started establishing contact with the communities of this region. Each company (Table 1) formed its public relations groups in which usually officials, politicians, and local leaders, among others, participated. Through them, the developers presented to the communities the benefits they offered: gains on land rent, access to jobs during the construction and operation of parks, and public works for the community.

In a first phase, the developers concentrated on convincing local landowners to lease their lands [45]. To do this they counted on help from government agencies such as the Agrarian Ombudsman (Procuraduría Agraria - PA). These agencies were pivotal in convincing ejido⁸

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⁶ Published 11 August 2014, the Electricity Industry Law modifies the regulatory framework used to begin the Isthmus of Tehuantepec Wind Energy Megaproject. Among these changes is that the OS is substituted by a bidding system first applied in April 2016. Given that current wind energy development began under the previous Public Electricity Service Law, our analysis addresses the planning scheme imposed by this previous law and the OS instrument.

⁷ These included, among other elements, financial guarantees to cover electricity transmission and transformation infrastructure costs.

⁸ The ejido is an area of land granted by the federal government to rural communities as a form of collective social property. This was a national land
Table 1
Self-supply and independent electricity producers wind energy projects participating in the first Open Season (OS) in Oaxaca. 
\(^1\)Source: [5].

<table>
<thead>
<tr>
<th>Mode</th>
<th>Project</th>
<th>Developer or Owner</th>
<th>Capacity (MW)</th>
<th>Generation (GWh/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent</td>
<td>La Venta II</td>
<td>CIF</td>
<td>101.4</td>
<td>(421)</td>
</tr>
<tr>
<td></td>
<td>Oaxaca I-IV</td>
<td>CIF</td>
<td>405.6</td>
<td>(1439)</td>
</tr>
<tr>
<td>Independent Subtotal 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-supply</td>
<td>Eurus</td>
<td>Acciona Energía/Cemex</td>
<td>250.0</td>
<td>876.0</td>
</tr>
<tr>
<td></td>
<td>Parques Eólicos de México</td>
<td>Iberdrola</td>
<td>80.0</td>
<td>323.4</td>
</tr>
<tr>
<td></td>
<td>Fuerza Eólica del Istmo</td>
<td>Industrias Peñoles</td>
<td>80.0</td>
<td>350.0</td>
</tr>
<tr>
<td></td>
<td>Eléctrica del Valle de México</td>
<td>EDF Energies Nouvelles-Mitsubishi</td>
<td>67.5</td>
<td>365.16</td>
</tr>
<tr>
<td></td>
<td>Esolatex del Istmo</td>
<td>Esolatex</td>
<td>164.0</td>
<td>642.0</td>
</tr>
<tr>
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<td>Esolatex</td>
<td>160.5</td>
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<tr>
<td></td>
<td>Bii Ne Stípa Energía Eólica</td>
<td>Cisa-Gamesa</td>
<td>26.3</td>
<td>100.13</td>
</tr>
<tr>
<td></td>
<td>Desarrollos Eólicos Mexicanos</td>
<td>Demex</td>
<td>227.5</td>
<td>933.30</td>
</tr>
<tr>
<td></td>
<td>Gamesa Energía</td>
<td>Gamesa</td>
<td>288.0</td>
<td>1009.00</td>
</tr>
<tr>
<td></td>
<td>Unión Fenosa Generación México</td>
<td>Gas Natural Fenosa</td>
<td>227.5</td>
<td>645.62</td>
</tr>
<tr>
<td></td>
<td>Vientos del Istmo (Energía Eólica Mareña)</td>
<td>Preneal México</td>
<td>180.0</td>
<td>776.0</td>
</tr>
<tr>
<td></td>
<td>Energía Alterna Istmeña</td>
<td>Preneal México</td>
<td>215.9</td>
<td>943.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 967.4</td>
<td>7564.21</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>2 474.4</td>
<td>(9424)</td>
</tr>
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Note: Values in parentheses are not reported and estimates are based on the known wind energy resources in the region.

Table 1 (continued)

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The land leasing process generated disagreement on the part of peasant groups and human rights organizations. These protests had as background a series of constitutional reforms launched by the Mexican government in 1992 tending to the privatization of collective property such as ejidos. For many indigenous and peasant organizations in the country, this constitutional reform was a threat to local community organization that had one of its most important pillars in the collective ownership of land. Wind development then reanimated old power struggles between those who benefited from the privatization of land—that is, the powerful groups now associated with wind developers—and those who sought to maintain social ownership and community life.

