Energy Justice from the Bottom Up: A Capability Approach to Community Acceptance of Wind Energy in Southern Mexico

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Para mi mamá, mi papá, tani, Abu, Juanito y Agus

DECLARATION

This thesis is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text. I further state that no substantial part of my thesis has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. It does not exceed the prescribed word limit for the relevant Degree Committee.

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ABSTRACT

Adopting ambitious renewable energy targets has profound social, economic, and environmental implications, at local and global scale. Indeed, these targets have raised deep questions about social justice in capitalist societies attempting to pursue clean energy transitions. To understand how these transitions occur, we must understand dynamics of community acceptance that are linked to the politics of local approval of siting Renewable Energy Technologies (RETs). As a result, it is vital to identify links to justice as an important explanatory factor affecting community acceptance of RETs.

Wind energy offers an emblematic case of these dynamics, highlighting the tensions between the technical and the social. At a technical level, the efficiency of wind energy technologies has rapidly improved, becoming a relatively cheap renewable resource central to many energy transition and climate change mitigation strategies. Nonetheless, despite widespread public support for wind energy, low success rates in planning applications are threatening the expansion of wind energy production. This is because wind farm developments often face strong social opposition. While this puzzle has been studied in high income settings, there is little work that adequately explains the sources of this resistance in developing countries.

This research thus explores the factors affecting whether and how communities accept wind energy developments in Southern Mexico. It does so by drawing together three lenses: the energy justice framework, the capability approach, and power analysis. These lenses help examine how shifting actions and power relations maintain or transform conflicts around RETs in developing contexts.

This study looks at the case of wind energy siting in three Indigenous communities neighbouring wind installations in the Isthmus of Tehuantepec, Oaxaca state, Mexico. The three localities offer a valuable comparison, as they have low, medium, and high levels of wind farm community acceptance. The study draws on fieldwork conducted between September 2017 and June 2018, primarily consisting of 103 semi-structured interviews and a medium-size questionnaire-based survey (N= 382). Operationalising the capabilities approach, this data helps understand local perceptions and concerns regarding capabilities and wellbeing, and links this to three elements of energy justice: distribution, recognition and procedures.

Two intertwined findings emerge from this research in the case of wind energy in Southern Mexico, with broader significance. Firstly, just energy transitions require recognition of locally-valued forms of justice. Energy infrastructure siting processes and outcomes must incorporate these understandings of well-being. Secondly, it is essential to understand the power relations in renewable energy processes. Community acceptance entails bundles of changing actions and positions, shaped by internal power relations and those between communities, the state, and wind energy developers. Importantly, these power dynamics can create barriers to expanding valuable capabilities for some stakeholders, thereby reducing the social acceptance of wind energy, and diminishing the possibility for a just energy transition.

Together, these findings contribute to Latin American case studies on social dynamics around wind energy, which has significant implications for theorising about energy justice and sustainability pathways from the Global South. This study offers a bottom-up perspective to just transitions by emphasising the capabilities that local people have reason to value, in the context of power dynamics between developers, governments and communities.

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LIST OF ABBREVIATIONS AND ACRONYMS

AWEA	American Wind Energy Association
CA	Capabilities Approach
CCC	*Centro de Colaboración Cívica* - Center for Civic Collaboration
CEC	Clean Energy Certificates
CENACE	*Centro Nacional de Control de Energía* - National Energy Control Center
CFE	*Comisión Nacional de Electricidad* - Federal Electricity Commission
CO2	Carbon Dioxide
CONAPO	*Consejo Nacional de Población* - National Population Council of Mexico
CONCAMIN	*Confederación de Cámaras Industriales de los Estados Unidos Mexicanos* - Confederation of Industrial Chambers of Mexico
CONEVAL	*Consejo Nacional de Evaluación de la Política de Desarrollo Social* - National Council for the Evaluation of Social Development Policy
COP	Conference of the Parties
CRE	*Comisión Reguladora de Energía* - Mexico's energy regulatory commission
DOF	*Diario de la Federación* - Official Gazette of the Federation
EDF	Électricité de France
EIA	Environmental Impact Assessments
FMDR	*Fundación Mexicana para el Desarrollo Rural* - Mexican Foundation for Rural Development
FPIC	Free Prior and Informed Consent
GEF	Global Environment Facility
GHG	Greenhouse Gas
GW	Gigawatt
GWEC	Global Wind Energy Council
HDI	Human Development Index
IADB	Inter-American Development Bank
IEA	International Energy Association
IFC	International Finance Corporation
IIE	Institute of Electric Research
INAFED	*Instituto Nacional para el Federalismo y el Desarrollo Municipal* - National Institute for the Federalism and Municipal Development
INEGI	*Instituto Nacional de Estadística y Geografía* - National Institute of Statistics and Geography
INPI	*Instituto Nacional de los Pueblos Indígenas* - National Institute of Indigenous Peoples
IPP	Indigenous Peoples Plan
IRENA	International Renewable Energy Agency
JCP	Justice, Capabilities and Power Framework
NDC	Nationally Determined Contribution
NIMBY	Not in my backyard
MW	Megawatt
PEMEX	*Petróleos Mexicanos* - Mexican Petroleum
OECD	Organisation for Economic Co-operation and Development
RET	Renewable Energy Technology
SA	Social Assessment
SDI	Santo Domingo Ingenio
SENER	*Secretaría de Energía* - Ministry of Energy
TPES	Total primary energy supply
UH	Unión Hidalgo
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USAID	United States Agency for International Development
WB	World Bank

Pienso que todo ser humano tiene parte de la verdad, no considero que exista un ser humano totalmente equivocado.[1]

Juan Lafarga (2015)

Our abilities to do things depend on interaction with each other.

Amartya Sen (2015)

¡Ay! Diidxazá, diidxazá,
ca ni bidiideche lii,
 qui gannadica' pabiá
' jñaaca gunaxhiica' lii.
 ¡Ay! Diidxazá, diidxazá,
diidxa rusibani naa,
 naa nanna zanítilu',
 dxi guiniti gubidxa ca.[2]

Gabriel López Chiñas, "Diidxazá"

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[1] I think every human being has part of the truth; I do not consider that there is a human being that is totally wrong.

[2] Oh, Zapotec, dear Zapotec
those who despise you
ignore how much
their mothers loved you
Oh, Zapotec, dear Zapotec
language that gives me life,
I know you will not die,
until the sun's demise.

1 INTRODUCTION

We live in a world dominated by fossil fuels, amounting to 81% of the world's total energy supply (IEA 2017b). Most projections suggest that fossil fuels will continue to dominate, in the most optimistic view, at least until 2035 (BNEF 2016; WEC 2016). The 2015 United Nations Climate Change Conference in Paris marked a major step away from a carbon-based world. This agreement recognised that renewable energy is central to avoiding catastrophic climate change. As of 2010, the global electricity generation mix has experienced a rapid rate of change, with renewables as the fastest-growing source of electricity generation. This is primarily due to declining costs for solar and wind power as supported by state-level renewable targets (EIA 2020a; International Renewable Energy Agency 2016).

However, adopting ambitious renewable energy targets has had profound social, economic, and environmental implications, on local and global scales. Indeed, these targets have raised deep questions about social justice in capitalist societies attempting to pursue clean energy transitions (Shearman & Smith 2007). To gain a more holistic understanding of how these transitions occur, we must understand the dynamics of community acceptance and how they may link to the politics of local approval of Renewable Energy Technologies (RETs). Consequently, it is vital to identify links to justice as an important explanatory factor affecting community acceptance of RETs.

Wind energy offers an emblematic case of these dynamics, highlighting the tensions between the technical and the social. At a technical level, the efficiency of wind energy technologies has rapidly improved, becoming a relatively cheap renewable resource central to many energy transition and climate change mitigation strategies (Jain 2011). Nonetheless, despite widespread public support for wind energy, low success rates in planning applications are threatening the expansion of wind energy production. This is because wind farm developments often face strong opposition on a local, community level (Bell *et al.* 2005; Devine-Wright 2005; Fournis & Fortin 2017; Toke 2002; Warren *et al.* 2012; Wolsink 2007b). While this puzzle has been studied in high-income settings (e.g. Aitken, 2010; Devine-

Wright, 2005; Batel, Devine-Wright, and Tangeland, 2013; Haggett, 2010; Pasqualetti, 2012; Pasqualetti and Butler, 1987; Cass and Walker, 2009; Warren et al., 2012; Wolsink, 2007; 1988; 2018), there is little work that adequately explains the sources of this resistance in developing countries.

This research thus explores the factors that affect the acceptance of wind energy developments in three communities in Southern Mexico in the context of a just energy transition.[3] It does so by drawing together three lenses: the energy justice framework, the capability approach, and power analysis. These lenses help examine how shifting actions and power relations maintain or transform conflicts around RETs also in developing contexts.

This introductory chapter is organised as follows. Sections 1.2, 1.3 and 1.4 outline the significance of wind energy within a sustainable energy transition, introduce the wind energy social paradox and justify the chosen case study, respectively. Sections 1.5, 1.6 and 1.7 present the main research questions and contributions of this work. Section 1.8 outlines the roadmap used to explore these research questions.

Energy as Key to Sustainable Development

Energy plays a critical role in the attainment of sustainable development as it is necessary for our daily survival and provides essential services for human life, such as heating, cooking, manufacturing, as well as power for transport and mechanical work. Our past development is closely linked to technical and social revolutions in energy generation and utilisation (e.g. Mitchell, 2011). Similarly, our future development depends highly on its long-term availability, and, at present, there is no single energy source or mix of sources that could meet its future needs (Brundtland *et al.* 1987; EIA 2020a). Moreover, according to the International Energy Agency (2020), energy demand will increase by around 50% per cent by 2050. The European Commission (2009: 10) calls this the 'energy challenge', described as 'one of the greatest tests which the world has to face', based on three factors of concern: The first factor is that today's primary sources of energy are mainly non-renewable (natural gas, oil, coal, peat and conventional nuclear power). The rising prices of fossil fuels linked with concerns about 'peak oil' (when the maximum rate of crude oil extraction is reached) have captured the attention of national governments on energy security. Secondly, there is an imperative need to mitigate anthropogenic climate change, caused predominately by the emission of greenhouse gases to the atmosphere, mainly carbon dioxide (CO_2), produced from the combustion of fossil fuels. Finally, there is a need to modernise systems of energy to meet universal demand. Rates of consumption are expected to increase by 25-34% globally in the next twenty years, with the global population reaching 8.8 billion

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[3] Pursuing a just energy transition requires following a 'fair and equitable process of moving forwards towards a post-carbon society', and seeking fairness and equity in relation to ethnicity, income, and gender within both developed and developing contexts (McCauley & Heffron 2018).

(EIA 2020a). In brief, energy has been used in an unsustainable manner, and thus, safe, dependable, and environmentally sound energy generation technologies are needed to sustain human progress.

Affordable, reliable and sustainable energy has been set as one of the 17 Sustainable Development Goals pledged by the United Nations alongside world leaders in 2015. It has been recognised that achieving this goal is imperative to advance other Sustainable Development Goals, including those related to poverty eradication, food security, clean water and sanitation, health, education and economic growth, while combating climate change (United Nations General Assembly, 2015). The United Nations has introduced numerous policies and initiatives to facilitate the attainment of this goal, such as the Decade of Sustainable Energy for All, 2014-2024 (General Assembly resolution 67/215). This initiative has become a quasi-international organisation that supports governments and other partners in accelerating efforts relating to sustainable energy. As a result, most countries in the last two decades have created policy frameworks to transition towards a more sustainable energy system. For example, in the recently published European Green Deal, the European Commission aims to increase the share of renewables in total energy used to 32 per cent by 2030 (European Comission 2020), while Sweden adopted the challenging target of cutting its net greenhouse gas emissions to zero by 2045 (The Ministry of Infrastructure, 2020). To meet these ambitious targets, it has become crucial to identify the key issues that can arise with the deployment of renewable energy technologies.

Wind Energy: A Clean and Market-Ready Renewable Technology to Tackle Climate Change

The need for a transition from fossil fuels to renewable energy has led to major research on alternative energy technologies, especially wind power. To advance the future sustainable energy mix, wind power has become a 'laboratory', i.e. a pilot process to learn broader lessons about the advancement of other renewable energy technologies and the implications for a low carbon transition. Although hydropower might be better suited for this task due to its longer establishment, this form of renewable energy was developed many decades ago in a different socio-political context that did not take into account today's concerns about climate change. Wind energy development has been the most direct, visible and widespread response to global warming (Warren *et al.* 2012). Wind energy offers the cleanest (Ledec *et al.* 2011; Leung & Yang 2012) and most market-ready[4] RET (Devine-Wright 2005; Pryor & Barthelmie 2010; Warren *et al.* 2012). Thus, it has become the world's fastest source of power generation. In 2000, global capacity of wind energy totalled 17GW, while in 2019 it reached 650 GW, growing 10 per cent annually (GWEC 2020). It has been successfully implemented mainly in Asia (268,323 MW), Europe (195,776 MW), and North America (123,588 MW) (IRENA 2020). Many

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[4] i.e. the price of power is competitive with other types of renewable and fossil energy generation.

features of wind power offer scope for policy learning, shedding light on the institutional, economic and political challenges of a renewable energy transition (Ledec *et al.* 2011). Thus, the successful development of wind power plants can help determine the success rate of establishing renewable energy capacity (Bitar *et al.* 2012; Wolsink 2007a).

The Wind Energy Socio-technical Paradox

Though wind power has become a global, high-tech industry, its development has been marked by social controversy in the form of a socio-technical paradox. General public attitudes to wind energy are overall positive. For instance, 74 per cent of Europeans are in favour of this technology (Poortinga *et al.* 2018). Nevertheless, this level of support is not reflected among wind farms' neighbouring residents who appear to increasingly resist wind energy. The low success rates of planning applications for wind farm developments are threatening wind energy advancements (Bell *et al.* 2005; Devine-Wright 2005; Fournis & Fortin 2017; Toke 2002; Warren *et al.* 2012; Wolsink 1988, 2007b). Communities are not finding the practice of 'learning to love the landscapes of carbon neutrality' (Selman 2010: 157) easy or desirable. They disapprove of not only the aesthetics of wind farms, but also their livelihood impacts and the conflicting values that arise while planning and siting them (Eltham *et al.* 2008; Graham *et al.* 2009; Szarka 2007; Van der Horst & Toke 2010; Wolsink 2007a; Wüstenhagen *et al.* 2007a). For instance, 80% of the public in the UK supports wind energy, yet only a quarter of contracted wind power is commissioned (Toke 2002), and in France, installers added only 757 MW of capacity, far less than other countries, due to a lack of local social acceptance (Enevoldsen & Sovacool 2016). Moreover, in the European Union overall, 20% of wind energy projects are delayed and over 20% are seriously threatened due to appeals from local communities (Cena *et al.* 2010). Consequently, levels of social acceptance can have a significant impact on wind energy deployment previsions, potentially limiting the ultimate scale of the wind energy sector and its contribution to reaching the Nationally Determined Contributions (NDCs) of the Paris Agreement. Though this paradox has been extensively researched in Europe, there remains a knowledge gap about the possible presence of this socio-technical tension in other regions of the world, such as in Mexico.

The Isthmus of Tehuantepec, Mexico

Given the saturation of the energy markets in developed countries, the wind energy industry has turned its attention to emerging economies with significant wind resources. Mexico has become an ideal location for large scale wind energy production due to its increasing energy demand and its problematic dependence on fossil fuels (IEA 2017a). Within the country's territory, the Isthmus of Tehuantepec is a region which has been described as having 'the best wind resources on earth' (IFC 2014). The average wind speed exceeds 10 m/s, while 6.5 m/s is the global average for energy generation (Borja et al.,

2005). Moreover, wind in the Isthmus of Tehuantepec has 'excellent' energy potential as it is relatively stable and there is a high percentage of wind hours per year.

Tehuantepec straddles the state of Oaxaca, a region shaped politically by its Indigenous identity couched in the legacy of colonialism, high levels of marginalisation and profound forms of inequality. It is one of the states with the highest percentage of Indigenous people in Mexico: 43.7% of its population self-identify as Indigenous (INPI 2015). Oaxaca is also one of the poorest states: 84% of the municipalities in the Isthmus of Tehuantepec face a moderate, high or very high degree of marginalisation, according to the National Population Council's marginalisation index (CONAPO 2015).[5] Mexico generally has high levels of income inequality, marked by a 43.4 Gini coefficient in 2016[6] (World Bank 2016). Income inequality affects Oaxaca specifically, given the legacy of colonialism and discrimination against Indigenous and non-whites (Comim 2015).

Following a major energy reform that facilitated foreign private capital investment in 2008 (IRENA 2015), large international utility companies started to operate in the region, installing wind energy turbines that accounted for up to 3,527MW by 2016 (GWEC 2016). The introduction of the wind energy industry was not originally contentious in the region. Developers approached Indigenous landowners, who initially agreed to lease their lands to build wind farms without much hesitation. Nevertheless, while the process of price negotiation continued and turbines were erected on the ground, opposition emerged. These negotiations took place without there being a clear regulatory framework in place and increasingly resulted in political conflict, economic loss, and social disruption within a region affected by poverty and prone to identity-based intra-group conflict. For instance, in 2012, a 396MW development that was hailed as the largest scheme in Latin America (IADB 2016) was cancelled due to conflicts linked to land speculation and tensions between two different social groups, the Zapotecs and the Huaves (e.g. Hurtado Sandoval, 2015), causing an approximate loss for the main investors of seven million US dollars (González 2013). While in theory, the establishment of wind farms was a good opportunity for the region, lack of community acceptance and negative social impacts put further investments at risk, in addition to risking the well-being of the local population.

The Isthmus of Tehuantepec, Mexico is, therefore, a good place to conduct an inquiry to understand how the lives of the poor and marginalised are shaped by the introduction and expansion of wind power in the areas where Indigenous groups have long term presence, and where land-based activities are central to different livelihoods. The remainder of this chapter will outline the research problem, objectives and questions, and the overall structure of the thesis.

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[5] This index considers deficiencies in basic education and housing, residence in small, dispersed and isolated localities, and low monetary income (CONAPO 2015).
[6] The Gini coefficient is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive, and it ranges between 0 in the case of perfect equality and 1 in the case of perfect inequality (OECD 2020).

Research Questions

The installation of wind energy projects in remote and rural communities, such as in the Isthmus of Tehuantepec, is commonly regarded as a win-win strategy to 'ensure access to affordable, reliable, sustainable, and modern energy for all' (UN, 2015), while at the same time creating development opportunities for often marginalised and impoverished groups. Indeed, in recent years rural and local communities around the world have 'unwittingly' become 'protagonists of the energy transition' (Savaresi 2019).

As with any other change to the *status quo*, however, moving away from fossil fuel-based energy systems raises questions on the way such change is enacted and the associated justice implications (Jenkins *et al.* 2016; Sovacool 2013). In other words, while reliance on fossil fuel-based energy generation and the related governance arrangements undoubtedly creates winners and losers, changing the *status quo* entails finding new equilibria (Fazey *et al.* 2017), engendering change at the pace and scale needed (Delina & Sovacool 2018). The deployment of RETs such as wind energy has raised similar questions, which highlight the need for integrating social factors, such as local responses to installations, levels of public engagement and the recognition of all groups in society, whilst defining pathways for a just energy transition.

This thesis looks at the profound social, economic and environmental factors that affect the acceptance of RETs by drawing together three lenses: the energy justice framework, the capability approach, and power analysis. In this regard, the thesis focuses on community acceptance (captured through attitudes toward locally installed technologies) rather than socio-political acceptance (captured through general attitudes toward RETs) or market acceptance (captured through the market penetration of a technology) (Wüstenhagen *et al.* 2007b).

The thesis is guided by one main research question: what are the factors affecting the community acceptance of wind energy developments in Mexico?

To understand factors affecting community acceptance RETs more specifically, the research proposes a theoretical integration of the capabilities approach (Nussbaum 2011; Nussbaum & Sen 1993; Sen 2001a, 2009) with John Gaventa's Power Analysis (2006) to contribute to a bottom-up approach to the triumvirate conception of energy justice (e.g. Heffron and McCauley, 2014; Jenkins et al., 2016; McCauley et al., 2013; Sovacool, 2013; Sovacool and Dworkin, 2014).

This study builds on scholarship that addresses environmental and energy justice to examine distributive, procedural and recognition justice implications, and by asking the following sub-questions:

To look at distributive justice, we need to not only focus on the distribution of benefits and ills, but also people's valued understanding of well-being or capabilities (a normative framework for assessing people's well-being and devising interventions for social justice (Comim *et al.* 2018). Therefore, the

first sub-research question is: *how do distributive concerns about wind energy developments relate to people's capabilities?*

To analyse procedural justice, the study looks at the ways power is enacted by different actors involved in wind energy siting processes and the implications for people's capabilities. Therefore, the second sub-research question is: *how do power dynamics affect people's valued capabilities?*

Finally, to examine recognition justice, the study looks at how people value Indigenous identities and the extent to which these identities have been recognised amidst the introduction of the wind energy industry in the region. Therefore, the third sub-research question asks: *how does the recognition of valued Indigenous identities feed into community acceptance of RETs?*

Together, these research questions help examine factors affecting community acceptance of wind power by looking at the relationship between wind energy developments and well-being, and the underlying power dynamics which shape well-being outcomes, through a justice lens.

The objective of this thesis is to critically interrogate narratives that promote wind-farm installation regardless of the social justice implications. Instead, this thesis suggests that a more careful and systematic understanding can be developed of the relationship between RET development and communal well-being. I argue that this is needed to better recognise how notions of social justice are understood and incorporated when transitioning to clean energy.

Research Contributions

This thesis analyses factors affecting the community acceptance of RETs in Southern Mexico. The research is situated within three fields of study: environmental and energy justice, welfare economics, and power analysis. While the next chapter elaborates on the corresponding bodies of literature and how I situate my research at their intersection, I would like to elaborate on how this study contributes to critical scholarship on energy infrastructure in five ways.

Critical scholarship on social acceptance has focused on fairness as an important factor that superseded former, more simplistic 'backyard motives'[7] (Wolsink 2007b). Perceptions of fairness have been shown to influence how people perceive the legitimacy of energy infrastructure siting outcomes; a fairer process that increased the legitimacy of the outcome will, in turn, advance the acceptance of new developments (Gross 2007). However, limited attention has been drawn to how the three tenets of energy justice can inform social acceptance. This study contributes to bridging this gap by looking at individual experiences of justice and injustice to see to what extent they have an impact on people's attitudes to RETs.

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[7] the assumption that though local communities may be in broader support of the development of wind farm facilities, they do not want them placed in their 'backyard' (Devine-Wright 2005).

Energy justice research seeks to identify the ways in which benefits and ills related to energy issues are distributed and mitigated, and how the victims are recognised. However, this literature and the so-called triumvirate conception of energy justice (McCauley *et al.* 2013), does not specify who is responsible for defining justice concerns, which potentially contributes to a top-down approach that does not explicitly include the values of people on the ground. Without specifying a particular explanation of what makes an event or situation unjust, it proves difficult to identify which aspects of these situations needs ameliorating (Wood & Roelich 2019). The study proposes to extend the energy justice framework with the capability approach as a way to bridge ideal and abstract notions of justice (Schlosberg 2019) and offer a bottom-up explanation for factors affecting acceptance of RETs while capturing tensions between well-being and climate change mitigation (Wood & Roelich 2019), and extending its empirical applications from energy usage and energy poverty (Day *et al.* 2016a; Walker & Day 2012a) to large-scale energy production.

The research also contributes to bringing a relational approach to the CA, by bridging the understudied conversion factor of power, advancing a new evaluative framework to look at relations, and using individuals and groups as units of analysis.

Overall, this research contributes to increasing the scholarship on how the three tenets of energy justice can inform social acceptance of RETs in the context of emerging economies, how Indigenous communities interpret energy production-related issues, and what kind of improvements and strategies they would propose and endorse.

The wind energy socio-technical paradox has already attracted scholarly interest seeking to understand the causes for opposition to wind farms in the Isthmus of Tehuantepec. These studies have highlighted: (1) the social effects of the loss of access to natural resources, increasing inequality, and land speculation (Howe 2014a; Oceransky 2010), (2) divergent stakeholders' perceptions on the existing conflict (CCC 2015a; Nahmad *et al.* 2014), and (3) how structural conditions have allowed the legalisation of land transfers to private corporations, arguing that local communities face a process of *despojo* (land dispossession) by the wind energy industry (Alonso and García, 2016; Carnero, 2017; Martinez and Davila, 2014; Martinez and Llaguno, 2013).

The present work also looks beyond this analysis and proposes a justice, capabilities and power framework (JCP) that looks at interrelations between justice and acceptance, through the lenses of well-being and power. In approaching the problem, this work adds a novel methodological approach based on a comparative stance that might be useful to future studies. Furthermore, this paper extends perspectives of resistant groups and community members by integrating developer and government views on siting processes and outcomes, thereby offering findings that hold a more holistic viewpoint.

Together, the study findings contribute to Latin American case studies on social dynamics around wind energy, which has significant implications for theorising about energy justice and sustainability

pathways for the Global South. In particular, this study offers a bottom-up perspective to just transitions by emphasising the capabilities that local people have reason to value, in the context of power dynamics between developers, governments and communities.

Thesis Overview

This thesis addresses the main research question of determining what factors affect community acceptance of wind energy in Southern Mexico. The thesis is divided into eight chapters.

The first two chapters present the main arguments of the thesis. **Chapter One** advocates that justice claims are an integral part to community acceptance of RETs, and that access to justice is a function of power relations. Following this introductory chapter, **Chapter Two** presents the conceptual framework of the research that builds on synergies between four literatures: sustainability, social acceptance of energy infrastructure, the capability approach (CA) and power analysis. It also introduces a justice, capabilities and power framework for understanding the community acceptance of energy infrastructure (JCP).

Chapter Three explains the research methodology to operationalise the conceptual framework proposed for this thesis. The chapter also explains the selection criteria for the three fieldwork sites. It describes a mixed-methods approach centred on bottom-up empirical evidence. This research design aims to first articulate local peoples achieved and aspired capabilities, analyse how they are associated with understandings of well-being, and then extend the capability approach to analyse relational aspects of well-being, such as power dynamics.

Chapter Four explores the research question in the context of Mexico, using the Isthmus of Tehuantepec as a case study. The chapter first situates wind energy within Mexico's broader sustainability agenda, and then narrates the history of the wind energy industry in the Isthmus. By doing so, the chapter shows that although the development of wind farms has been informed by technical aspects with economic applications, decision-makers have neglected regional sociocultural complexities and their broader social effects. Finally, the chapter characterises the three localities that were the objects of analysis for this research to set the scene for the subsequent empirical analysis.

The following three chapters—five, six and seven— present the empirical results of the research to answer the three sub-questions. Each chapter analyses a vast evidence and research carried out across the three case studies using three notions of justice: distributive, procedural and recognition justice.

Chapter Five looks at the evidence and data across the cases through a distributive justice lens. Whilst reasserting that community acceptance is fundamentally a problem of distributive justice, the chapter argues that looking at people's own perspectives of injustice and the way in which these inequities impact local people's valued lives, can play a crucial role in industry's understanding of and

actions upon inequalities resulting from siting RETs. The chapter conceptually draws from the CA to build a bottom-up approach to distributive justice. It first presents an overview of the capabilities valued by the communities in the Isthmus of Tehuantepec. The following section analyses distributive concerns associated with these valued capabilities, emphasising the uneven allocation of tenancy agreements and community benefits, and the limited access to employment, education opportunities, and information about health and environmental hazards for the population neighbouring wind farms. The chapter then discusses the consequences of uneven distribution, highlighting the increased social and economic tensions that have followed the installation of wind farms, and the resulting debilitation of internal social cohesion in communities. Drawing from these findings, the chapter warns against labelling maldistribution under the concept of extractivism, pointing to tensions between the expansion of people's capabilities and addressing environmental challenges. Finally, the chapter summarises factors affecting community acceptance of wind farms linked to distributive justice and offers alternative ways of looking at distribution.

Chapter Six analyses procedural justice by conceptually drawing from the CA and introducing Gaventa's (2006) forms of power. The chapter argues that the process of wind farm installation is shaped by a political continuum of power exercised by all stakeholders that is constantly shifting. Findings conclude that this continuous power facilitates the empowerment of certain groups, such as farmers that hold land and local governments. However, such processes ultimately and systematically exclude certain groups of people, namely women and landless youth, while the already powerful become more so. To show these two empirical findings, the chapter narrates three stories that examine the contested history behind wind farms in the Isthmus, the complicated nature of land tenure, and stakeholders' accounts about benefit-sharing and Indigenous consultation. Finally, the chapter uses these three power narratives to show how they have affected people's valued capabilities—access to information, inclusive participation, and access to the law—and how respondents have categorised these as crucial factors affecting their acceptance of wind farms.

The third empirical chapter, **Chapter Seven,** contends that the reason for poor distribution and lack of due diligence associated with the wind energy industry in the Isthmus can be found in the lack of recognition of cultural differences, given the history of foreign intervention in the region. Findings suggest that people in the region perceive their Indigenous identity and culture as threatened by infrastructure siting practices that reproduce colonial forms of discrimination. To reach this conclusion, the chapter first discusses Indigenous identity and its recognition as a valued capability for community acceptance of RETs. Then, it elaborates on the importance of recognising the changing nature of Indigenous identities to understand and navigate dynamics of exclusion embedded in energy transitions. Lastly, the chapter describes the difficulty of preserving an Indigenous identity amidst industrialisation and argues to position recognition of difference as a precondition to distribution and procedural justice.

Finally, the thesis concludes with **Chapter Eight**, which summarises the research findings through the proposed conceptual framework. I reiterate the main arguments that illustrate the extent to which capabilities and power relations shape understandings of justice and community acceptance in the Isthmus of Tehuantepec. The chapter also explores the policy relevance and implications of the research, as well as opportunities for future research.

2 CONCEPTUAL FRAMEWORK

The main aim of this thesis is to examine the factors that affect the social acceptance of wind energy developments in Southern Mexico. To this end, I draw on different, yet interrelated strands of four literatures: sustainability, social acceptance of energy infrastructure, the capability approach (CA) and power analysis that would provide answers to the questions that motivate this research. Section 2.1 of this chapter frames this thesis in the broader sustainability debate. By critically using the lens of sustainability in relation to the energy transition, the research can make sense of the role of the state, businesses and communities in the production and distribution of renewable energy in developing countries. Section 2.2 presents the main definitions of social acceptance of wind energy and proposes a characterisation of this concept for this research. Section 2.3 discusses the implications for considering fairness when looking at social acceptance through the triumvirate concept of energy justice. Section 2.4 outlines how the CA could be a suitable, bottom-up approach to identify injustice, but is alone insufficient to fully analyse wind energy acceptance. To understand existing tensions on the ground and limitations for participation and engagement of excluded groups, the research complements the capability approach with power analysis literature in section 2.5. Finally, the chapter brings together an analytical framework in section 2.6 to capture the interactive relationship between energy justice, capabilities and power relations to identify issues affecting social acceptance of renewable energy technologies (RETs).

2.1 Sustainability

Promoting common interest in sustainable development and environmental problems would be more effective if solutions resulted in all stakeholders being better off. However, this is rarely the case since strategies to reduce carbon emissions usually result in winners and losers (O'Brien & Leichenko 2000), and RETs are no exception. The adoption of ambitious renewable energy targets has had profound social, economic and environmental implications on local and global scales, and has raised questions about governance and decision-making in capitalist societies (Shearman & Smith 2007). Therefore, social considerations have become paramount in seeking a just transition to clean energy.

One reason sustainability becomes important is because of the inherent injustice of one generation living at the expense of those in the future. People today are no more entitled to Earth's limited resources than those that will be born in the time to come. The notion of 'sustainability' was formally introduced by the Brundtland Commission Report in 1987, *Our Common Future*, which defined sustainable

development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland et al., 1987: Ch2:1).

By focusing our attention on future generations, however, we may be overlooking the lives of people who are deprived today (Anand & Sen 2000). Sustainability seen as well-being distributional equity between the present and future generation (Solow 1986) has a hollow perspective if not accompanied by a moral obligation to protect and enhance the well-being of people in the present (Anand & Sen 1996). It is easy to agree that we want sustainability, but for whom and at whose expense? For development to be sustainable, it needs to not only take into account the climate change impacts on the well-being of people in the future, but also to act upon the effects on present-day poor and socially marginalised (Anand & Sen 1996).

The Human Development Report (2011) has extended this discussion by not only focusing on deprived people today, but also on equality. Framing both sustainability and equity in an agenda of distributive justice, the report argues that people's diminishing resources for future generations is equivalent to people suppressing opportunities to jobs, health or education today. This inequality is particularly unjust when it systematically affects certain groups of people based on race, gender, class, or birthplace. According to the report, these relationships are shaped by power. For instance, gender inequalities of power at the national level are associated with reduced access to clean water and sanitation, which in turn compounds health and income disparities. This discussion of sustainability, equity and power is relevant to the study of social acceptance of wind energy since the most marginalised people often carry a double burden of deprivation. They must cope with current environmental health risks posed by air and water pollution today and are more vulnerable to the effects of environmental degradation in the future. In the case of wind energy developments, which are often developed in remote deserts, plains, and mountaintops where inhabitants tend to be marginalised, this becomes a triple burden, since these vulnerable people are also now coping with strategies for climate change mitigation. The belief that wind projects are 'someone else's idea, for someone else's benefit and for someone else's profit' mainstreams opposition motives throughout their installation and operation. Residents from Scotland to Mexico feel that they bear the costs of clean energy production for other nations with no benefit. Additionally, when communities have no say in how projects are planned and conducted, this situation is seen as an extension of their marginalisation within a business-as-usual capitalist economy (Pasqualetti, 2011: 914).

Sustainability agendas are shifting to more participatory approaches that focus on poverty reduction strategies and the promotion of more equal power relations. According to Anand and Sen (2000) and UNDP (2011), inclusiveness under these terms can be promoted through stronger accountability and democratic processes that include community engagement. Nevertheless, poor and excluded people cannot play an active decision-making role regarding the distribution of benefits since they tend to face barriers to participation. Consequently, community engagement processes must attend to deprived

groups and facilitate their empowerment to take an active role in decision-making (UNDP 2011; World Bank 2003). Therefore, for the purpose of this study's conceptual framework, sustainability will be understood both as the synthesis of environmental sustainability and social equity in the future, and the recognition and engagement of people affected by climate mitigation strategies today. This concept will aid to frame the research questions of this study within the broader sustainability agenda.

2.2 Social Acceptance of Wind Energy

In the 1980s, because high levels of support for wind energy technology were reflected in public acceptance surveys mainly in western Europe and the US (Jobert *et al.* 2007; Nadaï 2007), developers, governments and investors worldwide thought that implementation was not a problem for neighbouring residents (Wüstenhagen *et al.* 2007a). Yet, since the 1990s, social challenges related to wind farm developments have generated a large body of research in a range of different national and cultural contexts. This literature review will focus on the concepts of social acceptance and its links to participation and community engagement in wind energy planning and development. The section concludes that perceptions of fairness influence how people perceive the outcomes of energy infrastructure projects.

2.2.1 Social Acceptance

Many actors involved in the wind energy system (including government bodies and developers) have seen the deployment of wind energy as a technical intervention. Such an approach entails conceiving of 'fixes' to address instances in which social acceptance is low (Ellis & Ferraro 2016). However, this section argues, it is crucial to look at social acceptance with a deeper consideration of society's relationships with technology and the diverse power dynamics that undercut these relationships. These dynamics have an impact on the way we serve the future needs of communities and the wider global society. This section will examine key concepts used to conceptualise social acceptance and present the characterisation of the concept for this research.

Social acceptance has been a long-standing debate in the study of other industries such as nuclear power infrastructure, waste facilities, and hydro-electric schemes. Carlman (1984) was the first scholar who went beyond the mere study of public opinion to define social acceptance in relation to wind power. In a study on acceptance among policymakers, she pointed out that siting turbines was also a political matter. This has become a significant point of discussion in this field study (Fournis & Fortin 2017).

However, defining 'social acceptance' as a concept has faced validity and normative difficulties. For instance, Ricci et al. (2008) argue that the concept is too narrow since it denies other dimensions of how people relate to new technologies. Batel et al. (2013) suggest that the concept perpetuates a normative top-down perspective on people's connection to energy infrastructure, and ignores other types of

relationships such as support, uncertainty, resistance or apathy. Szarka et al. (2012) question the 'acceptance' literature since they argue that it fails to permit host communities to decide not to 'accept' a wind farm proposed by third parties, who often are large corporations that seek to acquire profit beyond sustainability goals.

Despite this criticism, new frameworks have attempted to approach the concept as a complex social phenomenon. For instance, Wüstenhagen et al. (2007) break the concept into issues of socio-political acceptance, market acceptance, and community acceptance. Socio-political acceptance is defined as broad-based support for wind energy among policymakers, the public, and other significant stakeholders. Public opinion surveys are a sign of socio-political support, but one may also consider policy support as an indicator of broad-based socio-political acceptance. Market acceptance refers to wind energy technology adoption by consumers, investors, and the energy generation industry. At some levels, this is a reflection of technological maturity and reliability such that utilities and investors are willing to make significant investments in wind energy and consumers believe that wind energy will not jeopardize ready access to electric power. Community acceptance is an element of social acceptance that deals with local approval or opposition to individual wind power projects, particularly by residents and local government. Because formal local approval for a proposed wind project is frequently legally required before construction can begin, community acceptance is a fundamental aspect of social acceptance of wind energy. This last element of acceptance – community acceptance - which is the concept on which this research is based, is the notion that typically comes to mind first when one reflects on the concept of social acceptance and wind power. Sovacool and Ratan (2012) enrich this framework by arguing that each type of acceptance is insufficient on its own to promote approval for renewable energy, and therefore socio-political, community and market interests have to align holistically in order for investors and users to advance renewable energy.

2.2.2 Opposition Motivations: Moving Beyond NIMBY

Motivations for opposition to wind energy are not always clear. The literature understands opposition as divided into two strands: simple and complex motives. One thread of simple motives explains opposition using the acronym NIMBY ('not in my back yard'). This idea is based on the assumption that although local communities may be broadly in support of the development of wind farm facilities, they do not want them placed in their 'backyard' (Bell *et al.* 2005; Devine-Wright 2005). This opposition is linked largely to the physical attributes of wind farms, such as visual aesthetics, radar operations and noise (see Möller 2006; Williams and Whitcomb 2008; Ciardi and Crum 2010; Hoen et al. 2009; Lilley, Firestone, and Kempton 2010).

Although the NIMBY account has been commonly used, authors such as Devine-Wright (2005), Haggett, (2010), Petrova (2013), Rudolph (2014), Van der Horst (2007) and Wolsink (2007) have called this concept into question, arguing that there are more complex motives of opposition. They contend

that by looking solely at technical or physical attributes of turbines, the NIMBY perspective fails to reflect symbolic, affective, and socially constructed aspects of rejection, and their interaction with economic, political (Bell *et al.* 2005), and I would add, cultural institutions. Research has found, foremost, that these visual, environmental, and economic reasons for opposition to wind farm developments have veiled real concerns rooted in personal motives, such as longing for landscape permanence (e.g. Rygg, 2012), environmental effects that have livelihood impacts (e.g. Dai et al., 2015) and, as this study will show, cultural clashes between foreign developers and local communities.

For example, the idea that landscapes, both for livelihoods and living, will not change over time, or 'landscape permanence', is spread throughout cultures worldwide (Pasqualetti 2011). By design, wind energy projects change the landscape quickly and for the long term. Projects can also cause damage to structures or places that have an integral value in people's cultural identity and practices (Ledec *et al.* 2011). Thus, wind energy projects are considered threats to place identity (Devine-Wright & Howes 2010), as they inherently intrude upon the way in which a local community is attached to their land and their sense of place (Pasqualetti, 2011).

Moreover, opposition has emerged due to the environmental effects on physical nuisances, especially the physical effects of turbines on birds and bats (e.g. Kunz et al. 2007; Lilley and Firestone 2008; Blum 2005). Furthermore, other structural impacts have not been thoughtfully researched, representing a hazard for local communities. For instance, because long-term environmental consequences of wind farms near water sources with fish populations are not widely known (Howe 2014a), communities that are dependent on these ecosystems for their food and livelihoods, which are mostly located in poor rural areas, may be significantly affected (Comim et al., 2009).

In sum, the existing body of empirical research on wind farm social acceptance has explored several key perceptions and motives of social rejection. Challenges include known and unknown impacts on biodiversity and human health, visual and other physical impacts, as well as socioeconomic and cultural issues that confront identities and bring about rejection. Nonetheless, this research has been done in a fragmented and atheoretical manner that is limiting further understanding of the perceptions and motives of social opposition and acceptance (Aitken, Haggett, and Rudolph 2016; Agrawal and Gibson 1999; Buchy and Hoverman 2000; Wolsink 2007). As many countries aim to rapidly scale up their wind power quotas, future research needs to develop a more coherent and compelling body of theory to adequately address environmental and social concerns, ensuring not only social acceptance, but also active public promotion of wind as an environmentally sustainable energy resource.

2.2.3 Social Acceptance and Participation

The literature on the social acceptance of wind energy (e.g. Aitken, Haggett, and Rudolph 2016; Agrawal and Gibson 1999; Buchy and Hoverman 2000; Wolsink 2007) suggests that having community

engagement from the beginning tends to have positive effects upon public perceptions of wind farms. Halliday (1993) describes this shift from a 'decide-announce-defend' approach to 'consult-consider-modify'. This latter approach requires democratic decision-making, rather than technocratic and corporatist-style deliberation, as well as open-mindedness that allows multiple views, rather than single, closed-ended projects (Wolsink, 2007). Participation is becoming important not only for the implementation of certain projects, but also for improving the image of the industry and widening its public support (Aitken et al., 2016).

Nonetheless, from the mid-1990s, politicians and policymakers have made frequent use and misuse of participatory approaches. Two-way interactions are described as necessary; however, two-way dialogues can lead to a one-way provision of information that does not include the construction of relationships based on trust between local communities and wind farm developers (Aitken et al., 2016). At the heart of this debate, there are different ways in which participation and engagement are defined and understood. Within the planning literature, participation is generally recognised in two ways: (1) as a method or tool, and (2) as a set of guidelines that help to include communities in planning activities. Public engagement is then conducted more mechanically via facilitating input sharing on particular matters to avoid or address public opposition. The second meaning conceptualises participation as an approach or an ideology for community development. Here, participation is conducted to improve plans, policies, and projects for creating socially acceptable outcomes that reflect public interests (e.g. Agrawal and Gibson, 1999; Holmes and Scoones, 2000; Buchy and Hoverman, 2000), that aim to bring wider benefits beyond a particular wind energy project, such as social capital or capabilities (Wilsdon & Willis 2004) that can be empowering for participants (InVoLVE, 2005).

Overall, the literature on social acceptance that looks at participation can be classified according to degrees of participation. In a first instance, participation involves one-way tools and approaches, such as social assessments and community benefits that includes a degree of nonparticipation. The second instance entails two-way public engagement initiatives, such as consultation and participation in decision-making processes. The third case explores community-developer shared ownership, which tends to have a higher level of citizen involvement and participation as critical to community development beyond an energy transition.

First Degree of Community Engagement

It is still common practice to employ a top-down, technocratic, and hierarchical way of thinking when shaping wind farm planning systems (Wolsink, 2007). These include Environmental Impact Assessments (EIA) or Social Assessments (SAs) that follow national regulations (if existent), or standards proposed by international financial institutions, such as the World Bank and the International Finance Corporation (IFC), that are required as part of the procedures for obtaining funding for the project. These assessments frequently involve an expert diagnosis of socio-cultural contexts and aim to

facilitate the incorporation of social issues into project planning, implementation and monitoring (World Bank, 2008). These evaluations can also provide a social baseline to address threats to the reputation of the project and its sponsors (Ledec *et al.* 2011).

Outcomes of one-way assessments and planning usually define community benefit packages that provide payments to compensate local communities affected by wind power developments (e.g., see Clean Energy Council, 2012; NextEra Energy, 2014; RenewableUK, 2013). The assumption by policymakers is that the provision of community benefits based on financial incentives will aid in promoting social acceptance for wind farms (Cowell 2010; Cowell *et al.* 2012). However, Bell et al. (2005) explain that the financial incentive strategy can result in the alienation of people if they feel that they have not been offered what they consider to be fair. Moreover, Wolsink (1994) describes this strategy as dangerous since payments can be seen as a bribe, especially when offered at a stage when there are already disagreements between developers and communities. This can be particularly problematic if incentives are targeted to 'economically vulnerable and politically weak communities' (Luloff, Albrecht, and Bourke 1998: 864). Moreover, a study by the UK Department of Trade and Industry (2005) suggested that there is no evidence that higher public benefits lead to higher public acceptance or early planning approvals. Thus, it is unclear whether financial incentives are an effective way to increase local support in setting in which bribery and corruption are prominent practices. This suggests that local communities' acceptance is more effectively secured through 'procedural fairness, as opposed to material (or outcome) fairness' (Walker *et al.* 2017). Very often the public does not trust politicians, developers or experts (Breukers & Wolsink 2003; Healey 1996), and as such, information is frequently seen as 'suspect' in a climate of mistrust. Meaningful participatory processes have thus become a means of building trust for greater community engagement and acceptance.

Second Degree of Community Engagement

For relevant stakeholders to be meaningfully engaged in a wind farm project, community, developer and government interactions cannot be one-way. 'Participation' has been denoted as a more significant component of the engagement of local communities, particularly when stakeholders actively take part in defining and implementing the project in question (World Bank, 2008). The underlying assumption is that greater public participation in decision-making processes will lead to more legitimate, socially sustainable outcomes (e.g. Buchy and Hoverman, 2000; Chilvers, 2008).

Participation as a right and an approach for community development can be further as a form of awareness-raising, consultation and/or empowerment (Arnstein 1969). Raising awareness, although it can help improve understanding particular issues, can also be a minimal form of community engagement when conducted on its own. Accordingly, consultation requires a two-way flow of information as it encourages the public to voice their views and interests to inform decisions. Yet, it does not necessarily address the public's concerns in practice nor in planning strategies (Dialogue by

Design, 2008; Haggett, 2008; InVoLVE, 2004). Thus, it is widely recognised that consultation works best when it presupposes meaningful interactions, and participants' perspectives are included in planning and operation decisions (Aitken et al., 2016). In contrast, empowerment, involves power and benefit-sharing among all stakeholders and the wider society. This approach can take the form of community-led engagement where community members determine objectives, define processes (Rowe & Frewer 2005; Wilcox 1994). or chose partnership approaches (INVOLVE 2004).

However, is important to note that well-crafted participatory processes do not necessarily lead to greater rates of public acceptance and engagement. There is evidence that two-way community engagement can reduce social opposition, yet it cannot be seen as a way to secure project approval and execution (Aitken et al., 2016). Participation is not enough to fully address the political implications, power inequalities between groups, and heterogeneity of stakeholders (who speaks for the public and how?) (Fournis & Fortin 2017; Haggett 2010). Moreover, participation power is rarely completely devolved onto the 'community'; nor do 'communities' always want it (Cornwall & Jewkes 1995).

Third Degree of Community Engagement

A third scheme to address social opposition to wind farms is community energy, which are those projects where communities (of place or interest) exhibit a high degree of ownership and control, as well as benefiting collectively from the outcomes of sustainable energy initiatives (Walker & Devine-Wright 2008). Studies that have looked at the potential impact of shared ownership on public perceptions have revealed that people who own shares in a turbine are significantly more positive towards wind energy than people who do not have direct economic benefits from them. Members of wind co-operatives are also more willing to accept additional turbines in their community in comparison to non-members. Studies in Denmark, Germany and South Wales suggest that local communities' economic involvement as shareholders in wind energy developments can result in positive attitudes towards wind farms (Devine-Wright 2005; Hall *et al.* 2013; Toke 2002).

Nonetheless, these studies only consider a specific social and cultural reality that is not present in other countries. In particular, the notion of 'community' may be very different in the UK than in low and middle-income countries such as Bolivia. Because of this, public involvement in the planning and development of wind power projects may occur in different ways (Aitken, 2010). Bell et al. (2005) make a distinction between the economic, social and political effects of community ownership. For instance, local control over the siting process may be more effective in reducing opposition to the projects than the financial incentives that share ownership offers (Hall *et al.* 2013). Thus, if control, rather than money, is a key factor affecting acceptance of wind energy, developers should give greater attention to local involvement in the planning, development and management of wind farms, instead of selling shares. Furthermore, a focus on ownership as a way of extending market dynamics to local communities can be problematic. Here, ownership is understood only as individual property rights and

discounts other ways of conceiving ownership, such as communal ownership, which may be the model that local communities endorse. Further research is required to systematically assess social acceptance in different shareholding contexts.

This review of the literature on the link between participation and social acceptance reveals that there are no set guidelines for increasing social acceptance of the kind that also pursues larger goals such as community development. The first level—one-way social assessments and community benefits—may be useful for sites located in unpopulated areas, as it implies public nonparticipation. The second approach—a two-way public engagement initiative—has been somewhat successful in attaining social acceptance, but decision-making processes may still have degrees of tokenism to overcome. The third level—community-developer shared ownership—has had implications for citizen control, but findings must be further assessed.

2.2.4 Gaps in Social Acceptance Research

Overall, the literature suggests that open, fair and deliberative decision-making that acknowledges power, trust and control sharing, is a key factor affecting the social acceptance of wind energy. Thus, to transition to a more sustainable society, profound changes in energy governance must take place. Wind energy has emerged at a time when traditional forms of social and political engagement have been undermined by declining trust in public institutions and businesses. This poses a challenge not only for wider energy and sustainability transitions that require fundamental adjustments to governance and market regimes, but also in the way we undertake research. The conceptual frameworks we use, the roles we play in collecting information, the stakeholders that are included, and the methods used to analyse and deliver information have to be aligned accordingly.

Community acceptance has become a significant point of discussion in the social sciences (Fournis & Fortin 2017), particularly its links to fairness as an important explanatory factor that superseded former, more simplistic 'backyard motives' (Wolsink 2007b). Perceptions of fairness have been shown to influence how people perceive the legitimacy of energy infrastructure siting outcomes; a fairer process that increased the legitimacy of the outcome will in turn advance the acceptance of new developments (Gross 2007). Similarly, characteristics of community-based ownership that address distributive concerns, have proven to be crucial for community acceptance of wind farms (Bauwens 2016; Bauwens *et al.* 2016; Bauwens & Devine-Wright 2018). The importance of inclusive citizen participation from the beginning through deliberative decision-making has also been emphasised (e.g. Agrawal and Gibson, 1999; Aitken et al., 2016; Bauwens and Devine-Wright, 2018; Bell et al., 2005; Gross, 2007; Wolsink, 2007).

However, a systematic study that looks at how justice and well-being can inform social acceptance has received limited attention. For instance, Roddis et al. (2018) consider the relationship between

public acceptance and justice by analysing variables found in the public acceptance and environmental planning literature of inshore wind and solar farms. Bronfman et al. (2012) propose a model based on trust in government, perceived benefits and risks. Visschers and Siegrist (2014) also focus on benefits and risks, while Truelove (2012) analyses emotions and personal values. The most recent community acceptance research has analysed case studies of opposition responses to particular wind energy projects, with a focus on the opinions of nearby residents and stakeholders (Devine-Wright & Howes 2010; Gross 2007; Hall *et al.* 2013; Swofford & Slattery 2010; Zoellner *et al.* 2008). Nonetheless, these studies use existing variables in the literature that often do not engage local communities in defining valuable definitions of justice, perpetuating a normative, top-down perspective on people's relation to energy infrastructure which characterises part of the social acceptance literature (Batel 2020; Batel *et al.* 2013). And finally, even though recent research stresses the importance of looking at power relations that underlie social acceptance processes, there has not been ample research that looks at these positions and dynamics of power systematically. Given these gaps in the research, and the relevant questions raised in the social acceptance literature, this study will look at the profound social, economic and environmental factors affecting acceptance of RETs by proposing a framework that draws together three lenses: the energy justice framework, the capability approach, and power analysis (which will be examined in the chapter's following sections).

Furthermore, there is a large gap in the literature on social acceptance in developing countries. Research on social acceptance has mainly focused on Western European and North American settings. In contrast, the literature has not developed a conceptualisation of acceptance in emergent economies. This gap mirrors the contrast in the number and scale of wind energy projects existent in high-income countries: Asia, 203,643 MW; Europe, 161,330 MW; North America, 97,611 MW (GWEC, 2016). This stands in sharp contrast with wind electricity generation in regions of the developing world: Latin America and the Caribbean (15,296 MW); the Pacific Region (4,963 MW) and Africa and the Middle East (3,906 MW) are clearly behind in this wind power boom.

The UN 2030 sustainability agenda entails considerations of inter- and intra-generational justice, with a special concern for the poor and disadvantaged groups both today and in the future. Thus, it is important to expand the study of RETs in developing countries and particularly how poor and marginalised communities are shaped by the introduction or expansion of wind power projects in the areas where they live and work. This is especially important since, as seen above, wind farms are predominantly located in remote deserts, plains and mountaintops, frequently inhabited by marginalised communities. These places may overlap with or be entirely contained within Indigenous people's territories, which already are in a tense relation with development projects and are often disenfranchised. In these contexts, as well as when wind power development is driven by foreign investors, there are significant power differences between the local population and the project developers—for instance along lines of ethnicity, race, class or cast—and the introduction of wind farms

can unleash social and economic pressures and have a range of unintended or even harmful effects for the communities hosting or neighbouring projects (Ledec et al., 2011).

Similarly, to studies that aim to understand opposition to RETs, research about community engagement and collaboration has been developed largely in developed country settings. Currently, there are no frameworks that analyse existing examples of public engagement or that seek to understand the determinants of active acceptance of wind farms in developing countries. In particular, there is no research on Indigenous consultations for wind farm developments, and ways in which communities and individuals can be empowered through community engagement (Aitken, 2016).

Finally, a more global joint understating of process and dimensions is needed. Such a compendium would need to include market decisions from investors and the internal relations of corporations and communities, which have been neglected in the microanalysis of perceptions. This integration would have to encompass the interplay of complex power relationships that determine the context in which choices for wind power development are made (Fournis & Fortin 2017).

In sum, this thesis will advance research on community acceptance (captured through attitudes toward locally installed technologies) of wind energy in two particular ways. First, drawing insights from environmental justice, economic philosophy and sociology, this study brings together concepts of justice, well-being and power in an analytical framework. As a result, the research contributes to a more coherent and compelling body of theory to address environmental and social concerns. Second, using Mexico as a case study, this thesis contributes to bridging the gap of empirical research about social acceptance of wind farms in developing countries and, particularly, among disadvantaged groups, such as Indigenous people.

2.3 Linking Social Acceptance to Energy Justice

The concept of "energy justice" (e.g. Heffron and McCauley, 2014; Jenkins et al., 2016; McCauley et al., 2013; Sovacool, 2013; Sovacool and Dworkin, 2014), founded in the literature on environmental justice, (Schlosberg 2004, 2009, 2013; Walker 2012) is an overarching conceptual framework that looks at fairness as an important factor affecting community acceptance. This concept can be particularly useful to identify ways in which benefits and ills related to energy issues are distributed, remediated and whether victims are recognised.

A central research endeavour within the field of energy justice has been the development of a range of frameworks to identify energy injustice(s) and guide energy decision-making. Three particular approaches have gained traction: 1) the 'triumvirate conception of energy justice', conceived by McCauley et al. (McCauley *et al.* 2013, 2019) which repackages the classic trivalent approach of environmental justice in terms of distributional, procedural, and recognition justice (Davies 2006; Schlosberg 2004, 2009), 2) an eight-principled conception of energy justice framed as an analytical and

decision-making tool for facilitating decision-making in energy dilemmas (Sovacool *et al.* 2017; Sovacool & Dworkin 2015a), and 3) an 'Energy Justice Metric', which seeks to quantitatively analyse energy justice to more effectively translate justice principles into policy formulation (Heffron *et al.* 2015). The triumvirate energy justice framework is the conceptualisation adopted in this study because it is easier to operationalise and link with the capability approach (CA) and power analysis than the principled conception of energy justice, which draws on an extensive range of moral theories and perspectives. As for the energy justice Metric, its quantitative nature and top-down construction make it less suited for analysing the capabilities of local communities.

Distributive justice draws attention to where energy injustices are located (Jenkins *et al.* 2016). It includes both the physically unequal allocation of environmental benefits and burdens, and the uneven allocation of their associated responsibilities (Walker 2009), for instance, exposure to risk. Within the triumvirate of tenets of energy justice, distributive justice can be considered as the 'chief topic' of environmental concerns (Wenz 1989) or the 'substantive justice' that matters in a material sense in terms of allocated costs and benefits (Bell 2004). This concept raises awareness about the link between the desirability of energy technologies and their location (Owens & Driffill 2008; Todd & Zografos 2005), calling for the fair distribution of burdens and benefits between all members of society regardless of income, race, gender, etc (McCauley *et al.* 2013). Chapter 5 offers a broader account of how the meaning of the concept of distributive justice has evolved in time from Arrow's (1951) impossibility theorem to Rawls's (2009) 'Difference Principle', and proposes that the definition proposed by Sen and Nussbaum (Nussbaum, 2003, 2011; Sen, 2001, 2011) is the most appropriate for this study.

Despite its centrality, distributive justice needs to be complemented by other concepts of justice to understand the underlying reasons for maldistribution. The second tenet of energy justice, procedural justice speaks to the idea of fair processes, and how people's perception of fairness is strongly impacted by the way experiences are lived, and not only the outcome of these experiences. Procedural justice is therefore conceived in terms in which decisions are made, who is involved and who has influence (Walker, 2012). Distribution is inherently political as it is driven by power. Political in the procedural sense provides a stage on which struggles over distribution are played out, establishing criteria for who can make justice claims and how (Fraser 2007). For instance, literature on RET siting has explored how exclusive and closed decision-making processes generate conflict in evaluations of observed environmental threats (Grimes 2005), with opposition activity focused on procedural injustices and a lack of chances to be heard (Wolsink 2007b). Thus, procedural justice promotes equitable procedures and the engagement of all stakeholders in decision-making (Davies 2006).[8] Three main dimensions or

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[8] It is important to observe that distribution, recognition and procedural justice are connected and will overlap in justice concepts and process questions (Walker 2012). Regardless, they are distinct forms of justice in their own right and can help explain the existence of injustice in each other (Schlosberg 2009).

'pillars' of procedural justice are widely recognised as key elements of justice in procedural terms (e.g. Comission, 1998; Walker & Day, 2012; Yenneti & Day, 2015) which will be further explored theoretically and empirically in Chapter 6: access to information, access to and meaningful participation in decision-making and access to legal processes to achieve redress or challenge decision-making processes. Furthermore, Chapter 6 will further explore these elements of procedural justice by analysing the power dynamics that influence procedural justice factors that affect local people's relationships with wind farms.

