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## Two Decades Under Windmills

*Energy Transition and Entrenched Inequalities  
in La Venta, Mexico*

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Occasional Paper 10

**Overcoming Inequalities in a Fractured World:  
Between Elite Power and Social Mobilization**

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## Acronyms

BID	Inter-American Development Bank
CEMEX	Mexican Cements
CFE	Mexican Energy Commission
CSR	Corporate Social Responsibility
INEGI	National Institute of Geography and Statistics
NREL	National Renewables Energy Laboratory
PROCEDE	Programme for the Certification of Ejido Land Rights and the Titling of Urban House Plots
RAN	National Agrarian Registry
USAID	United States Agency for International Development

## Abstract

This paper seeks to analyse the process through which wind energy expansion has exacerbated patterns of rural inequality in La Venta, Mexico, the site of the first wind energy project in Latin America, established in 1994. Inequalities have arisen between landowners, and between landowners and landless people. Concerning landowners, wind energy rents have increased patterns of inequality among them because the wind industry reinforced long-standing inequalities in land ownership established with the foundation of the ejido—land that was collectively redistributed after the Mexican Revolution. In relation to landless people, they have been affected by a boom in the urban economy during the construction stage of the wind farms and a bust once the operational phase began, and by new kinds of exploitation resulting from non-agricultural labour. By analysing data on de-regularized landownership in the ejido and by drawing on fieldwork interviews, the paper shows that land has been concentrated in a few hands and that there has been a gradual productive shift from agriculture to cattle grazing activities. Asymmetric wind energy rents not only reinforce this trend but also result in different material and social relationships associated with wind energy, with actors benefiting from it in various ways—or not benefitting at all.

## Keywords

Isthmus of Tehuantepec; land inequalities; Mexico; renewable energy; wind power

## Bio

Gerardo A. Torres Contreras is a final year doctoral researcher at the Institute of Development Studies, Brighton (UK). He is working on the social impacts of wind farms in the global South. He explores land struggles, resistance and processes of social differentiation resulting from renewable energy projects in Mexico. He previously obtained a licenciatura in Political Science at National Autonomous University of Mexico and an MPhil in Development Studies at Oxford, UK. More recently, he has worked with Oxfam on issues of inequality and wellbeing in Mexico.

## Introduction

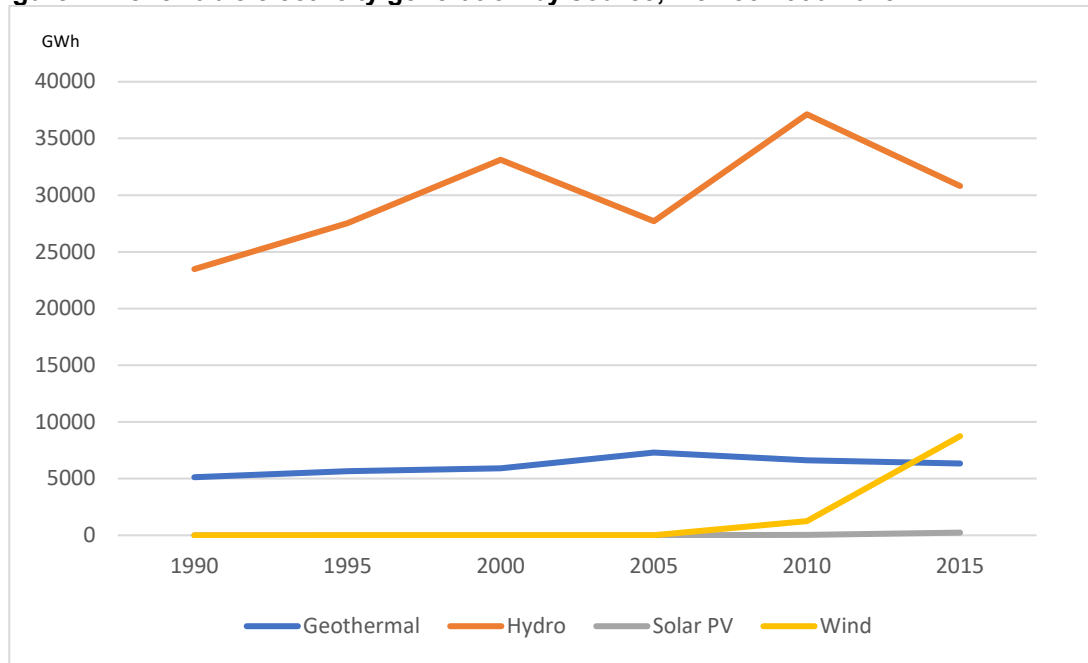
Wind energy is playing a significant role in Mexico's energy transition towards the development of domestic renewable energy systems. It is estimated that the country has approximately 12,000 megawatts (MW) of economically viable wind resources, which represents an investment between approximately 13 and 15 billion dollars in the near future (AMDEE and PwC 2014). These climate change mitigation investments are meant to reduce environmental degradation related to fossil fuels, ensure energy security, and foster economic growth and social development (Government of Mexico 2013). The outlook is quite ambitious, with the General Law for Climate Change, passed in 2012, stating that by 2045 at least 35 percent of electricity in the country must be produced by clean energy sources (DOF 2012).<sup>1</sup>