The wind companies removed the control of the territory from the peasants who were opposed to the projects, with the complicity of the government authorities that allowed the establishment of a political domination through coercion. Opponents—many of them grouped around the Assembly of the Peoples of the Isthmus in Defense of Land and Territory (Asamblea de los Pueblos de Istmo en Defensa de la Tierra y el Territorio)—criticized the authorities for the lack of transparency during the negotiations of the different public bodies, with the communities and the companies. They reproached the lack of neutrality of public authorities in the process and the lack of mechanisms to participate in planning. For many of them, the state sought to grant corporations with the benefits of energy and transfer social and environmental costs to the communities [48].

In relation to this problem, a report of the Independent Consultation and Investigation Mechanism of the Inter-American Development Bank (MICI-IDB), published in 2016, supports our arguments in the sense of the profound social transformations. According to the MICI, “the intense and rapid wind development in the Isthmus region” provokes that “the indigenous communities of the Isthmus do in fact face the risk of losing their identity and customs. This refers in particular to the loss of the principles of community governance and the common good in favor of development and decision-making schemes focused on the individual, which creates a gap between the beneficiaries (landowners) and non-beneficiaries (those who do not own land) of development” [48].

5. A lack of mechanisms for territorial agreements and its consequences

The beginning of the construction of the private wind farms in 2007 opened another stage of the political interactions between companies, communities and government. This stage had two characteristics: the lack of mechanisms to solve a series of problems linked to the development of the projects, and the weak presence of the authorities in the management of these problems. Some of these were related with: (i) solutions for the unforeseen damage from the works on the land (as the obstruction of water currents, among others); (ii) the lack of clear or transparent mechanisms for the payment of land leasing; and (iii) the distribution of jobs in construction works, and, in general, the participation of citizens in the distribution of different promised benefits, such as public works. In the absence of a public device to address these problems, political groups appeared that were placed between
In practice, blockages are generated for various reasons, for example, if a group of workers of an ejido in which a park is built considers unsuitable the hiring of labor, if an ejido authority considers as not sufficient the yearly compensation of the ejido’s public retribution to the community, if a builder considers that the tender for works was not transparent, or if a group of peasants considers that the rent of the land is low.

In 2012, for instance, a representative of the multinational Acciona that operates wind farms in the region, complained of millionaire losses caused by blockages [49]. When a block happens, companies are forced to negotiate with the groups and leaders of the protests, usually without the mediation of the public powers [50]. Little by little, this form of political action with blockades was generalized, to the extent that the company Acciona determined in 2015 an "anti-blocking bonus" to resist the pressures. These pressures come mainly from the groups of peasants with whom they have established some land leasing agreements, who are the main beneficiaries of the projects.9

On the other side, some of the strategies used by developers to avoid protests have to do with the recruitment of people from the communities to disseminate information about the projects. In other occasions the benefits are extended, increasing the rent of the land. And other times, the distribution of benefits to the community is made transparent by the participation of notaries to validate the agreements they signed with the different local authorities. Despite this, the nonconformities have remained present.

For a representative of a wind company in the region, the political instability generated by the mobilizations and blockages are "a very complicated problem because we are facing very demanding economic communities, which are looking for ways to get money, inventing that they have lost a cow, that an animal got sick from the noise of machines, etc." [50]. More than obeying apparent irrational demands from the part of the population, we believe that the protests are related to the absence of legitimated mechanisms and rules to solve the conflicts linked to the territorial implantation of wind farms under forms of institutional arrangements [14,51,52]. Indeed, there is an absence of the state institutions to solve conflicts and guarantee the rights of the population faced to the private companies.

A representative of a wind company in the region speaks to us of the position that his company has before the blockages: "we try to avoid the blockages according to their demands, if they are just we repair the damage, we make the modifications that they want, if they need to improve the way (inside the park), make better a water drain in the parks, no problem. But when they pass, it is blackmail ... We are not going to fall into bribery" [47]. For him, the underlying problem is "the absence of policies that accompany the social transformations linked to the presence of wind farms in the territories," which turns into problems for developers.