Distributive and procedural justices, however, can only go so far. Recognition justice is a call for acknowledging differences while achieving social equity in procedures and outcomes. This requires the study of social differences, which can be concerned with injustices such as gender, sexuality, race, and ethnicity, aiming to re-value unjustly devalued identities (Fraser 2007). Given the proposed case study is with Indigenous peoples, this component of the justice framework is highly relevant. The tenet may present itself not only as a failure to recognise, but also misrecognise (Schlosberg 2004). As will be analysed in Chapter 7, at the core of misrecognition, there are cultural and institutional processes of disrespect that devalue some people more than others. For instance, social norms, languages and mores can be fundamental to the failure to recognise and respect group differences and can ultimately constitute practices of cultural domination and oppression that are rendered invisible through non-recognition (Fraser 1997).

While the triumvirate conception of energy justice is a useful approach to frame ethical issues concerning energy systems, it has some limitations. First, Wood and Roelich (2020) point to a lack of clarity on what can be defined as justice or injustice. Without drawing on a particular account of what makes an event or situation unjust, it proves difficult to identify which aspects of these situations needs ameliorating (Wood and Roelich, 2019, 2020). Second, detailed descriptions and valuations of different conceptions of justice by the communities themselves are lacking. Indeed, the triumvirate conception of energy justice has favoured a top-down approach to energy justice to enable contributions to mainstream policy-making. For instance, Jenkins (2018) states, "Energy justice does so by overcoming what may be identified as the 'naïve' approaches of environmental and climate justice—the presumption that society would support their ideals—focusing instead on embedding justice in policy. This 'top-down' methodology offers the potential for a refined 'practice'". However, Wood and Roelich (2020) raise the concern that this approach may not include the values of activist-led, community-driven movements, which constitute one of the main goals of environmental justice (Schlosberg, 2009, 2004). Justice definitions determined by developers, governments, academia, development agencies or economic elites may lead to the misrepresentation of local people's everyday concerns.

Furthermore, the energy justice framework's definitions and top-down methods are especially problematic when trying to understand factors for social acceptance. Indeed, the reasoning behind a community's lack of acceptance could be rooted in their personal experiences with injustice in certain

situations or events. These experiences may vary from individual to individual, depending on factors related to age, gender, age, race, class and/or place. Aside from high-level concerns over electrification rate impacts relating justice concerns to the wind energy industry, justice-related concerns are most immediate for individuals living in the communities adjacent to wind energy facilities. A bottom-up analysis is thus especially suited for this study to examine how the lives of the poor and marginalised are shaped by the introduction and expansion of energy technologies in areas inhabited by Indigenous populations.

2.4 A Capability Approach to Energy Justice

Given the vast justice implications intertwined with social acceptance and energy developments, individual and communal well-being becomes critical when considering wind energy projects. I propose using the capability approach (CA) to recognise perceptions of justice and injustice from individuals neighbouring wind farms. First developed by Amartya Sen and Martha Nussbaum (Nussbaum 2001, 2007; Nussbaum & Sen 1993; Sen 2001a, 2009), the CA is a theory to conceptualise the purpose and aims of economic development. Venturing beyond development schemes that focus on resource-based normative theories (e.g. Dworkin 1981; 2002) happiness or desire-fulfilment, Sen and Nussbaum proposed an approach that targets people's perspectives about what they can do and be, and removing barriers to find greater freedom to live the kind of life they value. While the CA attempts to encompass all dimensions of well-being, it also recognises human diversity and acknowledges that different people need different types of goods to reach the same level of well-being (Robeyns 2005). Thus, the CA can serve as an integrated component of a more comprehensive theory of justice. Paying attention to links between material, mental and social well-being, as well as to the economic, social, political and cultural dimensions of life, can be useful in specifying the injustices that ultimately result in a lack of social acceptance. For instance, the perception of justice of a community neighbouring a wind farm might not only include the importance of increasing their income or attaining some kind of modernity, but also guaranteeing that wildlife will not be harmed in the process.

Central to this approach are the concepts of functionings, capabilities and agency. Functionings are 'beings and doings' (Sen, 1992: 40), which include activities (e.g. reading or dancing) or states of existence (e.g. being in good health or not being ashamed) that people value and achieve. Capabilities reflect the various functioning bundles an individual has the freedom to choose from in order to achieve the life they have reason to value (Sen 1992). For Sen and Nussbaum, capabilities, rather than functionings, are the object of concern. In the case of wind energy projects, focusing only on functionings—e.g. what people living near RETs do in their day-to-day life—would dictate a particular way of living that may or may not align with their actual aspirations. Recognising capabilities—e.g. actual opportunities for communities to live the life that they value—can be key to understanding varying responses to these installations. For instance, someone's opposition to wind farms might not

relate to the amount of income received as part of land tenure for hosting a wind turbine (i.e. an achieved functioning), but instead due to the lack of real opportunities to engage in paid work or access to decision-making spaces to determine how these projects may enhance livelihoods.

Defining what these actual capabilities should be is an on-going debate between Nussbaum and Sen. Nussbaum (2007, 2001) proposes a list of central capabilities that are core to human dignity and should be guaranteed by all democracies, although they can be debated and tailored to differing contexts. In contrast, Sen avoids proposing a list and calls on societies to decide, through deliberative processes, what the capabilities to be enhanced are in a given context. To contribute to a bottom-up perspective that includes the conceptions of a good life from the people actually affected by wind energy developments, this research aligns with Sen's approach. This ensures that necessary value judgements are made explicitly and openly by the communities themselves (Alkire 2002, 2013; Sen 2001a), as opposed to by corporations, governments, academics or development agencies. Moreover, the deliberation process advocated by Sen embodies aspects of recognition and procedure central to the energy justice framework.

While capabilities are essential for understanding individual well-being thresholds, a person's agency refers to what the person is free to do and can pursue whatever capabilities he or she regards as important. Sen suggests the need to go beyond the role of human beings as people with needs and responsibilities, and instead recognise our role as agents who can, if given the opportunity, 'think, assess, evaluate, resolve, inspire, agitate, and through these means, reshape the world' (Sen 2013: 7). Sen's (1999, 2013) concept of agency can be crucial when looking at community acceptance of RETs. It envisages all individuals in communities, developers, and policymakers from an intersectional and economic stance, not as 'patients' whose needs must be addressed, but as 'agents' who extend their capabilities by shaping how wind power siting is done based on an understanding of their needs and aspirations.

The CA has influenced a number of studies looking at the relationship between energy, well-being, and development. The first stream of research used the CA to conceptualise and operationalise the relationship between well-being, energy services and energy poverty, both in Southern and Northern global contexts (Day *et al.* 2016a; Malakar *et al.* 2018; Middlemiss *et al.* 2019; Walker & Day 2012a). A second stream focused more specifically on the development impacts of electrification in different countries of the 'global south' (Arnaiz *et al.* 2018; Cole 2018; Fernández-Baldor *et al.* 2014; Malakar 2018). In a recent contribution, Wood and Roelich (2019) drew from Day et al.'s (2016) framework to capture tensions between well-being and climate change mitigation. Furthermore, notable work has linked the CA with the energy justice framework. For instance, Schlosberg (2012) used the CA to theoretically extend the concept of energy justice as a way to bridge ideal and abstract notions of justice, while Wood and Roelich (2019; 15) used Nussbaum's central capabilities to propose a pluralistic appeal to the three tenets to integrate a "broader range of moral approaches and concepts".

While the relationship between the concepts of capabilities, energy justice and community acceptance have so far remained untapped, I argue that the CA is a particularly useful framework to assess the extent to which RETs, such as wind energy, are enhancing (or constraining) the individual capabilities of people living in local communities. Indeed, levels of acceptance of wind farms may be explained by the impacts of wind energy siting and its outcomes on people's valued lives. Moreover, while there are many different ways in which one can try to make sense of a fair distribution, significant recognition, and due process linked to human well-being when installing RETs, the CA, particularly in Sen's approach, allows diverse justice concerns from different people to be brought into view and moves beyond assumptions of what is just or unjust in any particular place (Butler & Simmons 2013). At the same time, the CA enables partial comparisons (Sen 2018) between developed and developing contexts, allowing situations and claims in one context to be placed within another (Day *et al.* 2016a). Based on this evaluative capacity, the CA can offer insights about aspects of acceptance related to justice that have been neglected or overlooked by other approaches that perpetuate a normative top-down perspective on people's relation to energy infrastructure (Table 1).

Table 1. Energy justice and community acceptance gaps that can be addressed with the capability approach (CA)

Gaps in the Triumvirate Conception of Energy Justice	How the CA helps to address these gaps
Limited definition of justice and injustice - both key factors for community acceptance.	The CA contributes to conceptualise energy justice in specific cases and understand (the lack of) community acceptance of RETs based on whether these technologies are contributing to enhancing the lives that people have reason to value.
No precision of who is responsible for defining justice concerns, which may contribute to a top-down approach that does not explicitly include the values of people on the ground.	The bottom-up nature of the CA, which requires local communities to define capabilities through deliberative processes, can contribute to avoiding misrepresentation of people's concerns by "outsiders" (e.g. developers, governments, academia or development agencies).
Limited research on how the three tenets of energy justice can inform community acceptance of RETs in developing contexts.	The CA offers a contextual definition of injustices and ways to address them that does not imply a one-size-fits-all approach to community acceptance.

Source: Constructed by the author.

2.5 Power Analysis as a Capability Conversion Factor

The capability approach (CA) is a crucial framework to understand the extent to which wind farms contribute to people's lives, unveiling perceptions of justice and injustice that shed light on factors affecting wind energy acceptance. However, this approach is insufficient to explain the reasons why people's capabilities can be enhanced or constrained whilst siting RETs. Because the CA is an evaluative framework that establishes individuals as units of analysis (Ibrahim 2006; Miller 2018;

Stewart 2004), it is unable to conceptualise and assess associative aspects, such as power relations, that are actively constraining capabilities of some individuals and enhancing that of others. This, in turn, may strongly shape the distributive, procedural and recognition aspects of community acceptance. Consequently, the research's conceptual framework must recognise the lives that stakeholders in wind farm sites have reason to value, while also engaging with the power dynamics that influence capability enhancement (or deprivation).

In Sen's CA, the notion of power is essential, as he defines capabilities as a 'kind of power' (2009: 270) and development as a 'fundamentally empowering process' (2009: 249). This notion of power is directly related to the idea of agency, which involves action and active choice, or, more generally, the power to influence the state of the world and the ability to act based on one's own objectives (Kotan 2010; Sen 1985, 2001b).

However, it is unclear how Sen's notion of power, linked mainly to responsibility and individual empowerment (Eyben 2004), conceptualises and evaluates associative aspects, such as power relations, which may constrain or enhance individual capabilities. In a sense, the CA is a framework that talks about empowerment but does not address power.

Moreover, although Sen and other contributors to the CA mention the importance of participation and community engagement as a means to achieve sustainable development (Lessmann & Rauschmayer 2013; Pelenc *et al.* 2013; Sen 2013; Watene 2013), the ways in which this theoretical requirement can be put into practice have not been elaborated upon in Sen's work (Deneulin & McGregor 2010).

The CA has been previously critiqued for failing to recognise power relations (e.g. Dean, 2009; Deneulin and McGregor, 2010; Pellissery and Bergh, 2007; Zimmermann, 2006). Authors concur that the approach needs to better integrate contributions from other social sciences, such as sociology, social anthropology and political science, to account for the role of power in the construction of well-being. Particularly, the CA needs to pay more attention to the social constructions and constraints of choice, and the influence of environmental conditions (Zimmermann 2006) and social structures on people's agency and well-being (Robeyns 2005).

More recently, the intersection between the CA and power has become a more prevalent subject of analysis. Robeyns (2005, 2003) sets out a clear theoretical approach by proposing power relations as a capability conversion factor (which will be further described in section 2.5). Using Robeyns' idea, Frediani (2010) highlights the importance of power and how it shapes people's consciousness to overcome processes of domination. Frediani suggests that the incorporation of power relations into the CA will help integrate structural and collective norms to evaluate and plan policies and development projects. Concurrently, by stressing the importance of well-being, defined and realised through relationships with others, Deneulin and McGregor (2010) contest frameworks of meaning used for individual reasoning.

More recently, Ballet et al. (2015) incorporates ideas raised by Lemke (2002) and Nuijten (2005) to look at power as a force that limits the opportunities of agents and their preferences. By doing so, they extend the idea of agency by looking at differences of opportunity as differences of power. Similarly, Burchardt and Hick (2018) extend the analysis of power in the CA by incorporating capabilities that are harmful to others. Pointing to advantageous aspects that give people the ability to exercise power over others.

Overall, existing literature on capabilities and power acknowledge that power influences agency, or people's ability to choose, and focus on how power shapes people's ability to identify what they have reason to value. However, no one has yet delved into the process of empirically showing how power influences capability attainment, and its implications for sustainability. Thus, I argue that the approach could be capable of analysing inequal power dynamics between different actors involved in interventions for sustainability, such as wind farms. Sen himself insists that the CA is valuable due to its incompleteness, and thus calls for innovation, leaving the door open for complementary perspectives to address specific issues (Sen, 1993). The following section argues that certain aspects of power analysis complement the CA. And by looking at people's understandings of justice and injustice (CA and energy justice) and insights into why these occur (power analysis), we can build an adequate framework to identify factors affecting social acceptance of wind farms in the Global South.

2.5.1 What is Power Analysis and Why is it Relevant?

This section provides a conceptual analysis of power, as an essentially contested concept. It draws upon a view of power that thickens the CA by providing an empirical stance on wind energy siting and stakeholder inclusion. The argument starts by considering different views and concepts of power, then discusses the respective strengths and weaknesses of these views in light of this study, thereby advancing a position relevant for analysing acceptance of wind energy projects.

Like the concepts 'social' or 'political', 'power' is polysemic: it has multiple meanings depending on the context in which it is used. Because 'power' can mean a range of different constructs in different contexts, aiming to search for a definitive, single concept would be illusory. Nonetheless, the ways in which we think about power are consequential. Our conception of 'power' can derive from what we aim to describe and explain, thereby shaping the concept in ways that may reproduce and reinforce existing power structures and relations, or may challenge and subvert them. Thus, conceptions of power are themselves political (Lukes 2004). Furthermore, not all notions of power help in understanding dynamics that may result in reversing social and economic inequalities.

Two of the most famous early writers on power are Hobbes and Machiavelli. While Hobbes (1962) proposed to legislate a social contract, for Machiavelli (2008) power is the effectiveness of strategies that allow for more action than others. It is produced and reproduced by specific actors that thereafter

become powerful. Although the idea of a state or authority that ensures social order or defines a strategy to secure and sustain power is useful to look at state control, these notions of power are too narrow when analysing the agency and interaction of all stakeholders in RETs (not only the state). The study thus demands an approach that advances a broader definition of power.

Pluralists such as Dahl, Polsby and Wolfinger, analyse power by looking at agents' observable behaviour, studying decision-making as their central concern. They examined concrete decisions: 'A has the power over B to the extent that she can get B to do something that B would not otherwise do' (Dahl 1957: 201). The individual or a group that has power is the one that prevails in decision-making. Focusing on observable conflict, these authors proposed a behavioural methodology.

Bachrach and Baratz (1962) critiqued the pluralists and introduced the 'non-event' or the concept of 'non-decision making' as an alternative mode of action, which results in suppressing the need to challenge the values of the decision-maker. Non-decision making requires A to create or reinforce 'social and political values and institutional practices that limit the scope of the political process to public consideration of only those issues which are comparatively innocuous to A' (Bacharach and Baratz, 1962: 948). In this way, an individual may be hindered if he or she raises issues or makes decisions that are detrimental to more powerful individual's preferences. This is relevant to the way an individual defines capabilities as well as the way she decides not to choose to exercise a capability that is available to her. For instance, restrictions on decision-making may 'stunt the political consciousness of the local public' in deliberation processes by confining minority opinions to minorities and denying the opportunity for such opinions to become the majority (Crenson 1971: 180).

This approach to power is useful to understand 'non-participation' in decision-making related to wind energy siting. Certain groups may be unaware of the full extent of their interests and therefore may not think to demand them. These veiled interests tend to be invisible due to dominant myths, values, rituals, and the like, that only support certain groups (Fricker 2007; Gramsci 1971).

Lukes (1974) introduced a third dimension (Table 2), arguing that even though Bachrach and Baratz's second face of power had gone further than observable behaviour, it still does not look at socially constructed behaviour patterns of groups, practices and institutions. The power to control an agenda is a function of collective forces and social arrangements; Lukes exemplifies this with different cases. One case is an emergent phenomenon of collective action that is not ascribed to particular individuals' decisions. The second is the phenomenon of 'systemic' effects where the mobilisation of bias results from the form of organisation. Thus, though organisations and collectives are made from individuals, the power that they exercise cannot be understood as the sum of individual decisions or behaviours.

Lukes also argues that both Bachrach and Baratz and the pluralists analyse power in terms of actual conflict, ignoring that often the most effective use of power avoids conflict from happening in the first

place. Lukes argues, instead, that violence appears where power is in jeopardy, even in cases of extreme despotic domination. For example, even if slaves outnumber their master, power does not rely on superior means of coercion, but instead on the organised solidarity of masters (Arendt 1970). Thus, the one- (pluralists) and two- (Bachrach and Baratz) dimensional faces of power focus on 'power to' and ignore 'power over'. Power in this perspective indicates a 'capacity' or an 'ability', not a *relationship*. Lukes, therefore, defines the concept of power by saying that 'A exercises power over B when A affects B in a manner contrary to B's interests' (Lukes, 1974: 37).

Table 2. Steven Lukes (1979) Three-Dimensional View of Power

One-Dimensional View of Power	Two-Dimensional View of Power	Three-Dimensional View of Power
Decision-making	Decision-making and non-decision making	Decision-making and control over political agenda (not necessarily through decisions)
Observable (overt) conflict	Observable (overt or covert) conflict	Observable (overt or covert) and non- or latent conflict

Source: Based on Lukes (1974)

In a nutshell, the one-dimensional view of power offers a behavioural paradigm of decision-making by political actors, but it is blind to the ways the political agenda is defined. The two-dimensional view considers this bias and control, decision-making and non-decision making, but only the three-dimensional view looks at how latent conflict is suppressed within society (Lukes, 1974).

Lukes' approach to power is relevant to discussing the relevance of the CA since talking of interests or freedoms requires objective as well as normative judgements that will depend on every individual's different moral and political positions in relation to others. Similar to the concept of adaptive preferences, which suggests that people might adapt to unfavourable circumstances for survival due to a distorted "self-perception" that affects one's desires and satisfactions (Sen 1987; Teschl & Comim 2005) Lukes' approach suggests that asking people to explain their reasons for valuing an aspect of life has evident problems. Three dimensional' or 'hegemonic' approaches describe power as the possibility to 'get another or others to have the desires you want them to have… to secure their compliance by controlling their thoughts and desires' (Lukes 1974:23). Consequently, allowing people to define their wants may "be good on the autonomy dimension while bad on the welfare dimension" (Elster, 1982: 235). On this account, explanations of reasons to value a capability are fundamentally flawed: people's minds are continuously shaped, largely unconsciously. People may be free to self-determine their life trajectories, but the options of what and how they choose is already pre-determined by the discourses and resources available in their context. Individuals can come to accept the existing order of things because they see it as natural and unchangeable, or because they cannot see or imagine an alternative (Miller 2018).

In this light, Luke's adaptation argument potentially undermines the case for listening to the voices of the poor, as well as literature advocating for participative approaches to research (Clark 2009).

However, the CA to a certain extent parts from this viewpoint by recognising people's different subjective understandings of well-being, challenging the idea of adaptive preferences (that people do not know what is best for them), or in Luke's words, the possibility of a false or manipulated consensus (Lukes 2004: 24). By doing so, operationalising the CA extends Luke's three-dimensional view of power by generating a broader informational space for evaluating aspects of well-being and quality-of-life, that avoids subjective misrepresentation of objective circumstances (Teschl & Comim 2005), such as concerns about wind farms. Empirical studies employing the CA have also provided support against the adaptation argument. For instance, Clark's (2002) fieldwork in South Africa suggests that while the poor often report high levels of happiness (implying adaptation in terms of subjective well-being), they still imagine and demand a substantially better life, as will be seen in subsequent chapters with people living in the Isthmus of Tehuantepec. As Clark (2009: 28) contends, it is important to remember that 'they' are the experts, not 'us'.

Therefore, even though power can shape people's ability to identify their capabilities (Frediani 2010), operationalising the CA can become a space for people to access the knowledge to develop critical consciousness required for deliberating what they have reason to value, following a Freirean pedagogical tradition.

In sum, Lukes' three-dimensional view of power helps make sense of conflict and non-conflict, as well as decision-making processes, non-actions, and subjective judgments of stakeholders in the wind power industry. However, it suggests only a partial account of power as it deals exclusively with asymmetric power—the power of some *over* others. Moreover, it focuses only on one sub-type of this, namely, the securing of compliance to domination.

Consequently, authors that similarly see power as a 'negative trait' linked to binary domination over the powerless by the powerful would not be suitable for interacting with the operationalisation of the CA where all individuals exercise agency. For instance, Gramsci's (1971) concept of 'hegemony' that describes how people come to accept the interests of the elites as their own, or Chambers who emphasizes 'hierarchies of power and weakness, of dominance and subordination' (Chambers 1997: 58) that are linked to positions categorised as 'uppers' and 'lowers' depending on the context. Though in Chambers' case, power is not fixed on persons, but on positions, thereby offering a dynamic approach. However, the image of unidirectional control between positions is not adequate to understand how different stakeholders exercise power. Sustainability interventions seen as a binary domination of the powerless by the powerful, or supporter and victim-oppressor, that also perceives power as a 'zero-sum' game, may prevent the search for alternative paths for negotiation and balanced power relations between businesses, communities and governments that play a role in siting renewables.

One exemption is Gaventa (2006), who builds on Luke's three-dimensional approach, and at the same time sees power as an extensive and integrated web of relationships of agency that may result in positive action and thus a more adequate power analysis method to operationalise with the CA.

2.5.2 Gaventa's Power Cube

Gaventa's approach for power analysis, also known as the Power Cube, goes beyond the binary concepts of domination by arguing that power can be exercised by both the disempowered and the powerful to create opportunities for change. Gaventa's power analysis tool aims to assess opportunities for transformative action by analysing the interrelationships of power from different spaces and places (Gaventa 2006; Gaventa & Martorano 2016).

Comparable to the context of wind energy production, Gaventa (1982) observed different levels of social and economic inequality in a mining valley in rural United States. Building on the work of Lukes (1974), Gaventa (1982; 2006) proposed a power analysis framework (Figure 1), visually represented as a Rubik's cube, to understand how power was exercised within the mining community, and between the community and the mining company, to assess opportunities for transformative action in various political spaces (Gaventa, 2006).

Figure 1. The 'power cube': the levels, spaces and forms of power, Gaventa (2006)
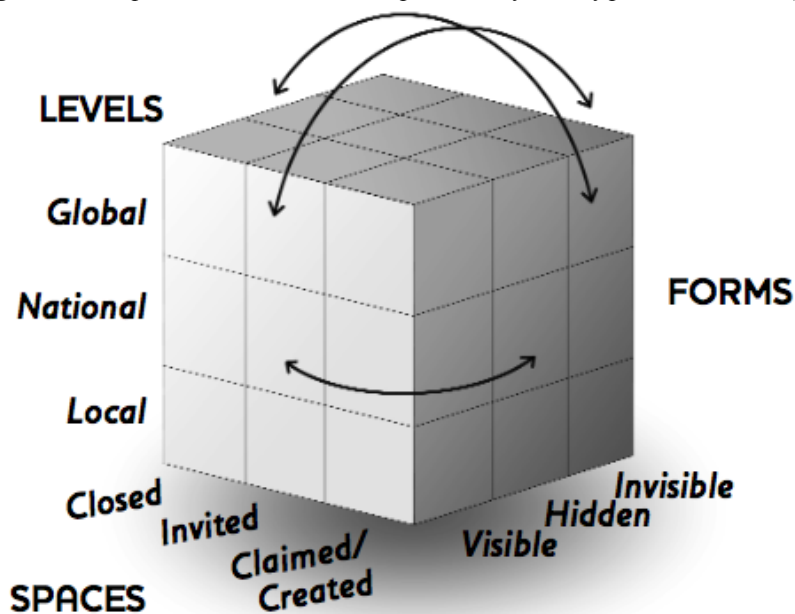
Three concepts of Gaventa's approach to power—spaces, levels and forms of power—are particularly relevant for expanding the CA to look at barriers to enhancing capabilities and deliberation processes. In this approach, Gaventa sees spaces of power as opportunities for participation, where people can act to influence policies, discourses, decisions and relationships that are valuable to them. Participation as a capability can involve not only the right to participate effectively in a given space, but also the right and capacity to shape that space. Gaventa (2006) explains that these spaces are not

neutral but are themselves shaped by power relations. He makes a distinction between closed, invited and claimed spaces. Closed spaces are behind closed doors where groups in power make decisions without consulting other groups. In invited spaces, people are called to engage with authorities, such as the government, supranational agencies or non-governmental organisations. Yet, although these spaces are seen as entry-level in local governments to reach national or global policy, the use of terms such as 'partnership' and 'shared ownership' by actors such as the World Bank and the International Monetary Fund that are in reference to a 'level playing field' in processes such as wind energy Social Impact Assessments, may be obscuring inequalities of power resources. Finally, claimed or created spaces are demanded by less powerful actors or created more autonomously as places where people gather to debate, discuss and resist power holders outside institutionalised arenas. It is thus essential to examine the spaces of participation offered in wind power projects' planning and development, and ask how they are created, whose interests are considered, and what the terms of engagement are.

The concern with how spaces for participation are shaped is linked with the physical places and levels where power is exercised in local, national and global arenas. According to Gaventa, three forms of power shape the way we look at capabilities: visible, hidden and invisible. Visible power includes observable rules, institutions and authorities of power. Strategies for transformation within this form of power attempt to change the 'who, how and what' of policy-making and the policy process (Gaventa, 2006). Hidden power refers to the agendas that are pre-set by certain powerful actors to maintain control of who does and does not participate in decision-making, as well as whose concerns are voiced. Finally, invisible power, the subtlest of the three forms, is shaped by processes of socialisation that are linked to deeply rooted psychological and ideological boundaries of participation that normalise exclusion and inequality among all actors. Who is involved and what is discussed in decision-making processes are framed in a way that is internalised and accepted by both the powerful and powerless. Transformative strategies within this form of power target individual perceptions of the self and others to envisage alternatives or future possibilities (Gaventa, 2006).

In brief, to challenge unequal power relations that prevent people from enhancing their capabilities in the context of the energy transition, we need to look at how capability sets depend on (1) the type of spaces in which they are found, (2) the level at which they operate, (3) the form they take, and (4) how these dimensions intersect. The creation, opening and closing of spaces are affected by the local, national and global agenda; the body that creates and/or controls the spaces decide upon the visibility of power; and all previous interactions throughout history shape invisible power that in turn legitimises the *status quo* (Gaventa, 2006).

2.6 Justice, Capabilities and Power Framework for Understanding Community Acceptance of Energy Infrastructure

Building wind farms that contribute to sustainability requires a fair planning and deployment process that is collectively defined. Then, barriers that undermine the chosen strategies and exclude certain groups affected by wind energy developments ought to be recognised. To identify and analyse these barriers, this thesis proposes a theoretical synthesis of the triumvirate conception of energy justice, the capability approach and Gaventa's method for power analysis. This puts forward a justice, capabilities and power framework to assist in understanding the community acceptance of energy infrastructure projects (Justice – Capability – Power, JCP hereafter).

The following framework aims to recognise notions of justice and injustice by identifying the lives that people have reason to value, and the ways they are exercising agency to shape today's wind energy sector. Certain groups may face barriers to engage in processes to formulate and enhance capabilities, which may affect the acceptance outcome of a RET, such as wind energy siting. Thus, the JCP seeks to visualise the power dynamics that constrain or facilitate the achievement of these valued lifestyles.

The framework (Figure 2) first shows how people's experiences of justice and injustice (triumvirate energy justice framework) relate to the introduction of energy infrastructure, and how this relationship can be organised, analysed and discussed using the capability approach. This unveils what the justice tenets mean for communities that are adjacent to energy developments in terms of capability deprivation or enhancement, thereby building a bottom-up approach to understating distributive, procedural and recognition perspectives of justice.

Introducing power analysis helps clarify the process through which capabilities are enhanced or deprived. By doing so, this analysis reveals the existing barriers to attain justice, particularly considering the dynamics of exclusion. Identifying these processes sheds light on factors affecting community acceptance of energy infrastructure. This framework points to achieving a just energy transition by enabling people's capabilities as a precondition to install RETs, which in turn addresses experiences of injustice of people living near wind farms.

Figure 2. Justice, Capabilities and Power Framework (JCP) (Author)
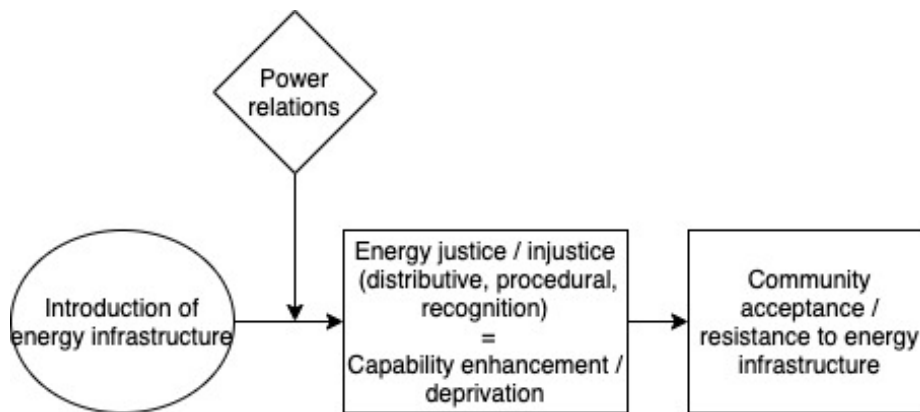
JCP integrates power analysis and the capability approach in both non-dynamic and dynamic ways. In a non-dynamic way, capabilities are central in explaining when and how domination occurs. As explained in section 2.5, understanding power as domination suggests the imposition of significant constraints upon an agent's interests, which prevents them from being fulfilled. Lukes characterises this as 'I will have more (overall) power than you if I can bring about the outcomes that are more significant than those you can bring about' (Lukes, 1974: 80). But how do we assess significance? One way is to identify people's aspirations and assess the effects of power relations on acquired capabilities and achieved 'functionings'. We would also analyse the bias of the dominant political agenda or the prevailing culture that may be influencing the way desired capabilities are defined, voiced and exercised (or not). Thus, domination occurs where power dynamics affect the interests of people, restricting their capabilities for human well-being. For instance, domination can take the form of non-recognition of cultural identities, which are capabilities that local communities endorse.

To introduce how power relations shape capability sets in a non-dynamic way, Figure 3 builds on Robeyns' (2005) 'non-dynamic representation of a person's capability set and her social and personal context'. Robeyns' diagram describes the difference between goods and services and functionings and capabilities. A good has certain characteristics that may assist people to do activities they value; for example, a bicycle is a good that enables the functioning of mobility. These goods and functionings are necessary to live the lives we have reason to value and are influenced by three groups of conversion factors: (1) *personal* conversion factors, such as physical conditions and skills; (2) *social* conversion factors, such as public policies and social norms; and (3) *environmental* conversion factors, such as climate and geographical location. Power dynamics shape these conversion factors, as well as people's ability to identify what they have reason to value (Frediani 2010), and personal history and psychology that define choices of functionings. How power affects people's choices of whether converting one capability and not another into a functioning is explained by Ibrahim and Alkire (2007: 385) as "the material, social and institutional preconditions required to exert agency". They use the division of gender roles within the household to show how decision-making with respect to different aspects of life is an important indicator of power relations. To describe this, they propose two empowerment levels,

the existence of choice and the actual use of this choice, a decision that can be motivated by a desire to avoid shame and gain praise.

Through these four factors, power dynamics may expand or contract people's capability sets, as well as influence their choices and hence achieved functionings. These factors are influenced by an institutional context that also affects how capability sets are defined. According to Sen (2009), creating new institutional arrangements is insufficient to enhance these capability sets and promote individual well-being and agency. Power analysis supports this claim by asserting that perfecting institutions will not necessarily result in greater inclusion and equality (Mejía and Petit, 2013).

Figure 3. An adaptation of the 'non-dynamic representation of a person's capability set and her social and personal context' that includes the idea of power relations, aspirations and agency (Adapted from Robeyns 2005).
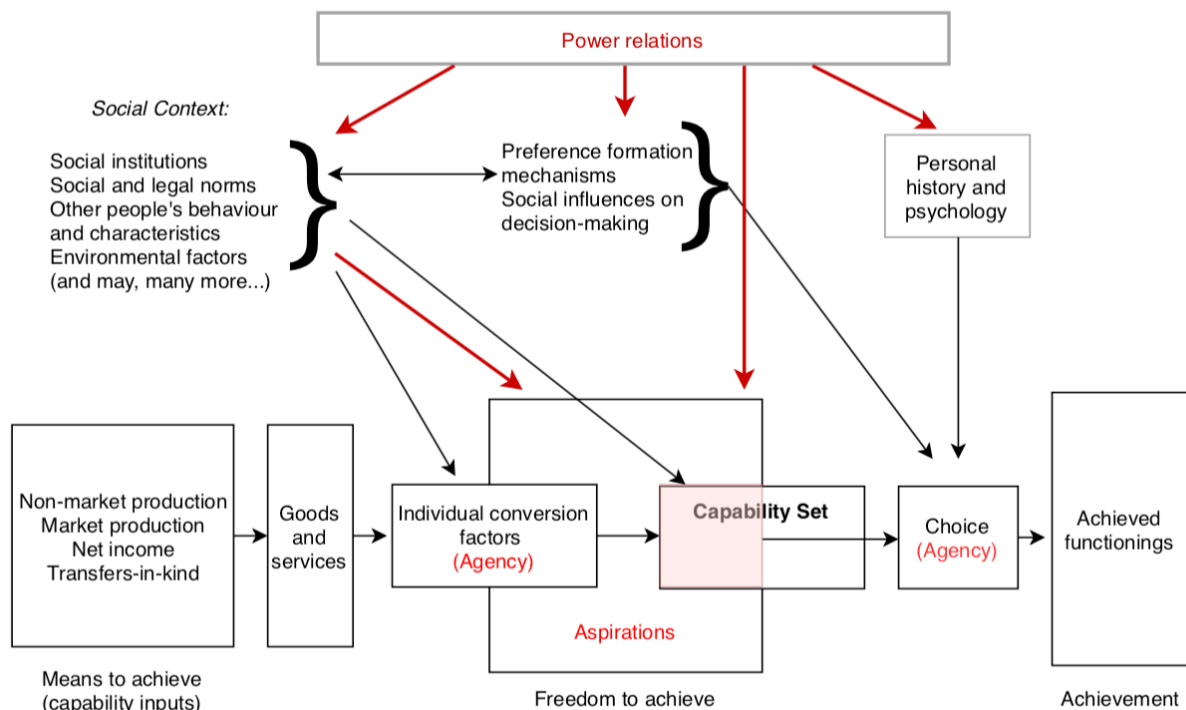
Using Gaventa's forms of power, these social and institutional arrangements are made visible in formal rules, structures, authorities and procedures. These rules can also be hidden: certain powerful people or institutions can influence the way agendas are set. Finally, invisible forms of power shape the psychological and ideological boundaries of choice. Significant issues and ideas can be kept from the different stakeholders involved. This subtle form of power can shape people's beliefs, sense of self and acceptance of the *status quo,* and affect the way they form aspirations and make choices (Hart 2016). Socialisation shapes the way individuals think of their place in the world and what is acceptable, normal and safe, which may perpetuate inequalities and exclusion.

To make this case, Robeyns' diagram has been extended in Figure 3 to include aspirations, which are the combination of doings and beings that people have reason to value (Hart 2016). People's

capability sets may fulfil certain aspirations and not others, thus looking at capability enhancement derives in further fulfilled aspirations. Figure 3 also incorporates agency in effectuating choices and deciding what conversion factors the individual will engage in to secure valued capabilities. These additions to the diagram help understand what wind energy stakeholders value, how they come to value certain life possibilities, and the impact of sustainability interventions on enhancing capabilities (or not) based on their aspirations, conversion factors and choices.

Power relations also imply a dynamic link with other actors. Relations of power within and between different stakeholders influence the way institutions are formed, resources are shared, and whether capabilities are enhanced or curtailed as a result, which other actors may resist. Thus, capabilities of stakeholders need to be understood vis-à-vis other stakeholders in a dynamic way (Figure 4), to analyse how a given individual's functionings may restrain others' choices and vice-versa.

Figure 4. Dynamic representation of stakeholders' capabilities and their relationships of power (Gaventa 2006)
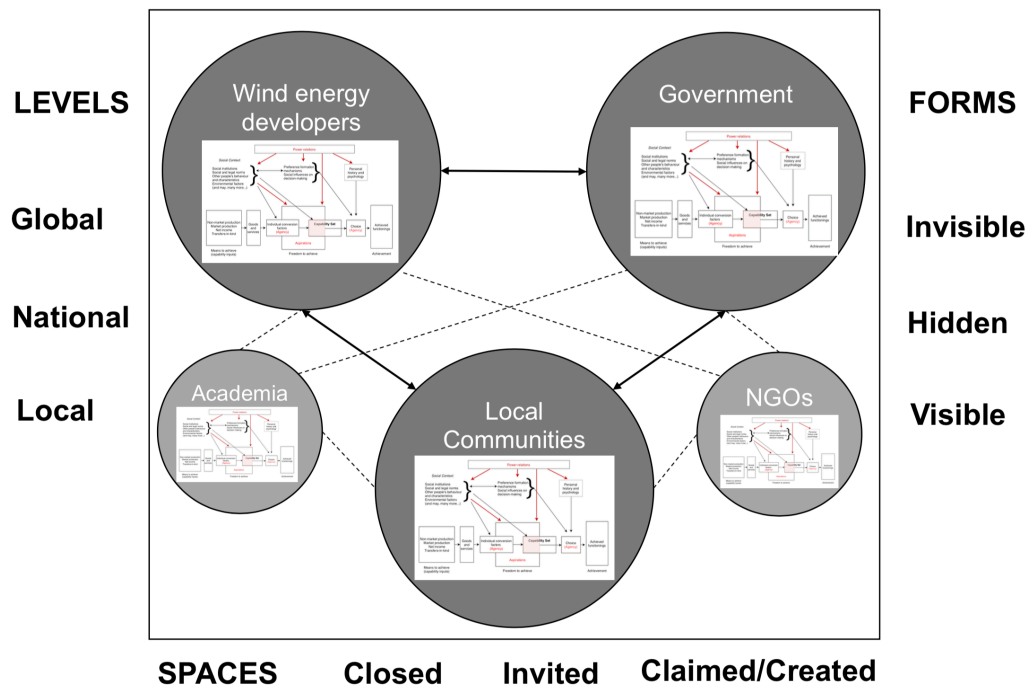
Power relations involve human agents, separately or together, in groups or organisations, through action or inaction, meaningfully affecting each other's actions and thoughts (Lukes 1974: 56-57). Some concerns or issues can be organised into politics, while others may be organised by means of political myths, rituals, and institutions which tend to favour the interests of one or more agents – or groups of agents – relative to others (Bachrach and Baratz 1962: 950). Based on this mobilisation of bias within agents, power may not be exercised but is pervasively present. Individuals define expectations and choose capabilities sets embedded in this relational arrangement of power. Social relations constitute structures within which people make choices, perceive, evaluate, and act.

Gaventa's concept of spaces and levels of power is useful to look at relational power amongst stakeholders, understanding how they exercise agency, and identifies the barriers to effective processes of public deliberation in the wind energy industry. For this framework, spaces are seen as opportunities for public deliberation where stakeholders can define valued capabilities. These spaces are social products constructed by power relations among gents. Using Foucault's and others' idea of boundary, Hayward suggests understanding spaces as networks of 'social boundaries that delimit fields of possible action' (Hayward 2000: 2). In this sense, expanding capabilities can not only be attained through effective participation in a given space, but also the right to define and shape that space.

Furthermore, to explore the dynamics of deliberation processes, it is important to understand how these processes were created, in whose interests, and with what terms of engagement. These deliberation processes may be held in *closed* spaces, were a set of actors make decisions in a restricted, invite-only space without the need for broader consultation or involvement of other affected actors. In the case of wind farms, examples of these spaces are businesses and federal government meetings where the terms of the investment in wind farms are decided. These spaces might allow others to be *invited,* with the aim of including more actors in the deliberation processes, for instance, spaces such as Indigenous consultations. Finally, these spaces might also be *claimed* or *created* by excluded groups. These spaces can emerge based on common concerns that are not being addressed in other spaces. For instance, although wind energy has fewer environmental risks than other energy production technologies, local communities may nevertheless have environmental concerns, such as effects on bird migration. In this case, the alluded spaces range from protests to civil associations where people gather to discuss and resist outside formal spaces for public deliberation. All these three spaces exist in dynamic relation to one another, they are being constantly opened and closed, claimed and protected.

Dynamics for public deliberation to decide capabilities to be enhanced are also shaped by levels of power where social, political and economic power resides. While interrelation amongst actors is mostly done locally, much decision-making about how wind farms are planned and developed involves the national and international arenas. These local, national and international arenas are not separate spheres, but are rather interrelated. Local levels of resistance can be echoed with other global resistance groups, and elites based in transnational companies' headquarters may regulate how community relations are managed in a given locality.

2.7 Conclusion

The difference between success and failure in planning is frequently linked to the motivation and cooperation of the public, which in turn is profoundly influenced by people's perspectives of fairness and justice in decision-making processes (Sen 2018: 256). To build wind farms that contribute to environmental and social sustainability, we must first collectively define a fair planning and

development process, and then identify the barriers that may undermine the chosen strategies as well as they may exclude certain groups who are immediately affected by wind energy developments.

To understand and address these barriers, a theoretical integration of energy justice, the CA and Gaventa's power analysis has been proposed. This consists of a framework that incorporates justice, capabilities and power in order to understand the drivers of community acceptance of energy infrastructure (JCP). This study will use this framework, which draws upon Sen's concepts of capability and agency, to understand individual conceptions of justice within a local, Indigenous community in Mexico, and how wind farms are actively enhancing or limiting valued opportunities. These capabilities are then analysed under the triumvirate conception of energy justice and complemented by Gaventa's 'Power Cube' to look at structures of influence, decision-making, and governance, which have historically been neglected by Sen's CA. Gaventa's Power Cube advances a concept of power that identifies a more extensive and integrated web of relationships of agency that may result in actions that benefit all stakeholders in wind farm siting.

Overall, the proposed framework advances scholarly work on social acceptance of RETs in four ways (Table 3): 1) focusing the study's overarching framework on energy justice contributes to the literature that bridges ethical issues and energy systems; 2) by drawing insights from environmental justice, economic philosophy and sociology, this study brings together concepts of justice, well-being and power and thereby contributes to a more coherent and compelling body of theory to address environmental and social concerns; 3) by operationalising the CA, the framework provides a bottom-up approach to understating distributive, procedural and recognition perspectives of justice among vulnerable groups such as Indigenous people; and 4) the study contributes to multi-stakeholder research looking at interactions between actors using the concept of spaces, levels and forms of power.

Table 3. Theoretical Contributions to the Literature on Social Acceptance

Literature Gaps	Thesis Contributions
The literature acknowledges that the concept of fairness is central to social acceptance. However, only a few studies have looked at it systematically.	Energy justice is proposed as the study's overarching framework to research ethical issues concerning energy systems.
Empirical research on social acceptance has been conducted in a fragmented and atheoretical manner.	Drawing from environmental justice, economic philosophy and sociology, this study will bring together concepts of justice, well-being and power. This contributes to a more coherent and compelling body of theory to address environmental and social concerns.
Research on social acceptance is mainly based on studies conducted in industrialised economies.	Using Mexico as a case study contributes to the conceptualisation of social acceptance in emergent economies.
Studies tend to focus on a single stakeholder's perspective on industrial development.	The study contributes to a holistic understanding of development processes and dimensions by including perspectives from corporations, governments, NGOs and local communities. This integration encompasses the complex interplay of power relationships that determine the context in which choices for wind power development are made.

Source: Constructed by the author.

The framework proposed in this thesis aims to open spaces for change and to transform patterns of exclusion in the wind energy sector by: (1) identifying the lives that people living near wind farms have reason to value, (2) linking these to understandings of justice, and (3) analysing power dynamics that constrain or facilitate valued opportunities, so that they may be acted upon and changed.

3 METHODOLOGY

The aim of this chapter is to describe a methodology to operationalise the conceptual framework presented in Chapter 2 to analyse factors affecting community acceptance of wind energy. This chapter attempts to highlight the complex methodological and ethical aspects underlying the findings presented in the subsequent chapters.

In order to include understudied areas in social acceptance of Renewable Energy Technologies (RETs), I focus on three case studies in the Isthmus of Tehuantepec, Mexico to capture perceptions of justice and injustice in Indigenous communities in the Global South. The use of case studies can aid in building a comprehensive picture of the drivers and challenges of community acceptance in three different communities.

The research adopted a mixed-methods and participatory approach centred on bottom-up empirical evidence. The research design included participant observation, semi-structured interviews, workshops and a survey. The target research groups consisted of residents in selected communities, non-governmental organisations, wind energy developer representatives, government officers, and academics. The use of different methods allowed for a triangulation of community experiences, state policies, business agendas, and non-state actor interventions.

Data collection and analysis were carried out simultaneously between September 2017 and January 2019. The research took place in different sites including the Isthmus of Tehuantepec, Oaxaca City, Mexico City and Madrid.

This chapter is structured as follows: Section 3.1 justifies the sites selected for this research. The methods used and the tools developed for data collection are described in section 3.2. Section 3.3 recounts how data was analysed and 3.4 describes the main challenges experienced in the field. Finally, the ethical implications of my positionality on analysis and writing are discussed in section 3.5, which underpin and, inevitably, complicate my research methodology.

3.1. Case Study Selection

The Isthmus of Tehuantepec in Mexico was selected as a suitable place to conduct an inquiry about how the lives of poor and marginalised Indigenous populations are shaped by the introduction and expansion of wind power. Indeed, this region has been identified as one of the best areas in the world to establish wind farms (Nahmad *et al.* 2014) this territory alone could supply up to 40,000 MW due to

its excellent wind conditions (Alemán-Nava *et al.* 2014) (Alemán-Nava et al. 2014). Following a major energy reform in 2008 that facilitated international private capital investments (IRENA 2015), large international utility companies started to operate in the region, installing wind energy turbines that accounted for up to 3,527MW by 2016 (GWEC 2016). Furthermore, Tehuantepec straddles the state of Oaxaca, a region a region shaped politically by its Indigenous identity couched in the legacy of colonialism, high levels of marginalisation and profound forms of inequality. It is one of three states with the highest Indigenous population percentage in Mexico: 43.7% of its population self-classify as Indigenous (INPI 2015). It is also one of the poorest, 84% of the municipalities in the Isthmus of Tehuantepec face a moderate, high or very high grade of marginalisation, according to the National Population Council's (CONAPO 2015) marginalisation index.[9] Mexico generally has high levels of income inequality, marked by a 43.4 coefficient in the GINI 2016 Index[10] (World Bank 2016). This greatly affects Oaxaca specifically, given the legacy of colonisation and discrimination against Indigenous and non-whites which will be further described in Chapter 7.

The introduction of the wind energy industry was not originally contentious in the region. Developers approached Indigenous landowners, who initially agreed to lease their land to build wind farms without much hesitation. Nevertheless, while the process of price negotiation progressed and turbines were erected on the ground, opposition emerged. These negotiations took place without there being a clear regulatory framework in place and increasingly resulted in political conflict, economic loss, and social disruption within a region affected by poverty and prone to identity-based intra-group conflict. For instance, in 2012, a 396MW development that was hailed as the largest scheme in Latin America (IADB 2016) was cancelled due to conflicts linked to land speculation and tensions between two different social groups, the Zapotecs and the Huaves (e.g. Hurtado Sandoval, 2015), causing an approximate loss for the main investors of seven million US dollars (González 2013). While in theory, the establishment of wind farms was a good opportunity for the region, lack of community acceptance and negative social impacts put further investments at risk, in addition to risking the well-being of the local population.

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[9] This index considers deficiencies in basic education and housing, residence in small, dispersed and isolated localities, and low monetary income (CONAPO 2015).

[10] The Gini coefficient is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive, and it ranges between 0 in the case of perfect equality and 1 in the case of perfect inequality (OECD 2020)

Figure 5. Three case studies in the Isthmus of Tehuantepec, Mexico (Alejandro Guizar Coutiño, 2020)
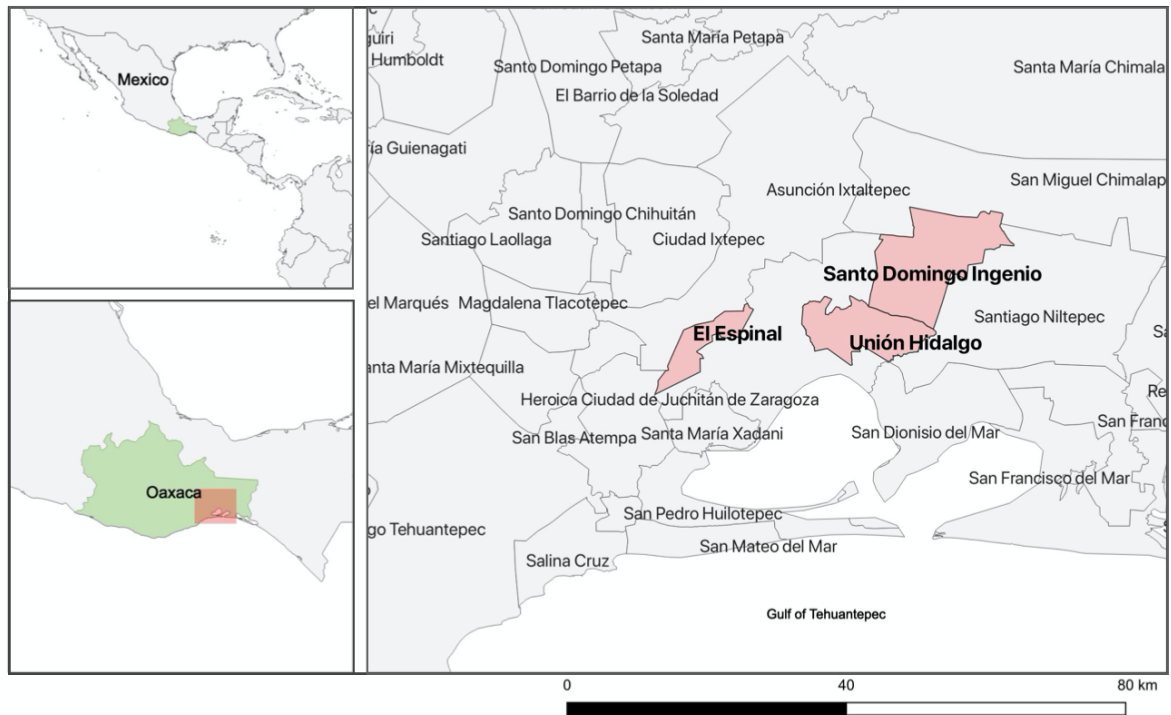
Three communities were selected for this study. All three are located in the Juchitán district of the Oaxaca state (the southern half of the geographic Isthmus of Tehuantepec) (see Figure 5). These communities share a range of characteristics that lend themselves to comparison (see Table 4). All three communities had wind farms installed between 2009 and 2017 and new developments have been planned in all three. Moreover, all three communities are predominantly Indigenous and suffer from comparable levels of deprivation (INEGI 2015). The three cases were purposively selected to study variation in community responses to RETs. The first case, El Espinal, appeared to have considerable levels acceptance of the wind farm projects. The second case, Santo Domingo Ingenio, was selected to allow for the observation of a community where there was a more mixed record of both resistance and acceptance to RETs: although wind energy has been accepted to some extent, conflicts between landowners, government, and wind energy companies are pervasive. The third case study, Unión Hidalgo, provides an example of opposition and conflict around the wind farms. Levels of acceptance were determined based on the number of projects in development or in operation that have been stopped or blocked for more than two weeks between 2009 and 2017 due to local opposition: in El Espinal no projects from the four existing wind farms have been discontinued, in Santo Domingo Ingenio six out of nine projects have been halted, and in Unión Hidalgo all five existing projects have been stopped or delayed for at least two weeks (Table 5).

Table 4. Community demographics and relevant variables

	El Espinal	*Santo Domingo Ingenio*	*Unión Hidalgo*
Community acceptance of wind energy projects	Acceptance	Mixed	Resistance
Population (2015)	8,824	8,208	14,704
% women	51	50	52
% unemployment	3.3	8.3	5.3
Average duration of education (years) (2015)	9.9	7.5	8.5
% education lag	17.8	28.2	15.7
% population that speaks an Indigenous language	36.7	5.4	53.6
% of people living in poverty (2015)	34.2	63.3	57.6
Human Development Index[11] (2015)	0.776	0.678	0.743
Distance of the main town to the closest turbine (mts)	2,000	500	500

Source: INEGI (INEGI 2015).

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[11] The Human Development Index (HDI) ("Human Development Index (HDI) | Human Development Reports" n.d.) is a statistic composite index of life expectancy, education, and per capita income indicators, which are used to rank countries into four tiers of human development (0.800-1.000 very high, 0.700-0.799 high, 0.550-0.699 medium, 0.350-0.549 low).

Table 5. Wind farm projects and status by community

Case	Name of development	Capacity (MW)	Developer	Status	Blocked for more than two weeks due to local opposition
Espinal	Bii Nee Stipa I (Stipa Nayaá)	26.5 MW	Iberdrola Renovables	In operation	No
	Fuerza Eólica del Istmo I	50 MW	Peñoles	In operation	No
	Fuerza Eólica del Istmo I	30 MW	Peñoles	In operation	No
	Energía Aterna Istmeña (Eólica del Sur)		Femsa/MacQuire /MGGM/Mitsubishi	Under construction	No
Santo Domingo Ingenio	Ingenio	49.5 MW	Acciona/Zuma	In operation	Yes
	La Venta II			In operation	No
	La Venta III	102 MW	CFE/Iberdrola Renewables	In operation	No
	Oaxaca I	102 MW	EYRA / Dragados	In operation	Yes
	Oaxaca II	102 MW	Acciona	In operation	Yes
	Oaxaca III	102 MW	Acciona	In operation	Yes
	Oaxaca IV	102 MW	Acciona	In operation	Yes
	Pacifico (Eoliatec del Pacífico)	160 MW	EDF-EN	In operation	Yes
	Cerro Iguana		GAMESA	Project in development	No
Unión Hidalgo	Piedra Larga (Phase 1)	90 MW	Renovalia (Demex)	In operation	Yes
	Piedra Larga (Phase 2)	137.5 MW	Renovalia (Demex)	In operation	Yes
	Parque Unión		Eólica Unión	Project in development	Authorized but halted due to local opposition.
	Gunaa Sicarú	167 MW	EDF	Project in development	Authorized but halted due to local opposition.
	Palmitas 1 y 2		Siemens-Gamesa	Project in development	Authorized but halted due to local opposition.

Source: the author with data from AMDEE 2019

3.2. Methodological Approach

To explore people's perceptions about wind farms, the research adopts a 'grounded approach'. Adopting a grounded and people-centred approach, the research articulates people's voices and capabilities and appreciates how these are enhanced or constrained as a result of the deployment of

wind farms in their locality. The methodology of this research is thus constructivist in nature as the findings are created while the investigation proceeds, i.e. through the various interviews and questionnaires with people living adjacent to wind farms. Hence, even though this approach allows for respondents to define the focus of the enquiry, it also considers that the researcher cannot 'be neatly disentangled from the observed in the activity inquiry into constructions'. Therefore, the findings or outcomes of this enquiry are themselves a creation or construction of the author's inquiry process (Smith *et al.* 1994: 128). Thus, the responses of the participants will be used to construct a 'real' picture of their capabilities.

3.2. Identifying Human Capabilities: Perfecting a Tool for Collecting Data

According to Ibrahim (2008), the capability approach is difficult to operationalise because of two reasons: the 'counterfactual problem' and the 'difficulty of inter-personal comparisons'. The counterfactual problem relates to the fact that capabilities measure the potential or the range of choices, rather than actual achievements of an individual. The identification of the counterfactual is thus not easy due to the variety of human choices and available alternatives. Sen responds to this critique by arguing that:

> *'In assessing the freedoms that we enjoy and examining how unequal we are in that respect. The informational basis of the evaluation has to take into account our counterfactual choices (what we would choose) and their relation to what is made to happen […] Sometimes the nature of counterfactual choices are very easy to guess, e.g. that people would choose to avoid epidemics, pestilence, famines, chronic hunger'*
> *(Sen 1992: 66)*

This analysis overcomes this counterfactual problem by asking people about the choices that they had and why they made these choices. The research seeks to capture this counterfactual by exploring people's unfulfilled capabilities, i.e. what the poor wished to achieve but could not.

As for the difficulty of interpersonal comparisons, the research overcomes this difficulty by identifying human capabilities, simply by asking people about these capabilities. The research argues that capabilities can be identified directly. However, what methods need to be applied to move from the conceptual to the observational levels? Following Ibrahim's (2008) methodological approach, the following steps were taken.

The first step in developing the research design was to review previous attempts that sought identify capabilities. A number of scholars have tried to assess capabilities by measuring functionings as proxies for human capabilities or by identifying human capabilities directly. However, there has been a widespread consensus that the direct identification of capabilities is rather difficult, and therefore have mainly focused on the measurement of functionings as proxies for capabilities.

Reviewing these attempts, these can be divided into two main categories: (1) top-down assessment of human capabilities and (2) the grassroots exploration of people's capabilities. The first uses secondary data to identify capabilities and/or develops indices of human well-being (Anand et al. 2005; Comim & Kuklys 2002). This method deals with a number of concerns, such as finding the suitable weighting and aggregation systems in addition to dealing with the difficulty of interpersonal comparisons. However, this method is rather inadequate for developing contexts as it limits the analysis of capabilities to a specific list of pre-defined capabilities by 'Northern' scholars (such as Nussbaum list of capabilities discussed in Chapter 2), rather than deriving these lists from people themselves, which is one of the main purposes of this research.

The second operationalisation bottom-up method focuses mainly on identifying and measuring potentially valuable human capabilities through participatory methods. The work of Clark (2003), Alkire (2002), (Anand & Van Hees 2006), Ibrahim (2008) and Uyan-Semerci (2007), among others, adopt this methodology.

Like these attempts to identify capabilities directly, this research also stems from the belief that capabilities can be measured directly. Nevertheless, capabilities can be vague concepts, and therefore to assess them we need to move from conceptual to observational levels (Ibrahim 2008). At the conceptual level, the research studies the elements of a good life and the extent to which wind farms are contributing to these understandings of well-being.