As figure 1 shows, wind energy generation in Mexico has skyrocketed since 2005 in comparison with other low-carbon sources like hydropower or geothermal. Unlike other renewable energy sources where land is enclosed, access is restricted and people are displaced from land (Yenneti et al. 2016; Rignall 2015), wind energy expansion entails particular socio-material arrangements (Baka 2016). Since wind power expansion allows productive land activities in combination with energy generation, the impacts of this industry on land and social dynamics are not clear-cut and have to be analysed in the long term. This is salient when considering that energy projects result in two types of social impacts: primary impacts, which occur on or immediately adjacent to a project site, and secondary impacts, which occur in the long run because of infrastructure development, such as road building, population movement, and changes in local economies (Narciso 2016). In the case of wind energy projects, these latter effects can result in a new agrarian structure generating processes of differentiation according to social aspects like gender, class or land ownership (Scoones et al. 2012) with fractured classes of rural labour (Kay 2015; Bernstein 2007). That is to say, the wind industry generates differentiated patterns of livelihood, with winners and losers. While some community members are able to profit, others are forced to engage in non-agricultural labour that carries unique forms of exploitation, as a consequence of productive trends accelerated by wind power (Bernstein 2010).

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<sup>1</sup> The Mexican secondary regulation differentiates between clean and renewable energy sources, and includes in its target clean energy sources that are not renewable, such as methane and nuclear power (DOF 2014; 2015).

**Figure 1: Renewable electricity generation by source, Mexico 1990-2015**



Source: IEA 2020

The vast majority of wind energy development—almost 90 percent—is concentrated in the Isthmus of Tehuantepec, the narrowest point in Mexico between the Pacific Ocean and the Gulf of Mexico, where 25 wind farms operate. This paper will explore the town of La Venta, which saw the installation of its first windmill over 25 years ago and is surrounded by three wind energy projects amounting to 339 windmills,<sup>2</sup> as an important site for understanding the differentiated impacts of wind energy expansion. This case fills a gap in the scholarship on energy transition in Mexico, as only a handful of studies have elaborated on the long-term consequences resulting from wind energy expansion.<sup>3</sup>

This paper will argue that wind energy investments have exacerbated patterns of inequality in La Venta in two ways. On the one hand, because patterns of land ownership have shifted over time since the original ejidal allocations,<sup>4</sup> landowners benefit from wind lease income in uneven ways. Whereas some of them are able to combine wind lease income with agriculture or cattle raising, for others wind leases do not make a difference in terms of livelihoods. On the other hand, landless people also experience the wind energy transition in varying ways. Patterns of differentiation in this group have to do with the urban economy boom during the construction stage, effects on local livelihood strategies and the rural diversification of labour. Acciona Energy, a wind energy enterprise operating in La Venta, has engaged in corporate social responsibility (CSR) initiatives that have tried to address these patterns of differentiation through, for example, the creation of a community centre and investment in infrastructure such as roads, sports centres and scholarships for youth. However, Acciona's social responsibility has not addressed the increasing differentiation affecting various groups of the community (Gay-Antaki 2016). Wind energy, in this sense, plays out in class dynamics and conflicting interests among the local populations by re-articulating accumulation processes and by shaping productive relations in La Venta.