Trying to summarize, the actors involved in wind development are the following: (a) companies; (b) a series of associations or unions made up of peasants who decided to rent their land, their interest is to improve the leasing payments and access to jobs in the construction and maintenance of parks; (c) opposition groups around the above mentioned organizations, whose interest is to stop the current model of wind exploitation; (d) the local authorities, most of them in conspiracy with the companies; (e) conflict management teams; (f) the wind farm builders, usually people from the regional business sector with important political power.

The relationship among related actors is complex. On the one hand, the unions and builders are allies of the companies to facilitate the installation of parks, and sometimes to repress against the opposition groups. At other times, they are mobilized through "blockages" against companies or authorities when they do not correspond to their interests. Due to the resources they control, unions and builders have a strong influence on politics and on the election of positions of local and regional authorities. According to the opinion of a local activist, these groups seem to be a new face of the old domination structures used by the regional political class that historically controlled access to resources such as land. Now, in the context of wind development, they have controlled the distribution of benefits to keep it within their own political network, privatizing the use of social goods [53].

6. Crisis and implementation of new regulatory mechanisms

In 2012, the mobilization against the installation of a wind farm -considered the largest wind farm in Latin America with a capacity of 369 MW - created a political crisis that put the region's development of wind projects in an impasse. This forced the government to put in place new mechanisms or instruments to reconcile the installation of wind farms with the local population. In this last section we seek to explain how this crisis was created, as well as to describe the way in which the new wind policy instruments started to operate: the Free, Prior and Informed Consent, and the Social Impact Assessment (SIA).

Mareña Renovables wind farm project had to be built in the Huave municipality of San Dionisio del Mar. Its antecedents go back to 2004, when the Spanish firm Preneal signed a land reserve contract with the community’s agrarian authorities [54]. Land occupation at the time was highly speculative, and over time the project changed ownership a number of times. In 2011, a consortium of companies called Mareña Renovables acquired it from Preneal for $9 million. Project technical specifications were presented at this time: 369 MW capacity produced by 132 wind generators distributed between Barra de Santa Teresa and the Huave community of Santa María del Mar (Fig. 3). It would have included a 52-km transmission line [55].

From the beginning, there was distrust of the developers among the population of San Dionisio del Mar. This exploded in 2012 when, despite strong opposition, the local municipal government approved the building permit for the wind farm. Opposition groups forcibly took over the municipal building as a way of applying pressure to local authorities, in order to open the project to public debate. Public security forces unleashed a wave of oppressive tactics and repeatedly tried to clear the occupiers from the building. Throughout 2012, opposition groups mobilized on a regional scale, including in communities along the nearby lagoon [56]. This mobilization was motivated by defense of the environment since group members believed the proposed wind farm would negatively affect fishing, the communities’ main source of sustenance [10,57]. The project was intended to be installed in a place called Barra de Santa Teresa, a line of land located between two lagoons. According to the perception of the inhabitants of San Dionisio, the environmental studies were technically deficient, since they did not show that the impacts were going to be mitigated. In particular it was argued that the intermittent lights of the turbines during the night would scare away the fish and shrimp, the most commercially important products in the area. In addition, they assured that the wind farm would crush sites with an important ceremonial value for the Huave culture [48].

The acts of repression against the opposition groups (now encompassed within two organizations: the aforementioned Assembly of Indigenous Peoples in Defense of the Earth and Land, and the Asamblea del Pueblo Juchiteco - Assembly of the Juchiteco People) by public security forces and political pressure groups linked to the project (unions and builders) brought the conflict to national and international attention. The threats against opposition movement leaders caused the
Inter-American Commission on Human Rights (IACHR) to dictate cautionary measures to protect these leaders’ human rights. In November 2012, the conflict peaked when public security forces unsuccessfully attempted to retake the municipal building by force. This action was avoided by the inhabitants guarding accesses to Barra de Santa Teresa.

The conflict concluded on 4 December 2012, when a district judge granted a writ of amparo[^10] to the opposition groups and provisionally (later definitively) suspended the construction of the wind farm. According to the case file, the suspension responded to community resistance in San Dionisio del Mar against the Mexican government “for granting diverse permits (among which stand out those emitted under the protection of the previously cited OS operation mechanism) for implementing the San Dionisio Wind Farm project at Barra de San Teresa without having carried out a free, prior and informed open consent to determine if the plaintiff (the community of San Dionisio del Mar) granted its consent or not for implementation of said project.”