To move from the conceptual to the observational level, the research focuses on a number of 'elements of a good life' that people living near wind farms have reason to value. Many of these 'elements of a good life' are in fact capabilities, i.e. a set of functioning bundles from which people can choose to lead the lives that they have reason to value. For example, if the participant mentions money (the capability of generating income) the research explores the reasons for valuing this capability and, whether it was achieved or not and the reasons for their (in)ability to achieve the capability satisfactory, or in the "money" case, the income levels to provide for themselves and their families. The following section will describe the methodological tools employed to identify and assess these capabilities

3.3. Data Collection

Conceptions of well-being and capabilities among people living near wind farms were explored through an evolving research design combining qualitative and quantitative data to triangulate and validate research findings. More specifically, the research involved a three-stage 'methodological integration' (Bryman 2003) following a qual-quant-qual approach in which the output of one method was used for the design of another (Figure 6). Employing a mixed-methods approach enabled me to compensate for the weaknesses of one method with the strengths of the others. Indeed, the first qualitative stage helped reflect local understandings and context and offered participants the opportunity

to discuss the issues under scrutiny more openly, while the quantitative stage enhanced the internal validity of such findings and attended to any interviewer bias (Sovacool *et al.* 2018). Finally, the workshops in the third stage offered a more in-depth explanation of why people value one capability more than others.

Figure 6. Research Design

Stage one	
Methods	**Data gathered**
Semi-structured interviews	Elements of a good life (capability domains)
	Perception of wind farms (level of acceptance)
	Factors affecting acceptance related to capability domains

Stage two	
Methods	**Data gathered**
Workshops Well-being questionnaire co-designed and administered with local students	Elements of a good life (capability domains) open question
	Extent to which wind farms have enhanced capabilities (identified during the 1st stage)
	Overall perceptions of wind farm's contribution to individual and community well-being

Stage three	
Methods	**Data gathered**
Workshops	Confirm data generated during stage two
Co-designed and led with local students	Fill data gaps
	Collectively analise survey findings

Stage One: Exploratory Semi-structured Interviews

The first stage of the research design started in September 2017 and lasted until January 2018. With the aim of looking at distributive, procedural and recognition understandings of justice, and their connection to people's attitudes towards wind farms, this stage involved the use of qualitative methods in the form of semi-structured individual interviews and participant observation in the three communities. This qualitative research methodology offered an inductive and flexible model (Kelly 2012) to explore (1) elements of a good life (used as a simplified definition of capabilities as discussed in section 3.2), (2) how these conceptions are associated with everyday interactions with wind farms, and (3) how they drive wind energy acceptance.

In total, I conducted 104 interviews with residents in the three selected communities, wind energy developer representatives, government officers, academics and non-governmental organisations (Table 6). Interview guides for community, developer and government participants are included in Appendix 1. A full list of interviewees is included in Appendix 3 along with descriptions and the place where these actors were interviewed. Interviewee identifier codes have been generated to ensure the anonymity of all participants, and to provide the reader with information about the informant while looking through

the empirical discussions. Six codes have been produced as following: participants whose code starts with the letter C are people living in the proximity of a wind farm who do not hold a lease agreement with a wind energy developer, and therefore are categorised as non-direct beneficiaries. Participants starting with the letter L are residents of the three communities who hold a tenancy agreement with at least one wind energy developer. Participants starting with the letter D are people working for a wind energy company. G stands for people who held a position in the local, state or federal government at the time of the interview. The letter N stands for participants that work at a non-governmental organisation, and finally participants with a letter A hold a research position in an academic institution. All names that appear in the thesis are pseudonyms, on the occasions that they are used, except when explicit consent has been given for using the real name.

Table 6. Participants in semi-structured interviews and focus groups

Actor	Type of participant	No. of interviews
Community	People who live near wind farms (three communities)	28
	Land tenants (three communities)	14
	Agrarian authorities	3
	NGO's and collectives (three communities)	5
Wind energy developers	Local representatives (eight companies)	12
	National representatives (eight companies)	13
State and National Government	Local government (three communities)	12
	Government of the state of Oaxaca	5
	Ministry of Energy	1
	National Commission for the Development of Indigenous People	1
Academia		6
NGO's (National)		4
Total number of participants in semi-structured interviews and focus groups		104

Source: the author

In October 2017, I took part in participant observation to engage in the daily activities, rituals, interactions and events of all three communities (Musante & DeWalt 2010). I spent four weeks living in the home of a local family in each locality, taking part in housekeeping and cooking, home schooling children, and attending parties and family gatherings. This method allowed me to have a sense of what it is to be part of a community and have a more in depth understanding of their everyday interactions with wind farms.

Fifty-nine interviews and six focus groups with residents, landowners, local government officials and developer representatives were also conducted during the time spent in the three communities. Participants were selected following snowball sampling while ensuring that there was a balanced representation of age, gender, ethnicity, and socioeconomic status. All interviews and focus groups were

held in Spanish, given that all respondents felt comfortable speaking this language. While interviews offered a safe space to establish individual standpoints regarding a situation, attitudes, values and feelings, focus groups generated qualitative data on the basis of group interaction and discussion (Seale 2012). Both instruments facilitated insights into how people of different sex and age groups define, discuss and contest factors affecting wind farm acceptance.

In early January 2018, I moved to Oaxaca City and subsequently to Mexico City and Madrid to continue the enquiry with government officials and business developer representatives at the state, national and international levels. These semi-structured interviews helped establish wider resonance with different stakeholders, which aided to sustain the relevance of the research (Burns 2007).

Stage Two: Household Survey

The second data collection stage, held from April to June 2018, involved participatory research to emphasise a bottom-up approach with a focus on locally defined priorities and local perspectives (Cornwall & Jewkes 1995). This approach sought to engage more respondents in the study through a survey, while also facilitating spaces for collective reflection about justice, capabilities, power and their resulting effects on community acceptance.

The transition to a participatory methodology for this stage follows the theoretical framework proposed for this study. A participatory approach enables people to share and analyse their conditions of life and aspirations, which is key to understand people's capabilities. Moreover, it requires the analysis of power relations, their influence on social dynamics (Chambers 1992; Cornwall & Jewkes 1995; Wittmayer & Schäpke 2014), and how these dynamics act as a capabilities conversion factor (Chapter 2).

Furthermore, participatory research is relevant for this study since it recognises and validates Indigenous knowledge (Chambers 1997; Gaventa & Cornwall 2008; Selener 1993) and allows people to exercise greater voice and agency in how the research is conducted and designed. Indigenous scholars Denzin et al. (2008) and Wilson (2008) refer to participation as an approach that can be used for Indigenous research since it allows questioning of 'Western' norms and identifies conceptions of well-being that are very different from the ones held by wind energy developers, governments, and the researcher. Moreover, participatory research recognises that as a non-Indigenous researcher, I could not directly conduct research from an Indigenous perspective (Kovach, 2009). Yet, along with a framework that comprises of Indigenous co-researchers, the study can give validity and centrality to Indigenous voices (Batiste 2008; Batiste et al. 2011; Wilson, 2008; Datta et al. 2014; Blodgett).

This second stage consisted of two main methods: participatory workshops and a survey. Students from the Social Sciences University (UNID) located in El Espinal, were invited to participate in data collection and analysis of the research on a voluntary basis. Twelve students decided to participate:

three from Santo Domingo Ingenio, two from Unión Hidalgo and seven from El Espinal. Two initial participatory workshops were organised with participating students.

In the first workshop, the general research objectives and framework were presented and modified. The workshop started with an initial presentation of the research questions and theoretical framework that were initially proposed for this study as part of the first PhD report. Workshop participants discussed the relevance of these concepts in the light of their experiences as residents of all three communities proposed as case studies and their individual relationship with wind farms.

The importance of the association between well-being and community acceptance was confirmed by participants, as well as the relevance of understanding well-being by operationalising the capability approach. Participants asserted that developers had not understood what people in the communities have reason to value and that this had been a source of tensions and disagreements. They also showed interest in taking part in a study that would unveil the different aspirations of people living in the Isthmus of Tehuantepec.

After this discussion each participant noted down two lists of capabilities. One list included the capabilities that she had reason to value as an individual and the second one contained the capabilities that she believed her community valued. Once all participants had these two lists these were shared and discussed with all participants. Differences between individual capabilities were first considered, and then differences between individual and community capabilities were debated. Once the main commonalities and differences were delivered between participants, I proceeded to show them a list of capabilities that resulted from the study interviews. Contrasts and similarities were again discussed until there was an agreement of a final list of what would be the capabilities that people in the three communities have reason to value to be included in the subsequent parts of the study. Findings from this first stage were used as focal points of analysis to jointly design the methodology used in this second stage of the research, where diverse community perceptions were turned into a set of questions for an in-person survey.

As a result of the workshop, the following capability domains were identified: income/money (the ability of generating income), education (having / being able to attain an educational level), employment/job, health (being able to be in good health), physical safety, communal respect and discrimination (being able to live without discrimination), family and friends (having / being able to have strong family relationships), social capital, and political and community participation (being able to participate in communal and political matters).

Figure 7. Participatory workshops with co-researchers (author's photograph Juchitán 2018)

After identifying the different capability domains that need to be assessed, a second workshop was held to decide on a methodological tool to assess these capabilities and their relation to wind farms. During this second workshop different options were explored such as a formal closed-ended survey, structured interviews or focus groups. As a result of this collective reflection, an open-ended questionnaire was proposed to follow up on the research inquiry to: 1) increase the involvement of local people in the conversation about capabilities and their relationship with wind farms by using a method that initiates discussions in a familiar, non-threating way[12], and 2) to triangulate and broaden the validity of research findings from stage one by introducing a quantitative and more structured approach to data collection that allows for comparisons between the three communities.

The questionnaire was informed by previous studies on capabilities (e.g. Anand et al., 2009; Biggeri et al., 2006; Ibrahim, 2006) and sought to: 1) reveal the capabilities that people in the three communities aspire to, and 2) assess the extent to which wind farms have (or have not) enhanced these capabilities. It did so through asking open-ended questions about respondents' perceptions of a good life, followed by closed questions that assessed the extent to which they valued the capability domains defined during the first workshop and the reasons for valuing them.

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[12] Questionnaires are a well-known method among respondents in all three case study sites. The government and NGOs gather data using questionnaires on a yearly basis.

The starting point were simple open questions enquiring (1) What are the three most important elements of a good life, (2) Which is the most important element and why, (3). What are the three most important things that they wished to achieve in life but couldn't and why. The first section then looked at the capability domains income/money, education, employment/job, health, physical safety, communal respect and discrimination. This was done by asking (1) whether they value a specific *capability* or not; (2) why they value/do not value it (*reasons for valuing this capability*); (3) whether they have achieved or not (*functioning*); and (4) why they have succeeded/failed in achieving it (*conversion factors*). In a second section, the questionnaire examined social capital and trust, communal trust and support, respondents' relationships with family, friends, local institutions and wind developers, and their degree of political freedom and participation in social and political activities. In a third section, the instrument investigated their achieved functionings by asking respondents about their aspirations following the instalment of wind farms in their community. More precisely, respondents were asked whether or not they considered that wind farms had contributed to the enhancement of these basic capabilities and their general individual and communal well-being (a copy of the survey is included in Appendix 1).

Although the overall research was conducted at local, state, national and international levels, the questionnaire was administered only at the local level over six weeks (two weeks for each community).

The sample size was calculated with a 95% confidence level and confidence interval of 9% according to the population size of each locality (Table 7). A brief pilot study of 20 questionnaires was conducted at El Espinal to clarify terms, make adjustments and discard problematic or redundant questions.

Table 7. Survey sample sizes

Name of locality	Households	Houses	Inhabitants	Sample
El Espinal	2279	2793	8310	114
Santo Domingo Ingenio	2251	2583	7554	113
Unión Hidalgo	3645	4186	13970	115
Total number of surveys to be conducted				342

Source: constructed by the author with data from (INEGI 2015)

The sample frame was based on the street map of the locality or using Google Earth and ArcGIS, which allowed us to identify houses geographically in each area of each locality and consult directly with individuals living in all neighbourhoods. Houses were selected using a stratified random sample in order to construct a proportional sample of each neighbourhood of the three localities, considering only adults aged 16+. Data was gathered in the mornings and evenings to attain a balanced representation of men and women from different ages. Following data collection, all co-researchers would gather daily to discuss our experiences and take note of any relevant data that was not included in the questionnaire.

This second stage resulted in 382 questionnaires across the three communities. The sample was composed of 54.7% of women, with an average age of 33, almost 10 years of education and 34% reported having a relationship with the wind farm industry. Participatory efforts facilitated the recognition and validation of Indigenous voices and knowledge. It also ensured that the language of the questions was clear and adapted to the local context, while also improving trust and learning (Scherhaufer *et al.* 2018). For instance, because the denomination "income" is foreign in this region, the idea had to be redefined in the local language to "money" and adapted the data collection methods to acknowledge local conceptions of revenue.

Stage Three: Participatory Workshops

Lastly, the third stage involved participatory workshops and group discussions with members of the three communities in November 2018 and January 2019. The aim of these interactions was to 1) feed results back from the questionnaire to participants; 2) further triangulate, complement and collectively analyse data collected during the second stage.

The first workshop was held with the twelve co-researchers that participated in stage two to plan a strategy to feedback the data to individuals and groups that participated in the research: during this workshop we discussed who was going to be involved, when, and how was data going to be presented and discussed. Given the availability of time and resources, a total of 10 workshops were organised (Table 8): one open for all community members, one for landowners, one for government officials in each locality (Figure 9), and one for developer representatives. Photos of three workshops can be seen in Figures 8, 9 and 10.

Table 8. Workshops and discussion groups organised for feeding back survey data

Actor	Respondents	Number of workshops
Community	People that live near wind farms (three communities)	3
	Owners of land where wind farms are constructed (three communities)	3
Government	Local government (three communities)	3
Developers	At least one representative from all companies	1
Total number of workshops to feed questionnaire results back		10

Source: constructed by the author

During workshops, the co-researchers first presented the main findings of the survey using a power point presentation. The presentation was divided into four sections. The first section outlined the main research questions, objectives and methodology of the study. The second section presented the capabilities that people have reason to value in the three communities. The third section explored the relationship between these capabilities and the process and outcomes following the installation of wind farms. Finally, the fourth section mentioned the main conclusions derived from the analysis of the

survey and proposed points for discussion with workshop participants. Students organised themselves so that each would be presenting one section. Discussion with all workshop attendants happened thorough and after the presentation. Participants were free to ask questions about the data or share remarks and disagreements. Further deliberation was encouraged by co-researchers which resulted in an iterative process where information from the survey was fed back to participants and at the same time, workshop attendees unveiled connections between findings and filled relevant gaps. Workshops lasted between two and five hours.

Figure 8. Workshop to feed results back to government officials in Unión Hidalgo

Figure 10. Workshop to feed results back to community members in Unión Hidalgo

Workshops helped clarify and confirm quantitative results, such as understanding the reasons why respondents do not participate in decision-making in relation to wind farms even though they find that

engagement is valuable. In sum, the participation of the local population in the design, administration and analysis of information during stages two and three ensured a bottom-up approach for the research design and the dissemination of initial research findings.

3.3. Data Analysis

The data was analysed in three phases. First, the qualitative data collected during the first stage was transcribed and coded using NVivo. Coding was focused on the identification of valued capabilities and factors affecting acceptance of wind energy according to commonly occurring topics. This data was then collectively analysed, synthesized, and validated through the workshops using participatory tools such as matrix scoring and ranking (Chambers 2008). Second, quantitative data was analysed by conducting chi square tests to compare the values of the variables of interest across the three communities. Third, data collected from stage one and two was then paired and jointly analysed using the Gioia Methodology (Gioia *et al.* 2013). This process of data analysis which reflected the chosen conceptual framework led to the following theoretical framework (see Figure 11).

Figure 11. Theoretical framework of the relationship between wind energy acceptance, justice dimensions and valued capabilities (author based on Velasco-Herrejón & Bauwens, 2020)
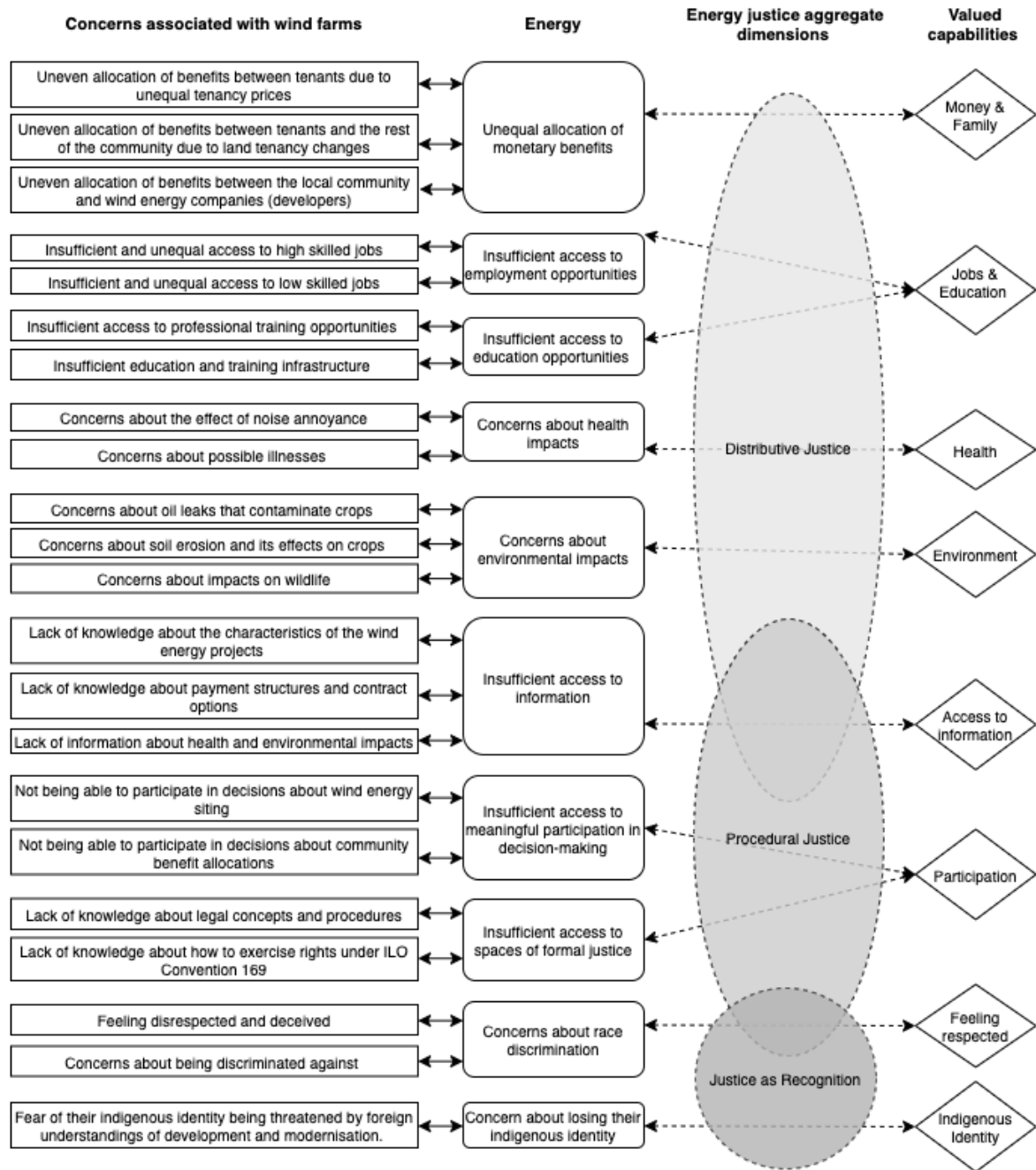
To build the theoretical framework, a bottom-up compendium of twenty-two first-order concepts emerged from the systematic coding procedure of the raw data, which correspond to people's concerns about wind energy planning and development in the region and thus affect community acceptance of wind energy. These were organised into second-order, theory-centric energy injustices. These injustices were then assigned to their corresponding tenet of energy justice (Jenkins *et al.* 2016; McCauley *et al.* 2013; McCauley & Heffron 2018). Note that some energy injustices may connect to various tenets, as represented in Figure 11 by the overlap between the tenets. For instance, insufficient access to information can also be viewed as unequal distribution of information. In parallel, people's valued

capabilities identified through all three data collection stages were matched with the energy injustices, unveiling capabilities that have been constrained by the establishment of wind energy projects.

Indeed, these energy injustices can also be viewed as capability deprivation with a reciprocal relationship (hence the two-way arrows). Understanding the process through which capabilities are constrained by the establishment of wind energy developments enables policy-makers to assess the points at which wind farms conflict with means for well-being attainment, and thus provide a more in-depth, bottom-up explanation for reasons for opposition. Following this reasoning, enabling capabilities can be a way to eliminate injustices (Sen 2009) and enhance community acceptance. For example, the uneven allocation of benefits between tenants and the rest of the community affects community acceptance (as will be further detailed in Chapter 5). Using an energy justice approach, this can be related to "unequal allocation of monetary benefits", which is linked to the tenet of distributive justice. This injustice constrains local people's valued capability of diversifying their access to income. Thus, enabling a more equitable distribution of monetary benefits can enhance important capabilities affecting community acceptance. In parallel to this coding, a cross-case analysis was conducted to highlight the major differences between the communities in terms of the theoretical dimensions previously highlighted. Finally, additional consultations of relevant literature were done to refine the articulation of emerging concepts and relationships.

3.4. Meeting Challenges in the Field

Stage one of data collection was disturbed at the outset. On September 7th 2017 an earthquake of 8.2 Richter Scale shocked the Isthmus region with the epicentre located 137km from Juchitán, being this city the most hit in Mexico (The New York Times 2017). There were 198 fatalities and 40% of homes in Unión Hidalgo, 30% in El Espinal and 10% in Santo Domingo Ingenio were shattered. I was due to start my enquiry on the 9th but had to postpone interviews for one month and opted to assist in the humanitarian crisis at that time. This experience of voluntary work, though unsettling at first, allowed me to initiate fieldwork through participant observation (Seale 2004) and engage with the everyday life of the three communities. After one month, I undertook two pilot interviews to assess whether it was psychologically safe for research participants to have an interview. As it turned out, talking about capabilities resulted in a positive experience for participants, who benefited from talking about aspirations in a time of despair.

Stage two of the methodology was also disturbed, in this case due to political unrest. The local government granted permission for collecting data through questionnaires in the three sites. However, due to upcoming elections, governments in Santo Domingo Ingenio and Unión Hidalgo grew hesitant about the feasibility of continuing with data collection, and thus the process had to be delayed two

weeks until officials were satisfied that the content of the questionnaire and data collection process did not interfere with elections.

Once re-started, data collection was carried on for three weeks without difficulties. On the fourth week (of six), a local politician, the daughter of a regional drug lord, was assassinated in the nearby city of Juchitán. The government announced curfews at 7pm for a week, so we had to delay data collection for one week and a half and reduced the time for collection during the evenings. This meant an upset to our original plans for the survey sample to have a 95% of confidence level and a confidence interval of 5%. Nevertheless, the sample was reassessed so that it was still representative with a confidence interval of 9%.

Challenges during stage three included finding comfortable and neutral places for the workshops. Organising workshops for government representatives, landowners and developers was not an issue. However, even though the workshops were widely advertised to community members, attendance was relatively low. While discussing this issue with co-researchers, we concurred that existing community tensions discouraged people from attending to avoid levels of confrontation.

3.5. Positionality, Reflexivity and Ethical Considerations

This research adopts a participatory approach using mixed-methodologies. Participatory research aims to valorise the experiences of communities in their own terms focusing on local priorities, processes and perspectives (Cornwall & Jewkes 1995). This type of research is reflexive, flexible and iterative (Chambers 1992; Cornwall *et al.* 1993; Rifkin 1994), and offers the opportunity to engage people as active contributors (Chambers 1992). Such an approach requires tools that are centred on direct interactions with the field. For this thesis, this included in-depth interviews with participants, participant observation, workshops and group discussions.

However, there are critiques of the ethics of participatory research which raise concerns about unresolved issues of power, positionality and community ownership (Hickey and Mohan, 2005; Scheper-Hughes, 1995; Cancian, 1993). I approached my research in full recognition of these concerns and acknowledge how participatory methods such as doing fieldwork on foot, can affect the nature of community dis/empowerment, outside/insider relations, and grounded radical politics and advocacy (Vergunst and Ingold, 2008; Lee and Ingold, 2006; Hickey and Mohan, 2005). The following sections reflect on how positionality, reflexivity, and further ethical considerations were addressed in this research.

3.5.1. Positionality

Ethical academic research requires constant reflection on the researcher's positionality. Critical research has examined the intersectionality of elements that form a researcher's perspective of the field

and how the researcher is perceived through the lens of class, education, gender, race and politics (Merriam et al., 2001; Sultana, 2015; Valentine, 2007; Faria and Mollett, 2016; Safri and Graham, 2010; Pulido, 2000; Crenshaw, 1989; Nayak, 2011; Derickson, 2017; Rocheleau, Thomas-Slayter and Wangari, 1996; Mohanty, Russo and Torres, 1991; Kobayashi, 1994). While doing fieldwork in Mexico, three main attributes were relevant in shaping my positionality as a researcher: my former occupation, class and gender identities.

"I used to work for one energy company in La Ventosa. I quit my job there since I realised that siting wind farms could be socially problematic. I decided to do a PhD to understand the reasons why." These were often my opening lines when introducing myself at the beginning of an interview or while implementing the survey. I worked at a wind energy company located in the region from October 2013 to April 2015. I did not work or live in either of the localities chosen for the study. Nonetheless, I felt ethically bound to state my background from the outset of every interaction so that the person could decide whether they could trust me and would like to participate in the research.

Class was another crucial identity which had to be acknowledged and negotiated during my fieldwork. My privileged position in terms of class, education and work experience played out differently in each research context. As a colonial vestige, race and presumed racial differences are a criterion for class differentiation in Mexico (Seed 1982). Darker skin is associated with lower income levels and fewer years of schooling. Consequently, the colour of your skin can help others draw conclusions about a range of issues, including economic and educational attainment (Zizumbo-Colunga 2017). In the three localities, my class privilege was instantly recognised due to my skin which was identified as white in the South Mexican context. Although I do hold this privilege, it is worth mentioning that, because I am from a middle-class family and hold familial roots in the southern region, I was able to relate to study participants in a way that a person from Mexico City or the northern region could not.

Due to my class and former role working for wind electricity companies, it was challenging to move between community sites in Oaxaca to government offices or company headquarters in Mexico City. I had to change clothes (and attitude) in every case and found myself not naturally fitting in either role. Though I worked at a wind energy company, I had a medium level position, so talking to CEOs and CFOs was new to me. Contrastingly, at the community level it was easy to approach young people, landowners and government officials because these are the actors that I had more experience with during my post in the wind energy company. Yet I found it very difficult to properly connect with poor and landless women and men as I was clearly still seen as an outsider. When I walked in these sections of town I was clearly seen as an outsider. Access issues were largely overcome by co-researchers who were from the region. They helped me establish interview meetings and inform people about the information sharing workshops.

Finally, being a female researcher had advantages and disadvantages depending on the situation (Katz, 1994; Valentine, 2007; Merriam et al., 2001). Being a woman was an advantage in my work in all three communities as well as with developer representatives. Due to the earthquakes and political unrest, the sense of insecurity had soared. Interactions with women were seen as less threatening than men, and thus, being a woman gave participants a sense of security and trust in interactions with me. On the other hand, when speaking to government officials being female was less advantageous. Particularly at the local and state levels, government respondents continuously postponed our meetings and insisted on having the interviews in a cafe or in a restaurant as opposed to meeting at their office.

My former occupation, class and gender have created opportunities and limitations for exploring and analysing different research questions. I remain aware that these influenced the research beyond the process of conducting fieldwork and data collection.

3.5.2. Reflexivity

This section delves into the reality I faced on-the-ground given the unforeseen catastrophic earthquakes and the reflexive, improvised lifestyle that followed. I was deeply affected by the earthquakes. People living in this region became my friends and it shook me to the core to see them lose their homes. When I first arrived, one week after the earthquake of September 7th, I could not recognise the cities. There was debris everywhere. People were sleeping outdoors, on the streets, with only pieces of sailcloth under their heads. I was initially doing well since I was living in Juchitán in a house that was only partially affected and had access to running water. While I reassessed my fieldwork plan, I decided to provide emergency humanitarian assistance in the area. We travelled and built these temporary kitchens throughout the region, sometimes taking small boats to get to islands, and worked hard to enlighten spirits. On Saturday, September 23rd, a second earthquake at 5.6 Richer scale struck the region in the early morning. I was sleeping by myself and it was very hard to get up and out. Once outside, my neighbours and I ran to a field. Many aftershocks followed, and everyone was in deep distress and crying. A friend came and took me to his family shelter, but strong aftershocks kept coming. Once in the shelter there was little access to food and water, and no electricity. I did not want to eat or drink to avoid using the scarce resources. I stayed in the shelter two nights because there was no communication. The aftershocks were traumatising and every time one happened, families held each other tight. I didn't have a family to hold on to and felt helpless under the ever-changing circumstances. On the third day, my mom was able to reach me and asked me to get out of the field until it was safe for me and others to come back. I decided to leave the site and came back with more humanitarian help two weeks later.

Once I eventually started fieldwork, I had to pay special attention to the extent to which my intervention was contributing to or hindering the well-being of participants in light of these

circumstances. I was careful to live in houses of people that had enough space for me and continued doing voluntary humanitarian work whilst doing the research.

Living at local houses and participating in community life was not only thoroughly enjoyable, but also provided me with an insider perspective about the region. Engaging in daily activities such as cleaning, cooking, home schooling children, and being part of family and community festivities, parties and gatherings gave me a sense of what being a part of the community is like and how wind farms affected my daily life. Furthermore, I had the chance to immerse myself in local culinary wealth, which Oaxaca is internationally recognised for, explore the town, take tuck tucks, and enjoy local telenovelas.

During stage two of the research, I was amazed by the conversations and shared experiences I had with the student co-researchers. Reflections on their lived experiences and interactions with family and friends during fieldwork deeply influenced the research design and its implications for the three communities. During stage three, discussions generated with community members, government officials and developers opened strands of research and levels of depth that I did not anticipate.

3.5.3. Ethical Considerations

The study was approved by the University of Cambridge Research Ethics Committee. During stage one of the empirical research, the consent process involved an introduction to the research project and a rationale of why respondents are critical for the achievement of the project's research aims. Participants were invited to participate on a voluntary basis and verbal consent was obtained prior to the enquiry. Consent was personal and all identifiable information would not be available to anyone but the researcher. Furthermore, all participants were given a project information sheet that included my contact information, so that participants could ask me additional information. They had the choice to withdraw at any point during the interview process.

The process of consent also included aspects of confidentiality and anonymity. Participant's names in interviews and focus groups were recorded under previous authorization. All data was password protected and kept safe in a hard drive, a Dropbox and a PC. For the data collected through questionnaires, participant's names were not recorded as collection was a one-off event (anonymity).

After semi-structured interviews and focus groups, participants were asked if they had any concerns regarding the interview or with the management of the information that was disclosed. Furthermore, during the questionnaire they were asked whether they would like to be informed about the research findings.

Through the process of research planning, administration and reporting, I was mindful of cultural, religious, gender, class and other significant differences in the region. I was also mindful of the implications of criteria of inclusion and exclusion in sampling (Curtis *et al.* 2000). The general criteria used to evaluate the rigour and quality of research in the social sciences –replicability and

generalisability (Boaz & Ashby 2003) was applied to the present research. While the research is replicable, it is also influenced by aspects my positionality. In terms of generalisability, the research draws upon three different case studies. The selection of the sample characteristics define the extent of applicability. However, representativeness in terms of types of stakeholders participating in this study makes the study applicable to other similar contexts.

The research was conducted following the principles of research integrity – honesty, rigour, transparency and open communication, care and respect for all participants of research. Finally, the process of knowledge production was based on reciprocity, wherein the research findings were shared with the respective participants.

3.6. Conclusion

The world of big, global development tends to oversimplify matters. As such, key ideas such as 'sustainable development' or 'renewable energy' are often in a first moment considered a panacea for all development problems, but quickly become yet another element in the long list of development disappointments (Rist, 2008). Part of the problem is that reality is complex and the exclusive use of a particular method of analysis can at its best provide only a partial picture of the phenomena. For this reason, the contribution given by the mixed-methods and participatory research literature is fundamental for establishing new ways of facing contemporary development challenges.

The mixed-methods design used in this research allowed the integration of quantitative methods with participatory methods in the form of the workshops to: (1) facilitate spaces to collectively confirm interview findings, (2) reflect on other relevant issues that are important for the population, and (3) define the well-being dimensions reflected on in the final questionnaire. The participation of local population in the design of the questionnaire ensured that the language of the questions was clear and adequate in the local context. The inclusion of participatory methods in the research contributed to the recognition and validation of Indigenous voice and knowledge (Chambers 1997, Selener, 1997: 25; Gaventa and Cornwall 2011), and allowed questioning of 'Western' norms (Wilson, 2008), which were key to identifying conceptions of well-being that are different from the ones held by wind energy developers and the research authors.

4 THE HISTORICAL FORMATION OF THE WIND ENERGY INDUSTRY IN THE ISTHMUS OF TEHUANTEPEC

This chapter recounts the history of the establishment of the wind energy industry in the Isthmus of Tehuantepec in Mexico. The region of the Isthmus of Tehuantepec that lies in the State of Oaxaca is characterised by its ethnic diversity, culture and socioeconomic complexity. In short, though decisions about the siting of wind farms have been informed by technical specifications, such as wind speed and geographical location, decision-makers have neglected regional sociocultural complexities and their broader social effects (Miller *et al.* 2015; Mulvaney 2013; Ottinger 2013). The techno-economic issues raised center on three main challenges: 1) the need to set up a transmission line to transport the electricity generated by wind farms into Mexico's large electricity consumption centres, 2) a range of regulation gaps that require the formulation of new legislation, and 3) land tenancy uncertainties linked to the process of leasing communal land for wind farm siting. Additionally, plans for introducing this new industry did not anticipate local opposition to wind farms.

This chapter consists of three thematic sections. Section 4.1 frames this research within Mexico's overall sustainability agenda. Section 4.2 outlines the historical importance of the Isthmus of Tehuantepec, given its strategic geopolitical location and abundance of natural resources. Subsequently, this section traces the early beginnings of the wind energy industry and successive regional megaprojects that influenced the ways communities reacted specifically to wind farms. Lastly, Section 4.3 characterises the three municipalities that are especially relevant for this study—El Espinal, Santo Domingo Ingenio and Unión Hidalgo—to understand the socioeconomic and cultural context in which this new industry has evolved. The location, population statistics, education and health services, as well as historical features, allow us to fully understand the complexity of the region and acknowledge the plurality of voices and perspectives from which region is conformed.

Overall, the aim of the chapter is to build the wind farm siting context as a preamble to discussing the justice consequences in chapters 5, 6 and 7. Telling this story is particularly important since it

accounts for the lived experiences of actors and social groups who contest different visions and agendas under unequal conditions (Martinez 2020; Mulvaney 2013; Stirling 2007).

4.1 Mexico's Energy Landscape

Power generation in Mexico is dominated by thermoelectric sources (broadly fossil fuel-based). Renewable energy sources come at a distant second place when it comes to sources of energy. The following sections will discuss the rationalities for RET demand, the existing regulation landscape, and finally give an overview of Mexico's RET potential.

4.1.1 RET Demand in Mexico

Two main reasons for the increased demand of Renewable Energy Technologies (RETs) in Mexico are: concerns about energy security, given the problematic dependence on fossil fuels, and sustainability concerns, i.e. the need to reduce the country's CO2 emissions.

Mexico's cumulative reliance on fossil fuels has drastically increased. Oil accounts for almost half (48.1%) of the energy mix, and natural gas is a third (35.1%) of the country's total primary energy supply (TPES)[13] (Figure 12). Further, the petroleum sector is a crucial component of Mexico's economy, generating approximately 16% of export earnings in 2011. Mexico is the world's 12th largest producer of petroleum and other hydrocarbon liquids, with 2016 production amounting to 2.5 million barrels per day (mbd) (PEMEX 2017). However, in recent years total production has fallen sharply by 50% and is now lower than 2013 levels, its lowest level since 1981, mainly due to the decline of oil field production in Catarell, Mexico's largest oil field. Consequently, the exported oil as a share of total production has declined over time and energy imports have increased in the last decade (IEA 2017a). Because over 80% of Mexico's TPES is dependent upon fossil fuels, this has resulted in a reduction of production and a 2.9% increase in demand since 2000 (IEA 2017b), with ensuing questions about energy security and economic vulnerability (Barton *et al.* 2004; Mundo-Hernández *et al.* 2014; Sheinbaum & Masera 2000).

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[13] Total primary energy supply (TPES) is the sum of energy production and imports, minus exports, international aviation and bunker fuel. Changes in stocks are also considered. TPES is thus equivalent to primary energy demand.

Figure 12. Total primary energy supply (TPES) by source, Mexico 1990-2019 (World Energy Balances 2020)
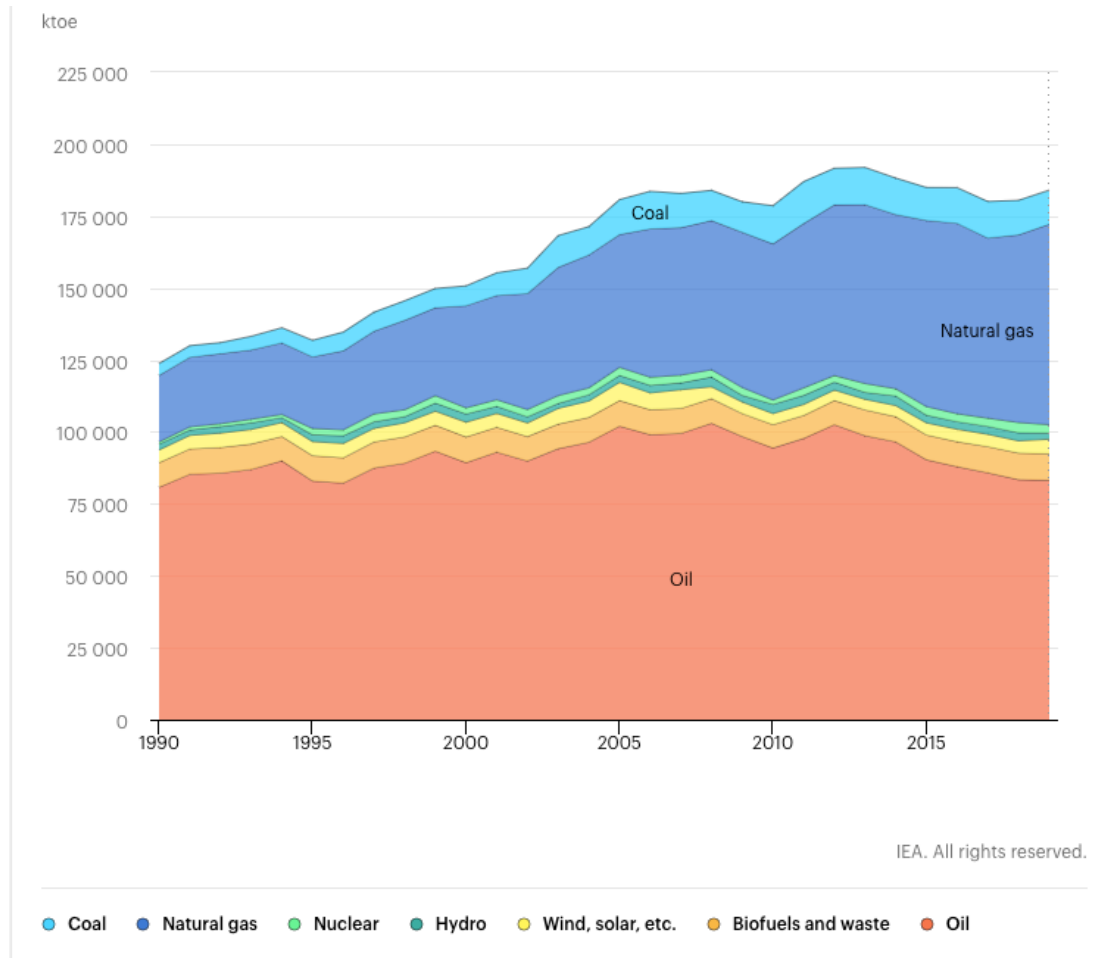
Concurrently, given Mexico's adoption of ambitious mitigation commitments, there is a need to reduce national greenhouse gas (GHG) emissions. Mexico's annual average energy growth rate of non-biogenic CO_2 emissions is 4.3%, one of the highest in the world (OCDE 2013). Concerns about the effects of global climate change has led several countries, including Mexico, to sign agreements and craft legislation to reduce the emissions of greenhouse gases into the atmosphere. The use of renewable energy sources has become paramount to the success of these initiatives. In 2008, Mexico introduced the "Law for the Use of Renewable Energies and Financing the Energy Transition" (DOF 07-06-2013 n.d.) in an effort to encourage the use of renewable energy for electricity generation and to develop finance mechanisms for the energy transition. In 2012, Mexico approved one of the first pieces of comprehensive climate legislation in the world that guides national policy on reducing greenhouse emissions. This included the General Law on Climate Change, a Special Programme on Climate Change, and a National Strategy on Climate Change (Cámara de Diputados del H. Congreso de la Unión 2012). In 2015, Mexico became the first developing country to submit its intended national determined contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC) in the lead-up to the 21st United Nations Conference of the Parties (COP21). As part of this agreement, Mexico set an unconditional target to reduce GHG emissions by 22 percent below the

baseline by 2030. To achieve this target, the country set the ambitious goal of producing 35 percent of its electricity using clean sources by 2024. Mexico was also one of the first countries to join the "high ambition" coalition, pushing for a global goal to limit global warming to 1.5 degrees Celsius, below the 2 degree Celsius target that climate scientists widely agree is necessary to avoid catastrophic climate change (Viscidi 2018).

Given this energy landscape, RETs have the potential to become a fundamental piece in the process of building a sustainable energy system, contributing not only to Mexico's energy diversification strategy, but also to the appropriation of emerging energy technologies. Additionally, the resulting independence from current energy imports (58% of which is gasoline) is important for economic and national security reasons (Alemán-Nava *et al.* 2014).

4.1.2 RET Potential in Mexico

Mexico has great renewable energy potential, particularly for wind power. Mexico's territorial extension of two million km2 and 9,330km of coastline on the Pacific Ocean, the Gulf of Mexico and Atlantic Ocean, provide several preferential geographical areas for the formation of strong wind currents. The country has an estimated wind power potential of 71,000 MW (CONCAMIN, 2012) (Figure 13). In addition, three quarters of the national territory can be considered as arid or semi-arid zones in which average solar irradiance is 5.5KW-h per square meter (Huacuz & Jorge 2000). So far, ten areas have been identified as having high potential for wind energy generation: the Baja California peninsula, central region, Gulf coast region, Yucatán peninsula and the Isthmus of Tehuantepec. Particularly, the states of Oaxaca, Yucatán and Tamaulipas have registered wind speeds greater than 8 m/s and plant factors close to 45 percent.[14] Overall, the Isthmus of Tehuantepec region was identified as Mexico's main wind resource. Considered to be one of the best areas in the world to establish wind farms (Nahmad *et al.* 2014), this territory alone can supply up to 40,000 MW due to its excellent wind conditions (Alemán-Nava *et al.* 2014).

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[14] Understood as the ratio between the actual energy generated by a power plant, wind, solar, concentrated solar power, photovoltaic, thermal and other, and the energy generated if it had worked at 100 percent.

Figure 13. Map of wind source potential in Mexico. Squares indicate high potential. Square (A) is the Isthmus of Tehuantepec (Alemán-Nava et al. 2014)
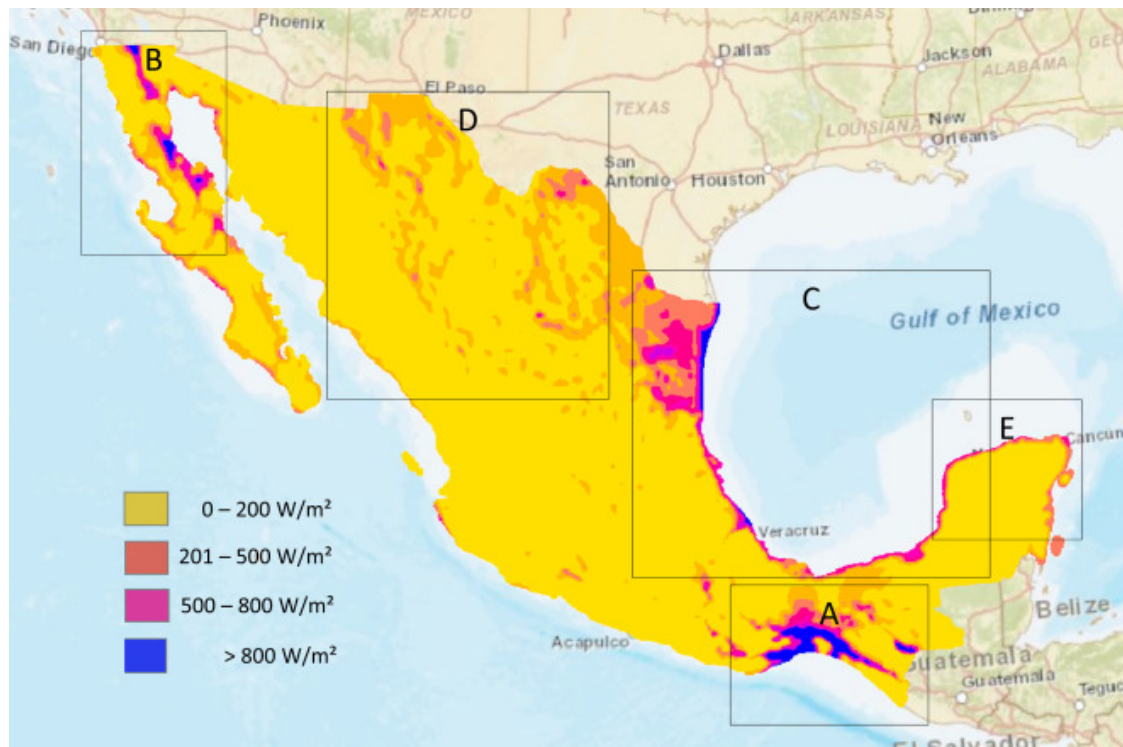
Notwithstanding Mexico's ambitious clean energy targets, and its considerable potential for generating energy through renewable wind sources, all renewables account for less than 20% of the total energy supply (IEA 2017a). Though wind power has grown rapidly in recent years and is currently the second-largest source of renewable energy generation in Mexico, the capacity of wind farms in operation reached 4,935 MW in 2018, which represents only 7% of the country's total potential (AMDEE, 2019).

One reason for this lag is that the regulation of the electricity sector has limited the mitigation agenda. The Mexican government nationalised the electric industry in 1960. The now state-owned Federal Commission of Electricity (*Comisión Federal de Electricidad*, CFE) controls most of Mexico's installed generating capacity and is the sole supplier of retail electricity. The Energy Regulatory Commission (Comisión Reguladora de Energía, CRE) regulates relevant parts of the energy sector (electricity and hydrocarbons), and the national grid is operated by the *Centro Nacional de Control de Energía* (CENACE). Energy policies are created and enacted by the Energy Ministry (*Secretaría de Energía*, SENER). The power to change the energy landscape lies exclusively with the federal government, giving them a monopoly for decisions related to the energy transition.

In the 1990's, Mexico's government began a process of liberalisation, which increased the flexibility of private participation in the sector's self-supply and cogeneration projects (Jano-Ito & Crawford-Brown 2016). In 2013, congress introduced a new energy reform that further dismantled the monopoly of the CFE, and allowed private companies to sell generation supply contracts in a bidding process with

open access to the grid (Rodríguez Padilla 2016). The reform also created an independent system operator, the *Centro Nacional de Control de Energía* (National Centre for Energy Control; CENACE) and allowed private players to acquire transmission rights. This reform was expected to encourage private investors to participate in electricity generation and distribution, reduce power generation costs, and accelerate the transition to clean energy. At the same time, this neoliberal reform allowed energy companies with capital and experience to become the main beneficiaries of these new policies (Mejía-Montero *et al.* 2020).

Furthermore, the Clean Energy Certificates (CEC) system was introduced as a mechanism to further promote clean energy under the 2013 Energy Reform. This cap-and-trade system required energy quota obligations to guarantee a growing share of total demand of power to be met with clean generation. Under this scheme, industries with a consumption greater than 1 MW had to generate at least 5 percent of their energy from renewables in 2018, with the targets increasing to 5.8 percent in 2019, 7.4 percent in 2020, 10.9 percent in 2021 and 13.9 percent in 2022 (Alemán-Nava *et al.* 2014).

Although the regulatory framework and clean energy goals have provided important incentives to promote renewable energy in Mexico, the sector still faces three main challenges (Viscidi 2018): infrastructure insufficiency, market competition with other energy sources, and lack of social acceptance. (1) Mexico's power grid needs to be upgraded and expanded. This is a particular challenge for wind energy developers because most of the country's resources are located in remote areas, far from population centres. (2) Although costs for clean energy technologies have declined in recent years, renewables in Mexico continue to face competition from low-cost natural gas imports from the United States. And, (3) local communities have opposed wind development plans. This third main challenge represents the main inquiry of this study.

4.2. The Isthmus of Tehuantepec's Wind Energy Industry

This section details the story behind wind energy projects that operate in the so-called 'Wind Corridor' of the Isthmus of Tehuantepec region, as well as the regulatory framework that frames wind energy developments. Moreover, it highlights the significance of the wind resources in the Isthmus of Tehuantepec at a national and global level. The end of this section outlines the problems that resulted from the introduction of the wind energy industry in this region.

The coastal Isthmus of Tehuantepec region of the state of Oaxaca, Mexico, known locally as the 'Istmo', is regarded as one of the best wind energy generating sites in the world (Alemán-Nava *et al.* 2014; IFC 2014). The region is affected by three prominent wind flows: northeast north wind from October to February, east wind from March to May, and east trade wind from June to September. Wind energy resources are characterised according to their speed on a scale from 1 to 7 (Table 9) (Nahmad *et al.* 2014).

Administratively, the Isthmus of Tehuantepec region is divided into two large districts: 1) Tehuantepec, which has Santo Domingo Tehuantepec as the historically most important town, and Salina Cruz as the strongest economic locality, and 2) Juchitán whose most important settlement is the city of Juchitán de Zaragoza. Both districts have a population of 595, 433 in total, representing the second largest population concentration in the state of Oaxaca (15.7% of the total population). Juchitán is the district where the best wind energy resources are concentrated and where the 'Wind Energy Corridor' has been established. The average wind type is class 5, and even reaches class 7 in the hill areas of La Venta, La Ventosa, and La Mata (Figure 14). This wind resource potential that extends over 1200 km2 can potentially support about 6 GW of installed capacity (Elliott *et al.* 2003), and is therefore the location of the communities that are the subject of this study.

Table 9. Wind Power Classification

Class	Resource potential (commercial scale)	Wind power strength (W/m^2) a 50 m	Wind speed (m/s) a 50 m
1	Poor	0–200	0.0–5.3
2	Scarce	200–300	5.3–6.1
3	Moderate	300–400	6.1–6.7
4	Good	400–500	6.7–7.3
5	Excellent	500–600	7.3–7.7
6	Excellent	600–800	7.7–8.5
7	Excellent	>800	>8.5

Source: National Renewable Energy Laboratory 2016

Figure 14. Wind Power Classification in the Isthmus of Tehuantepec (Elliott et al. 2003)
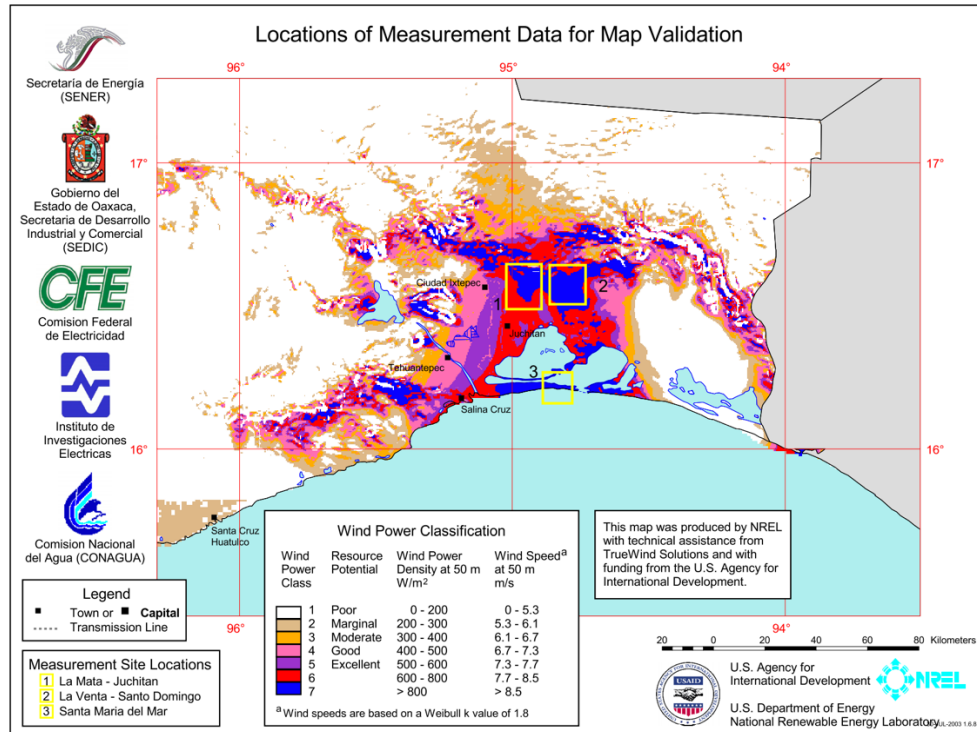
As of March 2019, the Isthmus of Tehuantepec had a network of 27 wind energy developments producing 2,756 MW (Table 10), which is 54% of the total wind energy capacity in Mexico. These projects belong to the first phase of projects developed in the region. Plans to install at least 13 new wind farms to reach the remaining 6000 MW of installed capacity that the region can hold are currently underway. To achieve this goal, the government announced in 2018 the construction of an additional 1221 km long transmission line to distribute 3000 MW from the Isthmus of Tehuantepec to Central Mexico (Mejía-Montero *et al.* 2020). This section will outline how the wind energy siting process and future project planning are immersed in a historical context characterised by socio-economic tensions linked to the region's geographical location, poverty, and Indigenous population that is facing a process of land liberalisation.

Table 10. Wind energy projects in the Isthmus of Tehuantepec

Project Name	Installed Capacity (MW)	Location	Production Scheme	Status
Sureste I Phase II	102 MW	Asunción Ixtaltepec	SS	In operation
Bii Nee Stipa I (Stipa Nayaá)	26 MW	Espinal	SS	In operation
Fuerza Eólica del Istmo I	50 MW	Espinal	SS	In operation
Fuerza Eólica del Istmo I	30 MW	Espinal	SS	In operation
Energía Aterna Istmeña (Eólica del Sur)	396 MW	Espinal / Juchitán de Zaragoza	SS	In operation
Granja Sedena	15 MW	Ixtepec	SS	In operation
Bi Hioxio	234 MW	Juchitán de Zaragoza	SS	In operation
Bii Nee Stipa II (El Retiro)	74 MW	Juchitán de Zaragoza	SS	In operation
Bii Nee Stipa III (Zopiloapan)	70 MW	Juchitán de Zaragoza	SS	In operation
Bii Nee Stipa VI (Dos Arbolitos)	70 MW	Juchitán de Zaragoza	SS	In operation
Bii Stiinú	164 MW	Juchitán de Zaragoza	SS	In operation
Eurus I	37 MW	Juchitán de Zaragoza	SS	In operation
Eurus II	212 MW	Juchitán de Zaragoza	SS	In operation
La Mata - La Ventosa	67.5 MW	Juchitán de Zaragoza	SS	In operation
La Venta I	1.575 MW	Juchitán de Zaragoza	IPP	In operation
La Venta II	83.3 MW	Juchitán de Zaragoza	IPP	In operation
Parques Ecológicos de México	79.9 MW	Juchitán de Zaragoza	SS	In operation
La Ventosa (Parte 3)	22 MW	Juchitán de Zaragoza	SS	In operation
Sureste II	285 MW	Oaxaca	IPP	Project
Sureste III	300 MW	Oaxaca	IPP	Project
Sureste IV	300 MW	Oaxaca	IPP	Project
Sureste V	300 MW	Oaxaca	IPP	Project
Ingenio	49.5 MW	Santo Domingo Ingenio	SS	In operation
La Venta III	102 MW	Santo Domingo Ingenio	IPP	In operation
Oaxaca I	102 MW	Santo Domingo Ingenio	SS	In operation
Pacífico (Eoliatec del Pacífico) (Santo Domingo)	160 MW	Santo Domingo Ingenio	SS	In operation
Piedra Larga (Phase 1)	90 MW	Unión Hidalgo	SS	In operation
Piedra Larga (Phase 2)	137.5 MW	Unión Hidalgo	SS	In operation
Oaxaca II	102 MW	Juchitán de Zaragoza	IPP	In operation
Oaxaca III	102 MW	Juchitán de Zaragoza	IPP	In operation
Oaxaca IV	102 MW	Juchitán de Zaragoza	IPP	In operation

Source: Own elaboration, data from the Comisión Reguladora de Energía (2016). SS=self-supply, IPP=independent power production, Project=project in development

4.2.1. Location, Poverty and *Territorio*

Growing interest for strategic resources in the Oaxacan Tehuantepec region is not a new phenomenon. The strategic geographical location of the Isthmus of Tehuantepec has long been prominent in the minds of civil engineers of the world, as it offers a practical route for transferring and controlling inter-oceanic freight. An isthmus is a narrow strip of land with sea on either side, forming a connection between two larger areas of land (Encyclopedia Britannica n.d.). Among the best-known isthmuses in the world that have been transformed into canals are the Suez and the Panama isthmus. Lesser known, the Isthmus of Tehuantepec is the northern most isthmus in the American continent. This isthmus separates the coasts of the Atlantic Ocean from the Pacific Ocean by only 200 km and is often considered the boundary between North America and Central America. Since pre-Hispanic times, this territory has allowed for a significant circulation of goods and people, generating multiple cultural and social exchanges. From Spanish colonisation, this multi-cultural and biodiverse region has been forefront in the eyes of state interventions, foreign interests and corporate opportunities (Delgado 2004). In recent times, the region has been envisioned as part of ambitious development corridors to interconnect markets. This includes the Isthmus railroad (Hovey 1907) and the Plan Puebla Panamá, which promote large-scale infrastructure in transport, telecommunications, water and energy (Castillo Jara 2011).

The social character of the Isthmus of Tehuantepec is reflected throughout history by its cultural identity. From antiquity to present times, the existence of diverse Indigenous groups such as the Zapotecs, Mixes, Zoques Huaves, Cinantecos and Chonlates have given the region a multicultural character. According to the National Commission for the Development of Indigenous People, of the 41 municipalities in the region, 22 are considered Indigenous, 3 have Indigenous presence and 16 are classified with dispersed Indigenous population[15] (INPI 2015). This cultural wealth has been enriched by heterogenous cultural exchanges with Lebanese, Spanish, French, Japanese, and Chinese migrants (Nahón 2010).