<sup>2</sup> World Bank 2006; Andrade Saynez et al. 2012.

<sup>3</sup> Huesca-Pérez et al. 2016; Juárez-Hernández and León 2014; Oceransky 2010.

<sup>4</sup> Ejidal land is collective land that was redistributed after the Mexican Revolution of 1910.

By drawing on data on regularized ejidal land and on over 20 semi-structured interviews with *ejidatarios/as*—members of the ejido—and community members<sup>5</sup> of La Venta between October 2017 and March 2018,<sup>6</sup> this paper will start by explaining the case of La Venta and the process through which windmills have encroached on the town since 1994. Next, it will depict the patterns of differentiation arising between landowners due to wind energy expansion over the past 20 years. Thirdly, it will explore patterns of differentiation affecting landless people in the community. Finally, this paper will investigate how the wind energy company, Acciona Energy, has tried to address inequalities affecting both groups through the creation of social responsibility programmes, and what impact this has had.

## The Case of La Venta: A Town Encroached by Windmills

Although windmill construction did not start until 1994, wind energy potential was identified in La Venta long before this date. Records show that investors began coming to La Venta in the 1970s to reserve productive land for future wind farms in exchange for 50 to 100 pesos (between USD 2 and 4) per hectare (Beas Torres and Girón 2010). The first formal tests, however, did not start until 1986, when experts from the Mexican Energy Commission (CFE), the US Agency for International Development (USAID) and the National Renewable Energy Laboratory (NREL) began gathering data to measure wind speed and power density in the region (Friede 2016). Following these tests, the Mexican government, via the CFE, decided to negotiate to rent land in the north of La Venta in 1993 in order to install seven Vestas windmills.<sup>7</sup> Because wind energy infrastructure would only occupy between 5 and 7 percent of the leased land, CFE was not interested in expropriating land. Rather, CFE sought to rent the land for a period of 30 years with possibility of renewal, meaning landowners could continue with agricultural activities (Jiménez Maya 2005). Results obtained by the wind farm were so positive that, out of 1,600 windmills in the world with similar features, only those installed in New Zealand came close to the generation values reached by the seven windmills in La Venta (Hiriart Le Bert 1996; Borja Díaz et al. 2005).

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<sup>5</sup> *Ejidatarios* are those individuals who own land in the town (326 members). Community members, on the other hand, refers to those who do not own land, such as a family member of an ejidatario, an enterprise official or a landless individual.

<sup>6</sup> Names have been changed in order to protect my informants.

<sup>7</sup> Vestas is a Danish wind turbine manufacturer.

**Figure 2: Location of La Venta**



*Source: Beas and Girón 2010*

The installation of the first wind farm, the modification of the Law of the Public Service for Electric Energy in 1992—which allowed private actors to participate in power generation in specific contexts—and the positive capacity factor results from the seven windmills installed in 1994 attracted the attention of investors right away (Borja Díaz et al. 2005). Beginning in 1996, a great number of investors from the United States, Germany, Denmark, Belgium and Japan visited the Isthmus to embark on new business ventures and to negotiate with landowners. It is interesting to point out that a rumour that a few companies had already reserved all of the available land in the region promoted the idea that La Venta had one of the best wind resources worldwide. In this context, both the federal government and the government of Oaxaca started organizing conferences and seminars on the wind energy potential of the region. Also, they announced that collaboration with USAID was agreed to elaborate a “Wind Energy Resource Atlas of Oaxaca”, a report that identified and assessed the characteristics and distribution of wind resources in the region, and to assess whether a 100 MW wind farm could be built in the region (Borja Díaz et al. 2005). In August 2004, CFE announced the construction of the wind farm La Venta II with a projected generation capacity of just over 100 MW and approached landowners with the intention of renting 2 088 hectares of land for 30 years with the possibility of renewal for another 30. Three

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