After this judicial sentence, the promoters and the government authorities tried to negotiate with the population to continue the project. The constant mobilization of the population, as well as the intervention of international organizations such as the IACHR and the ICIM and other national NGOs, gave the movement an important media presence. The social pressure exercised at the national level led the Mexican government to adopt the instruments we will describe below.

The Free, Prior and Informed Consent (FPIC) is an instrument derived from Convention No. 169 (C169) of the International Labor Organization in 1989, the Convention on Biological Diversity in 1993, and the UN Declaration on the Rights of Indigenous Peoples in 2007, among others, considered as the main international instrument for the protection of the rights of indigenous and tribal populations. The FPIC seeks to function as an agreement mechanism among the different actors in regions with indigenous communities. According to Articles 117 and 119 of the Electric Industry Law, the FPIC application should take into account the interests and rights of indigenous communities and peoples affected by electric industry project development, and guarantee respect for these communities’ and people’s human rights[^59,60].

Although Mexico ratified the C169 since 1990 (the second country, just after Norway), the first FPIC in the country was held until 2014 and its purpose was to consult precisely the relocation of the Mareña Renovables wind farm from the Huave site Barra de Santa Teresa, to the Zapotec territory in Juchitán. For this, the wind farm was renamed Eólica del Sur, although it maintained the same technical qualities (132 wind turbines, with a production capacity of 396 MW), and the same financing and consumer partners as Mareña Renovables[^61].

As we have seen, the disagreements against wind development in the region were associated with factors such as the lack of neutrality of political authorities in the processes, the lack of transparency and the perverse interaction between companies, communities and authorities, weakness of the evaluation of environmental problems, but also the social inequality that this type of development was generating. The FPIC was clearly an insufficient instrument to correct the complexity of problems derived from wind development. The following is a brief description of how the process took place - between November 2014 and June 2015 - from our observations of some moments of the FPIC and of the documentation generated by civil organizations and experts.[^11]

From the beginning, the implementation of the consultation experimented difficulties due to a highly charged social context, since a large portion of the affected population disputed the “previous” nature of the FPIC. This was because some government agencies had already granted certain permits for the wind farm, and also, by that time, already more than twenty wind farms had been installed in the region without signing agreements with the affected communities.

[^10]: Mexican law includes the concept of the writ of amparo. This works as legal protection for an individual or group against legal actions implemented by other parties. Most importantly, it is often used for protection from aggressive tactics by any level of government or its agents.

[^11]: The FPIC Protocol in Mexico has defined five phases: 1) previous agreements, 2) informative, 3) deliberative, 4) consultative, and 5) implementation and follow-up of agreements.
process therefore functioned as an escape valve for the pressure of social tensions surrounding the overall Megaproject12.

Another difficulty was related with the way the negotiations or dialogues between the parties took place. Although the consultation assemblies were widely attended, no dialectic process was generated in which community groups could discuss possible scenarios, visions, problems and alternatives. According to some observers, there was a lack of transparency in negotiations between the company, the various government agencies and local interest groups13. Invited as an observer by the Mexican government, James Anaya (former UN Special Rapporteur on the Rights of Indigenous Peoples) observed that “the different levels of government and their main political forces maintained a separated negotiation process on the project”, which, lacking transparency, “called into question the effectiveness of the consultation process centered on the well-attended assemblies”. For this reason, he recommended “attempting to better integrate the political process into the consultation in a transparent way, especially for preparing agreements that are meant to be attained” [61].

In addition to the deficiencies in the negotiating mechanisms, Anaya’s observations expose structural problems in federal wind energy policy regarding the limited possibility of the potentially affected population to participate in the project design and planning. He stated that one of the factors that made the FPIC process more difficult was that project specifications were defined beforehand. There were serious consequences to denying the possibility of reopening pertinent questions about the project using participatory planning mechanisms. In principle, he believed that this did not honor the “previous” nature of the consultation, which means (according to C169) “that indigenous peoples have the right to participate in different phases of the object under consultation and not only on the implementation of a project accepted and preferred by the company and the state”. In this sense, “it appears then that in the consultation the inhabitants of Juchitán de Zaragoza could only accept or reject the project in the proposed terms” [61].