Despite the natural and cultural wealth that the region possesses, there is marked economic poverty. Although the region has one of the lowest levels of poverty in the state, the National Population Council's marginalisation index[16] shows that municipalities in the Isthmus of Tehuantepec still face a moderate, high or very high grade of marginalisation, especially in small and dispersed communities (CONAPO 2015). Of the municipalities, 17% have a very high degree of marginalisation, 9.7% have a high degree of marginalization, and 58% have moderate degree of marginalization.

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[15] A household is identified as Indigenous when the head, his/her spouse or one of the ancestors (mother or father, stepmother or stepfather, grandfather (a), great-grandfather (a), great-great-grandfather (a), father-in-law (a) declared to speak an Indigenous language (INPI 2015).

[16] This index considers deficiencies in basic education and housing, residence in small, dispersed and isolated localities, and low monetary income (CONAPO 2015).

Lastly, the political character of the Indigenous communities in the region is largely shaped by their relationship to land, locally known as *territorio*, where the main economic activities of livestock farming and agriculture take place. Nonetheless, the idea of *territorio* comprises not only economic, but also cultural and political elements (Barabas 2006), which will be further described in Chapter 7. Although Oaxaca was never dominated by Spanish *haciendas* (plantation estates) to the extent that other provinces were, several land disputes occurred nonetheless when *haciendas* attempted to expand their lands at the expense of nearby Indigenous communities (Binford 1985). Today, the Isthmus of Tehuantepec, like elsewhere in Mexico, maintains three land property regimes under Article 27 of the 1917 Mexican Constitution: private, communal, and *ejidal* (common lands). Private land, locally known as *pequeña propiedad* (small property, regardless of its size), is land 'used for agricultural production that can be transferred by sale, gift or inheritance according to the owner's decisions' (Binford 1985). Communal land (*bienes communales*) is *de jure* community property. In theory, the community itself determines its distribution and how it is used. *Bienes comunales* were established to preserve and reinstate Indigenous landholdings from the pre-colonial period (Binford 1985). *Bienes ejidales*, or *ejido*, is a land tenure system combining communal ownership with individual use. Cultivated land is divided into separate family holdings, which cannot be sold but can be transferred to descendants. This communal resource-holding institution was created after the Mexican Revolution of 1910 to redress long-standing tenure inequality by expropriating properties of the grand *haciendas* formed after 1750 (Perramond, 2008). These lands were granted to inhabitants of nearby villages, who retain use rights, while the lands themselves remain the property of the Mexican state. Of the three main land property regimes, Oaxaca's local land predominately falls under *bienes ejidales* (18%) and *bienes comunales* (67%) (Brown 2004). However, recent changes to Mexico's land tenure regime promoted the introduction of private investment in the rural landscape. The Agrarian Reform of 1992 produced a change to *ejidos*, by allowing individuals to legally sell, rent and subdivide the communal land rights that took decades of social struggle to acquire (Herrejón 2007). Since the introduction of this reform, there has been a return to agribusiness (Herrera 2012), as well as an increase of other private, land use opportunities, that have sparked tensions around renewed processes of land dispossession. This will be discussed further in Chapter 6.

The two main industries in the region are the oil refinery Antonio Dovalí in the harbour of Salina Cruz, and the wind energy generation industry in Juchitán. The next section will trace the early beginnings of the wind energy industry and successive regional megaprojects that formed rationalities of community acceptance.

4.2.2 A New Industry is Born

In the 1980's, researchers of the Institute of Electric Research (IIE) predicted that the region of the Isthmus of Tehuantepec had the outstanding characteristics to produce energy through wind (Caldera

et al., 1980). In 1983, five basic anemometric stations were installed in La Venta, La Ventosa and Unión Hidalgo to test this prediction. The first results concluded that the region indeed had an outstanding wind resource compared to other places in the world. For instance, it was calculated that the average annual wind speed at La Venta was 9.3 m/s and that it could have plant factors of 53% (Caldera y Saldaña, 1986). In 1992, the Official Federal Gazette established new modalities in which particulars could generate electricity through self-supply and cogeneration, small production, independent generation and export. This was done under the condition that all surplus electricity must be exclusively sold to CFE. As a result of this new legislation, wind energy projects started to be planned and implemented in order to establish the Wind Corridor of the Isthmus of Tehuantepec (Borja et al. 2003).

In 1994, the Electrical Federal Commission (CFE) installed the first wind farm in Mexico in La Venta, Oaxaca, which had a capacity of 1.575 MW. This pilot project supported IIE's claim. Plant factors in La Venta were higher than the reported highest in the world, reaching 51.7% during the first year, establishing a world record of more than one million kWh a year (Hiriart, 1996). These results piqued the interest of private investors in the region. Shortly after these results were published in a CFE report, a number of developers started to visit the *ejidos* to secure land for wind farms. Furthermore, developer representatives started visiting government officials in Oaxaca and Mexico City.

Given the confirmed potential of the wind resource in the Isthmus of Tehuantepec, the Government of Oaxaca organised three Wind Energy Colloquiums in 2001, 2002 and 2003 with the support of the IIE. In these events, federal and state government officials, private investors, representatives of financial institutions, international development agencies, wind energy developers and manufacturers, as well as NGO representatives gathered. The main objective of these colloquiums was to boost the interest for the development of a wind energy industry that would accelerate the economic and social development of the region and contribute to the achievement of national clean energy goals (Borja et al., 2003). During these colloquiums, ideas, needs, opportunities and challenges were discussed.

Subsequently in 2004, the IIE and the United Nations Development Programme (UNDP) produced the "Action Plan for Removing Barriers to the Full-Scale Implementation of Wind Power in Mexico", funded by the Global Environment Facility (GEF). The project aimed to promote a commercial wind energy market in Mexico with a target of 2,000 MW of installed wind power capacity in ten years. As part of the project, a network of anemometric stations were installed to evaluate the wind resource in promising sites (GEF 2016).

The colloquiums and the UNDP-IIE project revealed a number of challenges for the further development of the wind energy industry. The issues raised centered on three main challenges: 1) the need of a transmission line to evacuate the electricity generated by wind farms, 2) remaining regulation gaps, and 3) land tenancy uncertainties due to the process of leasing communal land. Additionally, these

initiatives did not anticipate social local opposition to the introduction of the wind energy industry and wind farms.

Soon after the colloquiums, developers focused on the negotiation of land lease contracts through a usufruct scheme. In general terms, developers offered to pay landowners a certain percentage of the billing amount for the electricity generated. Other developers offered a fixed, annual pay for each hectare used for the wind farm or for every installed turbine (Borja et al., 2003). This raised a lot of questions among landowners about what the best payment scheme would be: what percentage is fair, how the land surrounding the wind farm is defined and how payment is shared among landowners.

Furthermore, the intense incursion of developers in the region generated broad expectations among *ejidatarios* and small landowners regarding the potential of their land to be leased for the wind energy business (CCC 2015a). A factor that prompted these expectations was the way in which newspapers approached the topic. For instance, one local newspaper stated that 2.9 billion US dollars were to be invested in the Isthmus' wind energy development (Borja *et al.* 2005).

To address landowner's doubts and clarify expectations, the Government of Oaxaca requested that USAID fund a study that could answer questions raised by landowners regarding land leases and the wind energy industry in general. The landowner's main concerns revolved around defining fair and clear lease agreements, payment structures and amounts, and payment distribution strategies in cases of communal land and *ejidos*. They also raised the concern about the approach to defining the area of a wind farm (which included concrete tower pads, power substations, access roads, and the space between turbines).

USAID hired Winrock International, who in turn hired the American Wind Energy Association (AWEA) and Global Energy Concepts, to undertake the study. Furthermore, Winrock International subcontracted the Mexican Foundation for Rural Development (*Fundación Mexicana para el Desarrollo Rural*, FMDR) to gather field data. The study began in 2002 and the results were published in 2003. However, most of the questions raised by landowners were left unsolved, particularly issues around defining a fair leasing price in accordance with international standards. AWEA announced that out of the 96 questions raised by small landowners in the Isthmus of Tehuantepec, only 46% could be answered and the rest would have to be answered by the Government of Oaxaca. For instance, the existing lease agreement indexes corresponded to wind farms built in United States, and therefore were not applicable to Mexico (Borja et al., 2003). The answers to the remaining questions were presented to 35-40 landowner representatives in Juchitán, Oaxaca. Several meeting attendees were discontent with the results because they were not comprehensive and were released when most landowners had already signed a land lease contract with developers (Borja *et al.* 2005).

Even though the second wind farm was built in 2006 and the other projects followed soon after, the lack of sufficient information from the government and development agencies, as well as the failure of

developers to meet expectations about the project's start dates and administer clear payment schemes, started to cause discomfort among landowners that otherwise had been approving of the establishment of wind farms (CCC 2015a). Furthermore, the development of wind energy was predominantly approached from a techno-economic/top-down perspective, focusing mainly on distributing permits to produce electricity or siting infrastructure in windy areas. This meant that developers' relationship with the local population was also approached in a top-down manner, leaving vast parts of the population excluded from debates and decisions on wind energy in the area (Mejía-Montero *et al.* 2020).

Grievances surged in the following years, resulting in constant road blockages around wind farm projects and adjacent national highways, which were also vehemently opposed at the community level. These tensions picked up in 2012, when as mentioned in Chapter 3, a 396MW development that was hailed as the largest scheme in Latin America (IADB 2016) was cancelled due to conflicts linked to land speculation and tensions between two different social groups, the Zapotecs and the Huaves (e.g. Hurtado Sandoval, 2015). This caused an approximate loss of 7 million USD for the main global investors (Australian investment bank Macquarie, Mitsubishi Corporation, and Dutch pension investment group PGGM) (González 2013). More recently, in 2015, the Popular Assembly of Peoples of Juchitán opposed the construction of a wind farm owned by Gas Natural Fenosa. Members of this organisation were particularly worried about potential damages to the lagoon, which the local population relies upon for food and income. While in theory the establishment of wind farms was a good opportunity for the region, lack of social acceptance and negative social impacts have raised alarms at various corporate and societal levels.

Wind farms in the Isthmus of Tehuantepec are located in five municipalities: Asunción Ixtaltepec, Juchitán, El Espinal, Santo Domingo Ingenio, and Unión Hidalgo. This study analyses the factors affecting acceptance in the latter three of these localities, which, as described in Chapter 3, were selected based on their citizens' general position on wind farms, and their similar characteristics that allow comparability. The following sections will describe the geographic, social, and economic contexts of each site, providing a useful setting from which to understand and build upon their nuances throughout this thesis.

4.3 A Tale of Three Cities

This section will explore each of the three case studies in-depth (Figure 4) including its location, population statistics, education and health services, as well as historical features. This description will allow a further understanding of the complexity of the region and the plurality of its voices.

Figure 15. Three case studies in the Isthmus of Tehuantepec, Mexico (Alejandro Guizar Coutiño, 2020)
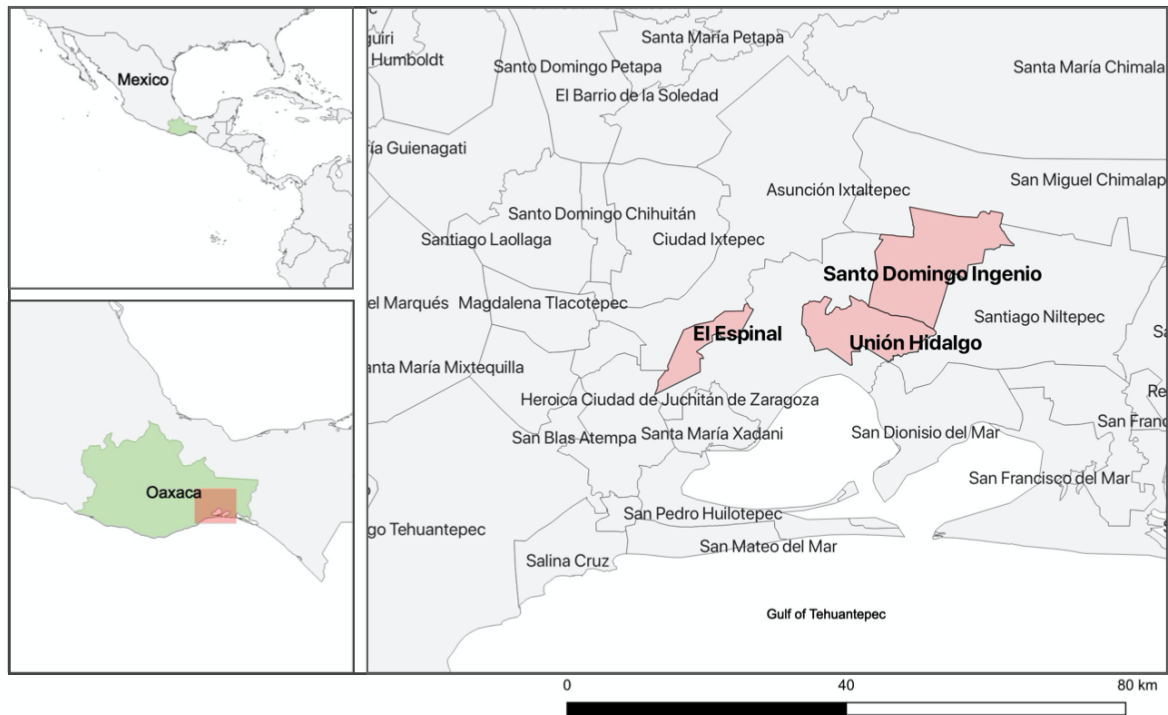
4.3.1 El Espinal

The municipality of El Espinal is characterised by its colonial origins mixed with an Indigenous heritage, high educational attainment, and high human development index.

El Espinal is a small municipality in the Isthmus of Tehuantepec with a total area of 82.93 km2. The town is located only 4 km away from the second largest city in Oaxaca, Juchitán de Zaragoza, thereby granting the town access to other amenities such as hotels, supermarkets, restaurants and speciality shops.

According to the National Institute of Statistics and Geography (INEGI), the municipality has 8,575 total inhabitants (INEGI 2015). The same source indicates that 2,930 people speak an Indigenous language, mainly Zapotec. The predominant religion is Catholic, although in recent years Pentecost, Adventist, seventh-day churches, and other religions have appeared. Almost 90% of the population has access to basic services, including 95% with potable water, 96% with electricity, and 95% of the streets are paved. According to the UNDP (Torre 2014), El Espinal has the third highest human development index in Oaxaca, with the health component reaching 0.917. Their health services are integrated in a basic health centre and educational services range from pre-school to high school. Despite the fact that El Espinal does not have universities, its proximity to urban centres allows the population to have access to higher education, which has resulted in high rates of schooling.

Economic and livelihood activities are mainly in the primary sector, specifically agriculture and extensive cattle and poultry farming. There are no significant industrial activities; commercial activities

include the production of perishable goods that are sold in other parts of Oaxaca (Nahmad *et al.* 2014). Leasing land to wind energy developers has become another main source of income in the last ten years.

El Espinal has its origins in colonial times. It is located in the *hacienda of Zopiloapan*, which was managed by Diego Ruiz de Andrada and his wife Gerónima Cortés de Mendoza in 1572 under Don Gastón de Peralta, viceroy of New Spain.[17] Subsequently, the farm was purchased in 1786 by two brothers representing two families, the Fuentes and Guzmán from Don Juan de Castellejos, whose land rights can be traced back to a Spanish land grant in 1605. The diffusion of inheritance rights through intermarriage gave most of the inhabitants of El Espinal and Ixtaltepec a claim on Fuentes and Guzmán lands over the next century. Since 1903, the land has been administered by a board of representatives from the same two families (Binford 1985).

El Espinal was officially erected as a town in 1808 and became a free municipality in 1862 (INAFED 2010). The local administration is organised by a municipal president and a council that represents different sectors such as infrastructure, culture, environment and health.

Wind energy developments first arrived in 2010. There are four wind farms that together produce 604 MW. These farms were constructed by two energy developers, Vestas and Siemens Gamesa, and are owned by the energy companies Peñoles (México), Iberdrola (Spain), ENEL (Italy), and Mitsubishi (Japan) (Table 11).

Table 11. Wind energy projects in El Espinal

Project Name	Installed Capacity (MW)	Owner	In operation from
Sureste I Fase II	102 MW	ENEL	2015
Bii Nee Stipa I (Stipa Nayaá)	26 MW	Iberdrola	2010
Fuerza Eólica del Istmo I	50 MW	Peñoles	2011
Fuerza Eólica del Istmo I	30 MW	Peñoles	2011
Energía Aterna Istmeña (Eólica del Sur)	396 MW	Mitsubishi	2018

Source: Own elaboration, data from the Comisión Reguladora de Energía (2016).

4.3.2 Santo Domingo Ingenio

Santo Domingo Ingenio's population of 7,965 inhabitants (INEGI 2015) is comparable to El Espinal. However, this locality's history only goes back 200 years, following the installation of a sugar mill. Though migrations of people from other parts of the region to Santa Domingo Ingenio decreased the

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[17] The Viceroyalty of New Spain was an integral territorial entity of the Spanish Empire, established by Habsburg Spain during the Spanish colonisation of the Americas. It covered a huge area that included much of North America, northern parts of South America and several Pacific Islands, namely the Philippines and Guam. It officially became a kingdom on 18 August 1521 after the fall of Tenochtitlan, the main battle of the Spanish conquest (Haring 1963).

prevalence of Indigenous language speakers, Zapotec cultural heritage remains a significant part of local people's daily life.

The municipality of Santo Domingo Ingenio is 354.68 km2 and is located in the south-eastern part of the Isthmus of Tehuantepec, 38 km from the city of Juchitán de Zaragoza. The town was created in 1837, when the family Guergué y Maqueo established a small sugar mill to produce *piloncillo* (a raw form of pure cane sugar) and *aguardiente* (schnapps). This became the main economic activity in the municipality until the arrival of the wind energy industry. The town was named after the founder of the Dominican order, Santo Domingo de Guzmán, and 'Ingenio' was added after the Spanish translation of sugar mill (*ingenio azúcarero*). In 1913, the mill was acquired by Spanish settler Gonzálo de Murga, who modernised the enterprise and renamed it "La Marquesana" (INAFED 2010). The lucrative installation of the mill caused an influx of people from elsewhere in the region seeking employment, mainly from the neighbouring towns of La Venta, El Espinal, and Asunción Ixtalpetec. The sugar mill was closed in 2002 after the current owner, the "Grupo Machado", declared bankruptcy (El Universal, 2002). This caused unemployment to increase to 8.6% by 2010 (INPI 2015).

Even though the town was first inhabited by people with Indigenous ascendency, today only 444 people speak Zapotec (INPI 2015). Nonetheless, everyday life and festivities are guided by Istmo Zapotec social norms and culture, such as las *velas,* which require *traje típico* (traditional costume) and regional Istmo music.

In 2015, 63.3% of the population was considered poor, with an overall 0.716 human development index (Torre 2014). Though 66.44% of the population is entitled to a public health facility, the rest of the population does not have access to public health (CONEVAL, 2010). Moreover, education is only provided until middle school with an average of 6.9 years of schooling. Only 16.52% of the population have 15 years of schooling, leaving the majority of the population illiterate (INEGI 2015). The main economic activity is small-scale, male-dominated agriculture and livestock farming, producing crops such as maize, sorghum, peanuts, watermelon, melon, sweet potato, pumpkin and sugar cane. Women usually sell tortillas, fresh or dry fish, cheese and tamales (Word Bank, 2012).

Wind energy developments first arrived in 2011. There are four wind farms that produce a total of 414 MW. After the closure of the mill, the wind energy industry has become the population's main source of income (ADNSureste, 2016). The wind farms were developed by Acciona, CFE and Siemens-Gamesa, and are owned by Zuma Energía (Actis UK), CFE (México, managed by Iberdrola), EYRA/Dragados (Spain), and EDF (France) (Table 12).

Table 12. Wind energy projects in Santo Domingo Ingenio

Project Name	Installed Capacity (MW)	Owner	In operation from
Ingenio	49.5 MW	ZUMA Energía	2016
La Venta III	102 MW	CFE (managed by Iberdrola)	2011
Oaxaca I	102 MW	EYRA / Dragados	2012
Pacifico (Eoliatec del Pacífico)	160 MW	EDF-EN	2014

Source: Own elaboration, data from the Comisión Reguladora de Energía (2016).

4.3.3 Unión Hidalgo

With 15,374 inhabitants, Unión Hidalgo is the largest locality of all three case studies. It also has the highest proportion of people that speak Zapotec, which accounts for 54% of the total population (8,272 people) (INPI 2015). The origin of the town can be traced back to 1882, when Francisco León Hernández "Pancho León", the political chief of Juchitán, combined the existing farms (*rancherías*) in the area (Rincón Sombrero, Las Palmas and el Zapotal), to establish a single urban centre in order to fight the rebels that opposed the Mexican government. Following a failed attempt to convince the settlers, he set fire to the farms. This forced farmers to abandon their *rancherías* and congregate in the zone of Ranchu Gubiña Guiaá. This settlement became the town of Unión Hidalgo in September 1882, named '*unión*' after the integration of the different farms and '*Hidalgo*' in honour of Don Miguel Hidalgo y Costilla, a Mexican independence hero (Villalobos-Marín and Martínez-López, 2016).

The municipality of Unión Hidalgo borders La Venta and Santo Domingo Ingenio to the north, Laguna Superior to the south, Niltepec and San Dionisio del Mar to the east, and Juchitán de Zaragoza to the west. The territorial extension of the locality is 132.69 km2.

In Unión Hidalgo, 8,272 people speak Zapotec. In 2015, 57.6% of the population was considered poor (CONEVAL 2015), with an overall human development index of 0.759 (Torre 2014). The municipality has a medical unit that offers basic health services. However, 21.4% of the population do not have access to public health (CONEVAL, 2010). Due to the lack of a specialised workforce, health emergencies are channelled to Juchitán de Zaragoza or Salina Cruz, which are 22 km and 67 km away, respectively. The highest level education institution in Unión Hidalgo is high school, with average schooling at 7.9 years (INEGI 2015). Students that wish to continue to higher education must move to other municipalities, such as Juchitán.

The main economic activity is agriculture and livestock farming. Unión Hidalgo is also a source of workforce for industrial activities linked to construction and maritime platforms in Ciudad del Carmen, Campeche, which is almost 600 km from the municipality, and the oilrefinery in Salina Cruz. Unión

Hidalgo is also considered an important artisanal producer of typical regional clothing, palm objects, dry cheese and *totopo* (a handmade corn-based toasted, thick tortilla).

Wind energy developments first arrived in 2012. There is a total of two wind farms that produce a total of 227.5 MW, were constructed by Siemens Gamesa and are owned and managed by the Spanish firm Renovalia. There are currently three more wind farms planned. Electricté de France has been in an ongoing consultation process since 2017 to start the construction of a 167 MW wind farm. Siemens-Gamesa and Grupo Unión, both with Spanish owners, are still in early planning process (Table 13).

Table 13. Wind energy projects in Unión Hidalgo

Project Name	Installed Capacity (MW)	Owner	In operation from
Piedra Larga (Phase 1)	90 MW	DEMEX (Renovalia)	2012
Piedra Larga (Phase 2)	137.5 MW	DEMEX (Renovalia)	2012
Gunaa Sicarú	167 MW	EDF	Project in consultation
Grupo Unión	-	Eólica Unión	Project
Palmitas 1 y 2	160 MW	Siemens-Gamesa	Project

Source: Own elaboration, data from the Comisión Reguladora de Energía (2016).

4.4. Conclusion

This chapter briefly reconstructed the historical process leading to the establishment of the wind energy industry in the Isthmus of Tehuantepec. It first outlined Mexico's main sustainability challenges and described how RETs represent a key approach to tackling them, as RETs offer a diversification strategy and an economically- and environmentally viable decarbonisation pathway. Subsequently, the chapter traced the rationale and the processes that unfolded after the arrival of the wind energy industry in the Isthmus of Tehuantepec, highlighting the unexpected social challenges that the Mexican government and international energy developers faced while siting wind farms. Finally, the chapter characterised the three localities chosen for this research in order to set the scene for the subsequent analysis on factors affecting social acceptance of wind energy in the region. The following chapters 6, 7 and 8, will delve into the distributive, procedural and recognition justice implications of the installation of wind energy developments following the triumvirate energy justice framework, respectively.

5 DISTRIBUTIVE JUSTICE

This chapter looks at the evidence and data across the cases through a distributive justice lens. Though wind farms brought numerous benefits to the Isthmus of Tehuantepec's local economy, these were not equally distributed among local people affected by these developments. In contrast, ills were felt by the wind farm neighbouring population as a whole. This situation resulted in growing inequalities between beneficiaries and non-beneficiaries that have often generated negative attitudes towards wind farms. Therefore, reasserting that community acceptance is a problem of distributive justice, the chapter argues that looking at how people's perspectives of and life experiences with distributive injustice can play a crucial role in how locals understand and act upon distributional inequalities.

Concepts of distributive justice—how a society or group should allocate its scarce resources among individuals with competing needs or claims— go back at least two millennia (Roemer 1998), providing perspectives on what is distributed and the principles for a fair distribution. Arrow's impossibility theorem, first published in 1951, asserts that there is no ordering of possible allocations of resources among individuals in a society given that justness must take into account individual preferences in apparently desirable ways. However, during the 1970s, advocates of welfare-based principles (of which utilitarianism is the most famous, with authors such as Bentham, 1970 and Mill, 1863) established that interpersonal comparisons of utility (or welfare, happiness, satisfaction, etc.) are possible, and by doing so, individual preferences could be aggregated into a social preference. This proposition of justice was influential for more than two centuries until the social justice theorist John Rawls (2009) pointed that utilitarianism runs the risk of overlooking and disregarding systematic discrimination against some individuals, particularly minority groups, sacrificing their well-being to acquire an overall higher utility gain.

In his book 'A Theory of Justice' (2009), Rawls argued that the fundamental idea of social justice should be fairness in the distribution of primary goods (such as rights, liberties, powers, opportunities, income and wealth). He proposed that the notion of distributive fairness can be attained from an 'original position' where people can mentally position themselves outside a society in which they know they will be a member, but that are ignorant of their own competitive advantage or disadvantage in that society. From this position, he asserted, principles of fair distribution can be agreed. He also proposed an alternative distributive principle, the 'Difference Principle', which permits diverting from strict equality as long as the least advantaged in society are better off than they would be under strict equality.

Amartya Sen and Martha Nussbaum put forward a different formulation of distributive justice, in which the informational focus of justice is not the distribution of primary goods, but the capability of achieving valued 'functionings' (Nussbaum, 2003, 2011; Sen, 2001, 2011). Like Rawls, they are critical of utility-focused assessments, given that people in different positions have different propensities to be satisfied. Nonetheless, they critique Rawls' focus on primary goods as the object of justice formulations. Instead, they focus on people's capabilities—what people are able to do and achieve—which is the position this chapter also takes. By doing so, this chapter argues that Sen and Nussbaum provide a more bottom-up, people-centric framework to look at individual's perceptions about distributive justice in three Indigenous communities in the Isthmus of Tehuantepec. To achieve this, the chapter explores how distributive concerns are associated with local people's valued lives to look at factors affecting the social acceptance of new wind energy developments.

From this, three significant findings emerged. First, the introduction of wind energy lease revenue and jobs have further strengthened tenants' economic position vis-à-vis farmers that do not have a tenancy agreement and people that do not own land. In contrast, perceived and actual negative health and environmental impacts are experienced by the neighbouring population as a whole. This has widened the disparities between people in the region through the uneven enhancement of capabilities and has debilitated the community's social cohesion as a result. Second, the analysis revealed that the perceived degree of benefits received is directly proportional to people's level of concern about the negative impacts of wind farms on their health and the natural environment. This unveiled underlying reasons for how health and environmental concerns link to the distribution of economic benefits. Lastly, the analysis showed how external frames that replicate discourses that do not coincide with people's concerns on the ground, may obscure hidden politics of distribution at the country and community level, as well as put interventions to offset carbon emissions, such as wind energy, at risk. Concurrently, the chapter confirms the existence of an upward distribution of wealth towards wind energy companies that threatens the idea of a just energy transition.

This chapter consists of four thematic sections. The first section presents an overview of the capabilities valued by the communities in the Isthmus of Tehuantepec and then analyses distributive justice concerns arising from the wind energy industry associated with local people's capabilities in the three different communities. The second section discusses the consequences of uneven distribution. The third section presents the risks of misrepresenting maldistribution. Drawing from these findings, the fourth section discusses alternative views of distribution. Finally, the conclusion summarises factors linked to distributive justice and its effects on wind farm social acceptance.

5.1 Distributive Justice and Capabilities

Formulations of distributive justice have informed work on environmental justice, which concerns the distribution of environmental 'goods' and 'bads' across social groups (e.g. Schlosberg, 2004; Shrader-Frechette, 2002; Walker, 2012). And, in the last two decades, there has been growing attention to distributional issues related to energy, particularly under the 'energy justice' framework (e.g. Bickerstaff et al., 2013; Jenkins et al., 2016; McCauley et al., 2013; Sovacool & Dworkin, 2014), which is the body of work to which this thesis contributes.

Until recently, distributive issues in energy matters have tended to focus on inter-generational concerns —replacing fossil fuels with renewables to ensure that future generations inherit a stable climate (see Day et al., 2016). This concern has become a key global issue in government debates on how burdens of decarbonisation should be allocated between the present and future generations.

Inter-generational global concerns have eclipsed intra-generational issues of justice, which relate to how burdens of decarbonisation are allocated within the present generation exclusively. Indeed, as discussed in Chapter 2, concerns about RETs are presented as selfish or held by 'NIMBYist' people that are not willing to accept 'necessary development' for the greater good (e.g. Stratton, 2009). Such interpretations of distributive justice neglect important dimensions of the relationship between RETs and local people currently (Cowell *et al.* 2012).

Recent studies address this issue, specifically discussing present access and consumption of energy (Chakrabarti & Chakrabarti 2002; Day *et al.* 2016b; Hall 2013; Walker & Day 2012c), and the distribution of benefits in energy production (Catney *et al.* 2014; Gross 2007; Yenneti & Day 2016). Additionally, debates on the fair distribution of costs and benefits of wind energy have multiplied in Western Europe (e.g. Cowell et al., 2012; Nadaï, 2007; Simcock, 2014; Van der Horst & Toke, 2010; Zografos & Martínez-Alier, 2009).

Specifically, research that establishes the relevance of intra-generational distributive justice on public responses to wind energy have reported relevant findings that focus mainly on the distribution of economic benefits (profits and compensation), social and community benefits (jobs, education), energy benefits (access to energy), and burdens (land and livelihood loss).

Findings have also focused on the differences between regional, national and international benefits related to economic development and achieving climate change targets (e.g. Cass & Walker, 2009; Lorenzoni et al., 2007), and the environmental and social burdens on local communities, such as noise, visual impacts, and land and habitat loss (e.g. Mallon, 2006; Pasqualetti, 2011). Fewer studies have focused on the inequitable distribution of benefits and burdens within local communities. For instance, Gross (2007) explored how landowners were often the gainers, while the losers were neighbouring landowners and residents who do not gain revenue on their properties.

This uneven distribution of benefits is exacerbated in developing countries, as most areas with high wind power potential are remote, where Indigenous peoples and other marginalised populations live. In these contexts, because this renewable energy is not produced for the local populations, significant distributive justice questions are merited (Barrera-Hernandez, 2018; McHarg, 2016; Jørgensen, 2017).

Research has also focused on developers' provisions to manage local environmental impacts (Cowell *et al.* 2012; Wolsink 2007b) and community benefit packages (Munday *et al.* 2011; Warren & McFadyen 2010). Findings highlight that these have been designed to manage conflicts and increase social acceptance, yet they have done little to address scalar inequalities or find alternative arrangements, such as community ownership.

Some studies have also connected distributional fairness with the extent to which procedural justice is seen to be done through transparent and open decision-making (Gross 2007; Zoellner et al., 2008), echoing the wider environmental and energy justice literature on the connection and complementarity between procedural and distributional justice (Shrader-Frechette, 2002; Walker and Day, 2012; Schlosberg, 2007).

This body of literature has theoretical and practical significance. However, explicit connections to distributive justice theory remain insufficient (Yenneti & Day 2016). Intuitive notions of fairness and inequality are framed under the justice language of researchers, therefore pointing to little consensus or misunderstood conceptions of 'harm' (Haggett 2012), leaving a large scope to unpack and deepen the significance of formulations of distributive justice.

In terms of siting wind farms, there are a host of benefits and burdens that are context-specific and sometimes subjective (Schroeder et al., 2008: 550). Sen's (1999) concept of capabilities illuminates aspects of valued benefits as well as burdens that people ought to avoid. Capabilities are valuable opportunities for people to live the life they want to, do what they want, and become the persons they want to be (Robeyns 2005). Under this perspective, human flourishing is described as 'a process of expanding the real freedoms that people enjoy' (Sen, 1999: 1).

The section thus operationalises the capability approach by first presenting findings from all three stages of data collection to have an overview of the capabilities valued by the communities and their perceptions of the impact of wind farms on these capabilities (Section 5.1.1). Subsequently, the section shows how the discussion of people's capabilities within the concept of distributive justice can lead to an improved awareness of justice implications related to the acceptance of energy technologies in Indigenous communities. Section 5.1.2 pays particular attention to material benefits resulting from the construction of wind farms, and Section 5.1.3 then discusses the burdens perceived by local populations

5.1.1. Capabilities in the Isthmus of Tehuantepec and Concerns About Wind Farms

Survey participants in the three communities reported similar responses when asked which capabilities they perceived as most valuable, although interviews and participatory workshops highlighted notable differences across communities in the reasons why these capabilities were valued (see Table 14, 15 and 16). Being able to live a healthy life (health) was considered as an important capability in all three localities, and across methodologies, due to its instrumental value to enhance other capabilities. Being able to have strong family relationships (family), the second most important capability in the survey, was intrinsically valued for its contribution to well-being and harmony, according to interviews. Having a job was mentioned as the third most important capability in the survey but was seen differently in the three communities. Work in El Espinal and Unión Hidalgo was mentioned in reference to effort and avoiding "*taking the easy path of corruption*" (Regalado 2017), whereas people in Santo Domingo Ingenio regarded having a job as a stable source of income but was not linked to effort or honesty.

Although being able to attain an educational level (education) was ranked only fifth in the survey, several interviewees mentioned it as an important instrumental capability, for reasons that differed across communities. People in El Espinal considered higher education important for getting a job. In Santo Domingo Ingenio, education was seen as a form of status, a sign of success, and as an instrument to "*avoid being fooled by the government*" (Santiago 2017), whereas in Unión Hidalgo, it was mentioned as a capability in reference to children's access to basic schooling. Similarly, the ability of generating income (money), the fourth most valued capability in the survey, was seen in El Espinal as a way to afford "luxuries" such as eating at a restaurant, going to the movies, or travelling. In Santo Domingo Ingenio, money had two connotations: to provide food and basic goods for the family, and "to live the good life" which is linked to "alcohol and women". People in Unión Hidalgo mentioned the importance of money to live a dignified life which includes good food and basic education, but that is not necessarily a source of happiness. In sum, quantitative findings offered statistically significant results, while qualitative methods offered participants more freedom to discuss a number of capabilities not mentioned in the survey such as the importance of public services, and the value of community collaboration, being respected, being treated as equals and being in peace (results that will be further discussed in Chapter 7), as well as an explanation of people have reason to value a capability and not another.

Table 14. Results from the open survey question: What is the most important element of a good life?

	Unión Hidalgo %	Santo Domingo Ingenio %	El Espinal %	Total %
Health*	36[b]	55[a]	35[ab]	41
Family	23	24	35	28
Jobs	17	4	6	9
Money	5	5	4	5
Non-recognition	5	3	7	5
Life itself	4	2	3	3
Education	2	4	1	2
A good environment	4	1	1	2
Religion	0	1	4	2
Well-being	2	0	1	1
Housing	2	1	0	1
Eating	0	1	1	1
Happiness	0	0	2	1
Safety	0	0	0	0

Source: constructed by the author based on (Velasco-Herrejón & Bauwens 2020). N=358. Surveys with responses that were unable to be ranked were excluded. * indicates significant differences across the three communities using a chi-square test. Values within rows with different lowercase superscripts are significantly different according to Bonferroni multiple comparisons test with a significance level of p-value < 0.01.

Table 15. Results from the interview question: What is the most important element of a good life?

	El Espinal %	Santo Domingo Ingenio %	Unión Hidalgo %	Total %
Health	7	17	21	15
Family	4	13	6	8
Jobs	22	15	15	17
Non-recognition	7	4	2	5
Money	15	4	8	9
Life itself	0	0	0	0
Education	19	15	15	16
A good environment	0	0	2	1
Religion	0	0	0	0
Well-being	0	0	0	0
Housing	14	0	4	6
Eating	0	7	9	5
Happiness	4	2	0	2
Safety	4	2	0	2
Public Services	0	4	10	5
Be in peace	0	2	2	1
Comm collaboration	0	4	4	3
Travel	4	2	0	2
Respect	0	4	0	1
Equality	0	2	2	1

Source: constructed by the author. N=73 Interviews.

Table 16. Capabilities agreed as most valuable during workshops

El Espinal	Santo Domingo Ingenio	Unión Hidalgo
Health	Health	Health
Good job	Good job	Jobs (in general)
Education	Education	Education
Money	Activate de economy	Money
		Family

Source: constructed by the author. N=2 workshops.

Figure 16 confirms discrepancies between communities about the perceived impact of wind farms on well-being and the resulting negative attitudes towards the industry. Residents in Unión Hidalgo, the locality with the highest opposition level, perceive lower positive impacts associated with the introduction of the wind energy industry than residents in the other two localities across all valued capability dimensions. The observed differences between El Espinal and Santo Domingo Ingenio are not statistically significant. The perceived positive impact of wind farms on individual well-being does not significantly differ across communities, whereas the perceived positive impact on collective well-being is statistically much lower in Unión Hidalgo. This finding suggests that the impact of wind farms

on communities is primarily experienced collectively and can also be related to the conflicts between the collective traits of local traditions (communal ownership of land, consensus-seeking decision-making) and the more individualised approaches promoted by the wind energy industry (that will be further discussed in Chapters 6 and 7). Perceptions of the positive impact of wind farms on local culture are also much lower in Unión Hidalgo. Given that the percentage of Indigenous population is larger in this locality, this result suggests that the perception of wind farms as a threat to Indigenous culture is particularly strong within this community. It can also be related to the different ways in which the three communities have been colonized (further discussed in Chapter 7).

Figure 16. Perceptions of positive impacts of wind farms on valued capability dimensions
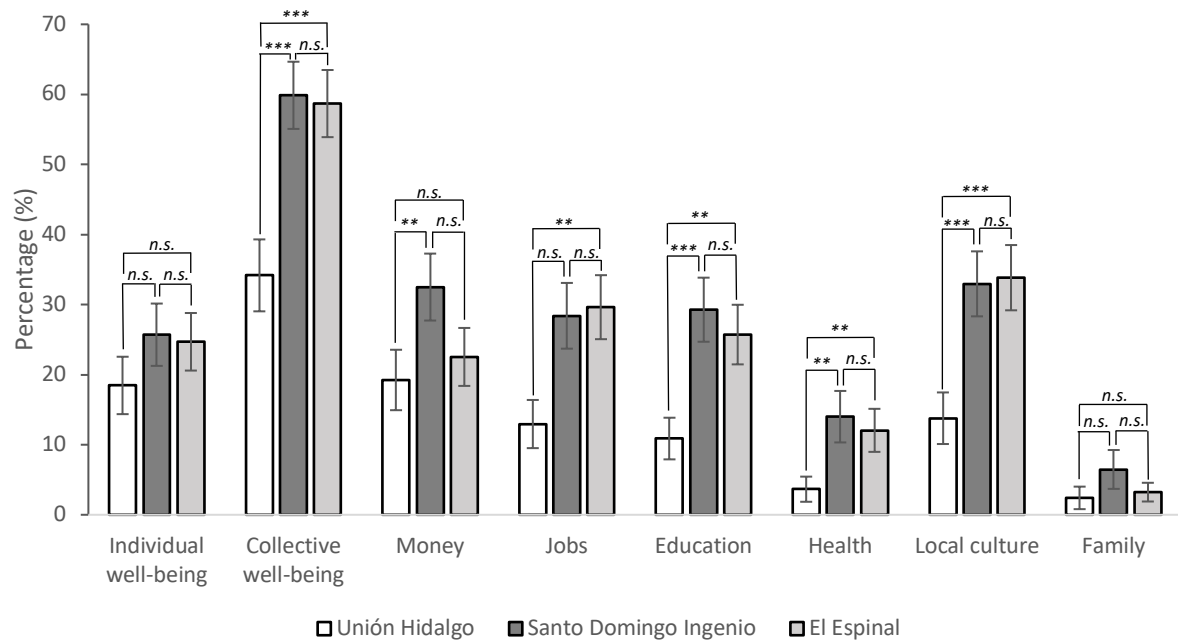
Source: constructed by the author based on (Velasco-Herrejón & Bauwens 2020). N=382 n.s. = not significant. *** p-value < 0.01. ** p-value < 0.05. * p-value < 0.1.

5.1.2 Concerns About the Distribution of Benefits

"Benefits should be given to all the local population and not only to landowners since ills derived from the wind energy industry affects us all"

Beto, local grocery shop owner in Santo Domingo Ingenio

Residents in the three municipalities voiced two main distributive concerns related to valued capability dimensions: (1) money—changes in land use and benefit-sharing arrangements have resulted in economic inequalities between beneficiaries and non-beneficiaries; and (2) jobs and education—employment and education opportunities have only benefited one sector of the population (predominantly land tenants) and have not met the expectations of the local population.

5.1.1.1 Ability of Securing Monetary Income (Money)

Monetary income or 'money' was one of the most important capability dimensions raised by survey participants, particularly given the poverty in the region. Though the introduction of wind farms has enhanced local people's capability to increase their income, the allocation of this capability has only been accessible to a fraction of the population.

All three communities can be categorised as economically poor, confirming income poverty in the region. The National Council for the Evaluation of Social Development Policy (CONEVAL) defined the income-based component of poverty (economic welfare line) as those surviving on less than 2,329 pesos (£94) per month in cities and 1,490 pesos (£60) per month in rural areas for 2012.[18] Survey results revealed that 53 per cent of Santo Domingo Ingenio residents live on less than 2,000 pesos per month, followed by Unión Hidalgo with 39 per cent, and El Espinal with 27 per cent. Moreover, 71 per cent of participants in the study declared that their income was insufficient to fulfil their personal and family's basic needs.

Most study participants see the introduction of the wind energy industry as a source of income that has benefited communities in economic terms. People in all three communities have observed how tenancy payments have had a direct impact on the improvement of housing and farms, and an indirect impact from funnelling money into the local economy reflected in a surge of new restaurants, hotels and grocery shops (C13, C14, L22, D10, D3, D12, D20[19]). Cheyo, a junior high teacher, remarked, '*Look, almost 90% of the town agrees that wind farms have generated wealth*', and farmers Armando and Carmelo observed:

> *In Unión Hidalgo there are 200 families that benefit directly, and since we live here, we spend it here as well, so all the region benefits in the end', and 'Honestly it has brought benefits to Santo Domingo Ingenio, not all people worked their land since some are sterile, now wind farms have allowed people to buy a little car, improve their rancho, and you can still work your land if you were doing so.*

This positive economic impact was confirmed by government statistics. According to the National Institute of Statistics and Geography (INEGI, 2016), from 2010 to 2015, the number of registered firms (manufacturing industry, commerce and non-financial private services) in the region[20] grew by 86.5 per cent, compared to the state (Oaxaca) average that only grew by 67.19 per cent. Similarly, other economic units, such as hotels, grocery, poultry, and tortilla shops, grew by 29.1 per cent, while in the

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[18] Calculations based on January monthly average in 2012, using the 2020 GBP-MXN Exchange Rate. Source: Banco de México.

[19] Codes starting with letter C refer to residents who are non-beneficiaries of wind energy projects, L are tenants, G are government officials, D are people working for wind energy developers, N are informants working for NGOs and A, academics. For a full description of interview identifier codes, please refer to Chapter 3, Section 3.3.

[20] This study included the three municipalities of this study and two others, Juchitán de Zaragoza and Asunción Ixtaltepec.

state these grew by just 16.25 per cent in the same period. Furthermore, local public infrastructure, including roads, sports courts, parks, and schools, has been enhanced through benefit-sharing schemes.

However, benefits have not been evenly allocated. As seen in Figure 1, respondents raised three main concerns related to economic benefit distribution, which also correspond to three distinct stakeholder levels: (1) different tenancy prices (paid by developers to rent land where wind farms are constructed) that have created a tenant vs. tenant distributive inequity; (2) changes in land tenure that resulted in differences between tenants and the rest of the community; and (3) benefit-sharing schemes that cultivated distributional inequality between the local community and wind energy developers. These, in turn, have contributed to a negative local stance towards the construction of new wind energy developments.

Figure 17. Distributive concerns associated with money, as a valuable capability dimension
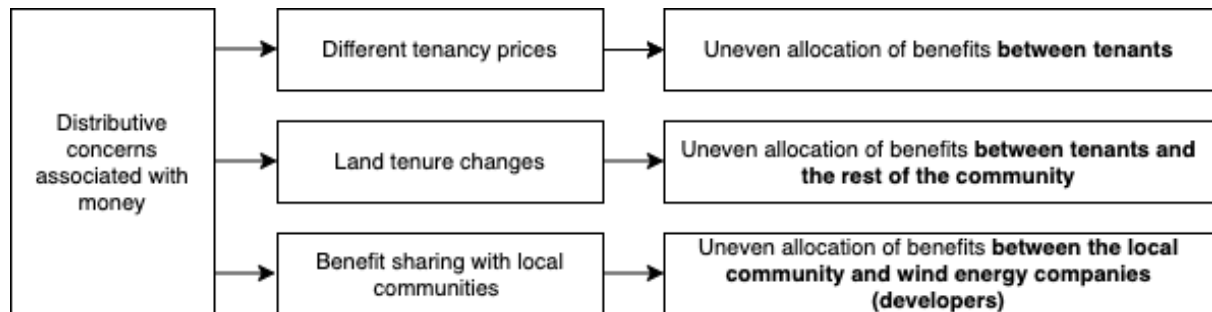
5.1.2.1.1 Uneven Allocation of Benefits Between Tenants

> *"They deceived them and gave them the lowest price they could get. There are people that have documented higher prices in other places in Mexico and Europe"*

> *Luis, primary school director, Santo Domingo Ingenio.*

Local landholders who became tenants of wind energy firms believe that they are not leasing their land at a fair price. In the early days of the wind energy industry in the region, developers offered landholders a payment rate per hectare for building a wind farm as a 'take it or leave it' proposition, leaving little room for negotiation. Furthermore, payment schemes have been settled differently from one wind farm to the next at the developer's discretion. This includes several payment concepts, such as "hectare with a turbine", "hectare with a road", and *contrato de apartado* (a contract to set-aside land in the promise of a new development), as well as the frequency with which payments are made. Consequently, some tenants receive higher payments than others for similar plots of land, resulting in monetary distributional injustice between tenants (L14, L5, L12, L16, L25, L26).

The first developers in the region defined prices per hectare using local crop prices as a reference, and the others to come followed. They proposed to pay tenants the amount they would have otherwise earned if they produced sorghum on their land, the main regional crop (L14, L5). On average, 3% of

the land is permanently affected by wind energy turbines, which means that tenants can still use 97% of their land for habitual subsistence activities. Developers claimed that even though tenants were going to be minimally affected by the siting of wind turbines, they offered a payment that would ensure their original income, which often differed from one wind farm to another (D6). However, tenants argue that prices should not have been set based on crop prices, but on international tenancy prices of land leased to wind farms. For instance, the cost of land in Germany can be up to 18% of all operation and maintenance costs (Krohn *et al.* 2009). Luis, a primary school director in Santo Domingo Ingenio, asserts '*there are people that have access to information which shows how the price for hectare is higher in other parts of the country and the continent. Here, they gave them the minimum*'.

Tenants in Unión Hidalgo and Santo Domingo Ingenio are particularly concerned about payment differences since these have caused tensions and conflict in the region. For instance, payments related to the *contrato de apartado* in Unión Hidalgo vary from 850 pesos (£34)[21] to 2500 (£100) per ha/year for plots of land that have similar wind potential (L16, L19 L25, L26). These variations can have significant repercussions for quality of life, in a region that has a monthly average family income of less than 3,000 pesos (£120).[22]

This situation has caused tensions between tenants. For example, in Santo Domingo Ingenio, one company introduced an additional payment called an "anti-blockage bonus" given to all tenants at the end of the year if they did not disrupt the regular operation of the wind farm. Shortly after the first payment, tenants that leased land to other companies asked for this bonus as well. One company decided to pay it without hesitation, but two others decided not to make the extra payment. As a consequence, tenants decided to halt the operations of both wind farms until the payment was made. One developer decided to pay it after one month of discontinued maintenance work, and the second continued to resist pressure from tenants for two months. The developer communicated this issue to state authorities, who responded by detaining all tenants blocking the way to the wind farm. Detentions ranged from two weeks to a month, depending on the ability of the tenant's family to hire lawyers or pay bail to get out of prison.

Interview respondents working for wind energy companies confirmed the variations in land lease payments and that these have caused unrest among tenants (D2, D6, D21). Developer representatives argue, though, that payments cannot be equal because of differences in plant factors, electricity prices, and different turbine capacities that vary from one wind farm to another: '*I'm going to be honest with you, each company has its own payment structure, which is not perfect. Some give a bit more and some give less',* remarked a developer in Santo Domingo Ingenio. Two developer representatives also

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[21] Calculations based on January monthly average in 2012, using the 2020 GBP-MXN Exchange Rate. Source: Banco de México.
[22] Survey results on file with the author.

confirmed that there were payment disparities when comparing lease agreements in Europe and the Isthmus of Tehuantepec. Yet, they argued that once the transaction costs and local land value prices were considered, tenancy payments in Oaxaca are very similar to other regions globally: '*payment differences with other zones in the world have caused a big dent, but we are actually paying more, currencies change but we pay more on average*' (D16, D21).

In response to this distributional injustice, tenants demand a new, unique payment structure to be established throughout the region. This improved payment scheme would follow international standards and be regulated by a body of representatives for tenants, developers and state and national governments (L3, L13). Some developers agree that establishing such payment parameters may reduce tenant-developer tensions, and simultaneously help maintain stable land lease prices to regulate the local market to be financially sustainable long term. Nonetheless, they argue that doing so would entail negotiations that may raise overall prices, which may put the industry at financial risk (D2, D21).

5.1.2.1.2. Uneven Allocation of Benefits Between Tenants and the Rest of the Community

Besides tensions about dissimilar payments, frictions between tenants and the rest of the community living adjacent to wind farms have often derived from the lack of clarity on land tenure in the Isthmus of Tehuantepec. Most of the land designated for the development of wind farms was historically communal. Indeed, collective access and ownership to land stemmed from the Mexican Revolution in 1920 (Walsh Sanderson, 1984). However, in 1994, agrarian reforms enabled individual farmers to sell and buy land (Nuijten, 2003), which in turn allowed wind energy companies to propose individual land leasing contracts decades later. These individualised contracts resulted in only some farmers becoming tenants and receiving additional income from renewable energy companies. Yet, part of the population still considers land communal and thus does not recognise tenancy agreements that stipulate sole ownership (a matter that will be further developed in Chapter 6). This disconnect has caused unrest among other farmers and the local population, who have raised concerns about who has claims over these benefits and has resulted in hostility towards future wind farm construction. For instance, Daniel, the spouse of the mayor of Santo Domingo Ingenio, explained, '*now it is important to see how income is distributed and to define how communities benefit, because wind farms are located in communal land that belongs to everyone*' (L22, C7, L11, C4, C20).

Furthermore, tenants only constitute a small fraction of the local population. According to the survey administered for this study, only 6.1 per cent of the respondents receive income from the wind energy industry. For instance, in Unión Hidalgo, out of 13,970 inhabitants (INEGI, 2010) only about 200 farmers have benefited from land lease agreements. In Santo Domingo Ingenio, only about 25% of all farmers have a land lease agreement with a company. The economic gap between one farmer holding a lease agreement and one that does not can be significant. As one respondent explained, a tenant leasing five hectares can earn up to 40,000 pesos a year, whereas the average household income in Santo

Domingo Ingenio is less than 24,000 pesos p/year. Thus, wind farm income almost doubles the income of farmers who rent a minimum of five hectares. As farmers can lease up to one hundred and twenty hectares, there is potential for exponential income increases. Rosa, an inhabitant of Unión Hidalgo, describes this issue as a '*dispute between those who hold land and those who don't*'. Víctor, also from Unión Hidalgo, states that '*...benefits are going to individual farmers which is not helping the community, this is wrong. People that hold land were already rich, this is why they are landholders. Now they say, "I have money and you save yourself the best that you can"*'.

Such income inequality has become noticeable in social interactions in all three localities. For example, a tenant in El Espinal described that people within the community see them '*on a different level*' and are informally called *eólicos* (eolian) due to their connection to wind energy companies, which are locally referred to as *eólicas*. '*When we arrive at a party they say "Los eólicos have arrived". It doesn't go any further, but it is not socially ok. It is as if we (tenants) were the rich and they the poor*' (the sociocultural context of this quote will be further discussed in chapter 7). He added that the tendency to differentiate tenants from other people may increase over time given that land lease agreements have been signed for 30 years, and the oldest private wind energy development was only installed ten years ago. The resulting distribution of land lease agreements has reproduced historical economic imbalances, discussed further in section 5.2.

5.1.2.1.3 Benefit-Sharing and the Upward Distribution of Wealth

> *The true winners of the wind farm industry are politicians and developers: even though energy is produced here, no one has received a single electric bulb. It is absurd when they say that a wind farm can produce clean energy for the equivalent of five towns. Which towns? From what I know, they are giving electricity to no one, but to companies like Coca-Cola and Walmart.*

> *Lupita, inhabitant of Santo Domingo Ingenio.*

In energy and natural resource law, benefit-sharing arrangements, also known as community benefits, have long been used to allocate economic advantages produced by the generation of energy or the extraction and/or management of resources to local communities (Fisher, 2007; Barrera-Hernandez et al., 2016). These arrangements have increasingly been used to involve, compensate and reward diverse stakeholders in climate change adaptation and mitigation activities (Savaresi, 2014; Savaresi and Bouwer, 2018). In the context of renewable energy, developers' obligations to benefit-sharing depend on the applicable legal frameworks, as well as on industry practices. So, depending on the context, benefit-sharing arrangements may be requirements embedded in the law, voluntary guidelines adopted by national and subnational governments, or corporate social responsibility practices to increase the approval of the community in which the industry operates (Savaresi, 2019).

Benefit-sharing practices in the wind energy sector have often built upon those developed in the extractive sector: project developers give local communities who live in the vicinity of a project various

economic and non-economic advantages (Rønne, 2016; Paddock and Greenblum, 2016; Savaresi, 2019). Benefit packages typically include monetary payments per capacity installed, but developers may also provide other economic benefits, such as electricity at discounted prices or grants to support energy efficiency. Similarly, offering shares from projects developed by commercial operators is a way to share economic benefits with local communities (Ronne, 2016; McHarg, 2016). Project developers may furthermore offer local communities other non-monetary benefits, such as developing common facilities for recreation, education, etc. This, however, raises the question of the extent to which benefit-sharing becomes a means for the provision of public services, which should be available to communities regardless of the generation of renewable energy (See e.g. Wynberg and Hauck, 2014).

One exception to a rather fragmented regulatory picture concerns Indigenous peoples, whose right to mutually acceptable benefit-sharing arrangements for extractive activities and developments on their lands is recognised in international law.[23] In theory, though Indigenous peoples enjoy the right to Free Prior Informed Consent (FPIC) for projects carried out on their lands and territories (including renewable energy projects; Barrera-Hernández et al., 2016), benefit-sharing arrangements are often problematic.[24] For environmental policy, the right to FPIC has been extended to local communities in some areas.[25] In the energy context, however, this extension is not widely practiced, and local communities are often less protected than Indigenous peoples.

Although Indigenous peoples' right to mutually acceptable benefit-sharing is recognised through international law,[26] Mexico's legal framework on renewable energy does not make any reference to benefit-sharing arrangements. Nevertheless, the Constitution affirms that all people shall enjoy the human rights recognised in it, as well as in the international treaties.[27] Mexico is a party to ILO Convention 169 on Indigenous and Tribal Peoples, which stipulates that Indigenous peoples have a right to participate in the use, administration and conservation of the natural resources on their lands (Herrejon & Savaresi 2020).

In 2017, the Mexican Ministry of Energy and the Inter-American Development Bank prepared an Action Protocol on Shared Social Benefits (PROBESCO) (Bazbaz Kuri, 2017). This non-binding instrument is a reference for stakeholders to understand what benefit-sharing is, when it applies, and to

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[23] International Labour Organization's (ILO) Convention no. 169 Concerning Indigenous and Tribal Peoples in Independent Countries 1989, 28 ILM 1382. See also UN Special Rapporteur on the situation of human rights and fundamental freedoms of Indigenous peoples, Report U.N. Doc. E/CN.4/2003/90, 66; and 2012 Expert Mechanism: Follow-up report on Indigenous peoples and the right to participate in decision-making with a focus on extractive industries (A/HRC/21/52) (A/HRC/21/55) 39.

[24] UNDRIP, Article 19 and the review of practice in International Law Association, The Hague Conference Report, Rights of Indigenous Peoples (2010), 51; and in UN-REDD Programme, 'Legal Companion to the UN-REDD Programme Guidelines'.

[25] See e.g. Nagoya Protocol, Articles 6.2 and 7.

[26] Ibid.

[27] Constitution of Mexico, Article 1.

whom. The protocol defines benefit-sharing as arrangements provided by companies to contribute to the development of local communities in the short, medium and long term (Ibid.). It clarifies that shared benefits are different from measures to prevent, mitigate or compensate negative impacts caused by developments, rents for surface use, taxes, and social infrastructure that was built for the use of the project itself. The document suggests that 1% of the initial investment during the preparation and construction stage and 1% of the annual income during the production stage should be reserved for shared benefits. This fund should also be managed by a legal entity appointed by local communities.

Nevertheless, the guidance included in PROBESCO is non-binding and, at the time of writing, wind energy developers in the Isthmus of Tehuantepec are not formally obliged to provide community benefits. However, local community respondents still believe that it is a right under law. The lack of institutionalisation of benefit-sharing has led to the development of corporate practices that are implemented on an ad hoc basis and at the developer's discretion. Consequently, developers consider their contributions altruistic and not as the right of Indigenous communities to manage and profit from their land and resources. Even though benefit-sharing should happen irrespective of communities' level of consent, developers often only offer benefits in exchange for accepting new wind farms or expanding existing ones (Herrejon & Savaresi 2020).

This matter is of the utmost importance since people in the Isthmus believe that developers are driving an upward distribution of wealth. As seen in the previous section, people who neighbour wind farms in the Isthmus think that wind farms are only providing monetary benefits for tenants, and not for the rest of the population. And, at the same time, tenants and local people perceive that developers are the ultimate winners of the wind energy deal. Wind turbines are constantly 'turning' to offset the manufacturing costs of transnational companies, such as Walmart, Coca Cola, Mitsubishi, and Cemex, by providing them with electricity at a lower rate than the industry average. Yet, the local population pays the standard national home rate, and, at times, do not even have access to the energy produced (C13, C16, C1; Dunlap, 2018; Howe, 2014). This is especially relevant given that poor people in Mexico are already paying a higher price than the rest of the population, due to the regressive nature of electricity subsidies that benefit disproportionally who consume more electricity and not the poorest groups of the population (though 95% of household electricity is sold at heavily subsidised rates, the three lowest income deciles receive only around 16% of the electricity subsidies, while the top three deciles receive nearly 40% (OECD, 2017)) The local population has thus demanded a more balanced developer-community distribution of economic benefits derived from wind energy production, such as the provision of free energy, as Martín, an inhabitant of Unión Hidalgo, explains, '*we understand that large amounts of energy are being produced, but there is not a single electric bulb that is lightened by this energy in the Isthmus. Everything is taken by transnational companies such as Walmart, Liverpool, Cemex, Siemens-Gamesa…*' (C23).

Accordingly, different community benefit approaches led by wind energy developers have resulted in various levels of community trust in the Isthmus of Tehuantepec. Benefit-sharing here generally relies on local authorities to collect and distribute resources (Barton and Goldsmith, 2016). Under Mexican law, FPIC requires local governments to establish the procedure for benefit-sharing and lead in its implementation. Although delegating the coordination of benefit-sharing to the government may have seemed like an obvious solution, this kind of monetary distribution has proven problematic. These arrangements have exposed the fragility of local institutions and the lack of trust residents in Unión Hidalgo and Santo Domingo Ingenio have towards the local government and developers. Respondents in both communities expressed dissatisfaction with benefit-sharing schemes being used for political and/or personal purposes. During our interviews, a group of local tradeswomen described this practice as *'buying our will'* and *'profiting from our situation of poverty'* (C19), suggesting that recipients consider benefit-sharing schemes as bribes (Walker, Russel and Kurz, 2017; Walker and Devine-Wright, 2010).

As a result, 96% and 81% of interviewees in Unión Hidalgo and Santo Domingo Ingenio, respectively, indicated that they did not trust the local authority to manage these funds. Omar, an inhabitant of Santo Domingo Ingenio, explains, *'if everything was done right, we would see a positive impact. Yet, everyone here wants water for their own mill, the municipal government and developers alike'*. Furthermore, tenants in Santo Domingo Ingenio argue that benefits should be shared amongst them, excluding the rest of the population, as they believe that they are the only affected party. They thus argue that wind energy developers are not liable to provide benefits for the rest of the community (L12, L19), and contend that the entire budget for community benefits should be spent to improve agriculture techniques on their own land (C13, L12, L14); as described by one tenant in Santo Domingo Ingenio '*you (developer) do not have any responsibility towards the community, they are not included in our agreement, you are affecting me and not them'*. In El Espinal, by contrast, the government has provided sports and cultural facilities, as well as higher education scholarships, using wind energy funds. For instance, the mayor asserted that *'the central park and the town's entrance was funded by wind farms'*. Consequently, 59% of survey respondents thought that wind energy companies had a positive effect on the collective community's well-being, which contributed to their positive attitude towards wind energy developments.

Generally, distributive justice through benefit-sharing remains elusive. Agreed benefit-sharing arrangements have delivered favourable results only for certain groups, often at the expense of others. While community benefits are commonly expected to help create the conditions for the successful establishment of wind farms, as well as to address the upward distribution of wealth towards developers, they are not enough in and of themselves. An adequate power balance in developer-government-community relations is needed (a topic that will be discussed further in Chapter 6). This is a crucial objective for development activities, including renewable energy projects (Cowell and Devine-Wright,

2018). At present, however, renewable energy projects fit the common narrative of public involvement and benefit-sharing arrangements being used as political tokens to obtain communal acceptance of new developments, while sowing the seeds of conflict in the long run.

5.1.2.2. Ability of Securing Employment and Being Able to Attain an Educational Level

When wind energy developers arrived in the Isthmus of Tehuantepec in the early 2000s, they offered local employment as one of the most important trade-offs for installing wind turbines close to their houses. As it turns out, employment is the third most valuable capability in all three localities. Oaxaca has the highest informal sector employment rate in Mexico, accounting for 81.6 per cent of the working population (INEGI, 2019). Residents in the Isthmus of Tehuantepec were thus eager to access more formal and better-paid work. However, while employment was widely available during the construction phase of wind farms, this only lasted for approximately two years, and left an average of a mere 1.6 per cent of all temporary workers permanently employed.[28] *'They did give us a lot of jobs during two years, but once they finished the construction phase we were left in the same place as before, of total unemployment',* explained Tami, a young business owner in El Espinal.

Employment linked to manufacturing, commerce, and non-financial services in the region generally grew by 64.31% between 2010 and 2015, when nearly all wind farms were built.[29] *'They gave us cleaning jobs'*, a director of a school in SDI asserted, '*but at least they gave us jobs which gave families income safety'.* However, jobs still did not grow at the rate that residents expected. This led to concerns about unequal and insufficient access to employment opportunities. For instance, highly-skilled jobs are usually only entrusted to foreign workforces brought in by wind energy developers, as firms argue that local workers do not have the required skills to perform essential duties, such as working at height. However, residents regard this decision as unreasonable given the need for local employment and that local people can acquire such expertise through training: '*we can become as competitive as any other worker in the world, we just need training'*, one respondent asserted. Furthermore, developers offer the few available low-skilled jobs to tenants or their relatives as currency to prevent farmers from blockading roads to wind developments; *'obviously, landholders are the ones enjoying employment benefits'*, lamented an inhabitant of SDI. This uneven distribution of jobs has affected the social acceptance of further developments since non-beneficiaries no longer see employment as a widely accessible benefit of the wind energy industry. Moreover, this further widens the economic gap between land tenants and the rest of the community.

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[28] Survey results on file with the author.
[29] while in the state of Oaxaca grew 53.7% in the same period (INEGI 2016).

Education was also categorised as a valuable capability in all three communities. And, at the same time, 14 per cent of respondents considered education as one of the most important unfulfilled capabilities in their lives due to the lack of access to education in the region. The two main ways in which education is important are increased access to formal employment and train the next generation.

Technical education increases one's access to formal employment. Oaxaca has an average schooling of 7.5 years, a rate significantly lower than the national average of 9.2 years. Furthermore, 13 per cent of the population is illiterate (INEGI, 2015). People in the Isthmus of Tehuantepec believed that the wind energy industry would be an opportunity for young people to access skills training that they would not otherwise have, enabling them to have qualified jobs in the industry (C26, A2, G7). Interview participants recounted people that had been trained locally and employed in the industry in other countries; the mayor of El Espinal recalls, '*those who worked here are now working in other places such as Chile and Costa Rica. Yes, they train them and send them abroad!*' (G3). The commissariat of SDI also asserts this education need the following way: '*education is the engine of the whole world; therefore, we should create an internationally recognised institute so that our children can contribute to the wind project*' (L11).

Enhancing basic education has been seen as a way for people at an early age to understand and engage RETs and other sustainability issues. One school director in El Espinal observes, '*they try to connect with the community, and that is why they give us talks and workshops about sustainability. Children are also taken to visit wind farms. This helps children learn more about these new technologies and propose ideas to improve local environmental issues*' (C1). Relatedly, people value community benefits that improve school infrastructure, and further proposed the idea of introducing scholarships for children to continue their studies (C25).

The connection between investments in education and community acceptance of wind farms can partly explain El Espinal's positive attitudes towards development. In El Espinal, average access to education is higher, and thus this municipality has secured more jobs in the wind energy industry compared to Unión Hidalgo and Santo Domingo Ingenio. Moreover, developers in El Espinal have engaged in several initiatives for children with a focus on environmental education, such as producing books for basic education levels on renewable technologies (C7, D10) and promoting engineering programmes, such as robotics competitions (D3). These initiatives have become popular among local schools since they are a way of training future generations to participate in the industry's qualified workforce. Conversely, school directors in Unión Hidalgo indicated that these kinds of initiatives have not been promoted in their municipality (C12, C17).

Overall, local communities in the Isthmus of Tehuantepec value access to education as it can be instrumental to acquire a skilled employment position in the wind energy industry. However, the sector has generated a lower number of jobs than expected, confirming literature on wind energy that describes

the industry as not labour intensive (e.g. Cowell et al., 2012; Pasqualetti, 2011; Yenneti & Day, 2016), contrary to what developers implied. Furthermore, the few low-skilled opportunities that do exist have only been available to tenants, and high-skilled jobs are given to foreign technicians. Concurrently, developers and local governments have promoted only a few education opportunities that could reverse this pattern and ensure a higher rate of local employment by the industry. The unmet expectations of people's capabilities and the industry's capacity to contribute to their enhancement have left local people resentful of wind energy companies, contributing to a negative stance towards future wind farms.

5.1.3 Concerns About the Distribution of Ills

"As a member of the local population, I demand ills are readdressed or developers to go"

Juan, inhabitant of Unión Hidalgo and former tenant of DEMEX.

Most residents living near wind farms are certain that there are negative effects following their installation, although they are unsure about the kind of negative impacts that may arise. Two main burdens, that are also markedly associated with people's valued capabilities, have caused general concern among the residents in all three case studies: potential risks to human health and the degradation of the environment. Unlike the uneven distribution of benefits, data from the interviews show that ills derived from wind energy developments tend to be more equally distributed among neighbouring communities. Rosa, an inhabitant in Unión Hidalgo, stressed to '*give your land away, do whatever you want, but also respect us because you are harming our health. I have no land but this is my town, my world, and you are polluting it*' (C19).

5.1.3.1 Being Able to Have Good Health

Health was the most important capability dimension for all three communities. Interviews revealed that anticipated negative impacts on health, now and in the future, was one of the main factors affecting the acceptance of wind turbines. Only 10% of survey respondents reported a positive impact of wind farms on access to health information or services. This may signal a lack of investment by the wind energy industry in health, which, if rectified, might increase the social acceptability of wind energy.

Perspectives on health concerns vary among the three localities. Concerns about noise annoyance were mainly raised in Unión Hidalgo (C19, C20, C21). One tenant measured noise levels and concluded that it can reach 94.2 dB at the base of a wind turbine and up to 91.8 dB at a distance of 500 metres. He mentioned that this could be cause to worry, given that the WHO recommends exposure of no more than 45 dB while sleeping to reduce the probability of induced awakenings: *'A worrisome impact is the noise. It can cause the wind turbine syndrome which dries the lubricating liquid in the ear and affect balance. You can end up in a hospital'* (C20). Furthermore, respondents demonstrated annoyance at the noise generated by turbines, which, they say, could have been avoided by installing wind farms further

from the community: '*It's not fair*', lamented Martín in Unión Hidalgo, *'they build them 300m from our houses, and it makes a lot of noise, especially at nighttime'* (C23).

In Santo Domingo Ingenio, residents were mainly worried about oil leaks that could pollute edible crops, and possible effects of electromagnetic fields that they fear could cause cancer (L12, C13, C9, C27, C28): *'the large number of turbines produce magnetic waves that affected pregnant women and are carcinogenic'*, asserted Luis, a member of the government in Santo Domingo Ingenio. However, McCallum et al.'s (2014) research on exposure to electromagnetic fields from wind turbines found that though magnetic field levels were detected in the base of turbines, these rapidly diminished with distance. This study concluded that wind turbine's magnetic fields do not have an influence on nearby homes, located as close as just over 500m from turbines, and showed that these magnetic levels were lower than those produced by many household electrical devices and were well below regulatory guidelines for human health.

By contrast, residents in El Espinal did not raise major concerns, but wanted further research done to assess the extent of wind energy impacts. These differences in the three communities' reactions may be explained by the short distance of the turbines to both towns (500m) as opposed to the distance of the closest wind farm to El Espinal (2km).

5.1.3.3. Being Able to Live in a Healthy Environment

> *"Foreigners come to Indigenous communities because they know that in this land they will find resources that they have already depleted in their own countries"*

> *Linda, inhabitant of Unión Hidalgo.*

Conserving the natural environment is a valued capability for people in the Isthmus of Tehuantepec. People's livelihoods, as well as their biocultural heritage, depend on the preservation of regional plants and animals. Even though wind farms are designed to offset the use of fossil fuels and thus contribute to a sustainable, low-carbon future, wind power poses its own environmental challenges. In particular, perceived and actual impacts of large-scale wind energy installations, especially on soil erosion and biodiversity, contribute to a troubling stance towards future wind energy developments in the region, which has become a significant factor affecting acceptance.

Residents mainly in Santo Domingo Ingenio and Unión Hidalgo believe the installation of wind farms has affected water availability in the region. Respondents explained that the amount of concrete that has been injected into the soil when building turbine foundations, has had an impact on the land humidity needed for soil fertility (C19, C20, C21, C23, C29, C32). José, a local farmer in Unión Hidalgo, asserted that '*the great quantity of concrete injected in the soil is obstructing water veins, which is the reason why wells are drying up'* (C27). Indeed, an engineer working for an energy company explained that water currents need to be channelled to avoid the infiltration of turbine

foundations, which can reach six metres in depth (D23). The resulting scraping and concrete filling can produce accelerated soil erosion (Pasqualetti, 2012), which inhabitants fear will affect agricultural productivity. Though this was a common worry in both Santo Domingo Ingenio and Unión Hidalgo, it was particularly opposed by residents in the latter. Unión Hidalgo is known for producing crafts from the natural, 829ha palm forest, 3km from the municipality. Inhabitants have engaged in palm weaving for more than a hundred years, and it serves as the livelihood for at least 50 households, especially elderly people (C20) (Chaca, 2019). Nevertheless, palm productivity has decreased in the last ten years, and residents in Unión Hidalgo blame the lack of humidity from wind farms as the main cause of this decline. Given the perceived and actual effects of wind farms on livelihoods, wind energy opponents argue that turbines should not be installed near sites that constitute people's livelihoods, such as agricultural land, forests and lagoons, or fishing coasts (C20, C27, C28, C29).

Moreover, residents are unsure about the extent to which wind farms impact local wildlife. Respondents showed particular concern that the large number of wind turbines installed could cause birds to change their migratory routes (C19, C21, C24, L13). Rosario, a local schoolteacher in Unión Hidalgo, asserts that the singing birds at dawn and sunrise, a much-loved characteristic of the town, are now not as loud as before: *'you would hear the ducks coming every morning and evening, this event coincided with the beginning and end of my daily shores, now we don't hear them as much anymore' (C).* The most common environmental issue associated with wind power in the literature is the impact of the spinning blades and other parts of the wind machinery on wildlife, particularly on birds and bats (e.g. De Lucas et al., 2007; World Bank, 2011). The World Bank (2011) confirmed that the wind resource area in the Isthmus of Tehuantepec is also a world-class bird migration corridor, where millions of birds pass each year to move between North America and Central or South America. However, this study, which evaluates bird birth and death in this region, concludes that residents' concerns are not validated by their results. The report shows that even though the region is an especially important seasonal pass,[30] these species remain abundant within their suitable habitats, and until 2011, no carcasses had been found, suggesting that wind power is not causing a significant effect on the bird population. Non-migratory species, however, have been more significantly affected.[31] Post-construction monitoring found seven carcasses under turbines from 2007-2008 (INECOL, 2009). Nonetheless, for local bat species, the region may be functioning as a "population sink", where though mortality exceeds reproduction, the local population is maintained through influxes of adjacent areas. Despite these concerns, none of the 19 species found dead during the study period are considered threatened.

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[30] This is particularly true for Swainson's Hawk *Buteo swain-sonii* and Franklin's Gull *Laurs pipixcan*.
[31] One bird species that has been significantly affected is the White-tailed Hawk *Buteo albicaudatus,* which is a non-migratory species.

Inhabitants of Santo Domingo Ingenio and Unión Hidalgo, however, do not trust the information produced through these studies. In both municipalities, residents explained that developers were not honest about the significance of the negative environmental impacts. María, a schoolteacher in Unión Hidalgo, asserted during the interview with a tone of disbelief, '*if it's true that is clean energy, why don't they install turbines in their own backyards*?' (C28). Furthermore, respondents suggested that companies appointed an employee to collect dead birds every morning (L12, C27, C28, C29): '*There is an employee that they call the birdwatcher, who is in charge of checking if there are any dead birds before we wake up*' (C19). Local government officials in Santo Domingo Ingenio and Unión Hidalgo have raised similar concerns and pointed that developers have not addressed health and environmental concerns effectively, contributing to the population's mistrust towards wind farms (G9, G15, G12). Conversely, none of the respondents in El Espinal had environmental concerns, and the mayor of El Espinal specifically dismissed environmental effects that could affect livelihoods (G3).

Overall, respondents suggested the need for a study to account not only the impacts of each wind farm individually, but also the cumulative environmental and health effects of all developments in the region. This cumulative study would give the local, state and national governments the necessary information to establish environmental and health guidelines for developers to follow. This would address resident's concerns and alleviate and/or compensate for any costs incurred, particularly for people that do not currently benefit from the industry. This is especially important since environmental impacts are seen as interrelated elements of human life. This relationship will be discussed further in Chapter 7, as residents see nature as sacred communal territory, indivisible from humans, that must be cared for, respected and nourished (Martínez Luna 2013).

Findings of this research echo other studies that concluded that wind turbine's environmental and health impacts (e.g. Dunlap, 2017; Pierpont, 2009; Premalatha et al., 2014; Simon, 2013) are some of the most important factors behind social resistance (Devine-Wright, 2005, 2007; van der Horst, 2007; Wolsink, 2007). By recognising that people value health and the environment as capabilities, this study emphasises the importance of not only looking at functionings (what people are able to do or be), but also at whether or not people can maintain their livelihoods or if wildlife is affected. It also points to access to health and a good environment as major contributions to their well-being. Furthermore, though the impact on landscape is one of the most important factors affecting acceptance in the literature on wind energy (e.g. Brittan Jr, 2001; Cowell, 2010; Short, 2002; Van der Horst and Toke, 2010; Zografos and Martínez-Alier, 2009), this effect is not recognised as a concern by people participating in this study, thus highlighting the importance of looking at contextual understandings of well-being.

5.2. Consequences of Maldistribution

5.2.1. Inequality as a Consequence of Maldistribution

'There are some people that say that we are creating a rural bourgeoisie'

*Fernando Mimiaga, Director for Sustainable Energy and Strategic Projects in the
Economic Ministry, Oaxaca State Government.*

The uneven allocation of benefits and ills is central in understanding factors affecting social acceptance of wind farms. By looking at distributive justice, it is possible to know the extent to which the introduction of wind farms has exacerbated disparities within populations. In the case of the Isthmus of Tehuantepec, although perspectives on distribution differ among different stakeholders, all agree that the wind energy industry has contributed to widening social and economic gaps between people in the region, thereby debilitating the community's internal social cohesion (D3, D15, G9, G7, N1).

Inequality predates the introduction of the wind energy industry in the Isthmus. Prior to the installation of wind farms, landholders were usually better off than the rest of the population, as they still held the main economic means of production (linked to agriculture and livestock farming). Although only the wealthiest had access to land to raise cattle or grow crops, economic differences were not socially significant in people's everyday lives. All residents had equal access to social festivities and social arrangements were generally not marked by drastic socio-economic differences (C5).

The introduction of the wind farm lease, however, has further strengthened tenants' economic position vis-à-vis farmers that do not have a tenancy agreement and people that do not own land (C32, C17); as Luz from Santo Domingo explains, *'there is a good economic impact that is benefiting only one sector of the population: people holding land'* (L12). This revenue has given tenants in all three communities the economic resources to buy tools to improve their farm productivity. Moreover, tenancy agreements give landholders access to credit, which they often use to improve cattle quality (L22).

Most importantly, inequalities have weakened the social fabric of all three communities, particularly in the form of family ties/structures (L12, D9, C8, C26, C27, C28, C29). In the Isthmus, family networks play an important role in keeping social interactions and economic issues balanced. Nevertheless, the arrival of wind farms has increased conflicts within families. For instance, there have been growing tensions over land inheritance among household members, and at times, one or several family members do not agree to signing a contract with a wind energy company. This has caused internal divisions, as Rosa from Unión Hidalgo explains: '*There are some bastards within families who have taken over the land, and they refuse to talk to each other. Only when people start dying they will realise how bad this has* become' (C). This is particularly significant in the Isthmus, given the importance that residents confer to family and social networks, which was the second most important capability dimension raised

in the survey. Poncho, a master's student in Unión Hidalgo described this situation using the following words: *'If there is no cordiality in a family, how can there be a community?'*(C26).

In the long term, inequalities could have a significant negative effect on people's capabilities. Tenancy payments have increased some families' access to quality education, health and family recreation, thus enhancing their capabilities, while leaving the rest of the population behind. This inequality can be harmful to health since it undermines social capital and disadvantages the poor with insufficient social welfare provisions (Lynch et al., 2004). Furthermore, extensive evidence shows a relationship between family income and school outcomes (Neckerman and Torche, 2007). Finally, in the case of social relations, sociologists (e.g. McPherson et al., 2001) have documented that people associate more with others who are like them. Higher socioeconomic status families pay higher housing prices to live in more homogenous neighbourhoods (Bayer et al., 2005). This situation implies that economic segregation could rise as inequality increases (Neckerman and Torche, 2007). Furthermore, inequality may also reduce social capital. Costa and Kahn (2003) report that long term declines in social capital are associated with rising income inequality, and levels of trust and civic participation are lower in areas with greater income inequality. Furthermore, Neckerman and Torche (2007) explain that current inequalities may reinforce economic inequalities in the next generation, which ultimately effects intergenerational social cohesion as the worlds of the poor and the rich diverge.

Inequality between tenants and the rest of the community has had a particularly significant effect in Unión Hidalgo, which has the largest proportion of communal land. In principle, anyone in the community that needed land and had the means to cultivate it could do so. This was done based on the principle that the harvest was used for family support, and that this activity could cease at any time so that another member of the community could make use of the land if needed. Nonetheless, as described in section 5.1.1.1, with the introduction of the wind energy industry, landholders declared private ownership over the land, thereby restricting access for other community members. This situation significantly worsened inequalities, and residents believed that these actions threatened their rights secured through the Mexican Revolution, such as agricultural land distribution that provides inhabitants equal access to land for sustenance (Mackinlay and de la Fuente, 1996). Thus, residents in Unión Hidalgo withheld approval for the construction of more wind farms in the municipality, unless all benefits generated from the land, such as lease payments, would also be shared (C16, C12). Fausto, a landholder, explains: *'we don't see our family and our piece of land, but we see the benefit devised in the town... We are not going to let companies do whatever they want, we will work with them only if benefits are for everyone'* (L18).

In the case of Santo Domingo Ingenio, inequalities have widened between farmers that have become tenants and other farmers. As described in Chapter 4, since the town was founded around a sugar mill, inhabitants either grew sugar cane or worked at the factory. José Abel, a tenant, explained that one person per family provided the full household income, and almost 80% of local salaries came from the

sugar mill. However, since the mill closed in 2002, most people working in the formal economy were left unemployed. Nowadays, because the main source of income is wind farm tenancy payments, the economic gap between tenants and the rest of the community has exacerbated. Cris from Santo Domingo concluded, *'do you know what wind farms bought to this town? They made the rich richer and the poor drunker'* (C16). Furthermore, these earnings have not been treated as a salary for the benefit of all family members, but as personal revenue, causing numerous family tensions and disagreements in the municipality.

Overall, El Espinal has been less affected by rising inequality. Yet, the introduction of the wind energy industry can still have consequences in the medium term, such as gentrification. People in the community that do not own land usually work as a teacher or perform other managerial or administrative work. Given the higher salaries of professional jobs, income from tenancy agreements is not as proportionally significant to their two counterparts. Nonetheless, respondents mentioned that the town has commenced a process of gentrification.[32] Wind energy developers have built their offices directly in the locality, which, along with high quality roads and services, has ushered foreign workers to choose the community as a temporary home. As a result, housing prices and rents have increased. Hyra (2016) asserts that this could lead to a lower supply of affordable housing units for the local population, and possible displacement in the medium to long term (Newman and Wyly, 2006).

Consequences of maldistribution have resulted in two different stances towards the construction of new wind farms among residents in the region. People that currently benefit from the industry assert that an increase in wind farms will also increase the number of farmers receiving tenancy payments. As a result, more families would have access to a diversified income that, in turn, would trickle down to the rest of the community in the form of circulating capital (Smith 1937). On the other hand, non-beneficiaries argue that the development of more wind farms will result in a further increase of inequalities within communities. Moreover, the latter stance coincides with theories about the effects of inequalities on social cohesion (e.g. Wilkinson, 1997) associated with neo-liberal (market-oriented) political doctrines (e.g. Coburn, 2000); they predict that relationships within families may become more tense given that payments are paid to the individual and not to the family.

5.2.2. Inequality and Perception of Wind Farms

Distributive injustice and inequality also shape individual views, specifically as factors that affect the social acceptance of wind energy. This study revealed that the perceived degree of benefits received is significantly associated with people's level of concern about the negative impacts of wind farms on their health and the natural environment.

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[32] Gentrification is an influx of upper-income people to low-income areas (Hyra, 2016).

Both beneficiaries and non-beneficiaries raised the risks of wind energy related to the natural environmental and human health. However, those who saw themselves as non-beneficiaries raised these concerns more openly and frequently than beneficiaries did. Study respondents explained that the underlying reason for non-beneficiaries', at times, catastrophic approach to wind energy impacts on the environment and human health, was the need to distribute economic benefits among the population more equally. Health and environmental concerns can be useful to legitimise other distributive concerns, such as the allocation of payments among the affected population. This is because it is socially acceptable to raise such concerns when arguing, for instance, that it is not fair for everyone to be affected by health and environmental hazards if only some will benefit economically. Conversely, discussing economic allocation disparities directly can be socially unwelcome. In the local Zapotec culture, arguing about economic disparities means that you are not willing to be happy for other's successes, which may be interpreted as envy—a feeling that is not socially accepted. As I discuss further in Chapter 6, economic distributive concerns, unlike health and environmental concerns, are often dismissed due to fear of social penalisation.

For instance, groups opposing new wind farms in Unión Hidalgo were formed of residents that did not own land, and their main stated disagreements were particularly linked to possible health and environmental hazards. Yet, when these respondents were asked for the conditions under which wind farms would be more socially acceptable, they did not mention offsetting environmental and health impacts, but rather for developers to make in-kind contributions to the municipality. By contrast, land tenants argued that health and environmental risks should not raise any concerns given their minor consequences as compared to other energy production technologies (L1, L2, L3, L4, L16, L17, L18, L21). Furthermore, tenants contended that contrary to what wind energy opponents argue, their livelihoods have not been negatively affected by wind farms; though turbines are in their crop fields and grazing lands, this has not had a negative impact on agricultural productivity or cattle production. Tenants also explained that when there have been oil leaks, developers have promptly cleaned the area and paid for possible crop damages without delay. They also contend that noise levels are lower than those recommended by the WHO and the Mexican Ministry of the Environment and Natural Resources (SEMARNAT), and actively dismiss the idea of wind farms causing illness, such as cancer.[33] Finally, they assert that other infrastructure adjacent to the community, such as telephone antennas and roads, are more hazardous to animal and human health, yet people do not raise concerns about the installation of these.

Recent studies confirm that such catastrophic discourses related to health and environmental concerns are unfounded (see e.g. Nahmad 2014; CCC, 2015). These authors argue that these result from

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[33] Respondents also mentioned birth defects, such as cattle born with two heads and children born without arms (C16).

the lack of access to information and low education levels amongst the Isthmus of Tehuantepec population. As a result, it is difficult to disseminate information about possible human health and environmental threats, and local people resort instead to rumours and alarmism (Nahmad, 2014).

Despite this evidence, authors writing on this topic (see e.g. Dunlap, 2017; Howe, 2019; Howe & Boyer, 2016) still focus on the importance of environmental threats. Though access to information may be an important factor, this study argues that looking at distributive justice provides insight into a different set of reasons behind why residents adopt catastrophic discourses. What may be *voiced* as a disagreement over an untested negative impact may, in fact, be profoundly linked to underlying resentments about the uneven allocation of material benefits. This in turn explains why divisions among the population persist, even though access to information about the negative impacts of the wind energy industry has expanded.

5.3. Risks of Misrepresenting Maldistribution

The uneven distribution of benefits between developers, the state, and the local communities in the Isthmus of Tehuantepec discussed in section 5.1, has often been framed under the concept of 'extractivism' (Dunlap 2018; Mejía-Montero *et al.* 2020). However, given the study findings, I argue that this depiction is problematic since the extractivist label has not contributed to enhancing local people's capabilities nor has it addressed Mexico's environmental challenges. Defined by Kay (2010), extractivism is characterised as the relationship between the industrialised "North" and the developing "South" that entails the exploitation, control and export of raw materials from the latter, to power the industrial development of the former through colonial coercion and post-colonial "consent". This concept has two main features: (1) transnational corporations play an important role in the exploitation of raw materials and appropriate profits, and (2) the state preserves this model internally (Butchart and Dietz, 2014). Extractivism has been central to theories of development and underdevelopment in Latin America; during the 1980s and 1990s, the region was characterised by a limited state role, the liberalisation of capital flows and flexible labour, and environmental territorial regulations (Gudynas, 2010). Transnational corporations dominated these extractivist projects, bringing capital investment and technology to capital-poor but resource-rich areas (de Janvry, 1981).

Following the extractivist discourse, the wind energy industry in Mexico has mainly been fuelled by foreign capital to produce a good with profits that will ultimately benefit transnational energy utilities. Mexico's Ministry of Energy and the State of Oaxaca have played prominent roles in promoting direct foreign investment in this sector. Besides, as discussed in section 5.1.2, residents consider that these two actors are not adequately assuming the responsibility of remediating the social and environmental ills that this business has caused in the Isthmus of Tehuantepec. Other authors (e.g. Jara, 2011; Dunlap, 2017; Juárez Hernández and León, 2014; Howe et al., 2015; Howe, 2014; Huesca et al., 2016; Sellwood,

2014) have also conceptualised the establishment of a wind energy industry in the Isthmus of Tehuantepec with extractivist development logic: wind energy projects require large sums of capital, and therefore they are strongly linked to financial capitalism where economic benefits are retained by energy corporations at the expense of the welfare and livelihoods of local communities (Gledhill, 1995; McDonald, 1999; Ochoa, 2001; Schwegler, 2008).

Nevertheless, three factors call into question the label of the wind energy industry in Mexico as extractivist. Schroeder et al. (2008) argue that in the context of environmental justice in the developing world, benefits and burdens 'are always relative, both in absolute terms and with respect to any particular group of potential resource users' (p. 550). Thus, when proposing the distribution of benefits and ills from wind energy with an extractivist approach, there should also be a discussion about whether wind energy can be characterised as an environmental hazard, to what extent benefits are kept locally or exported, and to what degree extractivist politics of distribution apply to an industry that is questioning a binary transnational corporation vs. a community approach at the local level.

The concept of extractivism is distinguished from other forms of natural resource appropriation due to the high intensity of environmental impacts—toxification, contamination, pollution, soil degradation, deforestation, etc (McKay, 2017). Nonetheless, contrary to extractivist industries such as mining or oil extraction that generate negative environmental externalities, wind energy has been designed to offset carbon emissions. Although, as discussed in section 5.2, there are some environmental risks, wind energy has fewer effects on the environment than most other energy sources (Bassi, Bowen and Frankhauser, 2012). Thus, the wind energy industry does not have the environmental impacts of a traditional extractivist industry. As seen in Chapter 4, Mexico has statutory commitments that require the rapid decarbonisation of electricity generation. Therefore, in terms of overall benefits for the environment, the question becomes a choice between wind energy and other low-carbon solutions, not a choice between wind and fossil fuels.

Furthermore, another characteristic of extractivism is an exploitation scheme where internally produced goods are consumed externally, and do not depend on internal markets or domestic demand. Nevertheless, all energy produced by wind farms in the Isthmus of Tehuantepec is regulated and consumed in the internal market. Thus, beneficiaries of wind energy are not only transnational energy utilities, but also local businesses in Mexico. However, as discussed in Chapter 4, it is important to note that the main modality for renewable electricity development in Mexico is self-supply, which is commonly used by businesses that want to offset production costs by establishing a partnership with an electricity generator to comply with Mexico's constitutional limitation on the sale of electricity (IRENA, 2015). This is often not an option for small scale businesses and individual consumers. Thus, although the electricity produced is being used to satisfy local markets, access to renewable energy at a lower price is limited to certain local powerful stakeholders.

Moreover, the extractivist discourse in the literature that addresses wind energy extraction in Mexico is often rooted in oppressor-victim reasoning that fails to acknowledge the forms of agency and types of power that people exercise within local communities. Instead, this argument portrays individual citizens as a homogenous entity that has been manipulated to fulfil green capitalist aspirations (Howe 2014b; Howe & Boyer 2016). Following this perceived market-based model to rebut anthropocentric threats (Howe 2014b), local community opposition and resistance to wind farms is conceptualised as a horizontal, collaborative and literalist model of political action (Howe et al., 2015) 'ready to refute neoliberalism and its pretensions of democratisation' (Graeber, 2002: 68). This depiction, however, is problematic, since there is not a single community, but several groups with different interests and perspectives that result in diverging allocations of benefits and ills within a community (a discussion that will be further analysed in Chapter 6). Furthermore, an oppressor–victim perspective raises doubts about strategies employed by anti-capitalist groups that may themselves resort to information manipulation to validate and strengthen their discourse and actions in Mexico (Nahmad *et al.* 2014). This situation poses a risk for the self-determination of local groups in deciding whether they are or are not in favour of building new developments. In the last year, following an apparent breach to human rights allegations raised by the media, which included claims that had not been consulted within communities, two major wind farms projects were cancelled and funding has been curtailed (CCC 2015b; Howe 2014b), leaving many farmers and members of the community without the opportunity to decide whether they would agree on accepting projects at present and in the future (Mendoza *et al.* 2015).

Finally, the assumption that developers' neo-extractivism discourse only pursues profit at the expense of the local population can also be questioned. Developer representatives participating in interviews showed interest in the welfare of the local population and were willing to actively contribute to their well-being. Nevertheless, even though certain firms had developed a robust corporate social responsibility scheme, since there is no legal framework to control and record these benefits, developers often felt that they were used as bribes. This led to an upward spiral of demands, whereby communities requested benefit increases, which was at times labelled as extortion from certain groups within a community. As a result, weak institutions and regulatory frameworks have left developers disincentivised from making further investments and hesitant about and changing their community-benefit strategies (to be further discussed in Chapter 6).

Given these three factors, though there are elements of maldistribution of the benefits and ills from the wind energy industry in the Isthmus, I argue that framing this case as extractivist is not useful. This notion offers an absolute stance that puts opportunities for offsetting carbon emissions at risk by depicting the wind energy industry as an environmental hazard. Furthermore, this position is often binary and does not account for the nuanced politics of distribution at the country and community level, which needs to be further analysed to define who this industry is benefiting and how.

5.4. What Should be the Principles for a Just Distribution?

This chapter's analysis confirms that distributive concerns in the uneven allocation of benefits and negative externalities of the energy system are central factors affecting community acceptance of wind energy developments, and that the capability approach helps to observe subtleties, subjective and context-specific factors.

A simple analysis of distributive justice would identify tenants who receive additional income as winners, and people neighbouring wind farms that do not receive economic benefits as losers (Gross, 2007). Utilitarian approaches to distribution would advocate for 'some form of additional, positive provisions for the people affected' from developers (Cowell et al., 2011: 539; Wolsink, 2007), so that individual preferences are aggregated into a social preference that favours the installation of wind farms in the context of a much-needed energy transition.

Bell (2004) identifies three generally applicable principles that echo Rawls' Difference Principle and the notion of primary goods: (1) a 'principle of equality', suggesting, for instance, the equal per-capita distribution of benefits across communities; (2) a 'principle of equality plus a guaranteed standard', focusing on removing inequality while maintaining a standard of distributive equality ensured for all (such as basic standard tenancy payments or community benefits); (3) a 'guaranteed minimum with variation above that minimum according to personal income' and living choices, in which people can reasonably express their preferences in different ways beyond an ensured minimum. With this approach, injustice manifests in the failure to ensure minimum standards, rather than inequality, per se. This supports Rawls' idea of diverting from equality as long as the least advantaged in society are better off than they would under strict equality. Yenneti and Day (2016) also advocate to distribute benefits based on the basic needs for the lowest strata of the local community.

In this thesis, respondents in all three communities demanded that benefits from the wind energy industry should contribute to the development of the population as a whole, confirming Rawls' approach to distribution. At the same time, findings highlighted the importance of looking at distributional outcomes in terms of capabilities—what people are able to do and achieve—as advocated by Sen and Nussbaum.

Across all three communities, developer and government perceptions of the local population's needs have guided community-sharing as well as the allocation of other benefits, such as tenancy payments. However, these benefits do not always cohere with local people's valued capabilities, as shown in Table 17. Instead, benefits should be guided by needs valued by the local population in the Isthmus, such as jobs, education opportunities, and access to a safe and natural environment. This would mean local people establishing a standard for equality, thereby defining their own benefits and deciding how they would be allocated.

Table 17. Distributive justice and people's capabilities in the three communities

Capabilities	El Espinal	Santo Domingo Ingenio	Unión Hidalgo
Ability of securing income (money)	Land ownership: private property. Few disputes over tenancy benefit distribution. Community benefits: committee-decided, increased transparency and effectiveness in use of funds. Companies permanently employing local people are considered 'extended family', shielding them from social criticism.	Land ownership: collective property under a *bienes ejidales* regime. Community benefits: managed by the local mayor, raising misappropriation concerns. In kind payments have not been in line with people's needs.	Land ownership: communal land. The new individual tenancy contracts with selected farmers have created tensions within families and between neighbours. Community benefits: managed by the local mayor, raising misappropriation concerns.
Ability of securing employment (job)	Higher educational attainment has provided access to high-skilled jobs in the wind energy industry.	People have had access to a reduced number of low skilled jobs.	People have had access to a reduced number of low skilled jobs.
Being able to attain an educational level (education)	Provision of education infrastructure. Introduction of robotics programmes in elementary schools.	One developer has created a lecture and booklet on sustainability as part of the primary school programme.	Provision of little education infrastructure, such as toilets in schools.
Being able to be in good health (health)	78% of respondents have access to health services. Respondents didn't raise concerns about health impacts. Developers have not contributed to increasing access to healthy lives.	80% of respondents have access to health services. Respondents raised health concerns related to electromagnetic fields that could cause cancer. Developers have contributed funds for the construction of a local hospital, but, according to study participants, these have been misused by a former local mayor.	68% of respondents have access to health services. Respondents raised health concerns related to noise annoyance.
Being able to live in a healthy environment (environment)	Closest turbine distance: 1km. Respondents did not raise concerns about environmental impacts.	Closest turbine distance: 0.8km. Respondents did not raise concerns about environmental impacts.	Closest turbine distance: 0.5km. Respondents raised environmental concerns related to water pollution from oil leaks, accelerated soil erosion, impacts on water availability and wildlife, particularly birds and bats.

Particularly, respondents in El Espinal believe that the arrival of the wind energy industry has had positive distributional justice effects with regards to enhancing their capabilities. The industry has

increased people's incomes by offering tenancy payments to almost all local land holders as well as job opportunities. Because of El Espinal's high levels of educational attainment, inhabitants have been able to get high-skilled permanent jobs in the wind energy industry. This has strengthened ties between the local population and wind energy companies, who are often treated as an extension of their family. This relationship contributed to community acceptance by shielding developers from criticism and bridging social divisions between the town and energy companies. The municipality's high education levels have also enabled inhabitants to access legal, financial, and environmental information, facilitating mutually satisfactory agreements between local people and developers. Developers have contributed to local education and public infrastructure by renovating the local secondary school, providing robotics programmes to elementary schools, and rehabilitating the main town square and sports facilities.

People living in Santo Domingo Ingenio, however, do not believe that distributive justice has been achieved following the introduction of wind farms. This is because the energy industry's contribution to the town's well-being has not met people's expectations and has been unequal. Just a quarter of all land holders became tenants of the wind energy industry and only a few low-skilled jobs have been created, which does not compensate for deindustrialisation. Furthermore, community benefits have largely been channelled through the local government, with minimal transparency and accountability. Local inhabitants have thus made accusations of misappropriated funds.

People in Unión Hidalgo have also raised concerns about maldistribution following the establishment of the wind energy industry due to the energy industry's low and unequal contribution to the town's well-being. Although the locality has historically maintained communal land ownership, the wind energy industry has encouraged individual land ownership and benefit distribution. This has generated disagreements between farmers and within families over the distribution of land tenancy payments. Increasingly individualised ownership patterns have had a detrimental impact on the town's social fabric. Furthermore, developers have rarely provided community benefits, and even when they do, inhabitants accuse local authorities of misappropriating them.

As the results highlight, the body who defines justice and how it is defined can have significant consequences on the choices that are made. The bottom-up, subjective and deliberative nature of the capability approach is thus particularly relevant for building more inclusive definitions of energy justice and ensuring that people on the ground are defining justice concerns, as opposed to developers, NGOs and government officials.

5.5. Conclusion

This chapter sought to build a bottom-up, capability approach to distributive justice to understand what distributional concerns mean to people on the ground. Furthermore, the study aimed to illuminate how these justice implications relate to acceptance of RETs.

In the Isthmus of Tehuantepec in Mexico, although people initially agreed to lease their lands and welcome the wind energy industry, distributive concerns linked to the uneven allocation of benefits have contributed to a growing negative attitude towards the construction of new wind energy developments. The main point of contention was the introduction of policies that allowed developers to profit from the wind energy resource of the region, without regarding the local population as the main beneficiary. As shown in Figure 18, concerns about the distribution of benefits included uneven material allocations of tenancy payments and benefit-sharing schemes, as well as limited access to employment and education opportunities. Furthermore, concerns about the distribution of ills were linked to health and environmental hazards for the local population neighbouring wind farms.

Figure 18. Distributive concerns associated with wind farms
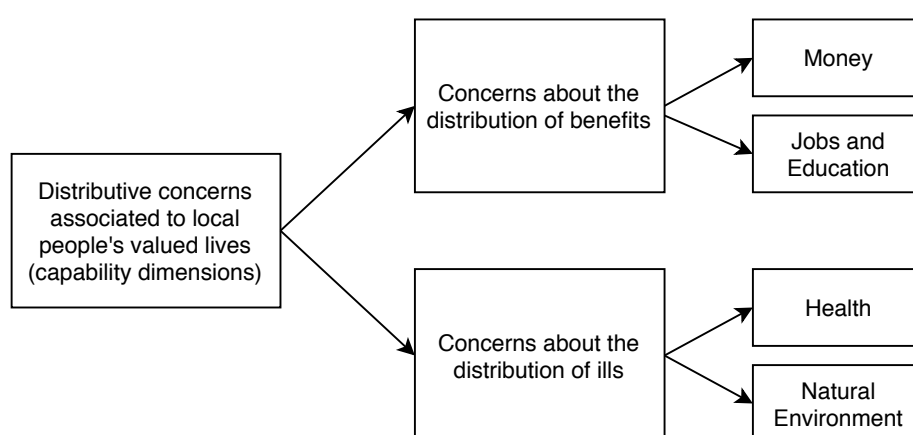
These distributive concerns have widened social and economic gaps between people in the region, thereby debilitating the community's internal social cohesion. Furthermore, the study analysed how these resulting inequalities have promoted catastrophic discourses voiced by groups opposing new wind farms because of perceived human and environmental threats. Finally, the chapter raised the importance of carefully labelling maldistribution. External frames that replicate discourses that do not coincide with people's concerns on the ground, may obscure hidden politics of distribution at the country and community level, as well as put projects that offset carbon emissions, such as wind energy, at risk.

The findings address this issue by proposing the operationalisation of the CA to attain a more context-specific and people-centric approach to energy justice that reveals relevant factors affecting social acceptance. In the Isthmus of Tehuantepec, these factors include the extent to which benefits from the wind energy industry contribute to the development of the population as a whole, while addressing negative environmental and health impacts incurred locally as a result of the industry. Moreover, people want jobs to be carried out by local people and more training for wind farm-related activities, as well as other skills, to boost employment in the region.

The following chapters will discuss how the CA also promotes a better understanding of the relationship between distributive justice and procedural and recognition justice. Each justice tenet

corresponds to a different layer of concerns related to RETs, with distributive justice as the most visible tenet and recognition justice the least observable.

Indeed, the data shows that concerns about distributive justice were more openly and frequently expressed than those of the other two tenets. For instance, when asked about their position towards wind farms, respondents first described how only certain groups were benefiting from the new industry. Subsequently, participants would mention health or environmental risks for the turbine adjacent population. When asked to elaborate on distributional concerns about benefits and ills, reasons often revealed underlying procedural issues affecting wind energy acceptance, which will be discussed in Chapter 6.

Findings also show that concerns about procedure and distribution were embedded within issues associated with recognitional justice, suggesting that human dignity precedes other capabilities such as material resources and the way these are distributed. Chapter 7 will elaborate on how having money, jobs, education, and access to relevant information and decision-making, have all been described by respondents as resources needed for a dignified life, which is profoundly linked to communities' Indigenous identity and historical resistance to colonisation.

6 PROCEDURAL JUSTICE

The previous chapter discussed the distributive justice concerns of people living in Mexico's Isthmus of Tehuantepec, analysing how their concerns are associated with their valued lives to explore factors affecting the social acceptance of new wind energy developments. As concluded, although wind farms have brought numerous benefits to the Isthmus' local economy, these benefits have been unevenly distributed among the people affected by these developments. Indeed, one main factor affecting social acceptance of wind energy is whether the developments have undermined the community's internal social cohesion.

To understand the distributive outcomes described in Chapter 5, one needs to appreciate the contested history of how wind energy developers arrived in the region, the complicated nature of land tenure, and the narratives regarding benefit-sharing and Indigenous consultation of different stakeholders. This chapter analyses these issues through three stories.

From this, two significant findings emerge: first, the process under which wind farm installation unfolds matters when trying to achieve a socially just energy transition. This process is formed by a political continuum of power exercised by all of the stakeholders in different directions, which are constantly shifting. And, at the same time, though this continuous change facilitates the empowerment of different groups at a time, ultimately, processes systematically exclude certain groups of people, while maintaining the power of those that are already powerful. This situation makes it difficult for wind energy to offer an escape for no longer adequate energy systems. Secondly, operationalising the CA makes visible the most significant capabilities that local people have reason to value in the process of wind energy siting. In the Isthmus of Tehuantepec, being able to access relevant information, participation in decision-making, and having access to the law while understanding the judicial system stand out. Power dynamics create important barriers to the expansion of these valuable capabilities for certain stakeholders, shaping the possibility for a just energy transition through the social acceptance of wind energy.

To show these two empirical findings, the chapter consists of three main sections. Section 6.1 delineates the theoretical underpinnings of procedural justice, reviewing its connections with power analysis in energy justice literature. Next, Section 6.2 explores how wind farm siting takes place and the role of power dynamics through the reconstruction of three accounts based on the recollection and analysis of the narratives of the different respondents. The first story outlines how wind energy developers arrived in the region and maintained contact with landholders throughout the construction

and energy production phases. The second story describes regional land tenure schemes and the impact of this contested context on wind energy acceptance. The final story narrates the processes of community benefit-sharing and Indigenous consultation from the perspectives of different stakeholders. Section 6.3 uses these three accounts of power to show how they have affected valued capabilities, particularly aspirations that the respondents categorised as crucial factors affecting their acceptance of wind farms.

6.1. Procedural Justice and Power

Procedural justice speaks to the idea of fair processes, and how people's perception of fairness is strongly impacted by the way experiences are lived, not only the outcome of these experiences. Procedural justice is therefore conceived in terms in which decisions are made, who is involved and who has influence (Walker, 2012).

As discussed in chapter 5, Rawls (2009) emphasises the influence that social and political institutions have in shaping the distribution of primary goods among members of society. However, by focusing on distributive justice, his approach lacks guidance on how to distinguish what constitutes just procedures and how to attain these. Young (2011), in his critique of the distributive focus, advocates for looking at processes, particularly those that produce and sustain unequal distributional outcomes. She argues that democratic decision-making is fundamental to attain just outcomes, suggesting that distributive paradigms tend to ignore the institutional contexts that sway or determine the resulting distributions.

A large body of work on environmental justice has been informed by grassroots movements calling for just processes. These demands were notably voiced in the 17 principles of environmental justice adopted at the 1991 'First National People of Colour Environmental Leadership Summit', which explicitly demanded participative justice (First National People of Color Environmental Leadership Summit 1991). Consequently, environmental justice theorists make reference to justice having both distributional and procedural dimensions (Bullard 2001; Schlosberg 2004, 2009; Shrader-Frechette 2002). Bullard and Johnson (2000:7) define procedural justice as the 'meaningful involvement of all people regardless of race, colour, national origin or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies'. In particular, procedural justice has been analysed in scholarly work on waste management (e.g. Deacon & Baxter, 2013) land use (e.g. Ishiyama, 2003) water quality and allocation (e.g. Maguire & Lind, 2003) and matters related to climate change mitigation and adaptation (e.g. Colquitt et al., 2002; Naumann & Bennett, 2000).

In the environmental policy realm, the UN's Aarhus Convention has become a source of strong guidance for its signatory countries regarding procedural justice (European Comission 1998). It formulates three 'pillars' of procedural justice, which are access to information, access to and

meaningful participation in decision-making and access to legal processes to achieve redress or challenge decision-making processes. These are widely recognised as key interacting elements of justice in procedural terms (Walker & Day 2012c).

Procedural justice is a relatively recent area of enquiry in the literature on energy justice. Most notably regarding wind energy, Gross (2007) uses the case of wind energy in Australia and concludes that the provision of procedural justice, linked to adequate information provision, the ability to participate and to be heard, and unbiased decision-making processes have a strong positive effect on trust in public institutions, the empowerment of communities, and the social acceptance of renewable energy projects. And, by looking at procedural justice through the case of a solar farm, Yenneti and Day (2015) find that the process through which the project was carried out further marginalised those who were already at a disadvantage, which is key to understanding the reasons for unjust outcomes. Sovacool and Dworkin (2015) advance a definition for procedural justice in the context of energy justice, pointing to "how decisions are made in the pursuit of a goal, and who is involved and has influence in that decision-making". Drawing on Walker (2012), they propose four main elements of procedural justice: (1) access to information as an essential condition of effective participation and informed consent; (2) access to and meaningful participation in decision-making; (3) avoiding bias amongst decision-makers; and (4) access to legal processes to challenge exclusion in decision-making.

Procedural justice literature has long mentioned the importance of looking at power dynamics to understand the processes of exclusion in energy transitions. For instance, justice theorist Gordon Walker (2012) defines procedural justice as the power to affect change and influence decision-making, and Shrader-Frechette, (2002) recognises the existence of unjust structures and procedures of dominance of one group over others, constraining participative justice. However, empirical applications and particularly, how power dynamics affect people's capabilities during the process of installing energy infrastructure remains an underdeveloped space.

As concluded in Chapter 5, distributional arrangements in the Isthmus of Tehuantepec have not delivered the expected outcomes, leaving both developers and communities feeling exploited and dissatisfied. This in turn has raised questions about whether equitable outcomes can be achieved through negotiations between large energy corporations and Indigenous communities that are sharply influenced by power disparities. This also raises questions about the role of the government in overseeing such processes. Following the thesis' theoretical framework, this chapter argues that power relations that permeate wind energy siting processes significantly shape people's capabilities, which in turn have an impact on how people see, relate and benefit from new energy infrastructure such as wind farms.

To address this empirical and theoretical gap, which requires the analysis of power when looking at procedural justice and the process of capability expansion, this chapter uses Gaventa's (2006) to discuss how forms of power are created, and the levels of power at which they occur to look at how these

dynamics form barriers to expanding valuable capabilities for certain stakeholders in wind farm siting. As discussed in Chapter 2, Gaventa's approach to power is particularly relevant for enlarging the CA to look at barriers to enhancing capabilities when looking at procedural justice. The framework entails looking at power not just in the public sphere but also through hidden means, creating obstacles to valued capabilities, such as participation, and over time, contributing to their internalisation or the acceptance of an unjust and unequal *status quo* (Gaventa & Martorano 2016).

Drawing from earlier work by Lukes, Gaventa's approach distinguishes three forms of power that shape the way we look at capabilities: visible, hidden and invisible power. Visible power stands for the observable rules, institutions and authorities of power. Hidden power refers to the agendas that are pre-set by certain powerful actors to maintain control over who participates and who does not participate in decision-making, as well as to determine which concerns are voiced. Invisible power, the subtlest of the three forms, is shaped by processes of socialisation that are linked to deeply rooted psychological and ideological boundaries of participation that normalise exclusion and inequality among all of the actors. Who is involved and what is discussed in decision-making processes is framed in a way that is internalised and accepted by both the powerful and powerless. The argument is that while some forms of power may be understood by observing who participates in decision-making about wind farms, and by who receives benefits and who does not, other perhaps more insidious forms of power shape the distributive outcomes by controlling the agenda, and through shaping what are considered as fair processes and roles.

In brief, to challenge unequal power relations and promote change through participation and inclusive decision-making in wind energy siting, we need to look at how capability sets depend on the type of power spaces in which they are found, the level at which they operate, and the form they take. All these dimensions interact simultaneously to affect each other. The creation, opening and closure of power spaces are affected by the local, national and global agendas; whoever creates the space and controls the space decides upon the visibility of power, and all of the previous interactions throughout history shape invisible power, which in turn legitimises the *status quo* (Gaventa 2006)

Through three narratives, the following sections will show how power relations shaped the process of siting wind energy in the Isthmus of Tehuantepec. The three stories will show how power was shared, or monopolised, and how it shifted over time in multiple directions. This section will also assess whether spaces for more inclusive participation were created, or whether increased engagement simply re-legitimated the *status quo.* Finally, using these stories I will discuss what these power dynamics mean for achieving a socially inclusive energy transition.

6.2 The Shaping of the Wind Energy Industry in the Isthmus of Tehuantepec

6.2.1 The Initial Encounter: Land Leasing and the Role of Caciques

6.2.1.1 First Phase: Planning Wind Farms

The Isthmus of Tehuantepec is known for its intense winds, which are capable of tipping over eighteen-wheeled semi-truck trailers. However, its potential was untested until 2004, when the United States Renewable Energy Laboratory (NREL) undertook a full-scale study of the entire wind corridor (Elliott *et al.* 2003). Wind power developers assessed the station data and identified prospective areas for generating wind-powered electricity. For the three cases of this study, four enterprises are particularly significant: the Spanish companies Preneal, Eolia Renovables (Eoliatec), Renovalia (DEMEX), and CISA-Gamesa (Spanish Mexican owned). To access large plots of land across the region, these enterprises gathered signatures for *contratos de apartado* (contracts to put land on hold for a new development). Preneal was not financially prepared to build wind farms, and instead transferred the development rights to other companies, slicing the region into different developments. Contracts for certain segments of land were bought by wind farm construction companies, such as the Spanish company Siemens-Gamesa, which subsequently sold each development to a third company, which in turn signed new 25 to 30-year contracts with tenants. After this transaction, Preneal disappeared from the region, leaving the legal status of the remaining contracts unclear (L16-18)[34].

This visible economic power that allowed developers to buy and sell contracts at will concealed a hidden agenda that started to raise local farmers distrust from the onset of the wind energy industry. By keeping negotiations at the transnational business level, developers were able to offer the same bid to all landholders. This prevented landholders from negotiating contracts with competing offers. Some landholders who initially had a contract were suddenly excluded from the projects altogether, contributing to an attitude of distrust towards the new industry. As several landholders explained, *'they said that payments would be ruled by supply and demand. But in reality, developers did as they liked and ended up paying low land prices to all of us'* (L1, L2, L3 L4, C12). This process points to a free-market misconception: every market has rules that are dictated by certain actors that restrict freedom of choice (Chang 2010). Furthermore, developers engaged in land speculation by putting on hold (through *contratos de apartado*) more land than they could economically and technically feasibly build wind farms on. This practice raised many farmers' expectations of possibly increasing their income.

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[34] Codes starting with letter C refer to residents who are non-beneficiaries of wind energy projects, L are tenants, G are government officials, D are people working for wind energy developers, N are informants working for NGOs and A, academics. For a full description of interview identifier codes, please refer to Chapter 3, Section 3.3.

However, only some farmers were approached with a long-term land leasing contract, while others had to struggle with '*disappearing*' companies that left them with no compensation, contributing to their feelings of rage and frustration (C16, L16-18).

Regular changes in corporate ownership and management further contributed to feelings of scepticism among farmers. Company names were constantly revised, and developers came and left without warning. Farmers found it difficult to know and differentiate the name of the wind farm, its owner, the sources of finance, and the company that was purchasing the electricity produced. For instance, a wind farm could be called Piedra Larga (as the plot of land was locally known), and its owner DEMEX, which was a name given to the Mexican branch of the Spanish company Renovalia, who sold electricity to Grupo Bimbo (a Mexican multinational bakery product). Name changes and other decisions were not solely dependent on developers, however. Investors had the last word on whether to build a wind farm, and the timing for doing so. Thus, even when decisions had been communicated to and agreed with farmers, developers, in turn, had to balance these decisions with investors' economic power. The first wind farm in Santo Domingo Ingenio (SDI), for instance, was backed by a US-based investor that won more bids worldwide than the company had funds for, and that decided to withdraw the investment in Mexico. The developer, while seeking a new source of finance, had to '*flee*' the country to avoid retaliation from farmers (D7). Investors' economically visible and tactically hidden power thus resulted in regular changes to names, schedules and other plans, which further contributed to farmers' feelings of uncertainty and mistrust towards the industry - that developers on the ground could not fully resolve.

Once polygons (siting area) for wind farms were defined, developers wrote 25-30-year lease agreements to secure the legal usufruct of the land to build the wind farm and produce energy. Farmers hesitated over signing the contracts. Most farmers across the three localities had never signed a leasing agreement before the establishment of wind farms and were unsure of the legal procedure and implications of such an operation. Furthermore, as discussed in Chapter 5, it was difficult to define a payment that would be understood as fair. Market and investor pressures created a hidden agenda in which developers created strategies to '*convince*' farmers to sign promptly, such as promoting the discourse that tenants would be regarded as '*business partners'* (L14) or approaching farmers during assemblies to explain the main characteristics of the projects and agreements, and then quickly shifting to individual negotiations that inhibited farmers from collective bargaining, which could have allowed tenants more equitable payments, and improved the tenure conditions (Aidt & Tzannatos 2002).

Four power factors influenced farmers' prompt agreement: visible poverty and low agricultural productivity, as well as invisible information asymmetries, and peer pressure. As discussed in Chapter 4, poverty is prevalent and characteristic of the region, and it pressured farmers into accepting immediate forms of income through development projects. Moreover, productivity was undermined by the closure of the sugar mills in the early 2000s and the cessation of other government-led policies to

boost food production.[35] This was particularly significant for those growing crops on seasonal land that depended on rain and it hurt farmers' capacities to secure necessities (L16-18). Many landholders thus welcomed the prospect of receiving immediate additional and steady income. In particular in SDI, tenants narrated that developers had visited their houses to present the agreement while offering a first payment cheque, *'placing both documents on the same table'* (L13).