That lack of flexibility in planning violated the principle of consent in the FPIC process. According to Anaya, “originated in a human rights framework, the principle of consent is not seen as a simple yes to a predetermined decision, or as a means of validating an unfavorable agreement for the affected indigenous peoples.” Therefore, the former UN rapporteur exhorted the Mexican authorities to seek consent based on fair terms that protect the substantive rights of the indigenous peoples affected by the initiative. This would involve “the participation of the subjects of the consultation in a process of feedback on design, implementation, mitigation of consequences, precautions to be taken, compensations, benefits and other aspects of the project, with the aim of ensuring respect for the substantive rights of affected indigenous peoples and to reach a consensus on their viability ” [61].

During the consultation process, some citizens proposed the possibility of developing a community project, that is, with the participation of the community as a project partner, in order to improve the distribution of benefits. Both, the company and the authorities rejected this proposal with the argument that the community did not have the means or resources to participate in those terms. The community option is a proposal that many indigenous organizations in the country take back to participate in the energy transition.

According to the body that organized the consultation, SENER, there was a consensus in the community that approved the wind farm in the way Eólica del Sur had proposed by the company. However, months after the closing of the FPIC, in September 2015, again a judicial instance granted an amparo to the opponents of the project. The judge considered that the Mexican authorities violated the prior nature of the consultation by granting a permit for the production and distribution of electricity through the OS tendering mechanisms during the consultation process. This opened a litigation process with the company until finally the Eólica del Sur project began its construction in 2017.14

Finally, another of the new instruments of Mexican energy policy is the Social Impact Assessment (SIA), established in Article 120 of the new Electricity Industry Law of 2014 [62]. Unlike the FPIC that applies only to indigenous populations, the SIA is applied to any energy project susceptible to affect local communities (indigenous or not). This instrument seeks to measure the social impacts of energy projects and establish mitigation measures, mainly through the distribution of benefits.

In the document General Administrative Provisions on the Social Impact Assessment in the Energy Sector [63], generated by the SENER, a guide is provided to prepare and present the SIA. It is important to remark that this guide was proposed since 2015, but officially published until 2018. From the analysis of this document we can develop a quick analysis on whether this document corrects some of the practices that produce dissatisfaction in the communities. The SIA is a document or diagnosis prepared by private consultants, hired by the promoters, therefore the neutrality of the diagnosis is not assured. The SIA is delivered to the SENER, which evaluates the content, establishes recommendations and issues the authorizations or permits for social viability.

In principle, although there are some guidelines that establish a participation of the local population in the diagnosis and design of mitigation measures, once the companies obtain such permits or authorizations, the regulations do not establish any mechanism for monitoring a periodic performance of accounts with participation of the communities, which ensures compliance with the commitments assumed by the companies. In addition, there is an absence of mechanisms that establishes heavy economic and administrative sanctions in case of breach of commitments. This seriously imitated the effectiveness of this mechanism. On the other hand, the document does not establish an effective mechanism to include local needs or concerns during the design of the project (for instance, to define lower impact sites). In addition, the regulation does not define economic or administrative sanctions for companies that omit their duty to carry out the Social Impact Assessment before starting negotiations with the owners of the land where they wish to install their projects (as established in the new Electricity Industry Law of 2014 [62]). Thus, it seems that the inclusion of this new procedure is a simple declaration of good intentions on the part of the Mexican government and does not correct or sanction the many irregularities of wind development that we have indicated in this document.

Unlike in Germany or Denmark, the production and distribution permits granted through the OS did not constitute urban development proposals adopted and approved by communities within the framework of local democratic institutions [20]. Rather, they were part of a planning process in which the federal government defined the general parameters of wind energy policy (i.e. the “inputs” of technical and financial instrument design that drive investment), and local authorities were left to resolve the effects (“outputs”) that implantation of this technology would have in their territories [14]. This generated an asymmetrical dynamic in which developers had to reach an agreement with and follow the indications of the central government (an upwards focus) while negotiating with local populations lacking participation mechanisms in the decision-making processes (a downward focus) [14,20,51,64]. Fig. 4 schematizes this process. Wind farm development in France generated a distinctly different process in which local authorities produced instruments (best practices guides, land organization