These factors also capture hidden information and education asymmetries. In El Espinal, the community has higher rates of literacy and schooling, which means that the advice that farmers received helped them to understand the legal implications of signing the contracts. But in SDI and Unión Hidalgo, a more invisible form of power ultimately defined this decision-making process: many landholders are illiterate and simply could not read the agreement. Some consulted their families and asked neighbours and friends for help. One respondent insisted that farmers should have sought formal legal advice. Having key information, he argued, would have resulted in a better and clearer collective agreement (C16, C21). However, farmers seeking help and advice had to admit a lack of formal education to other farmers and family members, situating them in a position of shame (L14). There was a further challenge in understanding what kind of information was required, which epistemologist Susan Haack (2008) calls the Rumsfeld Problem of knowns and unknowns. The legal world can be inhospitable for the uninitiated, particularly when it requires specialised training or at least literacy in written Spanish.

Furthermore, farmers' fears of being excluded from a project, and thus losing out on significant income, became an important form of hidden power in the form of peer pressure. As soon as one farmer signed, the rest felt compelled to follow (L5, C19, L13). Respondents explained that companies excluded '*problematic farmers*' from projects (L16-18, L5), who, in the eyes of developers, were landholders that refused to sign contracts unless the payment offers improved. In Unión Hidalgo, for instance, one developer moved an entire project from one polygon to another when farmers *'wanted a payment that was not due'* (D20). This action became a powerful signal, deterring farmers from asking for better prices for access to their land.

Some respondents described the decision to sign the *Contratos* as an opportunity for '*quick and easy money*' that came without '*worrying*' (C16). In the context of poverty, low productivity, disinformation, and peer pressure however, others categorised developers' strategies as forms of coercion that '*profited from the vulnerable position of farmers*' (L14). Reflecting on these events, respondents in SDI and Unión Hidalgo concurred that '*developers should have given them more time so that leases could be agreed in a context without so much pressure*' (L16). The president of the existing Federation of Rural Owners in Oaxaca proposed the integration of a Regulatory Commission of Lease Agreement Prices

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[35] In 2013 the government terminated PROCAMPO, the largest programme aimed at providing economic support to compensate for international competitors receiving agricultural subsidies (Piñera Barajas *et al.* 2016).

for Wind Farms (*Comisión Reguladora de Precios de Arrendamiento de Terrenos para Centrales Eólicas*). Nonetheless, this initiative was not endorsed by Oaxaca's State government at the time or echoed by energy developers (Borja *et al.* 2005).

In sum, during the wind farm planning phase, developers introduced a new industrial paradigm that was unknown to local inhabitants. Whilst doing so, they adopted a power over position that capitalised on the region's context of poverty, low agricultural productivity, lack of formal education, and existing informational asymmetries. These practices deterred farmers from engaging in fruitful negotiations that would benefit both parties. Consequently, the tenancy arrangements were not made to local farmers' satisfaction, setting a tense first scene in a long-term relationship between wind power developers and landholders in the Isthmus of Tehuantepec.

6.2.1.2 Second Phase: Construction and Production

The subsequent wind farm construction and production phase introduced new power dynamics that reversed the relationship between developers and tenants, positions that were again altered when the state government intervened. Developers began installing turbines on a tight schedule, requiring the constant transportation of construction materials, machines, and people. Considering this situation, tenants developed a new form of power over developers by halting this transport. Roadblocks became tenants' most visible form of bargaining power. They initially used this strategy to request compensation from developers for cattle, trees and roads affected by the wind farm construction. This tactic was particularly threatening for developers, since, if sustained, it could lead to the project's bankruptcy. As one wind farm manufacturer explained,

> *We only receive 10% as a down payment for the manufacturing and installation of wind turbines, and the rest is paid based on the project's progress on a strict schedule. If the schedule is not met, the developer gets fined, which also means falling into debt with other suppliers. Since turbine pieces are manufactured in different locations in the world: turbines in Spain, blades in India, etc… transported by sea and assembled on-site, every delay can devastate the industry. Moreover, the assembly can only be done on a windless day, which in the region, might only be once every two weeks or a month. A roadblock on one of these days can mean a month's delay, resulting in high storage costs, which adds to a spiralling financing crisis.*

> *Energy Company International Operations Director*

Given this new scenario, developers' attitudes towards tenants were markedly different from what they were in the 'planning phase'. Excluding 'problematic farmers' from the project was no longer an option for developers, since doing so would have required them to uninstall a three-million-dollar turbine.[36] As a result, they had to show a more sympathetic stance towards tenants' requests. If

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[36] Most of the commercial-scale turbines installed today are 2 MW in size and cost roughly $3-$4 million installed (Windustry, n.d.)

developers tried to threaten to terminate tenants' contracts, tenants replied '*yes, please terminate my contract - and also pick up your machines and go*' (L14). This lack of control over the land became a major source of uncertainty and distress for developers.

During the interviews, tenants highlighted that they tried to voice their concerns through other means, such as knocking at the door of developers' offices to talk, or reaching out to them during the construction operations, but in doing so they were usually dismissed or their requests went unnoticed. Using roadblocks to voice their demands, however, meant that the companies addressed farmers' concerns without much hesitation.[37]

Tenants' use of roadblocks quickly expanded, along with requests for demanding higher tenancy prices. In the absence of mutually agreed just tenancy prices, tenants continually increased their demands. After one developer acceded to these demands, others had to follow for fear of their operations being stalled. Tenants called this the *estira y afloje* (stretch and loosen) strategy, where they assessed the extent to which they could '*stretch the developers' rubber band before breaking*' (L14*)*, which led to ongoing negotiations with developers. The success of these strategies led tenants to realise that they could acquire more income through organising against developers than through farming. Developers would later characterise these spiralling demands as '*criminal extortion*' (D6, D7). They pointed, for instance, to tenants in SDI who demanded an 'anti-roadblock bonus': a yearly fee the developer would pay to all tenants for the company to operate. Another developer employee claimed that, rather than a 'bonus', this could be labelled a *derecho de piso* (extortion racket),[38] arguing that '*even though some developers might think that they solved a problem, this will not be the case. They have made things worse, as now tenants can create a larger roadblock to request a higher bonus*' (D6).

Not all tenants held the same power, however. Already existing power dynamics between tenant groups permeated the construction and production phases, which ultimately meant that some tenants benefited more from coercive acts than others. These power dynamics followed a pattern, the roots of which can be traced back to the colonial period in Mexico. In particular, middlemen, known as *caciques,*[1] controlled tenant-developer negotiations by becoming, in most cases, self-appointed tenant representatives. In the Isthmus the Tehuantepec, *caciques* remain central figures, controlling political and economic affairs by distributing material rewards for allegiance and repressing disloyal challengers or uncooperative elements. *Caciques* thus require a constant source of income that they distribute based on loyalty to their cause; wind farms became a 'gold mine' of resources for these leaders. One developer

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[37] For instance, in El Espinal, farmers disagreed with the developer on the payments to compensate for tree trimming. They raised this issue during a meeting. Due to a lack of response, they resolved to install a roadblock early the next morning before the staff entered the development. Payments were renegotiated at the site of the roadblock, and soon after developers regained access to the wind farm (D5).

[38] A term used in Mexico by criminal gangs who force businesses to pay a periodic fee in exchange for letting them work. If they refuse, business owners can lose their business and even their life (Revilla n.d.).

representative argued that the region's poverty and inequalities entrenched *caciques'* power, claiming that such conditions '*advantage these leaders by managing their economic and political power*' (D15). This strategy of co-optation, which Gramsci (1971: 80) calls 'corruption', occurs 'when it is hard to exercise the hegemonic function, and when the use of force is too risky'; leaders offer selective benefits, capitalising on people's vulnerable income and the lack of government protection. *Caciques* acquired control over tenants' decision-making and their interactions with developers by establishing committees formed of their followers, which sought to 'represent' the concerns and demands of tenants. These committees served to advance hidden political and economic agendas, favouring loyal tenants and excluding subversive ones (L5, C11).

During the planning phase at the federal and state level, *caciques* played a minor role in wind farm negotiations. They were not invited to the Wind Energy Colloquiums (Chapter 4). And, though they '*invited themselves*' and '*stormed the second Colloquium*' they were not invited to the third without significant consequences for the event organisers, demonstrating developer's power over *caciques* during this phase: '*They held several meetings in Huatulco and didn't invite us. We went anyway, interrupted the session, and asked them to start again. Many got up and left. Even though we did this they still didn't invite us to the following one*' (L3).

However, during the construction and production phase the *cacique*-developer power relationship was reversed. Given the pervasive top-down and semi-formal power that *caciques* hold in the region, developers had to agree to negotiate with *cacique's* non-representative committees. At the beginning, developers resolved to reach a compromise with *caciques* because this scheme promised to smooth and expedite negotiations in the short-term. Once developers recognised *caciques* as leaders and tenant intermediaries, however, *caciques* often started bargaining through intimidation and open conflict, making it difficult for developers to exit the relationship. In turn, *caciques* new power over developers was key to strengthening their selective benefit system. The Director of Sustainable Energy Projects in Oaxaca described this relationship using the following words: '*the cacique is not to blame but the one who makes him a friend*' (G7).

The *caciques*' 'carrot and stick' system fed a vicious cycle. Tenants that adhered to the *caciques* received benefits, such a secured job in the industry, or a turbine installed on their land, and thus larger payments than those who only had a '*right of air*' (a local term used for the space between turbines) (L5, D6). Tenants usually changed their allegiance to *caciques* that promised and provided larger benefits. On the one hand, the cacique system thus advantaged tenants, since leaders felt constantly pressured to strike better deals with developers to maintain their power. Yet this also depended on the capacity of local *caciques* to negotiate, which varied from one wind farm to another, resulting in different pricing schemes in the region (L16-18, L21-23). The wind farm of La Venta III, for example, was negotiated by a politician with little power, and tenants, therefore, received the lowest leasing rate in SDI (L12).

On the other hand, fidelity to a *cacique* was costly. Tenants had to mobilise people and resources when *caciques* required them. Because roadblocks required families to physically obstruct roads and entrances, these demands could at times risk their welfare, and thus constrain their capabilities. For instance, old men and women were expected to stay at roadblocks '*because they didn't have anything else to do*' (L6, L5), and female tenants were often excluded from decision-making and meetings, leaving them uninformed, yet they were nevertheless asked to sign binding documents that legitimised the committee's actions (L19). Moreover, tenants and communities generally recognised that leaders got the '*largest piece of the cake*'. Committees dominated by *caciques* often worked with hidden agendas to monopolise benefits and distributed only a small share of the gains, an inequality that would be acceptable for Rawls (2009), since under his distributional focus, this is an arrangement that benefits the worst-off members of society. Nevertheless, by looking at this process it was observed that this arrangement created tensions within communities. For instance, in El Espinal, the committee did not inform tenants about key construction dates, which meant that only the committee was ready to provide developers with services during the construction phase (L5). In Unión Hidalgo, only certain tenants close to the committee received compensation after a project's relocation (L20). Furthermore, respondents that were not part of a committee feared that committee members would withhold their payments (L20), or exclusively receive benefits such as scholarships for their children (C20).

If leaders monopolised the benefits from wind farm energy, why did tenants still support them? Over time, caciques have developed a form of invisible power. Local people came to take it for granted that they were better off following a certain leader. In a context of feeling abandoned by the state in terms of security and social protection, *caciques* became 'Godfather' figures that protected and helped them in difficult times. In exchange, locals owe caciques loyalty and support or faced further vulnerability and even exclusion from cultural, religious, and social life. Even if people understand that they are in a position of inferiority, and prone to manipulation, they still choose to subjugate themselves. This further strengthened s caciques' position of power. Dworkin (1972), argues that this scheme of paternalism, where people feel the need for a patriarchal figure such as the state or a cacique, unveils a need for self-protection that is exchanged for limiting their freedom of choice, or, as Sen would argue, their capabilities.

6.2.1.3. Developers' Responses to Tenants' new forms of Power

The evolution of the tenant-developer relationship in all three communities significantly affected the local social acceptance of the future wind energy projects. In each context, the power structures shaped developers' different responses to tenants' newly-acquired influence in the industry: well-defined power structures generally resulted in smoother relationships, while dispersed power encouraged conflict between groups.

El Espinal

El Espinal has a strong and defined *cacique* structure. These leaders receive formal schooling that provides them with access to key information to make informed decisions when bargaining. The developer-*cacique* relationship remained stable throughout the wind farm installation phase. Although there were tensions and several roadblocks, '*these have been promptly dissolved through dialogue*' (D6), a developer asserted. Furthermore, *caciques* have successfully provided long-lasting benefits to other tenants, distributing them more evenly. For instance, *caciques* agreed with three developers to start a project of farm electrification that was to be co-financed by the local government and developers. This was successful, resulting in improved productivity on local farms through access to electricity. The tenant-developer relationship has thus remained mutually beneficial and mostly untroubled.

Santo Domingo Ingenio

Leaders in SDI have also established long-lasting ties with developers. However, an escalating conflict has increased developers' power over tenants, changing the power relations, which have in turn damaged their relationship. Tenants of the wind farm Oaxaca IV proposed the aforementioned '*anti-roadblock bonus*' to one developer, who quickly agreed. Tenants of all of the neighbouring wind farms in SDI then requested the same benefits from their corresponding developer. Developers of two wind farms were able to settle the dispute with no further actions. Two other developers rejected the request and faced a roadblock installed by tenants. After two months of disruptions, one developer decided to grant the bonus (D14, D13). However, the remaining developer – the owner of the wind farm Cinco Palmas – refused. Usually, during the production phase, wind farms can continue to work during a roadblock due to possible remote operations. However, after several weeks, the turbine engines failed and could not be repaired remotely, ultimately requiring urgent maintenance (L5). The developer asked the Oaxaca government to intervene, resulting in state police detaining all of the roadblock participants. Tenants responded by blocking the nearest highway, and the state government, in turn, sent 400 gunmen to disperse the protest (L5). Tenants retreated and have since been responding to lawsuits that developers have filed against them. The detention of tenants in SDI once again made them feel powerless, as they had felt during the planning phase when they were individually signing land leasing contracts. As one tenant argued, developers '*threw the policemen at us, there were many acts of intimidation as if we were criminals*' (L6). For one tenant, developers' new message was clear: '*If you raise your hands, we will send you the stick*' (L12).

These dynamics changed tenants' perceptions of the power of using roadblocks as leverage, and hence the power dynamics in the region. Blocking an entrance now had serious consequences, such as police detention and lawsuits. Tenants could not manage this repression from both developers and the state acting together and saw their hands as tied. One tenant described this power shift:

Do I have to block your substation for you to listen to me? But then they answer: you block me and I detain you and I put in jail as we did with the others. I responded by issuing letters to the government, yet I didn't receive an answer. And now if I block, they will put me in jail. Thus, the government becomes part of the problem.

Oscar, Landowner, Santo Domingo Ingenio

Unión Hidalgo

Though there was an existing leadership structure, power in Unión Hidalgo was more dispersed from the outset. Tenant groups shared power with other stakeholders such as construction and transportation unions. Competition for benefits meant that different power groups used tactics such as roadblocks not only against developers, but also to limit the power of other local groups. As a result, developers had to negotiate and attend to different power groups, which made their interactions more time consuming and complex than having only one representative committee (L5). In particular, it became common practice in the region for tenants to provide services to developers during the construction phase. However, in Unión Hidalgo, this offer was extended to local construction and transport unions. This led to competition between the unions and tenants, which escalated into internal conflicts. This led to a group of tenants asking the developer to terminate their contracts, to which, according to one tenant, the developer responded by saying '*you can no longer do this, you signed, now you are screwed*' (C21). This major rupture led to the formation of a wind farm opposition group in the locality that is still active today.

A strong and defined structure of power in El Espinal favoured a smooth relationship with developers, even when this meant that certain local powerholders became better off. Conversely, a broken and dispersed power structure was the key to a major tenant-developer rupture in Unión Hidalgo. In SDI, even though power was held by a small number of individuals, contradicting developer policies and increasing dynamics of counterpower from tenants set up the context for an important rift in relations and a reversal of the power relationship between tenants and developers.

Coercive strategies, such as roadblocks, temporarily increased tenants' hidden and visible power over developers. However, this practice might not be sustainable in the long term, as developers have threatened tenants and local government with closing existing wind farms if '*forms of extortion persist*' (D6, D12). One developer explained that payments would eventually reach breaking point, which may cause businesses to close or declare bankruptcy. The developer argued that '*tenants are killing the goose that lays the golden eggs*', as their '*constant and unsustainable requests would eventually undermine the entire basis of their own income*' (D6). In so doing, developers demonstrated visible power by threatening tenants with leaving the region and siting wind farms in other Mexican states, focusing on non-Indigenous contexts (D6), which is also known as a capitalist strike (e.g. Przeworski, 1986). This may indeed be possible, as the new technology no longer requires the high-wind resources of the Isthmus of Tehuantepec, enabling developers to avoid '*socially difficult*' sites (D6, D12).

6.2.1.4. The Role of the State

During the initial encounter that involved the signing of contracts, neither developers nor tenants wanted state intervention. Bypassing the state allowed their relationship to develop '*without any problems*'. Tenants explained that they wanted to avoid paying taxes on tenancy agreements, framing this as not wanting '*the government to steal a share*'(L3). Thus, whenever the local government wanted to intervene, tenants exercised a hidden form of power by asserting their relationship with developers as '*private to private*' (L15)*.* Yet today tenants believe that the state should have interceded to advise and guide them when signing the tenancy agreements. They feel that the government '*abandoned them*' to negotiate with developers despite that they knew that tenants didn't understand the legal and financial terms of the agreements (L5); a government absence that, according to Denyer Willis (2017), can be understood as a form of governance exercised through abandonment.

Similarly, developers avoided government intervention at the onset. However, given spiralling roadblocks, companies eventually realised that they could not operate without government support to protect their property. Developers explained that Oaxaca's former governor was absent from, and disinterested in the wind farm industry, which was why there was no strong relationship with the state during the construction of the initial wind farms. In 2016, Oaxaca elected a new governor. During the roadblock in SDI in 2017, when one developer requested state support to remove tenants who were causing the roadblock, the new governor responded immediately. The minister of Energy, Environment and Sustainable Development explained that the governor's quick intervention was due to the need to improve the state's image and show that it was '*safe for investments*' (G6), thus contributing to a political order where the state purposely decides to presume the importance of certain spaces, while leaving other spaces to 'disorder' (Denyer Willis 2017). Developers saw the state's response as an effective act of law enforcement, emphasising that they had not paid the government to support them (D18).

6.2.2 The Land Tenure Apparatus, Control, and Decision-making

As introduced in Chapter 4, land ownership in Oaxaca predominately falls under two social property regimes: *bienes ejidales* account for 18% of the state's local land and *bienes comunales* 67% (Brown 2004). Both regimes require collective decision-making in all land disposition matters (see Assies 2008; Benton 2011; Brown 2004; Castellanos 2010; Hofmann 1998; Michel 2009; Zendejas 1995). *Ejidos* and *bienes comunales* are governed by a complex Agrarian Code, administered by a locally-elected Commissioner and overseen by a Vigilance Committee. A significant degree of local control over land use is decided by the membership or *asamblea.* Payments for *bienes comunales* would, in theory, be distributed to the entire c*omuna* through the *comisariado* (land commissioners) (D9). This would also happen for collectively-managed ejidos (Howe 2019). However, a notable difference between these regimes is that payments to privatised ejidos only go to the now-private landowners.

Until the mid-20th century, land tenure in the Isthmus was communal, with few tenure problems. Farmers saw little need to document land titles in writing, as almost all of the land was *temporal* (rain-fed) and infertile. Most of the land remained uncultivated, and any peasant willing to undertake labour and profit from it could do so. However, plans for the construction of the Benito Juárez dam in the mid-20th century, which created an irrigation district allowing land to be fertile year-round, generated an unpreceded process of land speculation that required solving inter-municipal boundary conflicts. The federal government expedited land tenure arrangements to start constructing the dam's irrigation system, and in 1960 required all owners of *pequeñas propiedades* (small private properties) to present proof of their ownership by a deadline. Thereafter, the government proceeded to '*ejidizar*' the remaining properties to prevent further land speculation.[39] However, on 13 July 1964, a new President, Adolfo López Mateos, ignored the guarantees given to private property, establishing a 68,112ha communal area within the boundaries of the municipality of Juchitán and its 'annexes': La Ventosa, Santa María Xadani, Unión Hidalgo, Chicapa de Castro and Espinal.

The 1964 resolution aroused strong opposition in municipalities like Juchitán. Powerful regional landowners organised Committees in Defence of Small Property, which were joined by many small landowners[40] to retain control over the land resources and avoid the formation of ejidos. These Committees documented errors, inconsistencies, and contradictions in the Resolution's claim[41] and lobbied during the presidential campaign of Gustavo Díaz Ordaz, who, once elected in 1966, signed a resolution that excluded 25,175ha of irrigated land from the original López Mateos 1964 Presidential Resolution. The 1966 resolution was intended to solve the tenancy problem in Juchitán, but errors in the new land titles confused matters more,[42] guaranteeing only land possession rather than ownership. Recipients could thus use the land, but could not buy, sell, or rent it.

This sparked a form of class struggle. On the one side, influential landowners justified their right to sell and purchase land, referring to titles issued by Díaz Ordaz. On the other side, the Coalition of Workers, Peasants and Students of the Isthmus (*Coalición de Obreros, Campesinos y Estudiantes del Itsmo*, COCEI) advocated against *caciques* land monopolies and speculation and thus rejected the legitimacy of Díaz Ordaz's land titles and demanded land parcellation while maintaining communal ownershop according to the 1964 López Mateos Resolution.

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[39] The Presidential Resolution under president Adolfo López Mateos that gave the lands of Juchitán de Zaragoza legal recognition ignored the guarantees given to private property in the 1962 decree by stating: 'there exist no private properties within the communal area which have to be excluded from the present recognition'(Archivo de la Secretaría de la Reforma Agraria 1964).

[40] Less than 100ha (*Justia México :: Ley Agraria* n.d.)

[41] Such as the 1962 Presidential Decree, which offered guarantees to private properties legitimately acquired before 1955.

[42] The titles referred to '*pequeña propiedad inafectable*' (protected private property) but to '*terrenos inafectables de origen communal*' (protected lands of communal origin).

In 1978, two influential landowners filed for legal protection to participate in the election of agrarian authorities for the Ejido of Juchitán and its annexes. Interview respondents affirmed that this took place amidst political repression and violence, including the disappearance of agrarian activist Víctor Pineda Herestrosa (D6; Valdivieso Parada, 2019). Since then, farmers have been dissuaded from demanding the establishment of communal agrarian authorities.

6.2.2.1. El Espinal: La Pequeña Propiedad

Under the 1964 Presidential Resolution, El Espinal was declared part of El Ejido of Juchitán. Nevertheless, inconsistencies in the tenure status allowed powerful leaders a practically uncontested private claim over the land, supported by historical entitlements. In this study, El Espinal is the only municipality that was previously part of a *hacienda*. *Hacendados* (estate owners) were replaced by powerful local families that have sought ways to protect their land rights since the end of Spanish colonialism.[43] For example, two wind farms, Zopiloapan and Fuerza Eólica del Itsmo I, are situated on land that has effectively been family-owned since 1786. The wind farm developers thus negotiated with a historically-recognised ownership structure, allowing developer-tenant agreements to hold amid land tenure tensions, since landowner rights are rarely contested.

Furthermore, large landowners in El Espinal affiliated to the influential CNPP (National Confederation of Small Private Property Owners) have used the wind energy industry to strengthen their visible power. They have recruited many small producers who fear that the federal government will expropriate their land, which could ultimately mean losing their wind energy tenancy payments. Although now, tenants in El Espinal consider themselves property holders defending a tradition of individual ownership, in reality, they have slowly agreed to an invisible power dynamic of economic concentration, which is gradually leading them to socio-economic subjugation to more powerful landholders – a process that would have not happened if they had belonged to an ejido, where every *ejidatario* holds one vote in all decisions.

6.2.2.2. Unión Hidalgo: La Comuna

Land tenancy in Unión Hidalgo has historically been communal. Although in theory community members control how communal land is used, this is not the case in reality. In general, arable land has been individually appropriated and worked, and landholders consider their lots to be private property,

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[43] For instance, in 1786, brothers representing two families, the Fuentes and Guzmán jointly purchased 5781.28 ha known locally as Sopiloapan, from Don Juan de Castellejos, whose rights can be traced back to a Spanish land grant of 1605. The diffusion of inheritance rights through intermarriage gave most of the inhabitants of Espinal and Ixtaltepec a claim to some of the Fuentes and Guzman land over the next century. Since 1903 the land has been administered by a board composed of representatives of the two families. The regulations governing the use and transfer of land make it clear that the object of the society was to provide for the current and future land needs of the two families and their descendants. This was done to ensure collective access and avoid sales to outsiders (Binford 1985).

despite lacking titles (C27-29; Osorio et al., 1974). Like elsewhere in the region, tenure had been irrelevant due to the abundance and low fertility of the land. However, the Benito Juárez dam irrigation system and the recent wind energy industry have increased the value of land as a commodity, and thus the need to establish agrarian authorities to regulate its use and ownership.

Like El Espinal, Unión Hidalgo was established as an 'annexe' of the Ejido de Juchitán communal land under the 1964 Presidential Resolution. Unión Hidalgo has, unlike its neighbours, seen the rise of a new *comunero*[44] movement that has actively contested the privatisation of property on communal land. Local activists, including *comunero*s, favour the redistribution of the region's natural resources to benefit the '*economically weakest segments of the population*' (C18). Activists have resolved to act as a counterpower to the wind energy industry until the 1964 Presidential Resolution is respected, the communal character of the land is recognised, and decisions on land tenancy follow the corresponding agrarian law (C23). Members of Unión Hidalgo's *bienes comunales* have started organising and have appointed a communal representative to encourage the formation of a communal general assembly that can achieve two main goals: to reconstitute a Commissioner of Bienes Comunales of the Ejido of Juchitán so that they can legally stop being an annexe of this *ejido*, and to elect their agrarian authorities. If successfully established, agrarian authorities could seize tenants' land, and would have power over the local mayor in making decisions about land tenure and land-use changes (Valdivieso Parada 2019).

However, the *Comuneros'* efforts to take control of the land, particularly through agrarian authorities, have thus been opposed by wind farm tenants, who have used the ongoing ambiguity of the land titles to attempt to have the land legalised as private property. These efforts have been supported by wind energy developers and the state government whilst they have resorted to questionable actions (L16-18, D9). For instance, tenants requested title deeds to their land from the current *syndic*.[45] Since he seemed to be '*over-charging*' for this service, however, tenants asked the former syndic to sign the documents, which he did at a lower rate. According to Juan, a *comunero* leader, the property title deeds of communal land cannot be granted by the municipal syndic, only by the communal commissariat (C20, C23).

Consequently, Unión Hidalgo's communal vs. private land conflict has become an ongoing challenge for both developers and farmers. Farmers have exercised visible and hidden power to formalise their land ownership claims, including by signing land tenancy contracts with the wind energy industry. In turn, developers have encouraged 'land legalisation' to bring legal certainty to their operations. In the process, only some farmers have become tenants and not others. This has led to the unequal distribution of land tenancy payments, described in Chapter 5 which has unravelled a

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[44] Holder of rights in a legally recognized agrarian community This quality allows the use and enjoyment a parcel, as well as the use and benefit of goods for common use (Enciclopedia Jurídica Online, n.d.).

[45] Person in charge of the legal affairs of a municipality.

counterpower movement that has questioned land ownership, fuelling negative attitudes towards wind energy in this locality.

6.2.2.3. Santo Domingo Ingenio: El Egido

Unlike El Espinal and Unión Hidalgo, SDI has a well-established ejido structure that has provided certainty of legal tenure. The *Ejido de Santo Domingo*, which is independent of the *Ejido de Juchitán*, was founded on 18th October 1940, and it is formed of 19,642 ha divided into 2009 plots between 546 *ejidatarios* (L11, World Bank, 2012). The *ejido* is organised under the Ley Agraria (Agrarian Law), and the *asamblea ejidal* has control over the land. Every three years, the *ejidatarios* elect their authorities. The highest authority is the *Comisariado Ejidal* (Ejidal Commissioner). Initially, developers had to initiate contact with the ejido through its authorities and the assembly. Later, the growing influence of tenant committees diminished the role of the ejidal commissioner.

In all three case studies, developers have had to navigate contexts of uncertain land tenure. Given these ambiguities, the wind energy companies asked the State Government to regularise land tenure to have '*legal certainty over their investments'* (D15). However, as is the case globally, land ownership is a complex issue with no 'easy fix'. The state government responded by appointing an impromptu office that was charged with regularising land deeds (*catastros*) that did not comply with the official national procedures regarding public property registration.

In sum, developers' 'land regularisation' process confirms the role that the wind energy industry had in accelerating a form of land privatisation in the localities of El Espinal and Unión Hidalgo. And, at the same time, the empirical data shows how the energy developers did not initiate land dispossession, as is argued by the literature (See e.g. Alonso & García, 2016; Carnero, 2017; Martinez & Davila, 2014; Martinez & Llaguno, 2013; Partida, n.d.). Rather, the wind energy industry stoked an ongoing historical conflict dating back to colonial times, which is now being replicated by local landholders within the community. The influential *caciques* have capitalised on the new wind energy industry to make a formal claim over the land they hold. By doing so they are exercising hidden power over the local population, who struggle to maintain their rights over the otherwise communal land.

Although the office did not follow the national guidelines, developers exercised hidden power by 'regularising' property deeds in this registry, such as by linking names and signatures to parcels of land, and using a local Public Notary to inscribe these records in the Property Public Register. Such approaches represented varying understandings of what constituted 'legally acceptable' procedures, involving numerous dubious practices. The measurements of the physical plot, for instance, often did not correspond to the area stated on the title deed or the tenancy agreement. *Caciques* often raised these discrepancies to pressure developers into paying them for a larger plot than they had (D8). These legal deficiencies rendered many contracts void.

The literature on land tenure and wind energy in the Isthmus of Tehuantepec suggests that local communities face a process of *despojo* (land dispossession) by the wind energy industry (See e.g. Alonso & García, 2016; Carnero, 2017; Martinez & Davila, 2014; Martinez & Llaguno, 2013; Partida, n.d.). Some authors have suggested that developers have undertaken land grabs (Alexander Dunlap, 2019; Siamanta & Dunlap, 2019), and forced the displacement of inhabitants from their communities, for reasons including noise annoyance and the inability to continue farming (Olmos, 2019).

The data collected for this study presents a different story, however. The first story looked at the evolution of the developer-tenant relationship from the planning phase through to the production stage. The following account turns to a second power dynamic affecting attitudes towards wind farms: local people's relationships with their territory, and tensions related to land tenancy. This section argues that the present process is not one of land dispossession initiated by developers, but rather that the wind energy industry stoked an ongoing historical conflict over land privatisation by local landholders within local communities.

This evidence questions the idea of positioning wind energy developers and communities as opposing entities, where the former are constantly exercising power over the latter. Developers have not physically dispossessed people from their land. Instead, they have resorted to a more subtle form of land control through legal processes that have allowed the installation of wind turbines under favourable conditions. This control has been facilitated by influential local leaders, a finding which is consistent with the idea of Dependency Theory, which argues that transnational and local elites cooperate due to corresponding interests, which may work to the detriment of the non-elite local population (Cardoso & Faletto 1996).

By looking at the historical process of land privatisation, businesses and communities can reflect on the importance of land tenancy and the relationship between local people and their territory, to then propose ways in which wind farms can be installed without fuelling existing land tenure conflicts and in a way that the benefits are distributed more equitably.

Furthermore, the social acceptance of wind energy has been dependent not only on a land tenure scheme, but also on a strong local structure of power that aligns the interests of different stakeholders, such as the case of El Espinal and SDI. If power is dispersed or contested, this results in a negative attitude towards an activity that seems to be fostering conflict among stakeholders and the visible and hidden appropriation of benefits by some at the expense of others, which is the existing context in Unión Hidalgo.

6.2.3. Benefit-Sharing and Community Participation

Issues of land and territory, and the resulting benefits and losses, must also be analysed from the perspective of the local community's needs and wants. In the Isthmus, the local attitudes towards wind energy have been shaped by power dynamics in decision-making regarding benefit distribution.

As the previous stories have shown, multiple forms of power are exercised in different directions. However, drawing on Gaventa's power analysis framework, this section argues that local communities that do not benefit directly from the wind energy industry have a sense of powerlessness vis-à-vis developers, tenants and the government. The practices instituted in all three communities to mitigate this power relation, such as introducing Free Prior and Informed Consent (FPIC), only reproduced the already existing power dynamics of exclusion, particularly of women, youths, and children. This finding shows how difficult participation and inclusion are in creating just energy transitions.

Why is community inclusion important for achieving a just energy transition? The data revealed two aspects, one moral and one instrumental. The moral reason is grounded in inequitable benefit distribution (Temkin 1993). As discussed in Chapter 5, local people throughout the three communities believe that developers are the ultimate winners of wind energy production, largely because of the upward distribution of benefits. In one significant example, although the industry produces clean energy, most community respondents highlighted that in their localities, '*there is not a single bulb lightened by this industry*' (C21). While this frustration is common in other energy production ventures (e.g. Granqvist & Grover, 2016; Jørgensen et al., 2020; Underdal & Wei, 2015), this study shows that unequal distribution is not only prevalent but also affects the reception of energy ventures like wind farms. As the second story above shows, property rights strongly shape the cost-benefit distribution. Wind energy developments grant landholders power over decision-making, particularly in regard to how to manage and invest in their land, excluding neighbouring, landless communities from decision-making and leading to resentment (McHarg 2016). Moreover, because landholders rarely inhabit the land neighbouring a wind farm, their decisions rarely consider the concerns of residents living near the wind turbines.

Community inclusion is also instrumental to obtain social acceptance for projects. The unequal distribution of benefits leads to negative attitudes amongst local communities towards wind farms, resulting in visible and hidden tensions that prevent wind farms from operating smoothly or even being installed at all. Initially, developers ignored these distributive tensions and maintained an intentional, motivated ignorance of local concerns. They believed that fewer disagreements would arise if they had less interaction with the local people. As one young entrepreneur in El Espinal explained, '*Developers never summon the community for a meeting because they know that there will be people that will oppose the project*' (C5). Similarly, one local representative for developers explained that '*My bosses are a little bit scared because they won't be able to control the issue. They say: we have a budget that will*

never be given to the community, and if it's requested, we will try to manage it. But the company is always hesitant about the reactions and tries always for things not to get out of hand'.

Developers' strategy proved to be a mistake, however. Without access to information and channels of engagement, there were widespread myths about the wind energy developments' negative impacts. As the benefits were monopolised, landless community members grew resentful towards tenants and local developer representatives. The misconceptions worked both ways: avoiding interactions left developers uninformed about local populations, preventing them from understanding the power dynamics affecting the community acceptance of developments.

It is important, however, to question romanticised ideals of 'community' when discussing local inclusion in wind energy siting. The interviewees in the Isthmus noted that, although developers had benefited communities, the landowners had co-opted a significant part of these benefits by claiming that *they* were the community affected by the wind farms. And even when the benefits reached the local government, the authorities distributed these at their discretion, mainly for political purposes. Consequently, *distributional concerns* are central to understanding why wind farm siting in the Isthmus of Tehuantepec has favoured certain groups, parties or interests, but not others.

6.2.3.1. Benefit-Sharing

There has been no institutionalised pattern of benefit-sharing in the three communities in this study. Instead, the wind energy developers have responded to the negative attitudes amongst the local communities variably across different locations and over time, leading to different social acceptance outcomes. In all three communities, developers have implemented *ad hoc* business practices regarding benefit-sharing, usually under discretionary, voluntary Corporate Social Responsibility (CSR) schemes.

Developers therefore initially considered their contributions altruistic, rather than the right of Indigenous communities to make decisions about, and profit from their land and resources. In most cases, developers and mayors agreed on the benefit arrangements without consulting the community. In all three communities, developers largely provided much needed local infrastructure, like roads, soccer fields, and playgrounds. Underlying this practice was the assumption that the nature of the benefits would fulfil the moral economic grounds for community inclusion. However, they soon realised that these actions were insufficient to secure social acceptance, particularly in SDI and Unión Hidalgo.

El Espinal

In El Espinal, developers agreed with the local mayor on an annual payment to the municipality. The mayor formed a 'social committee', largely comprising business owners and cultural associations, along with representatives of the wind energy developers. This committee created a 'list of priorities' to guide the town's development, which has been used to disburse funds for refurbishing the main park,

and for a welcome sign for the town (Figure 19). The El Espinal residents welcomed the renovation and new sign, which gave them a sense of pride in their town centre. Individual residents' requests in El Espinal have also resulted in the wind energy developers providing scholarships for the local children's traditional music band, sports team uniforms and a robotics programme for children aged 9 to 12.

Figure 19. Entrance to the Municipality of El Espinal (author's photograph, 2017).

Santo Domingo Ingenio

In SDI, developers have also offered benefits, but these have not been taken up for two main reasons: corruption and privatisation. Firstly, the local government has misappropriated the benefit funds. The most visible example of corruption for the respondents was, ironically, the developer-funded municipal welcome sign (Figure 20). The respondents claimed that the municipality made a separate request for federal funds to build it, thus receiving the funding twice, and that it still executed the project so badly that the sign is now falling apart (L12). In another example, one developer claimed to have given the local government 11 million pesos (about 400,000 GBP) to build a hospital, but stated that they had also requested and received a similar amount from the federal government (D14). Although construction of the hospital was started in 2013, to date it has not been finished.[46] According to a resident, the mayor '*left with so much money from the presidency - and the people didn't even know. Here the authorities intend to become millionaires*' (L15).

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[46] This is a widespread pattern: the hospital is one of 74 'ghost hospitals' in the state of Oaxaca (Nivón 2019)

Figure 20 Entrance to the Municipality of SDI (author's photograph, 2017).

Secondly, because of government corruption, tenants have, in response, requested that the funds be privately used to renovate their farms, rather than allocated to the local community. They argued that they are the ones '*affected by wind farms*', and that these benefits are crucial for improving farming production (L5, L12, L15). This has caused problems for developers. The local authorities demand benefits for the wind farms to operate. Simultaneously, tenants insist that these benefits should not be transferred to the government, threatening developers with roadblocks. 'The money from CSR has been pulverized out of mistrust in the authorities', explained the Ejidal Commissioner. Several developers have resorted to paying CSR benefits to both tenants and the municipality, and one has paid the town in kind, with a community gym and renewable public lights. This strategy has appeased tenants' concerns, and prevented the local government from misappropriating the funds. However, the local authorities have used these actions for political self-promotion, leading the local community to believe that the local government, rather than the wind energy industry, provided the new infrastructure.

Unión Hidalgo

Unión Hidalgo's local government has faced similar allegations of misappropriation of CSR funds as SDI has. Unlike SDI, all of the funds have been transferred to the mayor with few accountability measures. The only known benefit from the wind energy developers in this municipality is one paved street. This situation has left the inhabitants with feelings of rage and helplessness towards the local government, feelings that have been capitalised on by developers as an excuse for not contributing with further funds due to fear of embezzlement.

> *'Each triennium the government has more possibilities to help, but nothing is done. And people like the treasurer, who has been in office during three different periods has had the opportunity to help and did nothing. Logically, where does that wealth go, where do those resources go? Well, look at the presidents' house. Their ranches, and not only here, but they also go and buy in other states, again, where are the benefits?'*
>
> *School teacher, Unión Hidalgo.*

'The problem is not those who oversee these projects, but rather those in the middle: the municipal presidents… We know that wind farms have sent money to Unión Hidalgo, but money has not reached the community. We don't know who, but someone keeps it, it gets lost somewhere.'

Activist, Unión Hidalgo.

In sum, the findings show that there are two main factors affecting the acceptance of wind farms across communities in the Isthmus of Tehuantepec: the degree of accountability exercised by power holders when administering these benefit-sharing funds, and the level of participation of stakeholders when making decisions about these funds.

Most wind energy companies have invested in improving local infrastructure in the form of CSR. However, this funding has been provided through local governments with poor capacity and minimal accountability.[47] Given the experiences in SDI and Unión Hidalgo, where the local mayors have not demonstrated how these funds were used, the residents assume that wind energy companies participate in corruption schemes. And, without legal frameworks controlling and recording these benefits, developers feel that they are often used as bribes, leading to an upward spiral of demands. As a consequence, weak institutions and regulatory frameworks disincentivise developers from investing further.

And, in these same two municipalities, the mayor has exercised hidden power in deciding how and when to use the resources received by the wind energy firms. This unilateral decision-making practice clashes with the local tradition of seeking a consensus in general assemblies held in public spaces. By contrast, in El Espinal, which has had higher levels of acceptance, more government authorities and community representatives have been included in the benefit-sharing decisions. Besides, the local inhabitants have exercised agency by making benefits requests that fit the CSR schemes that developers are used to providing, such as study grants and sports uniforms with their logo that can in turn enhance their image.

85% of the respondents indicated their willingness to participate in decision-making about the amount and use of benefits (L16-26). Yet, in all three communities, governments, developers, and residents have been unable to generate inclusive spaces and procedures to reach communal agreements. Indeed, there is a widespread implicit understanding that the mayor and other authorities will decide how the benefits are used.

This lack of institutionalised guidance on the distribution of benefits has led to corporate policies that are developed and implemented on an *ad hoc* basis. Wind energy developments on Indigenous lands have been marked by power asymmetries, with undesirable or even harmful results for those

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[47] According to the Fragility States Index ("fsi-2019-country-stats-gva" n.d.), Mexico scores 5.9 on the State Legitimacy indicator, which takes into account transparency, accountability and political representation.

living nearby. These outcomes have been exacerbated by the local governments' inability and/or unwillingness to act as good faith brokers between developers and communities. As a result, the residents and tenants have grown resentful and have demonstrated low levels of acceptance towards the wind farms. By not achieving the expected outcomes, both developers and communities have been left feeling exploited and dissatisfied.

6.2.3.2 Free Prior and Informed Consent

As described in Chapter 5, an exception to the otherwise fragmented benefit-sharing regulations concerns Indigenous peoples, whose right to mutually acceptable benefit-sharing arrangements for extractive activities and developments on their lands is recognised in international law.[48] Mexico is a party to the ILO Convention 169 on Indigenous and Tribal Peoples, which establishes that whenever legislative or administrative measures are contemplated that may affect Indigenous peoples directly, states must consult the peoples concerned through appropriate procedures and particularly through their representative institutions.[49] The Convention also stipulates that Indigenous peoples' rights to natural resources on their lands should be protected.[50] This includes the right of Indigenous peoples to participate in the use, administration, and conservation of such resources, which includes giving Free Prior Informed Consent (FPIC) to renewable energy projects on their territories (Barrera-Hernández *et al.* 2016a).

In 2013, the Mexican Advisory Council of the National Commission for the Development of Indigenous Peoples (whose acronym in Spanish is the CDI) approved a 'Protocol for the implementation of Indigenous Peoples and communities consultations under the standards of Convention 169 of the International Labour Organization on Indigenous and Tribal Peoples in Independent Countries', and in 2014, the Supreme Court of Justice of the Nation published the 'Action Protocol for those who administer justice in cases involving the Rights of Indigenous Peoples and Communities ' (SEGOB 2019). Since then, the Ministry of Energy has had the mandate to guarantee that Indigenous peoples will be consulted on proposals for public or private infrastructure projects related to the electrical industry. Wind energy developers thus need to undertake formal consultations when constructing wind farms on Indigenous lands.

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[48] International Labour Organization's (ILO) Convention no. 169 Concerning Indigenous and Tribal Peoples in Independent Countries 1989, p28 ILM 1382. See also UN Special Rapporteur on the situation regarding human rights and fundamental freedoms of Indigenous peoples, Report U.N. Doc. E/CN.4/2003/90, p66; and 2012 Expert Mechanism: Follow-up report on Indigenous peoples and the right to participate in decision-making with a focus on extractive industries (A/HRC/21/52) (A/HRC/21/55), p39.

[49] ILO Convention 169, Article 6, section 1, subparagraph a.

[50] Ibid. Article 15.1.

In Theory…

Indigenous peoples' right to FPIC is integral to their right to self-determination and to benefit from the development of their land.[51] It is therefore potentially a powerful tool to operationalise Indigenous rights in the context of renewable energy projects. Mutually agreed benefit-sharing schemes could serve as a condition for conceding FPIC, providing a tangible expression of the agreement based on what local communities understand and prefer (Barrera-Hernández *et al.* 2016b).

The wind energy industry has a positive *idea* of FPIC. Developers argue that consultation can ensure that communities are fully informed about a project, which they believe is key to overcoming myths about the impacts on health and the environment. Similarly, they argue that FPIC can become a space for local people to voice their needs and concerns about the industry, and in turn, developers can respond by defining how and to what extent they can address these concerns while remaining profitable. Furthermore, developers see FPIC as an opportunity to counter the power of tenants and local governments to monopolise and misuse community benefits Finally, they see FPIC as a way to regulate the relationship between the wind energy industry and society, which may lead to more certainty regarding their operations. As one developer argued, '*the consultation is good! The public is informed about what the project is, the environmental impacts, everything, and you tell them about the shared benefits, they learn what we can and can't give, as we are not going to be able to grant them everything*' (D6). Indeed, some developers thought that consultations should also be carried out with non-Indigenous people (D8, D9, D17). Consequently, they largely view more formalised and institutionalised benefit-sharing and FPIC processes as a means to provide legal security for their investments. Communities are not able to escalate their demands and developers are given greater confidence about what to expect and can properly budget for the related financial resources in the early planning stages.

…In Practice. Challenges related to defining the subject of consultation

The aspirations of Convention 169, according to community study participatns, have not manifested in practice. Since 2014, FPIC processes have lacked legislative backing. Although the Ministry of Energy has developed a proposal for national legislation on benefit-sharing within Indigenous lands, at the time of writing, no legislation has been adopted. In turn, FPIC has become a source of anxiety and uncertainty for governments, developers and even local communities. Projects revealed various challenges with defining the scope of the communities involved in FPIC and the benefit-sharing arrangements; as well as with defining government and developer roles. The next sections of the chapter explore each of these challenges in turn.

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[51] United Nations Declaration on the Rights of Indigenous Peoples (13 September 2007) A/RES/61/295 ['UNDRIP'], articles 10, 11, 19, 23, 28, 29, 30 and 32.

FPIC consultations have been significantly complicated by issues around defining the subject of consultation. Defining who constitutes a community is often a complex endeavour, raising a host of procedural justice questions (Aitken *et al.* 2008; Barten & Goldsmith 2016). The literature on communities in the Isthmus of Tehuantepec has often depicted them as romanticised entities, drawing on ideals of pre-industrial societies (Dunlap, 2017; Howe, 2014; Howe & Boyer, 2016), rather than larger, more diverse, and sometimes conflicting forms of association.

Moreover, defining who is considered the 'community' and how communities are defined can be problematic (e.g. Creamer 2015; Aitken, Haggett, and Rudolph 2014; Kepe 1999; Walker 2011). Geographical boundaries risk excluding stakeholders or misinterpreting power inequalities. In this context, public engagement can be disempowering and even harmful to people that are directly affected by a wind farm development but left out of the participatory scheme. Finally, tensions remain between communities and developers and among the people that are clustered in these groups. There are no closed knit-communities or a defined developer identity, but an interaction within and among individuals shaped by dynamics of power, which in turn are shaped by rules, norms and beliefs that are in constant interaction. Who participates and to what extent is an important area of consideration. Thus, reflection is needed on how and by whom communities are defined, and once defined, facilitating community engagement requires paying particular attention to the roles that people play within the process.

However, this depiction is problematic as there is no single local community. Indeed, 'community' itself is 'a contested, multi-dimensional concept, based on identity, practice, objectives and the places to which these apply' (Brown 2007). Community delineation may itself result in divisions and catalyse group conflict (Barten & Goldsmith 2016). The composition and character of a community are political, and resolutions thereof are not necessarily just and democratic. In general, and particularly in the Isthmus, there is no single local community, but several groups with different interests and perspectives; and even within such groups, stakes, interests and perspectives may differ (Aitken *et al.* 2008; Van Veelen 2018; van Veelen & Haggett 2017).

There is also a complex interplay between the notion of 'community' and 'Indigenous peoples'. These terms are often used together – and even interchangeably – to support ideas of self-determination, assertion and resistance (Barton & Goldsmith 2016). However, assuming that a community is collective, democratic and functional just because it is Indigenous is misleading (Barrera-Hernandez 2016). Within Indigenous communities, power imbalances and hierarchies of gender, race and class enable certain stakeholders to participate in decisions and not others.

Mexico has no official definition of who qualifies as Indigenous. This aligns with international legal practice, where representatives from Indigenous organisations have rejected a formal definition (UN Commission on Human Rights 1996), and preferred to use self-identification (Cambou 2019).

Furthermore, one developer explained that this is also a political choice made by the Secretary of the Interior, who understands that this responsibility would give significant political power to a designated entity, such as the CDI (D12). Self-identification is thus most important, combined with aspects such as attachment to territory and language (UN Commission on Human Rights 2003).

As I will discuss further in Chapter 7, people in the Isthmus of Tehuantepec are reluctant to describe themselves as Indigenous. Those labelled 'Indigenous' have been discriminated against and treated as second-class citizens. A community cultural officer explained that '*many people (..) do not take themselves to be Indigenous. This is because they believe that having an education takes away your Indigenous armour, as if by being Indigenous you couldn't have an appropriate education...*'. FPIC processes associated with developments, however, have enabled local populations who self-identify as Indigenous to participate in processes that they would not be able to participate in otherwise, thereby accessing a new form of visible power. As a result, self-identification as Indigenous in the region has increased.

The challenge related to the government acting as a both, judge and defendant

Community benefit-sharing often relies on local authorities collecting and distributing resources (Barton & Goldsmith 2016). Nevertheless, the literature suggests that sudden revenues from natural resources can trap governments with weak institutions, putting additional stress on democracy, rule of law, the integrity in public services, and planning (Collier 2007). In this case, rather than revenue, a sudden influx of power and responsibilities strained the rule of law. Under Mexican law, local governments must establish FPIC protocols and lead their implementation. This requirement has exposed the fragility and powerlessness of local governments in regard to enacting these protocols due to a lack of resources and capacity support from other levels of government. For instance, the Ministry of Energy assigned only three members of staff to revise projects' Social Impact Assessments and coordinate consultations nationally. A developer working in all three communities explained that as a result, ´*there are more than two thousand un-approved social impact assessments, and at least 60% of these require an FPIC process... Companies have to wait indefinitely for the authorization of their projects*´ (D15).

For developers, the lack of clear governmental guidance and the inconsistent application of procedures produced uncertainty. The FPIC timeframe has been especially problematic. The Ministry of Energy (SENER for its acronym in Spanish) suggested that the FPIC process may take as little as three days to complete. In reality, it took six months to reach an agreement on the first FPIC protocol for a wind farm, and the related consultation process took an additional eight months. The FPIC process can only begin after the approval of an Environmental Impact Assessment. According to one developer, ´*the approval is taking at least one year, even though the law requires this process to be assessed in*

four months´ (D18). These delays put businesses under pressure. One country director who had been waiting for an FPIC for over two years stated that:

> *´Several things come together at the same time, I don't know what is better, to tell you the truth I'm now leaving everything to the luck. I am not trying to impose myself, nor trying to force SENER to do something. The die is cast. If they say we go then we go. If they say no, we need to wait, then we wait. We don't want to force anything, which may make things worse´*

> *Interview, National CEO of an Energy Company, 2018*

Developers also fear consultations going beyond their control. With the government managing the protocol, external political interests can infringe on the process, potentially leading to what they label as '*extortion*' (D6, D15, D19). 'Extortion', developers argue, can come not only from the government but also from community members who make 'excessive' demands to developers that, according to respondents, '*do not correspond to the developer's economic possibilities or community's needs*' (D9). For instance, during FPIC negotiations '*communities could ask for a university to be built in a town of 1,220 people which only has an elementary school, or a community gas station, which, if mishandled, could pose a significant risk for the population, which are requests that I have received recently from community members´* (D9). Until 2014 when the government began to require FPIC processes, developers did not introduce them, hoping to avoid receiving 'excessive' demands. Tenants in Unión Hidalgo explained: '*It was in the interest of developers not to mention that people had the right for an FPIC process, since this would mean that community benefits would now need to be set by law*' (L16-18).

The federal government thus had visible power over SENER's budget to enact FPIC processes, and SENER, in turn, had power over businesses' wind farm planning since investors had now to modify their expectations to properly factor consultations into projects plans. Introducing FPIC has caused anxiety and work overload for SENER. It has also increased uncertainty for developers. However, FPIC processes have also been used to legitimise their power, as the next section shows.

The challenge of FPIC being used as a space to legitimize state power

Delegating FPIC coordination to the state may have seemed like an obvious solution. However, this has not resulted in the inclusion or fair distribution of benefits in El Espinal and Unión Hidalgo, where FPIC has taken place. The local and federal governments have used unprecedented decision-making power from controlling FPIC processes to fulfil hidden agendas. In practice, '*consultation processes have not been free, prior or informed*' explained one schoolteacher in Unión Hidalgo (C23), an argument that will be broken down in the following paragraphs.

'The consultation can no longer be prior since lease agreements have already been signed' began the schoolteacher. Social Impact Assessments (EVIS for its acronym in Spanish) and

Environmental Impact Assessments (MIA for its acronym in Spanish) of projects have already been approved by SENER: SENER is in charge of the FPIC process, but also of meeting the targets for national renewable energy production. The ministry, therefore, has a conflict of interest, with an incentive to approve projects. These government authorisations include a construction starting date, as well as the details on the project characteristics, giving no possibility for these projects to be altered due to agreements made during a consultation. For instance, one respondent explained that even though the consultation had not officially commenced (September 2017), SENER authorised the building of a 92-turbine wind farm in Unión Hidalgo and the construction phase was set to start on December 1st, 2017 (C18). The government has clarified that authorizations are conditional on complying with the FPIC process. However, if the consultation process is done diligently, it may lead to the modification of the authorised project, and thus another set of authorizations once the consultation process has ended. Therefore, communities believe that authorizations done before the start of the FPIC process are putting the prior principle at stake: it is perceived that FPIC processes are done not to discuss plans and modify them according to the population's needs, but serve as a way to legitimize decisions that have been made behind closed doors by the federal government and developers. Therefore, community respondents believe that the government is violating their right to be consulted from the outset (C18, C21). '*The federal government has a history of deception, and this is just one another example of this practice*' (C24).

'***It is no longer free***' continued the schoolteacher, '***since attendants do not go on their own free will,*** *they have been herded, some of them commissioned to do a certain thing, act in a certain way, and they have no option because otherwise, they don't get today's pay*' (C23). SENER's Deputy Director-General of Social Impact Assessment and Consultation argued that FPIC ensures a bottom-up process led by Indigenous people themselves, through granting communities power to appoint local authorities that will be in charge of the process. However, the existing power structures undermine this ideal: FPIC agendas follow political interests that benefit some sectors of the local population and not others, which ultimately hinders local communities from participating in FPIC activities. All three communities have a political party system aligned with the national parties. Thus, the interests and agendas related to FPIC, renewables and other issues run through the federal government, through the state and finally to local governments, who claim authority over the FPIC process. Consequently, people fear participating since they believe that, by doing so, they are contributing to empowering one group or another, and thus, more than engaging to advance their needs and aspirations, they feel that they are advancing other powerful actors' agendas.

FPIC consultations have also shifted the balance of power between local governments and developers. As a result, local mayors have become particularly interested in FPIC processes. Previously, mayors were in a position of relative powerlessness due to the lack of benefit-sharing legislation, and they sometimes had to '*beg*' developers to fulfil their CSR commitments (G2). Under the FPIC process,

however, benefits agreements are now legally binding, legitimising requests that developers had labelled '*exaggerated*' (C23).

This has meant that the FPIC has not been a space where people are free to act according to their needs and values. To maintain this authority and advance their agenda, local governments have adopted practices to manufacture cohesion during consultations. This calls into question the 'free' principle of the FPIC process. For example, to support the construction of a new wind farm in Unión Hidalgo, the local government used a 'jeer and clap' tactic during the consultation, which is also known as astroturf (e.g. Cho et al., 2011; Lyon & Maxwell, 2004); this is a common practice in the region during political rallies, or other political meetings. Study respondents explained:

> *The UN organised an informative talk about Free Prior and Informed Consent (FPIC) in preparation for Indigenous consultation in UH. Groups holding different positions (support/opposition) wanted to show the magnitude of their stance by bringing their supporters to the consultation space. Supporters of the project brought the most people to the talk because they wanted to physically show the UN and other authorities that they were greater in number and that thus the whole town supported the construction of the wind farm. They divided attendees into two groups during the meeting.*

> *(L16, L20, L25, L26).*

> *About 20-50 people were opponents and 2,000 supported the project, thus making visible the power of supporters (L16-26). When a supporter talked, everybody clapped, when an opponent talked, everyone jeered. The Major asked attendants several times: do you want the wind farms? And people answered yes! Very loudly'.*

> *(C23, C24, L16-18).*

'*And…*' added the schoolteacher, '*…**there has never been information, they only give us some bits of information and only the bits that they want us to know'.*** There were two main reasons for considering the 'informed' FPIC principle as breached. Firstly, meetings and documents were not translated from Spanish into Zapoteco. This exemplifies hidden power, in this case from governments towards the local communities (Gaventa 2006). Secondly, information was not channelled through appropriate means. For instance, a *comuneros* press release [52] explained how, during an FPIC informative phase meeting, a representative of SENER read the EVIS and MIA in only seventy minutes: 'these are documents of more than five hundred pages and use technical jargon that is difficult to process'. The document clarified this, demonstrating that the time granted for its reading was inadequate for people to understand and agree to it.

And, though study participants acknowledged that FPIC has enhanced their access to decision-making by being directly invited to participate, they considered this inappropriate since tenants and more explicitly, '*tenants in committee positions*' (C16, L20), '*people with money*' (C5) or '*professionals*

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[52] (No.5) (Comuneros de Unión Hidalgo 2020)

that know about the subject such as engineers' are fitter to participate. *'The consultation was meant only for tenants…if you didn't have anything to do with them it was better just to shut up,* asserted a businesswoman in El Espinal. *'Why do you have to meddle in this if you are not a tenant? They would ask you. And what could you reply? Instead, it's better to keep quiet and, well, see how they become rich',* explained a schoolteacher in SDI. '*I'm only selling and will leave as soon my goods are sold*', said a fruit seller at the market in El Espinal, implying that she was unfit to participate in an FPIC process (C2). A shop owner in SDI described local people as '*passive spectators who realise that something is wrong but that they can't do anything about it, only observe from the outside*' (C14). There is a general feeling of resignation among the local community. Developers are seen as all-powerful actors whose agendas will be changed little through participation. '*We know that we will be fighting a monster that has many arms, and that we are only one small group*' (C24), one activist in Unión Hidalgo declared. This situation of passiveness is particularly important since, as shown in Chapter 5, the benefits are distributed among the few and the ills shared among the many. The councillor of the Environment in El Espinal referred to this issue by stating that, *'The land belongs to tenants but the impacts reach far beyond their land, they affect all citizens and therefore everyone should participate'* (G1).

Furthermore, people decide not to participate due to the fear of being ridiculed or excluded from other social interactions in the community. Practices such as cheer or jeer, described in the third story, fuel people's concerns about being mocked and dismissed if they raise their voices during FPIC meetings. As a result, they only talk when they have express permission to do so and have the capacity to *'express yourself adequately'* and '*know what you are going to say*'. '*They invite us to attend but they don't let us talk*', explained Flor, an inhabitant of Unión Hidalgo (C34).

And finally, there are people living in community settlements that were historically forgotten by the state that have been systematically excluded from the consultations. For instance, the settlement of 'Migueleños', which is populated by people that emigrated from the neighbouring conflict-stricken 'San Miguel de Chimalapas', were not considered as part of El Espinal for the community infrastructure. And in Unión Hidalgo, the poverty-stricken people of 'Barrio Cheguigo', a settlement located on the other side of the river, were not even aware of an FPIC process happening.

'*How can FPIC processes be carried out in this context?*' concluded the schoolteacher. Although FPIC is supposed to create a more inclusive community participation space, visible and hidden political agendas are prevailing over FPIC processes, which is undermining the capacity of this tool to allow more voices to be heard.

The Debate on Greater Institutionalisation

Developers have suggested the further institutionalisation of FPIC and benefit-sharing to reduce the challenges brought by uncertainty through increasing the state's accountability. Other actors in the

region, however, have expressed less confidence in greater institutionalisation. This matter was specifically discussed at a forum of human rights organizations and Indigenous leaders in Mexico and Latin America, where NGOs and representatives of Indigenous communities raised several concerns about FPIC.[53] Firstly, they worry that it could become a box-ticking exercise that undermines Indigenous peoples' self-determination by reducing the recognition of their rights to a bureaucratic procedure. Secondly, the existing FPIC processes have not respected human rights, but rather have been used to rubberstamp investment projects already agreed between developers and governments. Thirdly, FPIC processes have been marred by community division, the criminalisation of opponents to developments, and the omission of measures that may exclude women from participating. Fourthly, participants lamented that the civil servants overseeing FPIC processes at the federal level constantly changed. Finally, these procedures have been marked by political pressure and have resorted to manipulation to favour third party interests over Indigenous lands. Enshrining FPIC in law has not enhanced Indigenous peoples' rights or increased decision-making power. Actors in Unión Hidalgo, as well as elsewhere in Mexico, thus have low confidence in the institutionalisation of FPIC.

Furthermore, FPIC consultations do not entitle communities to 'give permission or not' for building a wind farm (N2). Regardless of the consultations, the state ultimately makes the final decision. This is a relevant source of hidden power, since the state vows to respect the decisions made through FPIC consultations but, in reality, FPIC is held with a tokenistic purpose that legitimises the state's existing practices and decisions. This reality was confirmed by the state secretary of the environment and renewable energy of the state of Oaxaca, who, in our interview, asserted that the state would respect a negative outcome of a consultation: '*times of imposing projects are long gone!*' At the same time, he concluded that, '*the state will support the project if everyone accepts it except for two or three little leaders that do not want the development of Oaxaca' (*G6)*. The use of the word leaders implies that there are people who *lead others* and represent clusters of people – so if 'two or three leaders' do not accept a project, we might imagine that they are there on behalf of plenty more people who do not want the project.

Local opponents to wind farms in Unión Hidalgo, such as *comuneros*, realised that the FPIC processes legitimise the power that local governments and developers have over communities. They have thus resolved not to participate in FPIC consultations, and instead have tried to halt these processes to decrease state and developer power. In particular, they have adopted legal strategies that impact developers' and local governments' most precious resource: time. In Unión Hidalgo, 700 locals initially

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[53] X Regional Forum for the Transformation of Socio-environmental Conflicts in Latin America (X Foro Regional de Transformación de Conflictos Socioambientales en América Latina) 28 and 29 November 2018 http://cecig.org.mx/desarrollo-sustentable/, attended during fieldwork.

signed a legal protection[54] that blocked FPIC processes until issues such as the issuance of construction permits before the process were solved. This tactic worked so well that they continued filing legal protections, one grievance at a time, at different courts (which resembles a broader pattern of weapons of the weak such as workplace disruption like go-slows and work-to-rule (Edwards 1981), which can be costly for companies). Although the legal protections were eventually dismissed, they significantly delayed the FPIC proceedings. This effectively disrupted the governments in regard to receiving wind farm development benefits, as they are up for election every three years. It also disrupted developers themselves, due to their business' time pressures. As one developer reflected, *comuner*os '*don't mind losing the lawsuit because they gain from the project being delayed, which is very costly for developers - often losing six months to a year per lawsuit, plus the cost of lawyers*' (D12).

6.3. Relational Power, Capabilities and Community Acceptance

As shown in section 6.1, there is a strong relationship between procedural justice and power. People's perceptions of fairness can be understood to a larger extent when looking at the process under which this distribution is carried out, and particularly by observing the visible, hidden and invisible forms of power that shape distributive outcomes and people's experiences.

This section shows how power relations also significantly shape people's processes in regard to attaining the capabilities that people in the Isthmus of Tehuantepec have reason to value, as described in Chapter 5. By looking at power dynamics as capability conversion factors (Robeyns, 2005) we can see not only how crucial deliberative processes are to deciding what entitlements are appropriate for enhancing people's well-being (Sen 2001a), but also how the interests of the already powerful may be upholding the deliberation processes (Dean 2009) and shaping distributive agendas.

Drawing from Smith and Seward (2009), this analysis makes a distinction between 'basic' and 'secondary' capabilities. Basic capabilities are defined in broad and generic forms and are seen as substantial, such as having good health, maintaining good family relationships and having income security; these are some of the capabilities described as valuable by people in the Isthmus of Tehuantepec. Secondary capabilities are precursors to attaining the basic ones (Day *et al.* 2016b). These secondary capabilities, which are linked to processes of materialising the basic capabilities, are particularly important because this level, according to Smith and Stewart, 'gets to the heart of where most research and learning about capability resides' (p229).

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[54] *amparo* remedy or action is an effective and inexpensive instrument for the protection of individual rights (Azcuna 1993).

Through a grounded theory approach (detailed in Chapter 3), I identified three main secondary capabilities that people in the Isthmus of Tehuantepec value as part of the process of attaining well-being when looking at wind farm siting. These were having access to meaningful information, being able to participate without discrimination, and having access to formal justice to voice and address their concerns. By drawing from the three narratives of section 6.2, the following sections will discuss the reasons people have for valuing these capabilities, how and to what extent power dynamics have contributed to their enhancement or constraint through wind farm siting, and how this informs the social acceptance of wind farms regionally.

6.3.1. Having Access to Meaningful Information

In all three municipalities, the inhabitants valued the capability to access relevant information, in order to fully exercise their right to give (or refuse) informed consent during FPIC processes. Specifically, respondents mentioned needing access to data about the characteristics of the wind energy project itself (e.g. size and location of turbines), details about payments and contract options, the cost of producing wind energy and developers' profits, verifiable information about health and environmental impacts, types of available remediation measures for any relevant negative impacts, and direct benefits such as jobs, education opportunities and benefit-sharing schemes.

However, visible, hidden and invisible power hinder people's ability to enhance this capability. Residents argued that companies limited access to data to keep tenancy prices and other benefits low, and to avoid negotiations to minimize any negative impacts. By contrast, the developer representatives believed that minimising interactions with locals would mean fewer disagreements. Reducing access to information, however, facilitated the creation and reinforcement of myths about the wind energy developments' negative impacts. These myths include the government expropriating land to benefit developers, and negative health and environmental impacts. By inhibiting informational spaces, developers also acquired misunderstandings of the local population.

The federal government also failed to provide access to relevant information, particularly by not providing enough time for FPIC processes, as well as by leaving documents untranslated and jargon filled. In Santo Domingo and Unión Hidalgo, the local governments also purposefully hid developers' information about benefits, which had been misused.

Finally, tenants, particularly *caciques*, also exercised hidden power by withholding information from other tenants and the rest of the community. This occurred through invitation-only committee meetings with developers, and by tenants receiving information and not passing it on to other community members.

At the same time, invisible power prevented people from requesting and making use of this information even when access was granted. Using the idea of a boundary from Foucault, Hayward

suggests that power is a 'network of social boundaries that delimit the fields of possible action' (Hayward, 2000: 2) by shaping people's beliefs, sense of self and acceptance of the *status quo,* such as their superiority or inferiority (Gaventa 2006). In particular, in communities of the Isthmus of Tehuantepec, respondents felt that they did not have the required education to be able to understand the information given. Furthermore, there was a preconception that spaces of information about wind farms were only meant for elites and leaders, particularly senior males who spoke Spanish well, and not for the general public.

Though power dynamics have hindered access to information in all three communities, there have been varying levels of information disclosure. Different levels of access to information have resulted in contrasting degrees of social acceptance. In El Espinal, the people in the community have relatively higher levels of schooling and have used their knowledge to request information through legal channels. Although the people in SDI have lower levels of schooling, their Spanish proficiency has allowed a better comprehension of the technical terms and enabled them to express their doubts more easily. In contrast, in Unión Hidalgo, tenants have mostly only finished primary school and their first language is predominantly Zapotec. As a result, they felt unsure about making formal information requests and struggled to understand the information provided.

6.3.2. Being Able to Participate Without Discrimination

Local people in the Itsmo consider the opportunity to participate under equal terms in decision-making a valuable capability. Through meaningful participation, people feel that they contribute to decision-making, which can improve their community. Sovacool & Dworkin's (2015) second procedural process principle on 'access to and meaningful participation in decision-making' suggests that communities should be involved in deciding about projects that will affect them by giving them fair and informed consent and ensuring a genuine community consultation with neutral arbitration to handle grievances. And for Sen (2001), deliberative processes are crucial for societies to decide what entitlements are appropriate to enhance their well-being. However, even though there have been efforts to widen spaces for inclusive participation in decision-making on matters related to wind farm siting, such as introducing FPIC, these deliberation processes have tended to strengthen the interests of the already-powerful.

The survey results show that 85% of all of the respondents had not participated in decision-making processes related to wind farm siting (a comparable rate for all three communities). Decisions are usually made by developers' representatives, mayors and tenants, who are part of largely undemocratically-selected committees. These decisions are made behind closed doors and the outcomes are not generally shared with other tenants and local communities (C12, C25, C26). As a result, community members argued that this is a significant reason for negative attitudes towards wind farms in the region. As one secondary school teacher explained: *'Think of your household as an example, if*

you don't take your children into account in decision-making, your family will malfunction. Unilateral decisions eventually make people upset' (C16).

This study shows how power dynamics create barriers to decision-making. The first story shows how when the wind energy industry arrived in the region, developers, the state, and the federal government had the final say on wind farm locations and tenancy, leaving landholders in the region with little to no decision-making power. Once the construction phase started, tenants' strategies to halt the construction processes using roadblocks increased their capacity to negotiate tenancy benefits with developers, which in turn reversed the positions of power between these two actors. However, when a developer in SDI requested support from the state government to prevent tenants from setting up a roadblock, these positions returned to their original form, where developers had power over subversive groups.

The third story reveals how decision-making power over benefit-sharing has been largely monopolised by the local government in all three communities, and, in the case of SDI, also by tenants. Soon after their arrival in the region, developers learned the value of maintaining a good relationship with tenants, but also with the local government and the community as a means to obtain social acceptance. However, even though they offered to invest in community infrastructure to address this need the, local governments resolved to make decisions over these benefits without consulting the local community to avoid being subject to accountability, particularly in SDI and Unión Hidalgo. In the case of SDI, tenants were also a stakeholder that prevented community participation in benefit-sharing decisions, since they considered themselves the only party affected by the wind farm.

In theory, Free, Prior and Informed Consent (FPIC) was set to increase community participation in decision-making regarding wind energy infrastructure planning and benefit-sharing. Yet, this form of inviting engagement on a 'level playing field', obscured inequalities related to resources of power, which allowed the participation of certain people while others remained invisible. Even when explicitly invited to engage, people's non-participation unveiled the internalised invisible power that positions people as spectators, who observe processes of wind farm construction but believe that they do not have the right to take part in these decision-making processes. The data showed three main reasons for non-participation: (1) people assume that they are unfit to exercise their right to participate under FPIC (2) if they decide to participate, people fear being exposed and shamed, and (3) they worry about being used to fulfil other people's interests.

Finally, the market dynamics under capitalism can be identified as an underlying structure controlling forms of non-participation. The current economic structure demands that companies undertake quick decisions to keep themselves afloat. Some developers sympathised with people's rights under FPIC processes and understood the need for slow processes that enable informed and inclusive decision-making to gain social acceptance locally. Nevertheless, investors demand rapid completion of

projects, while respecting human rights to avoid tarnishing their image. Given this study's findings, these two requests seem contradictory and thus impossible to achieve at the same time, as the director of one wind turbine company explained:

> *'Then what are we doing? We react because we have X company ready to invest 500 million dollars. You have the urge to report earnings to someone, and therefore you hire the people that promise to move fast. And at the same time, you see that you must prepare a large Indigenous population for many projects, you then understand that you can't do both'.*

<div align="right">

Deborah, Operations Director, Vestas.

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In sum, the study shows that throughout the three communities, inclusive participation is considered a valuable capability. Nevertheless, such participation has not accompanied wind energy siting. In the Isthmus power dynamics in the form of the ruling economic system, gender, and socioeconomic relations have prevented people within communities from raising concerns and taking part in decision-making. And though the FPIC process was recently introduced to counter this power by requiring public participation by law, the process that has been undertaken has instead only reproduced the existing power dynamics. The incapacity of excising processes of enhancing people's capabilities related to meaningful participation has ultimately, resulted in negative attitudes towards future wind energy developers in the two communities where an FPIC process has been put in place. The controversial management of the FPIC process in El Espinal has tapped into previously non-existent opposition to new developments, by increasing tenants' and the community's dissatisfaction. And in Unión Hidalgo, FPIC has resulted in a long pull-and push process that has left both developers and communities feeling exploited and dissatisfied. This, in turn, has raised questions about the role of governmental authorities in ensuring that equitable outcomes are delivered through negotiations between large corporations and Indigenous communities, given the inequalities of power and resources between them.

6.3.3. Having Access to (Formal) Justice

The final capability that respondents came to value through the wind farm siting process to achieve greater levels of well-being was access to justice administered by the state and federal governments. Participants in the study wanted to understand basic legal concepts, how the judicial system works, and how to navigate it. In doing so, they wanted to comprehend and respond to the legal procedures that developers filed against them, understand their rights under ILO Convention 169, and exercise their right to consultation accordingly.

The local communities understood that the judicial system was not a neutral space governed by clear rules and responsibilities. Rather, they saw it as contested terrain that was fuelled by power dynamics, enabling certain people to access justice through state institutions, and not others. One tenant recounted that he initially wanted to study law at university because he wanted to help '*his people'*, but instead he

chose accountancy due to his early disappointment with the country's judicial system: '*regardless of knowing the law and legislative procedures, in practice, the powerful will always win*' (L15).

Access to formal justice was differential throughout the three stories. Though in the case of tenants, access to professional legal advice would have been key to understanding the content of land leasing agreements, the nature of a lawsuit when detained, and knowing what the consequences of such a process were, respondents recounted that accessing a lawyer required paying a sum that they could not afford. Tenants had each been sued on average for eight million pesos (roughly £268,000GBP). This far exceeds the value of their deeds or farm income, or even all of the income generated from twenty-five years of land leasing. And the court where their cases had been filed was in Oaxaca City, a 6 hour and 374 pesos journey from SDI. Following up on court cases requires multiple trips, draining time and money that tenants do not have. These power dynamics have prevented tenants from pursuing further legal actions against developers and they have remained quiescent.

Hidden forms of power also prevent people from accessing justice. Tenants found it difficult to understand how the law, supposedly the basis for justice, could be so unjust. From their perspective, there should not be grounds for detaining farmers that create roadblocks on their land. As it is their territory, they believe that they should be able to decide who can access it. They understand that the law should be applied when '*you steal or kill*' (L16), but they do not see why preventing someone from accessing their land should be a punishable offence.

Access to the law varied in the three communities. In El Espinal, there were more people with law degrees, as well as a well-known public notary. Locals could therefore clarify legal concepts and procedures just by knocking on a neighbour's door, without incurring large expenses. However, in SDI and Unión Hidalgo, fewer people have such skills. Locals must thus seek lawyers in Juchitán or Mexico City, who require payment for clarifying questions. To bypass this, residents in Unión Hidalgo who oppose new wind farms have sought advice from NGOs working to protect human rights. NGO's have provided local inhabitants with access to legal spaces that they did not even know existed, such as reaching out to national and international courts, as well as the OCDE, to file complaints against a developer.

Table 18. Procedural justice and people's capabilities in the three communities

Capabilities	El Espinal	Santo Domingo Ingenio	Unión Hidalgo
Having access to meaningful information	Local experts convey basic information about wind farms to inhabitants, easing negotiations with developers.	Lack of access to culturally appropriate information (in Zapotec and in oral form) about health impacts, as well as the legal and economic implications of lease tenancy agreements.	Lack of access to culturally appropriate information (in Zapotec and in oral form) about health impacts, as well as the legal and economic implications of lease tenancy agreements. Instead, this information has been provided by NGOs.
Being able to participate without discrimination	High levels of accountability have allowed the adoption of participatory decision-making processes over community benefits.	Negotiations with developers have not followed traditional collective decision-making protocols related to land affairs. Community benefits are decided unilaterally by the local mayor which has raised suspicion about the misappropriation of funds. No consultation processes have taken place in the entity.	Negotiations with developers have not followed traditional collective decision-making protocols related to land affairs. Community benefits are decided unilaterally by the local mayor which has raised suspicion about the misappropriation of funds. Consultation processes are permeated by clientelism led by the local mayor and caciques
Having access to formal justice	Local experts provide legal advice to inhabitants on tenancy agreements and other relevant matters.	Lack of access to legal advice on tenancy agreements consequences for non-compliance.	Lack of access to legal advice on land use, tenancy agreements and consultation processes. Access to justice via NGOs

These main three themes of analysis resonate with the literature on procedural justice theory and policy approaches, such as the UN's Aarhus Convention and Sovacool and Dworkin's (2015) procedural justice elements, discussed in section 6.1. Nonetheless, there were differences in the way people framed these elements. For instance, both the Aarhus Convention and Sovacool and Dworkin refer to access to legal processes for challenging exclusion. Respondents in the Isthmus of Tehuantepec instead referred to the opportunities to access justice administered by the state of Oaxaca and the federal court of Mexico. People did not refer to the word legal since this is a concept that belongs to Haack's (2008) unknowns. Furthermore, respondents did not allude to Sovacool and Dworkin's third procedural justice element, 'avoiding bias amongst decision-makers', which is a phrasing that belongs to the policy and academia spheres, and as shown in this study, is not an idea that corresponds to a bottom-up understanding of justice. At the same time, the chapter shows the importance of looking at how power relations shape the stage that will define the extent to which these elements of procedural justice can be attained.

6.4 Conclusion

This chapter recounted the contested history of wind energy developers in the Isthmus of Tehuantepec, the complicated nature of regional land tenure, and the conflict around benefit-sharing and Free, Prior, and Informed Consent (FPIC). Analysing these three stories through a power lens brings into view how different actors possess and are affected by power, and how power dynamics change over time and with changing actors and resources. Crucially, the chapter underlined the continuing importance of recognising the capabilities associated with fair processes, while also engaging in how power dynamics influence their enhancement (or not) under a wind energy siting context, which is key to understanding the reasons behind social acceptance.

To do so, this chapter explored the power relations affecting capability enhancement, positioning power as a capability conversion factor. And, at the same time, by thickening the capability approach with power analysis, the study proposed a novel way of looking at procedural justice that involves analysing the power inequalities in the dynamic relations between wind energy actors, providing an empirically applicable stance to RETs siting and stakeholder inclusion.

Three relevant findings emerged from this analysis: firstly, when looking at socially just energy transitions, it is important to look at distributive outcomes. Meanwhile, it is equally important to look at how people participate and engage in the processes involved in attaining these outcomes. Three main procedural factors affect local people's relationships with wind farms: being able to access relevant information, participation in decision-making, and having access to formal justice while understanding the judicial system. And, at the same time, it is crucial to break down the multiple visible, invisible and hidden power barriers that prevent people from enhancing these secondary capabilities, which, as we saw throughout the chapter, are a key component for materialising basic capabilities such as good health, access to education, a sustained income and preserving the environment.

Secondly, institutionalised procedures for FPIC and benefit-sharing may give communities and developers greater certainty about their rights and responsibilities, and what to expect from a wind farm. Nevertheless, institutionalisation is not an end in itself and, rather, needs to be coupled with greater transparency and accountability to increase trust between the parties involved. Procedural justice consideration, in other words, need to be better addressed, including by designing consultation processes endowed with adequate time and resources, which make engagement desirable and accessible.

Thirdly, the research also confirmed how power is not a 'zero-sum' game - you either have power over others or they have power over you - where the powerful unilaterally make decisions. Instead, power is continuously created, exercised and shared by different actors in various directions, which change over time. Specifically, this study challenges the idea of Indigenous communities as homogenous, collaborative and horizontal entities that have been manipulated by 'green capitalist' wind

energy companies and governments. Instead, different people and groups within the community share and exercise power, both as mutual support and by reproducing systems of control that benefit certain people and harm others. Furthermore, the chapter showed how Indigenous communities are not always powerless against developers and governments. Rather, different groups can challenge the existing configurations of power, and these positions of power constantly change.

Overall, the chapter concludes that the complex procedural justice considerations affecting the development of wind farms in the region have not been adequately resolved. Simply creating new institutional arrangements will not necessarily result in greater inclusion or policy change as Gaventa (2006) predicted. Rather, the nature of the pre-existing power relations will dictate how these new spaces are shaped. The process through which renewable energy projects are sited tells a familiar tale, whereby public involvement, in the form of FPIC, community benefits, or general tenant assemblies, may simply be used a token to obtain acceptance of new developments, which, however, only sow the seeds of conflict in the long run. Thus, while these arrangements are commonly expected to help to create the conditions for the successful establishment of wind farms, they are not enough in themselves. Instead, activists, researchers and policymakers need to turn their attention to analysing the changing configurations of power. Arguably, as is also suggested by Sovacool et al. (2016), only by going beyond narrow, tokenistic conversations will it be possible to deliver genuine solutions to the complex social justice questions. The empirical evidence in this chapter clearly shows that much needs to be done to deliver genuine open, democratic decision-making over wind farm developments in the Isthmus, as well as benefits to its people. This is easier said than done, and the quest for the tools to make this happen in practice continues, well beyond the Isthmus of Tehuantepec.

7 RECOGNITION JUSTICE

Social justice is often understood in terms of distributive and procedural claims as seen in Chapters 5 and 6, respectively. However, while theories of distributive justice offer models and procedures by which distribution may be improved, these do not examine the social, cultural, symbolic and institutional conditions underlying unfair distributions and processes in the first place (Young, 2011). This chapter argues that the reason for poor distribution and lack of due diligence in the wind energy industry in the Isthmus of Tehuantepec can be found in the lack of recognition of cultural differences and the history of foreign intervention in the region. Evidence collected through this research suggests that people in the Isthmus perceive that their Indigenous identity and culture are being threatened by infrastructure siting practices that reproduce colonial forms of discrimination.

Findings in this chapter highlight that wind farm acceptance in the Isthmus of Tehuantepec is shaped by 'identity politics' (Fraser, 2009) that aims not only for a more favourable distribution of goods, but also the recognition of particular Indigenous identities. Resulting from this analysis, the chapter argues for positioning recognition at the centre of energy justice claims. By recognising differences while establishing equal relationships, identity politics underpin distributive and procedural justice claims when looking at factors affecting community acceptance of wind energy among Indigenous communities. Even when benefits and ills are fairly distributed through just procedures, only by recognising and respecting differences can people accept each other as full and equal partners in social interaction working towards an energy transition.

To build this argument, this chapter is divided into three sections. The first section discusses the idea of Indigenous identity and the ability of preserving it as a valued capability for community acceptance of renewable energy technologies (RETs). The second section describes the tensions between preserving an Indigenous identity amidst industrialisation, and argues for positioning recognition as a precondition to distributive and procedural justice. The last section elaborates on the importance of recognising the changing nature of Indigenous identities to understand and navigate dynamics of exclusion embedded in energy transitions.

7.1. Recognition and Colonial Legacies

7.1.1. Recognition Justice and Community Acceptance of RETs

Recognising that there are groups in society that will lose as a result of distributive processes is not enough to understand the reasons for and consequences of inequalities (McCauley *et al.* 2019). Through identifying where inequalities emerge, recognition justice draws a deeper reflection on who exactly are the misrecognised groups (Jones *et al.* 2015). Similarly, Fraser (2000) contends that we have to look at the 'why' of inequality to understand and remedy it. Thus, Schlosberg (2004: 520) positions recognition as an inherent precondition for distributive and procedural justice: 'without recognition… an ideal distribution would never occur'.

Honneth sees recognition as a way of pointing out differences that have been disregarded, in the hope of showing that apparent neutrality in the state and society is by no means neutral but based on a partial interpretation of citizenship that privileges specific groups. Under these conditions, members that do not fit a hegemonic identity (e.g. male-dominated, white, heterosexual, individual) are discriminated against (Taylor, 1994: 42). Fraser and Beschäftigung (1998) propose looking at these differences through three concepts: (1) Cultural domination (being subjected to patterns of interpretation and communication associated with another culture alien to one's own), (2) Non-recognition (being rendered invisible via the authoritative practices of one's culture), and (3) Disrespect (being depreciated in stereotypic public cultural representations and/or everyday interactions). In particular, cultural domination is highly relevant for this research due to the relationship of an Indigenous population and new energy infrastructures that are introduced by foreign actors.

Drawing from the literature (Fraser 2000; Honneth 1996; Young 2011), this chapter looks at recognition justice as a call for acknowledging differences while achieving social equity in procedures and outcomes. This requires the study of social differences, through gender, sexuality, race, and ethnicity, aiming to re-value unjustly neglected identities.

Recognising and valuing Indigenous identities is an intersubjective condition for people in the Isthmus to have a chance to live the life they want to lead. However, being Indigenous is an identity whose value has fluctuated from pride to shame over different periods and contexts (Aquino Moreschi 2013). Wind energy developers' everyday practices have reproduced colonial forms of discrimination, regressing towards regarding being Indigenous as shameful. This section looks at the significance of a Zapotec identity in the region, and briefly narrates the colonial histories of all three communities analysed in this study. This analysis aims to show how institutionalised patterns of cultural valuation were formed, and how these have resulted in unjust value hierarchies that obstruct the establishment of equal respect between communities and developers in today's wind energy industry.

Literature on RETs and energy justice has raised the importance of looking at groups that have been overlooked in development projects in colonial and post-colonial projects (e.g. Williams & Doyon, 2019; Yenneti & Day, 2015). This relationship is often framed under the concept of 'energy colonialism' (Batel *et al.* 2013), which highlights that Indigenous regions are intentionally the preferred location for energy mega-projects; ongoing settler-colonial logics of elimination place poor, rural, Indigenous communities at a higher risk for capitalist exploitation and dispossession worldwide (Lloyd & Wolfe 2016). Furthermore, land and title claims are positioned at the centre of the debate, arguing for green grabbing—the appropriation of land and resources for environmental ends (Fairhead *et al.* 2012)—as a major cause of disenfranchisement, or *despojo* in the Isthmus (described in Chapter 6) (e.g. Alonso and García 2016; Blaser 2013; Carnero 2017; Martinez and Davila 2014; Martinez and Llaguno 2013). Literature on energy and Indigenous people has also raised the issue of looking at recognition in the form of rights (e.g. Baker, 2016; Lawrence, 2014). Chapters 5 and 6 echo this literature by discussing how processes of land tenure and distribution of monetary and non-monetary benefits are important factors affecting community acceptance of wind farms.

However, the relationship between recognition justice and community acceptance in post-colonial contexts has been scarcely analysed (Williams & Doyon 2019). This section contributes to existing literature on Indigenous people and recognition, by showing that historical processes of colonialism can not only shape people's relationship to land and culture, but also reproduce race-defined hierarchies of value that can obstruct equal respect (Fraser 2000) and dignity.

7.1.2. Recognising Indigenous Identity as a Valuable Capability

Across all three communities, local people value having their Zapotec identity and culture recognised. Unión Hidalgo has the highest proportion of Indigenous population, followed by El Espinal. Although Santo Domingo does not have a large population that speaks Zapoteco, their everyday culture is based in Zapotec culture. This culture, known locally as *Binnizá*, shows its richness in everyday life through language, clothing, food, ritual, and festivities that require active community engagement, emerging from the syncretism between Zapotec pre-Columbian culture and catholic rites.

The most important festivities are '*Las Velas*' (Figure 21), which are overnight vigils for a saint, accompanied by traditional regional food or *Botana Itsmeña*[55]. The practice incorporates traditional Zapotec music and dance or *sones itsmeños*, and requires Zapotec dress or *traje regional*. Because each locality has its own patron saints, these festivities occur at different times of the year in each community.

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[55] Regional dishes include chambray or *mole tamales* (maize and pig fat cooked in a plantain leaf with various fillings such as iguana), *garnachas* (fried tortillas topped with beans, cabbage, beef, chillies, and fresh cheese), fried cheese balls, fried plantains, shrimp cocktails, and sea turtle eggs (now prohibited for conservation reasons).

Figure 21. Photograph of a Vela Istmeña (Itsmopress. Tehuantepec 2018)

Today's Zapotec culture and identity are also heavily shaped by Spanish and French colonialism. Indigenous people throughout Mexico have historically and systematically been discriminated against (De Sousa Santos 2009). This has produced cultural and institutional processes of disrespect and devaluation of Indigenous people, particularly in comparison to non-Indigenous people or people of mixed race (Comim 2015). This is reflected in Indigenous people's current socioeconomic situation, which is characterised by poverty and marginalisation, fuelled by migratory processes that cause geographical and territorial dispersion (Bárcenas 2005). Discrimination has and continues to suppress Indigenous culture and language, sometimes explicitly driven by institutionalised campaigns to 'integrate' Indigenous people into the broader 'national development and culture', like the Mexican government's campaign in the 1950s to standardise Mexican culture and make Spanish the official language (Velasco Cruz 2003). Given the long history of both institutional and daily discrimination, many people have actively decided to hide or even deny their Indigenous background.

This colonial legacy highlights the need to understand justice not only as what goods a person should have, but also as what kind of standing vis-à-vis other persons she deserves (Young 2011). Misrecognition, as described by Fraser (1996: 25), is the constant impediment to some people's standing as full members of society as a result of 'institutional cultural patterns of interpretation and valuation that constitute one as comparatively unworthy of respect or esteem', preventing them from participating as equal peers in society. Linking colonial histories and Indigenous people's struggles for recognition has been well described by Fanon (1952), who shows how victims of racism and colonialism suffer severe psychological harm from being demeaned as lesser humans, as well as their struggles to overcome such inferiorisation.

To contest such practices of denigration, however, there have been attempts at revaluing Indigenous identities in Mexico. On the eve of the Fifth Centenary of the European landing in America (12th of October of 1992), there was a movement across Latin America to re-signify ethnic identity through recognising cultural diversity. In Mexico, the cycle of protests around 1992 was renewed in 1994 by

the Ejército Zapatista de Liberación Nacional (EZLN), a guerrilla organisation of predominantly Indigenous people from different ethnic groups in Chiapas (Velasco Cruz 2003). These recent movements suggest a change in Indigenous people's relationship with the state, particularly by advocating for Indigenous autonomy and self-determination within a pluricultural nation, positioning recognition as a 'vital human need' (Taylor, 1994: 26).

Foreign intervention has had an effect on the way people perceive their Indigenous identity in all three communities. However, each locality has experienced a unique colonial past that has resulted in different ways of understanding and striving for recognition today. Santo Domingo Ingenio has the least significant relation with colonialism among all three cases, and thus, participants did not express a strong need for recognising their Zapotec identity. The town was founded after the French and Spanish interventions by people who migrated from different municipalities to work at a sugar mill installed in 1913 by the Spanish family Murga y Barrios (INAFED 2017). While their everyday life is linked to Zapotec culture, only 5% of residents are Zapotec-speaking, and therefore their current reaction to foreign interventions is not as obviously driven by its colonial past.

Although El Espinal has a rich Indigenous background, its historical relationship to the Spanish and French crowns has facilitated a favourable attitude towards foreigners. The town was first established by the Spanish crown in 1690 as an *Hacienda* (plantation estate) (INAFED 2010). Indigenous people began to populate the area as farmers that served this feudal economic scheme. During its colonial times and in the present, being identified as Indigenous meant being denigrated. This power norm has mutated from a visible form of power, where there was a specified by the *sistema de castas* or "race/cast system" (Martínez 2008), to a more invisible everyday manifestation of power over Indigenous people by the Mestizo[56] population. For example, the municipality's councillor of culture, José Antonio, explained that studying for a degree in El Espinal meant '*taking off your Indigenous investiture*'. He believes this is due to a colonial arrangement where selected Indigenous people were taught Spanish to communicate with the *Hacienda's* owner. By doing so, they became *Mestizos* and had higher social status than Zapoteco-only speakers. As a result, many residents have ceased calling themselves Indigenous and stopped teaching Zapotec to their children. However, many people in El Espinal advocate for preserving Indigenous traditions as inherent aspects of their identity: '*I still wear huaraches, black pants, and guayabera every day. Because this is ours and we have to defend what is ours...I feel that we have the responsibility to take care of our traditions, we are Zapotecs, a race that refuses to die*' (G2[57]). Given this mixed cultural identity, inhabitants have been more inclined to welcome European-based

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[56] In general, "mestizo/a" refers to racial and cultural mixing among Europeans, Indigenous peoples, and Africans (e.g. Anzaldúa, 2012)

companies if they contribute towards preserving their Indigenous culture, such as funding the traditional youth orchestra and support festivities or *Velas*.

By contrast, Unión Hidalgo was formed shortly after the Mexican War of Independence (1810), when the state government of Oaxaca forcibly merged four scattered Indigenous *rancherías* (settlements). However, because Unión Hidalgo was never formally colonised or forced to live under colonial rule, residents see developers as a new external threat to land ownership and the protection of their Indigenous rights. In the last twenty years, they have even developed new initiatives to '*revitalise*' their Zapotec identity (C26) claiming more physical and social spaces of power. For instance, the *Binni Cubi* collective campaigns to recognise local heroes of culture, such as artisanal bakers or tortilla makers (C18), who are often ignored in everyday town activities. One form of recognition is painting their portraits as mural on public walls, as shown in Figure 22.

Figure 22. Photograph of Na. Rosita. Traditional healer and nursemaid, (José Arenas, Unión Hidalgo 2019)

An early example of the different approaches of El Espinal and Unión Hidalgo to foreign interventions can be observed in the Battle of Juchitán on September 5th, 1866 which was part of the second French intervention in Mexico (Meyer 1980). French troops marched towards the city of Juchitán, passing through El Espinal without resistance. When the French army approached, Juchitán's army quickly evacuated the town's population to Unión Hidalgo (known then as Ranchu Gubiña) where they could be safe and could request provisions if needed (Jiménez López 2000). Therefore, though El Espinal and Unión Hidalgo were both Zapotec towns facing a foreign intervention, the former let the French battalion proceed, while the latter offered shelter and provisions to the Zapotec troops that were key to their victory.

Given this colonial past, people in Unión Hidalgo regard the arrival of (mostly Spanish and French) wind energy companies as a threat to their Indigenous identity and culture. Here, study participants consider the new wind energy industry as a second conquest attempt, similar to colonial domination, as portrayed in Figure 23. They see developers as part of an extractive industry that only benefits foreigners and alien cultures and not the local population/culture (C8, C7, C12, C21, C27, C28, C29, G2), and thus establishing a power over position vis a vis the local population. They argue that this conquest is possible given the lack of information and poverty that Indigenous people experience in this region. José, a local artist, explains:

> '*Once I painted a mural against the developer (Figure 3), they asked me if I only wanted to attract attention so that they could give me money. I said no, and if you think that this is the case, you might as well paint one yourself. We painted three caravels and an armour that instead of a weapon it had a wind turbine*'

> *Pepe, Unión Hidalgo.*

Figure 23. Photograph of the mural 'La nueva conquista' (The new conquest), (José Arenas, Unión Hidalgo 2019)

In sum, residents of Unión Hidalgo and El Espinal recognise the ability to preserve their Indigenous identity as a capability that they have reason to value. However, both localities have had different reactions to developers' interventions. El Espinal's mixed cultural identity conveys that helping to preserve Zapotec culture can lead to a more positive perception of foreign-based companies. In contrast, Unión Hidalgo's long history of resisting foreign interventions, has led to residents continued opposition to wind farms, regardless of local social and economic hardships. Wind energy opponents in Unión Hidalgo have resorted to earlier anti-colonial resistance strategies to impede the construction of new wind farms that may threaten their cultural traditions.

7.2. 'We want to be Indigenous and not poor': Indigenous and Modernist Approaches to Development

The need for the recognition and restoration of Indigenous identity in the Isthmus of Tehuantepec discussed in the last section is often positioned in conflict with ideas of 'modernisation' or 'development'. As seen in Section 7.1, the region's colonial past has led to the characterisation of Indigenous people as poor and uneducated. Consequently, overcoming poverty and becoming 'developed' is often linked with the need to abandon Zapotec norms and practices. The apparent disjuncture between modernist and 'Indigenous' ideas of development has been presented as a dilemma for both opponents and allies of the wind energy industry: inhabitants feel the need to decide whether to 1) follow Indigenous traditions that focus on localised self-sufficiency, communal solidarity and harmony with nature, or 2) opt for the wind energy industry's paradigm, which advocates for the marketisation of collective resources through individual property arrangements and the commodification of nature. Deliberation over these two apparently incompatible choices is pressured by the idea that 'time is money', which is an integral part of the accumulation process of capitalism (Polster 2016), and assumes that making a lengthy decision between the two choices can lead to irreversible negative economic consequences for the region. The climate change imperative to reduce greenhouse-gas emissions and prevent irreversible ecological collapse further adds to this pressure to hastily find effective solutions.

This seemingly binary dilemma was mostly voiced by respondents in Unión Hidalgo, who perceived the arrival of the wind energy industry as a menace to an already deteriorating collective identity. Particularly, academics and wind energy opponents in this locality argued that *Comunalidad*, a central organising principle of Zapotec communities throughout Oaxaca, is being threatened by developers' everyday practices (A2, A1, C19, C24). Originating mainly from Spain, France and Italy, developers followed an underlying philosophy rooted in the modernisation paradigm. This entailed transforming local traditional practices and customs into a development ideology that requires people to unreservedly accept clean energy production infrastructure as a necessary 'bad' for the greater good. Companies considered themselves as champions of sustainable development, advancing economic growth while 'contributing to solutions to combat global warming and its effects' (ACCIONA, 2020). Given this characterisation of their activities, developers exercised hidden power by proposing wind farms as a rational choice to economically '*develop*' communities (D12) by providing jobs and alternative sources of income. Under this reasoning, people resisting the construction of wind farms were categorised as anti-development groups, as José, a member of a local collective in Unión Hidalgo, explained: "*developers say that we are not interested in the development and progress of the community. They call us anti-eólicos*" (C18). This characterisation was resented by local people, who often clarified in

interviews that what they opposed was not the clean energy or the development of the community, but how its production was forcibly carried out in the local context.

To explore the extent to which energy developer's practices are juxtaposed with daily Zapotec life in all three communities, this section discusses the four characteristics of *Comunalidad* (land ownership, governance, collective work and *fiesta)* and analyses the resulting community attitudes towards wind farms. The conclusion of this analysis raises the need for going beyond a dichotomous and exclusionary approach to development that follows either Indigenous traditions or a modernist paradigm. Instead, this section argues for an approach that embraces ontological diversity and decentralised communal structures that preserve and enhance local socio-cultural practices to allow the co-construction of just and sustainable futures.

Comunalidad: underlying philosophy

Comunalidad is a communal cosmovision central to Zapotec cultural identity. Its underlying philosophy, constructed by theorists José Rendón Monsón, Floriberto Díaz, and Jaime Martínez Luna (Aquino Moreschi, 2013), is founded in the daily struggles that Zapotec people in the Sierra de Oaxaca have faced since the end of the 1970s: fighting against the dispossession of their natural resources, defending the community's self-determination, and improving their living conditions. In a broader sense, it is part of Indigenous people's efforts in Latin America to resist against "internal colonialism", i.e. relations of domination between the state and Indigenous communities (Aquino Moreschi, 2013).

One of the main reasons for proposing the idea of *Comunalidad* was to produce more appropriate categories of different realities that Indigenous people experience; more traditional hegemonic categories are limiting, as "these dominant concepts often prevent the creation of new concepts and therefore imagining other worlds" (De Sousa Santos, 2009). One example of this is that according to De Sousa Santos, the idea of "development" was created to categorise most of the world as "underdeveloped", pointing to not only "deficient" economies, but also subpar institutions, laws, customs, and philosophies of life. To this end, putting forward the idea of *Comunalidad*, allows the possibility of going beyond ideas that limit people to the condition of "colonised", to create new concepts and "think about ourselves" (Aquino Moreschi, 2013).

The concept of *Comunalidad* proposes that Indigenous communities in Mexico share four main characteristics: (1) communal ownership of land, (2) governance through communal assemblies, (3) collaborative construction of local infrastructure or *tequio,* and (4) economic decisions oriented towards immediate satisfaction and enjoyment through the *fiesta.*

Territorio: communal land ownership

Most residents relayed memories of communal land; this was particularly the case in Unión Hidalgo. They narrated how their grandfathers used to go to the fields, '*cleaned the bush*' and placed a wooden

fence around a plot to grow local crops like corn, pineapple, melon, or sesame. Once they no longer needed the land, '*you removed the fence so that someone else could work it*' (C28). As Dr. Manzo explained, this '*goes beyond the idea of private property*': communal land is a territory owned by both everyone and no one, and can be freely used by anyone who needs a plot to satisfy basic needs, such as for food or shelter (as discussed in Chapter 6). Therefore, the territory is made of three complementary layers—physical, symbolic and economic (Guerrero Osorio 2013)—and as such, is understood as a resource that is to be shared and cared for. Díaz (2007: 40-42), an academic from Oaxaca working on *Comunalidad*, explains: '*The land is for us like a mother that gives us birth, gives us food and shelter, this is why we are not owners of the land, between mother and child there are no ownership arrangements, but of mutual belonging*'.

The wind farm industry has not recognised this relationship with the land. Instead, wind energy companies have encouraged the idea of private ownership, which follows a capitalist logic and transforms the territory into a marketised commodity that can be bought and sold for profit. At the same time, as described in Chapter 6, developer's efforts towards land privatisation were supported by certain local landholders, particularly *caciques,* who saw the opportunity to justify their right to sell and purchase land, fuelling the commoditisation of land holdings.

Given this non-recognition of local ownership paradigms, wind energy opponents in the Isthmus see the installation of wind farms as a form of dispossession associated with colonialism (Alonso and García, 2016). Though the land is not being legally appropriated, since under Mexican law the land remains under communal ownership (Binford, 1985), the understanding of how land is owned and managed is being modified in accordance with foreign norms of occupation that have developed local tensions. As Rosa, an activist in Unión Hidalgo, explained: '*Discussions between wind energy tenants and commoners make it seem like this is a clash between people that have land and landless people. But it is not like that, it is rather that you have land and I have land, but you want the wind farm and I don't*' (C19).

Autoridad: governance

Collective decision-making is highly regarded in the local culture of all three communities, as discussed in Chapter 6 (section 6.2.2). *La Autoridad* is the communal institution in charge of solving community problems, decision-making and agreement-building, and it follows the notion of 'commanding while obeying', which is based on principles of reciprocity and service (Guerrero Osorio, 2013). Decisions are usually made in an *Asamblea general*, which typically includes one member of each family as an equal voter (Martínez Luna, 2013). As one tenant in Santo Domingo Ingenio described, '*Politics in our town are known to be an instrument for the search of alternative solutions to collective problems, and not as a personal business*' (L15).

Communal governance differs from the wider Mexican governance system at state and national levels, which is characterised by a hierarchical system of decision-making and obedience. This latter structure favours developers, as decisions made by officials in the federal and Oaxaca governments would largely be accepted and followed by local authorities. Once on the ground, however, developers had to summon agrarian and political assemblies to make agreements. As discussed in Chapter 6, these assemblies were a threat to wind energy representatives, who found it '*easier to agree with two or three people than with 500*' (C16). Pressured by business agreements and impatient investors, most developer representatives tried to extract individualised decisions from local authorities, instead of adhering to local governance rules defined by the *Autoridad.* As one developer representative asserted, '*Now I do individual meetings because otherwise in general assemblies they come up with other issues*' (D2), and a tenant lamented, '*We tried to assemble all land possessors to establish a regional committee, but developers did not back this motion because we had individual contracts*' (L3).

Wind energy companies failed to recognise how highly local people valued communal decision-making. In turn, the collective governance structure weakened; the companies '*individualised the land and decision-making… Divide and conquer they thought, we are 214 egidatarios, divide them and they will have less strength*' (L14). As discussed in Chapter 6, the introduction of representative democracy/a more individualised decision-making processes also benefited and strengthened the power of local *caciques* who, through small 'representative' committees, advanced hidden political and economic agendas: '*And caciques played their game because this arrangement has benefited them*' (L14), '*If the commoners had unionised, they would have negotiated with other unions and reached a better business deal*' (C26). Consequently, recognising, respecting and following communal decision-making processes became a key factor affecting the acceptance of new developments. One Ministry of Energy official reflected that '*the wind energy industry has to think of people not as individuals, but as a community, and understand how daily practices, decisions and procedures are in accordance with this cosmovision*' (G4).

El trabajo: collaborative work

Collective work (the *tequio* or *mano vuelta* in Spanish, 'hand in return' or mutual aid) is the base for directing and organising productive chores, to acquire prestige and represent the community. The *tequio* is voluntary work by community members towards a collective good, particularly for public infrastructure, such as roads, fences, schools and churches, or for beautification, such as cleaning a river or park, planting trees or painting buildings/homes. Families can also request the *tequio* to construct or repair houses, or help organise celebrations (e.g. weddings or knitting the *enramada*, a palm-based temporary roof used for special occasions). The *tequio* is founded on principles of reciprocity, interdependence, and horizontality that binds society. Luzmar, an inhabitant of Santo Domingo Ingenio, explains that the *tequio* was a communal response to poverty and neglect by the state and federal

governments. Residents could provide themselves with basic services and entertainment by coming together and contributing time and labour (L12).

However, this form of collective labour has declined *'in the last 50 years'* (L12). This is likely due to a government reform that provided municipal funds for public infrastructure, making *tequio* initiatives redundant: '*Now that the government has money, people don't want to give tequio anymore, and if you help, they might keep the money*' (C12). A secondary school teacher in Santo Domingo Ingenio explains that Isthmus society has slowly evolved into a more individualised culture: '*We have been losing our collective culture that was a principle of our people; we have lost our collective traditions; people no longer care if their neighbours are ok…people now put themselves first. We, young people, have not been capable of reversing this pattern*' (C16).

The arrival of wind energy developers has further contributed to the loss of the *tequio* tradition in all three communities. As people in the Isthmus increased their income through the wind farm industry, '*they started to prefer to pay someone else to go to give tequio on their behalf…* '*Now many people just pay someone to do the food, distribute the beer, clean after the party*' (C19). Consequently, a form of power with started to be replaced by power over. This replicates a colonial distribution of labour, where Spanish-descendants did not participate in community tasks, and the hardest work was left for the *Macehuales* ('common people') (Martínez Luna, 2013: 85). In the context of the introduction of a new industry, such as wind energy, Guillermo, a human rights organisation representative, describes this situation as worrisome, since '*when the community is not well organised and strengthened, it is very easy for foreigners to take advantage of people's vulnerable poverty condition*' (N1).

Furthermore, lack of recognition justice makes it clear why local communities were outraged by their employment as construction workers and not as technicians. This is not just because of the upward distribution of labour income, in considering distributive justice. A recognition lens reveals a more entrenched reason for opposition due to the region's morphing social structure. In colonial times, the social order was divided into the type of labour that people did, leaving the hard work to the *Macehuales*. After independence, however, society strived to eliminate these privileges, which led to the remarkable rise of *Macehuales* in the social structure of the community (Martínez Luna 2013). Nevertheless, this new, more egalitarian social structure was once again threatened by the arrival of wind farms. Colonial hierarchies of work and social stratification were immediately replicated in this industry, leaving temporary, low-skilled employment for local people and high-skilled jobs for foreign workers.

La fiesta: enjoyment

La fiesta is the highest form of sociality and the most important symbol (and practice) of community in the Isthmus. *Fiestas* can be any celebration of a civic, religious or agricultural nature, such as patron saint festivals, weddings (Figure 24) or birthdays, which are organised according to the intergeneric

rules of a specific community (Guerrero Osorio 2013). Each of the three localities have collective festivities. In El Espinal, a candle is lit for the patron saint's vigil (*Vela*). The whole community carves this candle before the *Vela* (Figure 25), which is '*very delicate and laborious work, and therefore we need all the community to achieve the thickness required for three days of vigil*' (C5). In Santo Domingo Ingenio, all attendants of the *Vela* contribute to its costs by giving *limosna* (alms) to the *mayordomo*, who is in charge of oversight (C10). In Unión Hidalgo (Figure 26), residents collectively cook the food served at the *Vela*, some of which requires continuous overnight stirring that residents divide amongst themselves in shifts (C19). *Fiestas* beget vital socialising, where relationships between families and neighbours are created, repaired or broken. Unlike communal work or collective land ownership, the *fiesta* has gained strength and importance over time.

Figure 24. Photograph of a wedding in Santo Domingo Ingenio, (author's photograph 2017)

Figure 25. Photograph of 'labrada de cera' (candle carving) during Vela San Juan, (Enigmatino Fotografía. El Espinal 2015)

Figure 26. Photograph of Vela Pasión Goola (ItsmoPress Unión Hidalgo, 2016)

Developers engagement in these festivities has been a key factor for wind farm acceptance in the three communities. Developers in El Espinal actively contribute to local *Velas* by setting up their own 'stands', paying for part of the infrastructure, and inviting guests (often staff, service providers, and tenants) to the *fiesta*. Developers in Santo Domingo do not contribute to the *Velas*, but two developers have participated in other important occasions, such as providing families with a basket of local goods for Mother's Day and Christmas. Participants highly appreciated this gesture, differentiating these developers from those *'who do not provide anything'*. Conversely, a developer in Unión Hidalgo did

acknowledge the local value of *Velas*, but rather than contribute to the existing organisation, opted to organise their own: the *Vela del aerogenerador* (wind turbine vigil). This event catered exclusively to wind farm tenants and their families, disregarding local, more inclusive customs. For instance, developers raffled off a pick-up truck, but administered tickets based on the tenant's number of hectares in the wind project. The community did not contribute to the celebration, as the developer distributed all food and beer by request only. Participants recalled such events with indignation and disapproval. As one explained,

> *'it would have been better for the developer to act as a mayordomo of an already established Vela that followed all the customs, and not make a flawed imitation. Also, he should have invited everyone and not only tenants. This would have made people see the developer with different eyes, but what they wanted was to divide: only those who are part of the project get the benefits'*

> *Lupe, Unión Hidalgo.*

Overall, developers in El Espinal and Santo Domingo Ingenio realised that they could reduce tensions with the community by recognising the value of and participating in the *fiesta* as an equal. Contrastingly, the developer in Unión Hidalgo failed to recognise the collective cosmovision of the local population, and attempted to co-opt and change ancient customs for its benefit. By imposing cultural domination (Fraser, 1996) and foreign values on Zapotec festivals, developers in Unión Hidalgo entrenched negative attitudes towards wind energy developments.

Going Beyond the Indigenous and Modernist Dichotomy

As seen through these four local Zapotec cultural characteristics (*territorio*, *autoridad*, *trabajo*, and *fiesta*), respondents perceive the arrival of the wind energy industry as a threat to an already deteriorating Indigenous identity. Study findings in all three communities reflect the misrecognition of local cultural practices for subsistence and reciprocity – a misrecognition fuelled by energy production pressures, which assume that nature is an available resource to be exploited for maximum economic benefit. Developers eschewed recognising communitarian and cooperative Indigenous practices for quick agreements in line with transnational market plans.

Findings show, however, that these apparent quick agreements were only superficial. Instead, wider social asymmetries were produced, particularly when the federal state became an advocate of private interests. Most importantly, the arrival of wind energy developers contributed to the loss of reciprocity through increased inequality in all three communities. Employing only a small group of the population, creating new tenancy payments that only benefit certain farmers, and fostering one-way community benefits given to local governments, established hierarchies of power that that continued to brake reciprocal relationships among a community historically founded on equity and solidarity (Martínez Luna, 2013). Developer-community relations became transactions of *power over*, in which the community felt unable to correspond. Developers' non-recognition of the value of reciprocity among

the local population translated into practices that made people feel disrespected and not recognised as equal. Therefore, through these agreements, communities not only lost power (as discussed in Chapter 6), but, through invisible and hidden power practices, habitants of communities also felt that they lost their dignity by putting their Indigenous identity at stake: the recognition of Indigenous identity and culture was subordinated to economic interest, development and national modernisation.

Consequently, study participants criticised the new economic paradigm given it could reconfigure and possibly fragment their collective culture. Their concerns were not only about the unequal distribution of benefits and restricted processes, but also the non-recognition and dispossession of their communal land titles, natural heritage and culture. These, in turn, have become important factors affecting people's negative attitudes towards advancing new wind energy developments.

Cultural misrecognition had different nuanced implications in each of the three communities. In the case of Unión Hidalgo, the fact that developers failed to acknowledge cultural differences and instead reproduced colonial-based discrimination, was key to understand residents' negative attitudes towards wind farms. In particular, developers did not recognise residents' relationship to land and land ownership. In this community, the land is seen as a living resource that must be shared and cared for. Developer's individualised approach to land ownership represented a clash with the community's collective and symbolic relationship to the land. On the other hand, El Espinal and Santo Domingo Ingenio had already instituted individual land ownership long before the arrival of the developers and thus, individual agreements did not disrupt understandings of tenure.

Though all three communities had some level of collective decision-making, Santo Domingo Ingenio and El Espinal had higher levels of trust towards their mayor and his council due to higher levels of accountability. As a result, representative democracy, which was the preferred approach of developers, was easily achieved through the local government intervention. In contrast, direct democracy was a key element to opposing wind farms through communal action in Unión Hidalgo. Residents established a commoner's assembly with collective decision-making, which offered them the strength to face developers and wind energy supporters and reinstate their dignity as Indigenous people. By doing so, this community institutionalised processes that enabled them to preserve their culture and determine the type of development they valued, while also being helpful to identify and avoid processes of non-recognition introduced by the wind energy industry.

Similarly, developers' approaches to *fiestas* have factored into different levels of community acceptance in the three localities. Developers in Santo Domingo Ingenio have not engaged with these festivities. In Unión Hidalgo, wind energy companies have engaged in cultural appropriation (Young 2010) which has resulted in low community acceptance of wind farms. On the contrary, developers in El Espinal participated in the organisation of *Velas* as equals, respected customs, and strengthening the social fabric by including formerly-excluded people in the celebrations.

Even though differences among communities point to the importance of recognising principles associated to the idea of *Comunalidad* particularly in Unión Hidalgo, it is relevant to note that not all respondents in this locality sympathised with this concept. Study participants mentioned that they have started to '*become afraid of the idea*' or see it '*as a backward concept*' (G4). Specifically, ideas such as *Comunalidad* have become problematic due to the incapacity of traditional ways of organising to bring about needed economic resources to the locality and to secure certain public services, such as sewage and roads. Respondents in Unión Hidalgo remark how other communities such as El Espinal, Santo Domingo Ingenio have been able to overcome basic hardships and hear those communities' inhabitants proudly saying that they are on a development path since the arrival of the wind energy industry. Consequently, they see *Comunalidad* as an overly romantic approach to their community and culture, that has little to offer in eradicating poverty, and as an external academic imposition of '*what the community ought to be*', that is misaligned with the community's current reality and what their inhabitants have reason to value.

In sum, most study participants advocated for the wind energy industry to assimilate local forms of ownership, production, governance, work, and celebration into their development processes. Once local culture was understood, valued, and embraced by the industry, residents were more willing to listen to and discuss offers that increase incomes, enhance access to employment, and improve public infrastructure. In doing so, they positioned recognition of their Indigenous identity as a primary factor for the community acceptance of RETs. By acknowledging the value of Zapotec identity at the core of every practice and outcome, the wind energy industry can contribute to the enhancement of people's other valued capabilities, echoing participants aspirations to proudly be Zapotec and live a good life; as one respondent said, to be '*Indigenous and not poor*' (D10). Nonetheless, the increased social polarisation and inequity from capitalist wind farm construction, also needs to be taken into consideration. In this regard, it is of key importance to not impose ownership structures and employment systems that operate under a modernist logic of private property and individual gain. Instead, findings direct to co-create alternative models that embrace diversity while respecting communal economies and practices. In turn, these new approaches may shape spaces of power that facilitate the construction of sustainable and, at the same time, just futures.

7.3 Negotiating Identities to Navigate Exclusion

Finally, the chapter narrates how indigenous identities are not fixed. Instead, people are constantly modifying their identities by interrelating these with different categories to navigate dynamics of exclusion. In Mexico, the word 'Indigenous' has been used to classify a sector of the population that is not homogeneous. This category is at times voluntarily used, and at other times externally imposed. The denomination can be at times of benefit, and at other times, a drag that hinders the possibility of looking at cultural diversity when referring generally, for instance, to 'Indigenous culture', 'Indigenous youth',

or 'Indigenous women'. Aquino Moreschi (2013) contends that the term reduces the identity of people defined as 'Indigenous' to an ethnic identity that is linked to a historically-constructed relationship of domination, and reduces the understanding of having multiple identities that emerge depending on the context. People in the Isthmus of Tehuantepec continuously negotiate their 'Zapotec identity' and its interrelation with other chosen or imposed identities; identities are not fixed, but continuously changing in time and space. This section will argue that recognising changing identities and people's right to decide which identity they emphasise, become a way of exercising agency to navigate power dynamics that result in exclusion.

During the indigenist epoch of the twentieth century in Mexico, many efforts were directed to define 'Indian' or 'Indigenous', in order to either assimilate, integrate, protect, save, recognise or simply characterise the concept and people that fall into this category. The most common criteria of an Indigenous person derived from this work was to 'speak an Indigenous language' and to preserve the cultural traits of their pre-Columbian ancestors (Gamio 1957). Another criterion was the contrast to dominant culture, 'as people with cultural and spiritual characteristics different from the European' (Comas, 1953: 135-136). More recently, Bonfil Batalla (1977) demonstrated inconsistencies in these descriptions and argued that the terms 'Indian' or 'Indigenous' do not denote any specific definition of the groups they cover; given the wide spectrum of cultural variation, the terms can only be useful when pointing to the colonial relationship and the colonised condition. When proposing the idea of *Comunalidad*, Jaime Martínez and Floriberto Díaz took Bonfil's definition and argued that though the colonial relationship needs to be acknowledged, there is also a need to give the denomination content that is not limited to colonisation.