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12 An audiovisual record of the consultation can be found at: https://consultandinigenajuchitan.wordpress.com/

13 Some organization reports are available at: https://consultandinigenajuchitan.wordpress.com/documentos-2/observaciones-grupos-acreditados/

14 Recently, at the beginning of 2018, the Supreme Court of Justice in Mexico has reopened the expedient to review the judicial process.
plans, environmental and cultural heritage protection measures) that helped integrate wind farms into their territories [51]. In the southern Isthmus of Tehuantepec area, wind energy development has not fostered generation of spatial planning tools by local governments. Indeed, the AMDEE is projecting an increase in installed wind energy generation capacity in the area, but local and regional authorities still lack of land use planning instruments to ensure their interests are accounted for. As occurred previously, the developers will most likely construct wind farms on the land of communities with which promoters have managed to build political alliances.

7. Concluding remarks

From the year 2000, wind energy planning in Mexico follows a top-down scheme that produces an asymmetrical dynamic for developers, who are forced to fulfill orders from the central administration while “working it out” with local populations excluded from participating in decision-making processes. In this system, the government acts as the facilitator tasked with building social acceptance in populations affected by wind farms, while mobilizing their agents to provide control of the land and local political powers to developers. This implies formation of alliances with powerful groups, accentuating a social schism between landowners and other locals. It also slows the process to build and operate wind farms, in the middle of blockages and legal procedures. Indigenous population, a priority subject in the region where the projects started, has suffered violent disruptions in their economic and cultural activities. Private wind companies had also found delays during their installation and operation processes, in the middle of procedural confusions and with a lack of the official authorities supervision.

In a stage of wind energy development with land occupation and infrastructure construction (2007–2012), the process was characterized by emergence of conflicts linked to land use and culturally compatible benefits sharing (e.g. lease payments, jobs, public works) among the affected populations. Public dissent, most visibly manifested as takeovers of strategic installations by local pressure groups dissatisfied with the way development was occurring, has been the product of the absence of public institutional organs for channeling citizen demands towards developers and government authorities. The developers’ search for conflict resolution exposed a discrete retreat of government organs from the role of remediating the social problems of wind energy implantation. These kinds of resistance and political instability are related to a problem seen in previous wind energy planning cases, which is linked to a lack of legitimate mechanisms and clear rules of play for resolving large conflicts tied to installation of onshore wind farms under institutional agreements [7,11,30,31].

In a next phase (2012 onwards), wind farm development in the region has become characterized by professional pressure groups organized into unions and associations allied with developers. This has paralleled a maturing among regional opposition groups that eventually attained suspension of construction of one of the last and largest of the wind farms planned for the region.

Legal suspension of construction of the Mareña Renovables wind farm drove the federal government to implement the FPIC instrument, which, along with the SIA procedure, is included in the new Electric Industry Law. With these instruments, the Mexican government is apparently acknowledging the need to correct its wind energy development policy, and seeking to establish participation and accountability mechanisms in the relationships that developers establish with potentially affected communities. However, our analyses indicate that the
gobierno que no ha renunciado al enfoque de planificación descentralizada. En efecto, la consulta y la participación de la población local se han estado llevando a cabo en los últimos años. En algunos casos, la participación de la población local se ha llevado a cabo de manera efectiva, lo que ha permitido que los especialistas de la materia puedan tomar decisiones más adecuadas para el desarrollo de los proyectos energéticos. Sin embargo, en otros casos, la participación de la población local se ha llevado a cabo de manera insuficiente, lo que ha llevado a que los proyectos energéticos se desarrollen de manera menos eficaz.

En este sentido, se puede decir que el proceso de planificación energética en México se ha llevado a cabo de manera descentralizada, lo que ha permitido que los especialistas de la materia puedan tomar decisiones más adecuadas para el desarrollo de los proyectos energéticos. Sin embargo, en otros casos, la participación de la población local se ha llevado a cabo de manera insuficiente, lo que ha llevado a que los proyectos energéticos se desarrollen de manera menos eficaz.

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[53] Activist in the Asamblea de los Pueblos del Istmo en Defensa de la Tierra y el Territorio, Interview C., 2015 November.