The word *Zapoteco* in itself is an imposed denomination. *Zapoteco*, as well as the term 'Indigenous', are associated with a condition of colonisation. The word *Zapoteco* comes from the Nahuatl word *Tzapotécatl*, which means 'people of the Zapote'. This denomination was imposed by the Mexicas due to the abundance of Zapote trees in Oaxaca. Zapoteca was further adopted by Spanish troops when they arrived at the Oaxaca Valley, and is now the denomination that the Mexican federal government uses to refer to this Indigenous group (INPI 2020). People in the Isthmus, however, do not refer to themselves as *Zapoteco*, but as *Binnizá*, which means 'people that come from the clouds' (*binnim*= people, *za*= cloud). The word *Binnizá* was an instant source of pride when mentioned during interviews, and residents would only recognise their identity as *Zapoteco/a* when they mastered the Zapotec language *Diidxazá* (*diidxa'* = language and *za* = cloud). However, even when mastering the language, they were unsure about whether they should be called Indigenous, which, as discussed in Section 7.1, is often associated with poverty in Mexico. For instance, José and Luis explain that '*El Espinal is often not considered an Indigenous locality due to their low levels of poverty*' (G2, L4).

The arrival of the wind energy industry brought identity dilemmas back to light. Self-identifying as Indigenous meant reviving colonial Spanish/French relationships with foreign energy companies. At

the same time, Indigenous people are granted rights that are not constitutionally recognised to non-Indigenous communities under the 169 Convention, which recognises their entitlement to be consulted about benefit-sharing arrangements for extractive activities. The resulting power positions derived from these two different standpoints, led to active negotiations of when and where an Indigenous identity was maintained or not. For instance, processes of Free, Prior and Informed Consent (FPIC) followed a resurgence of Indigenous self-determination in the region (L16, D8, C27, C28, C29) that was, at the same time, questioned by people living in the Isthmus. Jesús, a farmer in Unión Hidalgo, explained:

> *'when they learned that they gave money in Juchitán (as an aftermath of an FPIC process) then people here said that they were Indigenous too. And we are because we speak Zapoteco, but this also meant that we now have to fight along other Indigenous representatives of other parts of the republic'*

> *Jesús, Landowner, Unión Hidalgo.*

This identification also worried developers, who feared that self-identification under FPIC would grant people, foreign to the project, the power to '*shut a project for any reason, leaving local real Indigenous people that want the project, without the chance of raising their voice*' (C12).

Indigenous identities were also associated and negotiated with collective and individual ownership identities to navigate power. Previous to the instalment of wind farms, people working the land were referred to as *ejidatarios* or *campesinos* (farmers) (concepts that were discussed in detail in Chapter 6). Two new identities emerged from the installation of wind farms: small landowners or *pequeños propietarios*, and commoners or *communeros*. People that claimed to hold a tenancy title became a *pequeño propietario,* which is associated with materialist, rational and individualist worldviews brought by developers and globalised markets. And, in Unión Hidalgo, people who did not hold a tenancy agreement and were opposed to the installation of wind farms, adopted the name of *comunero* to strengthen the position of eco-centric, collective and relational forms of land ownership. Over the years, this distinction became permeable; *pequeños propietarios* became *comuneros* following disagreements with wind farm developers. At the same time, people that self-identified as *comunero* sold pieces of land as *pequeño propietario,* as described by one farmer: '*he says that he is the representative of the communeros, and at the same time, he sold two hectares to the mayor so that he could build a landfill. But then, if we all own the land, how and why is he selling it?'* (L16). And drawing the connection between identity and power, an inhabitant of Unión Hidalgo recalled '*at times they call themselves Indigenous, other times comuneros Indigenas, and sometimes only comuneros depending on when they get more money or resources'* (L24).

Furthermore, two other identities were created following the establishment of the wind energy industry—*Eólicos* (eolians) and *anti-eólicos* (anti-eolians)—that introduced a social hierarchy within the three communities. *Eólians* is a term often used by indirect beneficiaries of the wind energy industry, to refer to direct beneficiaries, such as tenants and industry staff. It is assumed that *Eólians* support and

are willing to protect the industry. Being labelled an *Eólico*, implied newly attained economic and social power, as their steady, semi-permanent income put them in a position of privilege. A leader in El Espinal explained, *'Now they situate us in another level, they say, the eólicos are coming, as if they were the poor and we the rich, and that is not good for us socially'* (L2). This new identity stratification has also alienated tenants and energy workers from social interactions during festivities, due to the fear that food or drink might not meet the expectations of a group of higher socioeconomic status.

The word *anti-eólicos* is often used by direct beneficiaries to refer to members of the community that have openly raised their voice against wind farms, or have a close relationship, often of kinship with people that have raised open concerns. The word *anti-eólico*, is often also associated with landlessness, and therefore powerlessness, as one tenant in El Espinal explained: *'they only have tierra (land, but that also refers to dirt) on their nails'*, implying that *anti-eólicos* shouldn't have an opinion on wind farms since *'they are not directly affected'* (D6).

Overall, negotiating identities have allowed inhabitants of the Isthmus to navigate power, oppression and exclusion. One person might self-identify as a *pequeño propietario indigena* to claim rights of land ownership and consultation, while another might opt for non-Indigenous *communero* to position herself as a right holder to land that is not seen as inferior by a developer representative. This continuous identity negotiation resonates with Sen's (2011: 7) idea of agency, which envisages all individuals in communities not as 'patients' whose needs must be addressed, but as 'agents' who extend their freedoms, by shaping how RET siting is done based on an understanding of their culture, needs and aspirations. While agency has the power to construct identities, certain identities can also fuel agency. This analysis also echoes Brandom's (2007: 136) perspective of recognition as a normative attitude that grants people a normative status, 'that is, of commitments and entitlements, as capable of undertaking responsibilities and exercising authority'.

At the same time, some of the new identities that followed the arrival of the wind energy industry that people do not self-identify with, such as *eólians* or *anti-eólicos*, have further strengthened positions of power of certain groups while stigmatising others. Overall, as shown above, power from negotiating identities lies not only in how people self-identify, but also in how others see them (Fennell 2013). And, recognising these negotiations of power can root visible forms of exclusion and injustice 'in a failure to accord some groups of people equal respect and equal rights as others' (Walker & Day 2012c).

7.4 Conclusion

People in the Isthmus of Tehuantepec value the ability of preserving their Indigenous identity. This Zapotec identity, which is ingrained in everyday life, has been heavily shaped by Spanish colonialism and its legacy in the region since then. The arrival of wind energy companies (mostly French and Spanish) is regarded as a threat to Indigenous identity and culture, particularly in Unión Hidalgo, which

has a long history of resisting foreign interventions. This community has resorted to anti-colonial resistance strategies from the past, such as blockades to impede the construction to wind farms, in an attempt preserve their cultural traditions. Recognition of and engagement with Zapotec identity in the colonial context of historical discrimination is a key factor affecting community acceptance of RETs.

Furthermore, there is a need for recognition of the fact that Indigenous identities are not fixed. Because identities change and interrelate with other categories, there are implications for power dynamics and exclusion. This analysis is key to recognising people as agents who are constantly shaping their roles in energy transitions. At the same time, it is important to recognise that identities are also externally shaped and thus can contribute to preserving dynamics of oppression. Ergo, this chapter points to the importance of looking at how these characterisations are formed to address social, cultural, symbolic and institutional conditions that devalue Indigenous worldviews.

The findings of this research therefore point to the need to go beyond a universalist approach and embrace a plurality of development visions. Echoing the notion of justice as recognition (Fraser and Beschäftigung 1998), this chapter contends that this act of recognition is required to overcome obstacles of distribution and due process when designing and deploying RETs, such as wind farms. In short, "difference" needs to be valued to be able to recognise people as equal. This finding resonates with other theories of "difference", such as from Appadurai (1990) and Lord (1988), who discuss tensions between globalisation and cultural specificity. *Comunalidad* was born in the late 1970s as an effort to counter dominant understandings of "sustainable development", which were already back then preventing Zapotec communities from reimagining themselves in light of their values (Aquino Moreschi, 2013).

Thus, transitioning to and installing clean wind energy requires reimagining development visions that aim for decentralised communal structures that preserve and enhance local socio-cultural practices while allowing the co-construction of just and sustainable futures. This new industrial paradigm demands development alternatives that recognise peoples' capabilities, such as the preservation of Indigenous identities, as well as economic and industrial realities. Recognising Indigenous identities requires understanding and overcoming colonial structures that presume cultural inferiority and justify forms of subordination and exclusion. In a new development paradigm, dignity should be at the forefront, where it is required to recognise the right to preserve cultural characteristics, as well as acknowledge ways to organise economic, social and political spaces that imagine new energy systems nurtured by "difference".

8 DISCUSSION AND CONCLUSION

This thesis analyses factors affecting the community acceptance of renewable energy technologies (RETs) in three cities in the Isthmus of Tehuantepec, México. It explores local people's concerns about wind farms, the dynamics of siting processes, and how people's identities are recognised and negotiated during these processes. It also looks at how the distributive, procedural, and recognition elements of energy justice link to people's perceptions of well-being and proposes a bottom-up conceptualisation of energy justice.

Two intertwined findings emerge from this research. Firstly, just energy transitions require recognition of locally-valued forms of justice. Energy infrastructure siting processes and outcomes must incorporate these understandings of well-being to be conducted in a just manner. Secondly, it is essential to understand the power relations in renewable energy processes. Community acceptance entails changing actions and positions that are shaped by both internal power relations and those between communities, the state, and wind energy developers. These power dynamics can create barriers to expanding valuable capabilities for some stakeholders, thereby reducing the social acceptance of wind energy and diminishing the possibility for a just energy transition.

Social justice claims are an inherent part of community acceptance of RETs. To make sense of how individuals neighbouring wind farms understand justice, the research extended the triumvirate conception of energy justice (McCauley et al., 2013) in two ways: (1) operationalised the CA to contribute to a bottom-up approach to identify justices, (2) proposed the use of power analysis to unveil underlying reasons behind injustices.

This discussion chapter draws connections across the main findings, arguments and theoretical reflections throughout this research. Section 8.1 delves into how capabilities can inform energy justice, contributing to the identification of factors affecting community acceptance. Section 8.2 then elaborates on the connection between the three tenets of energy justice and shows how they are not only interrelated (Walker 2012), but also nested into one another: distributive justice is underpinned by procedural justice, while these two are embedded within recognition justice. Accordingly, this section argues to position recognition at the centre of energy justice claims when looking at community acceptance of RETs. Section 8.3 discusses forms of power that permeate community, developer, and government relations and limit valued capabilities. The section raises the need for using the concept of power whilst siting wind farms to identify a more extensive and integrated web of relationships of agency that may result in exclusion. Section 8.3 concludes by advancing a definition of community acceptance in light of these findings, pointing to policy implications, and avenues for further research.

8.1 Wind Farms, Capabilities, and Understandings of Justice

This section discusses the relationship between energy injustices and people's valued capabilities. Findings highlight the link between levels of acceptance of wind farms with processes and outcomes of wind energy siting that are aligned to people's understandings of well-being.

Environmental progress is not truly sustainable without a just energy transition. Part of this transition is looking at factors that affect community acceptance of RETs shaped by perceived injustices. The capability approach (CA)—a normative framework to assess people's well-being (Robeyns 2005)— allows individuals to define what justice ought to be, offering a bottom-up evaluative space to eliminate injustices.

The triumvirate energy justice framework helps to organise, analyse and discuss people's concerns about the introduction of energy infrastructure (as previously demonstrated by Roddis et al. (2018), Wood and Roelich (2020), and Yenneti and Day (2016)). By extending the energy justice framework with the CA, this study unveils what these justice tenets mean to people on the ground, with the aim of building a bottom-up approach to energy justice.

The research proposed the CA as a particularly useful framework to assess the extent to which RETs, such as wind energy, are enhancing (or constraining) the individual capabilities of people living in local communities. Levels of acceptance of wind farms were explained by looking at the impacts of wind energy siting and its outcomes on people's valued lives. Moreover, there are many different ways in which one can try to make sense of a fair distribution, significant recognition, and due process linked to well-being when siting RETs. The CA, particularly in Sen's approach, allowed diverse justice concerns from different people to be brought into view, moving beyond assumptions of what is just or

unjust in any particular place. Based on this evaluative capacity, the CA offered insights about aspects of acceptance related to justice that have been neglected or overlooked by other approaches that perpetuate a normative top-down perspective on people's relation to energy infrastructure.

Individuals neighbouring wind farms in all three communities value living healthy lives, maintaining harmonious relations with family members, having jobs that provide stable income, access to training and higher education that lead to adequate employment and improved social status, preserving and recognising Zapotec culture as a valuable identity, and participating in decision-making about their communal and personal lives, with the ultimate aim of living a more dignified life. The wind energy industry, which began in the early 2000s, promised the enhancement of local people's well-being, which can be interpreted as offering capability expansion. However, although some benefits have been provided, such as additional income, jobs and community benefits that aim to contribute to health and education initiatives, people in the Isthmus of Tehuantepec perceive the nascent wind energy industry as an imposing development process that does not fully accord with the lives they have reason to value. The following section discusses how the different kinds of justice relate to people's valued capabilities in the three cases, and how these are associated to different levels of community acceptance of wind farms.

8.1.1 Distributive Justice

Respondents in El Espinal believe that the arrival of the wind energy industry has had positive distributional justice effects with regards to enhancing the capabilities that local people have reason to value. The industry has increased people's incomes by offering tenancy payments to almost all local land holders as well as job opportunities. Particularly, because of El Espinal's high levels of educational attainment, inhabitants have been able to get highly-skilled, permanent jobs in the wind energy industry. This effect has strengthened ties between the local population and wind energy companies, who are often treated as an extension of their family. The municipality's high schooling levels have also enabled inhabitants to access legal, financial, and environmental information, facilitating mutually satisfactory distributive agreements between local people and developers. Regarding benefits to the rest of the population, developers have contributed to local education and public infrastructure by renovating the local secondary school, providing robotics programmes to elementary schools, and rehabilitating the main town square and sports facilities. These actions have contributed to community acceptance by shielding developers from criticism and bridging social divisions between the town and energy companies.

Contrastingly, people living in Santo Domingo Ingenio do not believe that distributive justice has been achieved following the introduction of wind farms. Only one quarter of all land holders became tenants of the wind energy industry, and payments schemes and benefits have been skewed towards organised tenants that exercise pressure on developers through intimidation. Besides, only a few low-

skilled jobs have been created, with no compensation for losses from deindustrialisation. Moreover, developers have channelled community benefits through the local government with minimal transparency and accountability. Thus, local inhabitants have made accusations of misappropriated funds, which has pressured developers to change cash benefits to in-kind contributions. Though this has largely settled disagreements linked to misappropriation, it has consequently excluded people in Santo Domingo Ingenio from being consulted about these community benefits, and therefore has not enhanced their valued capabilities. For instance, developers have built public amenities that are not at all aligned with local ideals and have been left underutilised or abandoned, including a public gym, park, and hospital.

Similarly, people in Unión Hidalgo have raised concerns about maldistribution following the establishment of the wind energy industry. Although the locality has historically maintained communal land ownership, the wind energy industry has encouraged individual land ownership and benefit distribution. This generated disagreements between farmers and within families over the distribution of land tenancy payments. Increasingly individualised ownership patterns have had a detrimental impact on the town's social fabric. Furthermore, the developer's contributions to community benefits have been low and inconsistent due a misappropriation and misuse of these benefits by the local authorities.

These results reassert that community acceptance is, to a certain degree, a problem of distributive justice. And, at the same time, that perceptions of injustice are linked to the extent to which people's valued capabilities are enhanced.

8.1.2 Procedural Justice

People living in all three municipalities value three main capabilities associated to procedural justice: having access to meaningful information, being able to participate without discrimination, and having access to formal justice to voice and address their concerns.

The capability to access meaningful information has been key for all communities to fully exercise their right to give informed consent during Free Prior and Informed Consent processes, understand tenancy land agreements, and verify information about health and environmental impacts. However, low levels of access to information in Santo Domingo Ingenio and Unión Hidalgo have resulted in lower degrees of social acceptance. Levels of accountability in El Espinal have been critical motivating factors affecting community acceptance of wind farms. The local government has relatively high levels of accountability, enabling the population to know how wind energy community benefits are spent. Besides, people in the El Espinal have relatively higher levels of education and have used their knowledge to request information through legal channels. Although the people in SDI have lower levels of education, their Spanish proficiency has allowed a better comprehension of the technical terms and enabled them to express their doubts more easily. Nevertheless, information channels have often been

co-opted by tenants in committee positions and mayors. Unión Hidalgo, which offers a similar case to SDI, has an additional barrier to access information: tenants have mostly only finished primary school and their first language is predominantly Zapotec. As a result, they felt unsure about making formal information requests and struggled to understand the information provided.

Local people consider the opportunity to participate under equal terms in decision-making a valuable capability. Through meaningful participation, people feel that they contribute to decision-making, which can improve their community. However, even though there have been efforts to widen spaces for inclusive participation in decision-making on matters related to wind farm siting, opportunities for the enhancement of this capability have differed among the three communities. To allocate benefits in El Espinal, the local authority has adopted participatory decision-making schemes for members of the community, such as councillors, school directors and tenants. These actions have increased people's awareness of the benefits offered by the wind energy industry, contributing to their positive attitude to new wind farms. Recently, however, the town held an Indigenous consultation that was limited to tenants, excluding non-beneficiaries from participating. This has contributed to an emerging attitude of wariness towards developers among the population. Tenants in Santo Domingo Ingenio, resented the new individual and small group bargaining introduced by developers, which generated conflict among Ejido representatives. Farmers were instead more accustomed to collective bargaining through the *Ejido* system, which has governed decisions about land and labour unions for almost two hundred years. Moreover, one developer physically and legally repressed people who voiced concerns about unequal payments between wind farms. This too fuelled people's resentment and mistrust towards the industry. Similarly, tenants and other residents in Unión Hidalgo felt excluded from decision-making about wind farms. The introduction of individual lease agreements has challenged protocols required for communal land ownership, such as general assemblies. And, though consultations were introduced by the federal government to comply with international regulations on infrastructure siting, such as the 169 ILO Convention, these have been permeated by clientelism led by the local mayor and other town leaders or *caciques*.

Finally, respondents raised the importance of having access to justice administered by the state and federal governments. Participants in the study wanted to understand basic legal concepts, how the judicial system works, and how to navigate it. In doing so, they wanted to comprehend and respond to the legal procedures that developers filed against them, understand their rights under ILO Convention 169, and exercise their right to consultation accordingly.

However, access to formal justice was differential throughout the three communities. In El Espinal, there were more people with law degrees, as well as a well-known public notary. Locals could therefore clarify legal concepts and procedures just by knocking on a neighbour's door, without incurring large expenses. However, in SDI and Unión Hidalgo, fewer people have such skills. Locals must thus seek lawyers in Juchitán or Mexico City, who require payment for clarifying questions. To bypass this,

residents in Unión Hidalgo who oppose new wind farms have sought advice from NGOs working to protect human rights. They have provided local inhabitants with access to legal spaces that they did not even know existed, such as reaching out to national and international courts, as well as the OCDE, to file complaints against a developer.

These findings point to the critical importance of recognising the processes that are associated with people's valued ways of participating and engaging in activities that define how and when benefits are conveyed and distributed. Section 8.3.1 will supplement the discussion on procedural justice by engaging in how power dynamics influence the enhancement (or curtailment) of these capabilities.

8.1.3 Recognition Justice

The identity of El Espinal inhabitants is shaped by their Indigenous background, a more favourable attitude towards foreigners, their high educational attainment, and low levels of marginalisation. This mixed cultural identity has been related to a more positive perception of foreign-based companies when developers contribute towards preserving their Zapotec culture, and activities for enhancing education such as sponsoring regional music lessons for children and regional feasts. These activities have allowed companies to share responsibilities in preserving Indigenous traditions and engaging in people's everyday cultural lives, which is a capability that people in El Espinal have reason to value.

In contrast, in Santo Domingo Ingenio, a feeling of misrecognition of the local cultural identity emerged due to energy companies' failed engagement in the community's everyday life. For instance, developers have not engaged in local festivities or contributed to the preservation of local culture. Furthermore, developer and community detachment increased when the wind energy companies established their offices outside of town, despite turbines being an intrinsic part of the town's landscape and life. Consequently, people do not consider the industry a part of the community, which has become a significant factor affecting acceptance of new wind developments.

Similar to people in El Espinal and Santo Domingo Ingenio, Unión Hidalgo values preserving their Indigenous identity. This town has the highest proportion of Zapotec-speaking population, and embraces its Indigenous identity through collective land ownership and decision-making, in particular. Nonetheless, like in Santo Domingo Ingenio, developers have not engaged with the community's everyday life and culture. For instance, wind energy company offices located in the town are continually closed, and developers have not taken part in traditional festivities. Instead, developers have appropriated local festivities as tools to reward their supporters and penalise opponents by only extending invitations to farmers who have signed tenancy agreements. These actions have resulted in inhabitants seeing developers as a new external threat to their land ownership and the enforcement of Indigenous rights, which further contribute to the cultural appropriation and lack of accountability in

participation processes. These factors have caused growing local resentment towards wind energy companies and active opposition towards new developments in Unión Hidalgo.

Such findings show how recognition of and engagement with Zapotec identities and traditions, within the context of colonial-based discrimination, is a key factor that affects the acceptance of renewable energy projects in the Isthmus of Tehuantepec. Thus, the research confirms that it is not enough to solely look at distributive processes to understand why inequalities emerge and how they can affect people's relationship to a new technology. Feeling misrecognised, culturally dominated and disrespected are preconditions for how and if, at all, people engage in decision-making processes and the resulting outcomes of sustainability interventions (which is an argument that will be further analysed in the following section).

8.1.4 Comparison of Factors

Community acceptance was high in El Espinal and initially high in Santo Domingo Ingenio, but low in Unión Hidalgo. The positive attitude towards wind farms in El Espinal was mainly due to developers contributing to enhancing people's capabilities by increasing their income, providing jobs and engaging in local culture and education initiatives. Moreover, high levels of accountability and transparency were key to decide and allocate benefits to inhabitants' satisfaction. In Santo Domingo Ingenio, residents initially welcomed wind farms, seeking new economic activity after the town's deindustrialisation in the early 2000s. However, the initial favourable attitude became ambivalent due to the developer's actions, including a lack of engagement in the community's life and well-being, introducing a more individualised land price bargaining system, and repressing dissident groups. Finally, Unión Hidalgo's low community acceptance levels to wind farms can be explained by low developer engagement in the community's everyday life and culture, low contributions to inhabitant's well-being through community benefits, and the introduction of individual land ownership and decision-making schemes that are contrary to local Zapotec codes.

There are a host of benefits and burdens that are context-specific and sometimes subjective (Schroeder et al. 2008: 550). Sen's (1999) concept of capabilities can illuminate aspects of valued benefits as well as the burdens that people on a certain setting ought to avoid. Findings in the three communities point to three important factors affecting community acceptance of wind farms: 1) the extent to which the wind energy industry enhances capabilities that people have reason to value; 2) the extent to which the industry understands, engages, and integrates local culture in their everyday practices and decisions (including the way the industry approaches, respects and follows local understandings of land ownership and collective decision-making, while considering historical contexts of industrialisation and colonisation); and 3) the level of government accountability that ensures the inclusion of local people in the decision-making about the process and outcomes of the new industry, and whether RETs can be installed.

By looking at these factors, the study finds that energy injustices should be seen as capability deprivations, urging policy-makers to assess the points at which wind farms may conflict with means for well-being attainment, and thus provides a more in-depth, bottom-up explanation for reasons for opposition. Expanding and enabling capabilities can thus eliminate injustices (Sen 2009), and in so doing enhance community acceptance.

Overall, developers support the establishment wind farms to reduce electricity costs, and maintain their profit margins. These initiatives also claim to promote sustainable development and climate change mitigation. In reality, however, according to our data, their contribution to the collective well-being of local communities is still modest, particularly among groups that have been historically excluded and marginalised. The three cases show how capabilities, such as access to income, jobs, education opportunities, and participation, are indeed enhanced to an extent for some people at the individual level, but not for the community as a whole, particularly in the cases of Santo Domingo Ingenio and Unión Hidalgo. Under these conditions, wind farms are a form of upward redistribution, raising a critical question: sustainable development for whom?

These findings contribute to scholarship on sustainability by highlighting the potential negative impacts of not only climate change, but also CO2 reduction strategies (RETs) on the well-being of people both today and in the future. This echoes Anand and Sen's (2000) critique of sustainable development approaches, which have tended to benefit certain groups over others. The idea of expanding human capabilities involves the assertion of such biases and discrimination. Under this outlook, RETs need to be developed in a way that enhance the valued capabilities of present generations, particularly of those who are most vulnerable today.

8.2 The nested structure of justice concerns

The study shows how the CA enables a more context-specific approach to link human well-being and energy justice, by trying to make sense of what fair distribution, due process, and significant recognition mean to neighbouring communities, when siting RETs. This section will also show how the CA allows for an understanding of the relationships between the three tenets of justice in a nested structure.

When local people's concerns about RETs are organised into layers of visibility, those related to distributive justice are the most visible and recognition justice are the least obvious. Indeed, distributive justice concerns are more openly and frequently expressed than those of the other two tenets. When asked about their position regarding wind farms, respondents first described how the new industry only benefited certain groups. Subsequently, participants would mention risks related to health or the environment for adjacent populations, as discussed in Chapter 5.

When asked to elaborate on these concerns, particularly how benefits and ills were distributed, responses often revealed underlying power dynamics and procedural concerns, as discussed in Chapter 6. For instance, interview respondents explained that prevailing catastrophic perspectives about negative environmental and health impacts, such as soil erosion at grand scale and cancer, were a way to legitimise more fundamental needs, such as being able to access relevant information, being listened to, and engaging in decision-making about their territory.

Concerns about procedural and distributive justice were embedded within issues associated with recognition justice, which as discussed in Chapter 7, is understood as the process of disrespect, insult and degradation that devalues some people and places identities in comparison to others (Walker 2009). This suggests that an attention to human dignity and respect is required for enhancing other capabilities, such as material resources and their distribution. This is a finding also raised by Nussbaum (2011) in *Creating Capabilities,* where she argues that people strive for lives that are worthy of their human dignity. A central problem in the cases studied here was that recognition of Indigenous identity and culture was subordinated to economic interest, often framed as development and national modernisation. In some cases, developer interactions reproduced colonial practices that misrecognised Indigenous identities, by impeding Indigenous people to stand as full members of society (Fraser 1997). Simultaneously, the pressures of capital accumulation and from transnational markets operated alongside the federal state acting as an advocate of private interests.

As discussed in Chapter 7, people across all cases in the Isthmus value being respected and listened to as a way to understand and acknowledge their lifestyles, and for finding mutually beneficial, dignified arrangements. Positioning recognition at the centre of energy justice claims resonates with theorists such as Young (2011) and Honneth (1996), who argue that the misrecognition or mal-recognition of people, communities, and conditions is often the core of injustice, and that its identification is key to understanding the underlying reasons for maldistribution and unjust decision-making processes. According to Honneth (1996), only by understanding redistribution as a problem of recognition, can we explain why the affected experience outrage: because they perceive an injustice as threatening their identity. This stance disputes Fraser´s (1996) argument that 'neither distributive nor recognition injustices is an indirect effect of the other, but they are both primary and co-original'. Study findings also question this 'bivalent' conception of justice by demonstrating that dignity is a precondition for other capabilities—having money, a job, education, and access to relevant information and decision-making have all been described by respondents as capabilities needed for the ultimate purpose of having a more dignified life in relationship to others.

Recognition must be then at the forefront of energy development paradigms. Development actors must recognise and equally value different approaches to and interactions with income, ownership, and nature. Therefore, recognition requires acknowledging the history, importance and heterogeneity of identity. In the case of the Isthmus of Tehuantepec, recognition denotes learning that even though

today's Zapotec identity more generally traces its roots to precolonial times, and it has changed differently overtime in each locality, holding divergent meanings from one person and group to another, today this identity is valued in the everyday life of the three communities.

Furthermore, local people's nested justice concerns have resulted in conflicts that have amplified the negative stance towards wind farms in the Isthmus. Some conflicts have been explicit, such as road blockages and legal battles. However, such explicit conflicts took place within a broader spectrum of implicit conflicts, such as community members not attending state or developer-run consultations for constructing new wind farms, or everyday frictions within families whose members are opposed to or in favour of wind farms. Figure 27 represents the nested layers of such conflicts in an iceberg-like diagram. It shows the three tenets of energy justice, with distributive justice as the visible tip of the iceberg, with procedural and recognition concerns affecting wind energy acceptance as more implicit or hidden.

Figure 27. Capability dimensions of people in the Isthmus, through an energy justice framework
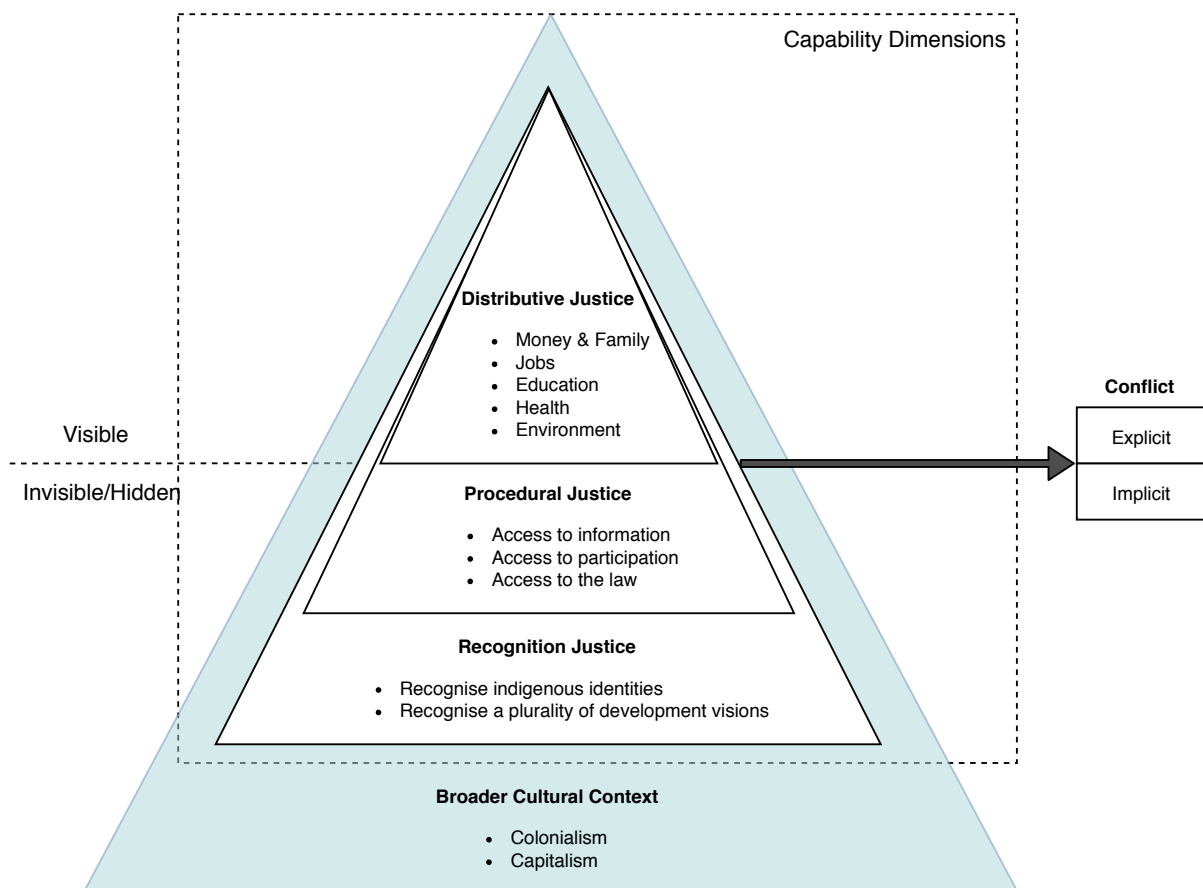
Source: Constructed by the author based on (Velasco-Herrejón & Bauwens 2020)

This study demonstrates the significance of the bottom-up approach that Sen's CA offers to energy justice. The proposed theoretical framework specifies that people on the ground are the ones responsible for defining justice concerns related to wind farm siting. By extending the three-tenet approach with the CA, energy justice need not be a top-down approach that deviates from the main goals of

environmental justice, as expressed by Jenkins (2018). Rather, operationalising the CA brings voices from non-academics into scientific debates and decision-making. This is a key step to recognising and including multiple kinds of expertise in research and making science more accountable to the public, whilst embedding recognition justice into policy (Chilvers & Kearnes 2016).

Furthermore, findings empirically recognise how justice concerns linked to valued capabilities are embedded into one another: distributive concerns are often rooted in disagreements about the process in which benefits and ills from RETs are allocated. In turn, procedural concerns can be explained by underlying reasons linked to misrecognition of people's identities and rights to their lands, which are shaped by the cultural context.

Findings showed how capabilities associated with procedural justice are often the precursors to attain distributive ones; having access to meaningful information, being able to participate in decision-making without discrimination, and having access to formal justice to voice and address concerns are key instrumental capabilities to attain fairer distributive outcomes, or, as people in the Isthmus said, elemental capabilities such as having good health, maintaining good family relationships and having income security.

In turn, capabilities associated to recognition justice are frequently a pre-condition for the enhancement of capabilities linked to procedural and distributive justice. Being treated with respect, dignity and without discrimination can be pre-requisites for thinking about and opening spaces for meaningful participation, where people can voice and act upon concerns. By participating and engaging in decision-making, as well as having access to relevant information, people can make better choices about fulfilling jobs, education opportunities, healthy lives, and a good environment, that, according to people in the Isthmus are key elements for enhancing their well-being. In turn, this finding reveals that people in the Isthmus use different criteria when thinking about aspects of their lives, giving greater value to capabilities associated with recognition justice. Capabilities linked to recognition, thus become a significant condition to achieve a just energy transition, and reveal a way in which energy justice contributes to the understandings and uses of the CA.

Findings at the same time demonstrated that this sequential relationship not always applies; there are also feedbacks and mutual reinforcements in the way justice dimensions operate. For instance, the capability of having a steady source of income (distributive justice) can be an important pre-condition for landowners to engage in a legal dispute with a developer (procedural justice). Similarly, a certain level of schooling is often required to engage in a consultation process that discuss technical aspects of wind farm operations. Furthermore, having access to money (distributive justice) is a pre-requisite to be able to engage in an important role in communal celebrations (recognition justice). Only families contributing with money can aspire to influential positions to organise the *Fiesta*; by having a *puesto* (stand), these families acquire the right to invite other people to the *velas*. Hoping to have an invitation,

people in the three communities keep a close relationship to these families throughout the year. Finally, enhancing capabilities linked to procedural justice, such as the power to define decision-making processes can also contribute to expanding capabilities linked to recognition justice such as holding communal assemblies that preserve local traditions, as opposed to making decisions through representative democracy which is developer's preferred form of negotiating.

These findings thus show how justice dimensions are embedded in each other, and, at the same time, are inter-related, recursive, and mutually reinforcing.

Figure 28. Conceptualising the relationship between energy justice and the capability approach
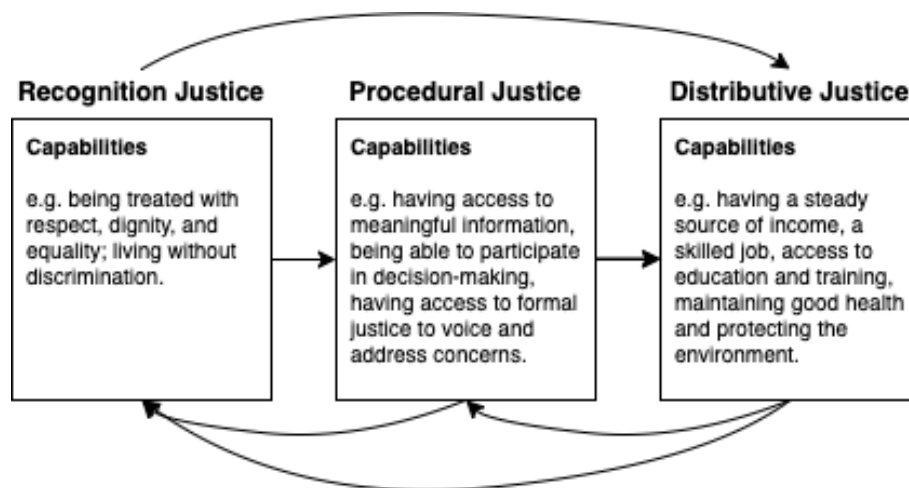
Source: Constructed by the author

8.3 Power Relations as Barriers to a Just Energy Transition

Community acceptance is shaped by the extent to which RETs contribute to the lives that people have reason to value, and by the power dynamics that influence their enhancement. As discussed above, the CA helps to make sense of perceptions of justice and injustice. It is, however, insufficient for analysing associative aspects, such as power relations, that actively constrain or enhance some individuals' capabilities, and strongly shape distributive, procedural and recognition aspects of community acceptance.

Using findings predominantly from Chapters 6, section 8.2.1 will discuss how power relations generate, reproduce and strengthen dynamics of exclusion within communities, developers and governments relations, and contribute to a negative attitude towards the industry. Then, drawing from all chapters, Section 8.2.2 will propose a view of power that goes beyond binary representations, and advances a fluid perspective of power that is continuously recreated, exercised and shared by different actors in various directions.

8.3.1 Power Relations as Barriers to Enhancing People's Capabilities

This thesis explores the power relations affecting capability enhancement, positioning power as a capabilities conversion factor. By thickening the CA with power analysis, we can analyse power inequalities dynamically between wind energy actors, providing an empirical stance to RET siting and stakeholder inclusion.

Power relations imply a dynamic link between actors. As seen throughout the thesis, particularly in Chapter 6, relations of power within and between different community, government and corporate actors influence how they form institutions, share resources, and attain capabilities. In this thesis, I argue that stakeholders' capabilities should be understood vis-à-vis other stakeholders dynamically: a given individual's functionings may connect with, enable, or restrain others' choices overtime. By doing so, this section argues that sustainability interventions, such as wind farms, that do not align with local people's capabilities can be explained as a consequence of pre-existing forms of relational power between communities, developers and governments.

As discussed in the conceptual framework (Chapter 2), all stakeholders enact various *forms* of power, whether visible, hidden, or invisibly embedded in social and institutional arrangements (Gaventa 2006).

Visible Power

By looking at visible power, the study shows explicit power interactions observed in the process of siting wind farms in the Isthmus. Developers exercised visible power when making solitary financial decisions about where, when, and how to invest in wind farms, without consulting local communities on the projects' social and environmental feasibility. Particularly in Santo Domingo Ingenio and Unión Hidalgo, developers resorted to legal and political power to discourage tenants from dissenting or voicing discontent. For their part, tenants in all three communities created physical barriers and operational chaos for developers by setting up roadblocks to control developers' access to wind farm sites during critical construction and maintenance stages. Residents of Unión Hidalgo went further, physically threatening developers during meetings. These actions resulted in developers strengthening security and legal protocols for all meetings in Unión Hidalgo, while keeping negotiations informal with non-threatening parties in El Espinal. Tenants in Santo Domingo Ingenio also exercised visible power over the rest of their community by retaining community benefits such as buying backhoe for farming with funds labelled for the municipality. In sum, tenant's non-compliance to agreements by halting operations resulted in retaliation from developers and increased local perceptions of deceit in relation to the new industry both in Unión Hidalgo and Santo Domingo Ingenio, which in turn affected their levels of community acceptance to new wind farms.

Hidden Power

A second form of power, hidden power, analyses how decision-making is controlled through a prevailing 'mobilisation of bias' where 'some issues are organised into politics while others are organised out' (Schattschneider 1975). Looking at hidden power in wind farm siting processes reveals how the rules of the game are set and the extent to which they are biased against or for certain people or issues, exposing disguised forms of power that further explain reasons for negative attitudes towards wind farms.

Developers and tenants particularly from Unión Hidalgo exerted hidden power over the local and state government by excluding public officials from wind farm planning meetings about payment structures and schemes, thereby reducing the power of the state to merely an observer of siting dynamics. At the same time, developers and the government surreptitiously set tenants' agendas in all three communities in two ways. First, developers defined payment schemes and agreements with each tenant individually, preventing collective bargaining, while using legal threats to prevent local farmers from raising concerns. And second, state and national governments reached agreements with developers about land use and schemes for energy production without previously consulting local land holders in all three cases.

In turn, tenants in all three localities exercised hidden power over developers when they collectively maintained an agenda to control developers which consisted of threatening operations if developers would not renegotiate their tenancy agreements. This led to an upward spiral of demands where tenants' benefits increased, which at times culminated in what developer representatives described as 'extortion'. At the same time, tenant leaders reproduced existing power structures by setting other tenants' agendas, such as defining when and who could have access to benefits, such as jobs and training.

Tenants in Unión Hidalgo exercised hidden power over local opponents of the wind energy industry by planning strategies to publicly shame them during community meetings. And in the case of Santo Domingo Ingenio, tenants defined community benefits with developers and without consulting the local population. These actions contributed to the discontent of community members towards tenants and the wind energy industry.

Most critically, developers, tenants, and governments in Unión Hidalgo set land tenure agendas that were not in line with existing local land ownership structures. In turn, local people were unable to raise concerns about misappropriation and misuse of land, due to complex and clientelist driven bureaucratic procedures. To respond to public unrest about land tenure, developers have offered further community benefits with a hidden agenda to negotiate acceptance and protection for their operations. However, since there is no legal framework that controls and records these benefits, members of the community

feel that they are often used as bribes. Hidden social structures and rules have left developers disincentivised from engaging in further deliberative processes and investment.

Lastly, there are pre-existing hidden forms of power that allow/exclude certain people within the community to participate in decision-making processes. Traditional voting procedures excluded marginalised people, notably women and youth, in all three communities. This dynamic of exclusion was reproduced by the wind energy industry as they only signed individual agreements with people that held title deeds, which were often heads of the household—commonly senior men. Therefore, even though decision-making processes were altered, dynamics of exclusion already prevailed.

By looking at hidden power, the thesis confirms the importance of looking at power that cannot be seen in an agent's observable behaviour, and that even 'non-decision making' can hide the suppression of individuals raising issues to enact their preferences (Bachrach & Baratz 1962). Individuals should define the capabilities that they have reason to value, such as participating in decision-making about wind farm siting. However, looking at hidden power sheds light on the effects of concealed agendas or political rituals that prevent people from exercising this capability. And, even though community members did not exercise observable actions against wind farms to redress contexts of exclusion, hidden power reveals underlying resentment, particularly amongst inhabitants in Unión Hidalgo and Santo Domingo Ingenio. Therefore, the study confirms the existence of a second form of power (Dahl 1957) that restrains people from acting upon their interests, highlighting power dynamics as a capability conversion factor.

Invisible Power

Finally, relations between communities, developers, and governments were also shaped by *invisible* power, which creates the psychological and ideological boundaries of choice. Two main invisible power forms that were particularly relevant barriers to enhancing capabilities are: 1) the internalisation of ethnic exclusion in wind farm siting decision-making, and 2) paternalistic practices that legitimise the power of developers and governments over the local population.

Invisible forms of power are critical for constructing identities. Implicit norms, for instance, are particularly important for whether or not people describe themselves as Indigenous. In the Isthmus, citizens labelled as 'Indigenous' have historically been regarded as second-class citizens due to underlying invisible forms of racism. In recent years, however, people in El Espinal and Unión Hidalgo have increasingly identified as Indigenous because it allows them to take part in development consultations under Free, Prior and Informed Consent (FPIC), a right that people in Santo Domingo Ingenio do not believe they have due to their low percentage of Zapotec speaking population. The introduction of FPIC has given Indigenous people in El Espinal and Unión Hidalgo an opportunity to challenge invisible power by becoming aware of the dynamics of ethnic exclusion, thereby reconstructing psychological and ideological boundaries to participation.

A second form of invisible power is using a paternalistic approach to legitimise power over others. In this case, particularly the governments and developers of Santo Domingo Ingenio and Unión Hidalgo believe that local people do not know what is best for themselves, and thus cannot decide on the key aspects of wind energy siting, an argument linked to the idea of adaptive preferences discussed in Chapter 2. As such, asking people to explain their reasons for valuing an aspect of life, such as their Indigenous identity, would have problems linked to people adhering to an unjust order. Though decisions under this premise may be done with a sincere intention of improving people's lives, businesses and governments that decide people's futures without consultation are reproducing and legitimising *power over*, supporting systems of external control over people's wants and needs. While decisions in this context can enhance people's capabilities to an extent, ultimately, actions are done in accordance with external agendas that do not necessarily prioritise people's well-being (Dean 2009). By doing so, hegemonic actors may be planning agendas (Gramsci 1971) that are labelled using words such as 'development' and 'sustainability' to secure people's trust and compliance.

In contrast, El Espinal's local government invited inhabitants to collectively decide upon community benefits, which allowed more people in the community to holding developers accountable to their agreed upon contributions to the town.

Operationalising the CA can help address this exercise of invisible power by generating a broader informational space for evaluating aspects of well-being and quality-of-life, that avoids subjective misrepresentation of objective circumstances (Teschl & Comim 2005), such as concerns about wind farms, and as seen in Chapters 5, 6 and 7, can help people imagine a substantially better life in relation to new energy infrastructure. By recognising people's different subjective understandings of well-being, the CA challenges the idea of adaptive preferences, and thus the idea that people do not know what is best for them. As such, discussions of climate solutions should require the acknowledgement and integration of people's understandings of well-being. In this way, the CA can be employed to produce more appropriate methods to think about and operationalise different realities and show how hegemonic categories can limit the way we think about Indigenous people's relationship to clean energy production.

By defining spaces of possible action and inaction, power dynamics shape the extent to which valued ways of doing and being are achieved, and therefore, why energy justice is not obtained for all people within communities. Consequently, when siting RETs, understanding the way justice is envisioned is only the first step in looking at factors affecting community acceptance. Analysis should also look at barriers, such as power relations, that hinder a just transition from being converted into an achieved functioning.

8.3.2 Relations of power not as binary and static, but as multiaxial and dynamic

Wind energy power relations are most readily framed as the powerful (developers/state) against the powerless (communities). These binary, static formulations are common in literature on environmental justice (e.g. Huggan and Tiffin, 2007; Lloyd and Wolfe, 2016; Normann, 2020). Previous work in the Isthmus has suggested similar ways of understanding power (e.g. Alonso and García, 2016; Dunlap, 2018, 2017; Howe, 2019; Howe and Boyer, 2016; Martinez and Davila, 2014; Vargas, 2020). However, in this thesis I identified that power is not a binary or static 'zero-sum' game—where you either have power over others or they have power over you, and the powerful unilaterally make decisions. Instead, I argue that power is continuously created, exercised and shared by different actors in various directions which change over time.

Specifically, this study challenges the four common ways power is understood as binary and static: homogenous communities; time and contextually-determined power relations; wind energy as an extractive industry, and the traditional-modernist dichotomy. In place of this, I propose understanding power as *multiaxial* (where power axes are located in different groups) and *dynamic* (changing over time and in relation to particular circumstances). This helps explain how power is reproduced, strengthened or challenged in energy transitions.

Homogenous communities

The study challenges the idea that Indigenous communities are homogenous, collaborative, and horizontal, which have been manipulated by 'green capitalist' wind energy companies and governments (as proposed by Howe, 2014; Howe and Boyer, 2016). Instead, as seen in Section 8.2.1, different people and groups within the three communities share and exercise power, both mutually and by reproducing systems of control that benefit certain people and harm others. For instance, *power with*, or collaborative power, is created through traditions that require reciprocity and interdependency, such as collective work for *fiestas* in all three communities. At the same time, systems of control are manifested under the *cacique*[58] regime in Santo Domingo Ingenio and through shaming strategies in Unión Hidalgo, defining political and economic affairs by distributing material rewards for allegiance and repressing disloyal or uncooperative challengers.

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[58] The term *caciques* was first adopted in the sixteenth century to refer to Indigenous people who took positions in municipal government that were created and endorsed by the Spanish viceroyalty and filled by virtue of hereditary rights. *Caciques* oversaw the administration of justice and tribute collection for the Spanish crown. Their positions offered opportunities for coercion, extortion and embezzlement. After Mexico's independence, *caciques* lost their hereditary significance and began to instead signify local political bosses who built popular support through coercion, paternalism, or both (Roniger 1987). They thus operate as small-scale 'fixers' in formal or informal political and, more rarely, religious positions.

Time and contextually-determined power relations

Furthermore, Indigenous communities are not always powerless against developers and governments. Chapter 6 shows how Indigenous groups have challenged existing configurations of power, and how these positions of power constantly change. For instance, when the wind farm industry was introduced, developers and the federal government initially held power by withholding information on the characteristics of the wind energy projects (e.g. size and location of turbines), details about payments and contract options, the cost of producing wind energy, and developers' profits, and by making decisions on when, where and how to install wind farms. Once wind farms were under construction, however, tenants halted construction processes using roadblocks. These actions increased their capacity for renegotiating tenancy benefits with developers, which in turn reversed positions of power between these two actors. Furthermore, resistance groups in Unión Hidalgo have halted FPIC processes by adopting legal strategies that require time-consuming, bureaucratic processes that are costly for companies. Finally, findings also show how company-government-community relations in El Espinal overall reached a more balanced position largely because power was shared.

Wind energy as an extractivist industry

The discourse about power and powerlessness is also found in literature that views the wind energy industry as extractivist, characterised by the relationship between the industrialised "North" and the developing "South" by means of colonial coercion and post-colonial "consent" (Kay 2010).

However, studies that depict communities in the Global South as victims can be problematic. By portraying local communities as powerless, this discourse fails to acknowledge forms of agency and types of power that people exercise. As discussed before, there is often not one singular community, but several groups within developing regions with different interests, perspectives and levels of influence. As seen throughout this thesis, local people exercise this influence in a number of ways. *Caciques* exercise political and economic power to allocate benefits and ills resulting from the wind energy industry. At the same time, resistance groups exercise their social influence to counter *caciques* and developer's power. This finding shows that relations of power are not only dynamic, as discussed above, but also exist as a continuum, where there is a spectrum of influence. Furthermore, an 'oppressor–victim' perspective ignores the fact that anti-capitalist groups may themselves resort to information manipulation to validate and strengthen their discourse and actions. This static portrayal of Indigenous communities poses a risk for their self-determination in deciding whether or not they are in favour of building new developments. In the last year, two major wind farm projects have been cancelled and funding have been curtailed (CCC 2015b; Howe 2014a), leaving many farmers and members of the community without the opportunity to exercise their agency or decide whether they accept these projects now and in the future. In sum, positioning Indigenous communities as victims does not contribute to recognising people's agency and enhancing people's capabilities.

Tradition-Modernity Dichotomy

Finally, the study challenges the binary idea of conceptualising modernisation in opposition to traditional Zapotec norms and practices. Under this assumption, modernisation theory (e.g. Power, 2018) describes and explains the processes of transformation from traditional, or so called "underdeveloped" societies, to so called "modern" and "developed" societies. In this view, traditional societies are considered backward-thinking and irrational, while "Western" societies have reached the final stage of modernisation—the age of "high mass consumption" (Rostow, 1960). Traditional and cultural structural features are regarded as incompatible with such development and should be overcome. Additionally, within the context of wind power siting, the idea of 'modernisation' has been equated to colonialism, described by Dunlap (2018: 556) as a way to reconfigure 'the most sensitive features of people's cultural values and sociality' to integrate people into positions within the capitalist system.

This study, however, shows how positioning modernist views in opposition to traditional culture is a false dichotomy. Welcoming a new renewable industry whilst preserving an Indigenous identity may be a form of enhancing people's well-being, echoing participants' aspirations of being 'Indigenous and not poor' (D10). In essence, promoting the introduction of an industry that recognises local people's underlying needs to lead fully functioning lives in accordance with their culture can be a key factor when looking at energy transition pathways.

These findings point to the need to go beyond a universalist approach to sustainable development and embrace other worldviews which can complement each other. Building on the notion of justice as recognition (Fraser and Beschäftigung 1998), this paper argues that recognition is required to overcome obstacles of distribution and due process when deploying RETs, such as wind farms.

This section, thus, questions binary perspectives of power. By doing so, the research findings resonate with Gaventa's (2006) position that power can be exercised multidirectionally and as a non-binary web of relationships of agency. This conclusion also echoes a Foucauldian approach to power, which conceives power as productive and relational: "there is no binary and all-encompassing opposition between rulers and ruled at the root of power relations" (Foucault 1990). By arguing that positions of power are constantly changing over time, the study contests the assumption that stakeholder groups are homogenous entities that hold static positions of power, as well as binary discourses that see power as a zero-sum game.

Concurrently, although power is shared and dynamic, this study shows how power is maintained, reproduced and reinforced by certain groups such as *Caciques* and local governments. And, how others, particularly young, landless people and women, have been systematically excluded from participating in and receiving benefits from the wind energy industry. Ultimately, certain people's agendas prevail over others (CCC 2015b; Oceransky 2010). Therefore, rather than a binary exercise of power, this thesis

argues for forms of power that underpin dynamics of exclusion that allow certain people to enhance their capabilities and not others. These dynamics of exclusion existed before the arrival of wind farms, and, concurrently have been reproduced, and at times reinforced, by the introduction of the wind energy industry.

In sum, by extending the CA with power analysis, the study corroborates the existence of Lukes' (2004) third power dimension that looks at socially constructed patterns of group behaviour that are controlled by collective forces and social arrangements. This dimension sees power more as a relationship, than a 'capacity'. Lukes' power approach highlights the importance of looking at capability enhancement or deprivation as a product of relations between actors that set up a political agenda to understand mechanics of non-participation in consultation processes and informational voids about wind farm siting and related impacts. Only by understanding and challenging dynamics of power that inhibit capabilities enhancement, we will be able to attain a just energy transition.

8.4 Reconceptualising Community Acceptance of RETs

This research focuses on community acceptance, that is, the element of social acceptance dealing with local opposition to specific projects, particularly by residents and local government (Wüstenhagen *et al.* 2007a). Because local approval for a proposed wind project is required before construction can begin, community acceptance has become a significant point of discussion in the social sciences (Fournis & Fortin 2017). In what follows, I describe how this work advances an understanding of community acceptance by extending the concept with theoretical propositions that look at power, justice and well-being.

Echoing Wolsink's (2018) definition of social acceptance, this thesis recognises community acceptance as a bundle of dynamic processes of decision-making on issues concerning the transformation of current energy systems. Concurrently, the study puts forward the need to understand these dynamics as dynamics of power that prevail in social-technological systems, in order to explain barriers for participation, inclusion, co-production, and empowerment of local communities. By doing so, the study challenges the perception of acceptance as a set of fixed actors and positions and, instead, argues that positions of all stakeholders are dynamic and continuously reconsidered and redefined.

This approach to social acceptance contributes to debunking the validity of NIMBY—"Not In My Back Yard" motives—and echoes studies that characterise this stance as pejorative (Devine-Wright 2005; Haggett 2010; Petrova 2013; Rudolph 2014; Van der Horst 2007; Wolsink 2007a). Findings unveil more complex, well-being and power driven, motives of opposition. And, by looking at people's relation to land and the importance of community engagement, this study extends existing literature on local land use issues that contrast with wider support for wind projects outside the communities

(Pasqualetti and Butler, 1987; Wolsink, 1988), and highlights the importance of fostering community engagement (Mendonça *et al.* 2009; Wolsink 2007a).

The results also extend critical literature on social acceptance by highlighting the importance of contextual studies, that look at 'what is being said, how, by whom and for whom, within research on people's responses to RET' (Muñoz *et al.* 2007). Consequently, the study raises the need for a context-sensitive framework, such as the CA, rather than normative and abstracted generalisations. For instance, while the study results echo Roddis et al.'s (2018) finding that costs and benefits of onshore wind farm deployment in Great Britain are not evenly distributed across social groups, higher deployment in the more affluent town of El Espinal counters Roddis et al.'s finding that RET developments are mostly concentrated in deprived areas. Similarly, findings about the importance of landscape permanence that are well documented in wind farm acceptance (e.g. Brittan Jr, 2001; Cowell, 2010; Short, 2002; Van der Horst and Toke, 2010; Zografos and Martínez-Alier, 2009) are not confirmed. By doing so, the study highlights the importance of contextual studies over systematic assessments for community acceptance research. Such studies require diverse concerns to be brought into view and moving beyond assumptions of what is accepted in a particular place.

Finally, the results illustrate the need to go beyond the simplistic, utility-maximising visions of opponents or the top-down approaches to peoples' relations with energy infrastructure. To do so, the study advances the literature on energy justice and social acceptance (e.g. Bailey and Darkal, 2018; Bickerstaff et al., 2013; Evensen et al., 2018), pointing to the importance of looking at fairness as an important explanatory factor for local people's concerns about wind farms. By proposing the CA, the research advances a contextual, bottom-up approach to understanding justice and injustice, and how the lives of the poor and marginalised are shaped by the introduction and expansion of energy technologies. This approach contributes to links of acceptance of RETs and justice in developing contexts narrowing the existing gap on this end.

In sum, attaining community acceptance entails opening spaces for change and transforming patterns of exclusion in the wind energy sector; first, by identifying the lives that people living near wind farms have reason to value, then analysing the power dynamics that constrain or facilitate valued opportunities, and acting upon any imbalances to achieve a more just energy transition.

8.5 Policy Implications

The difference between success and failure in policy planning often lies upon the public's motivation and cooperation. These traits are profoundly related to their perspectives of fairness and justice in decision-making processes (Sen, 2017: 256). Therefore, two policy recommendations stem from this research to effectively site wind farms within environmental and social justice principles: 1) recognise the different actors affected by the intervention and collectively define the planning process and

outcomes; and 2) subsequently identify and address the barriers that may undermine the chosen strategies and that exclude certain groups affected by wind energy developments.

The following sections will introduce general policy guidelines stemmed from the present study findings. These will be divided into recommendations for local decision-makers (including authorities, community leaders, community members, local advocacy groups, and landholders), project developers, and regulators (including those in both regulatory policy design and implementation capacities).

Policy recommendations for local decision-makers

Recognising bottom-up perceptions of justice and injustice from individuals neighbouring wind farms through the CA can be key for decision-makers to learn how fair distribution, significant recognition, and due process are linked to human well-being when siting RETs. Sen's concept of capabilities illuminates aspects of valued benefits as well as burdens that people ought to avoid. This can enable decision-makers to devise and adapt energy policy in accordance with communities actual, not perceived, just outcomes. In this light, wind farms planning stage should not only envisage the wind potential of the area, but also the possible cumulative environmental, socio-economic and cultural impacts in the region where the turbines will be installed.

There is cause for policy-makers and wind energy developers to reassess their perspectives on wind farm opposition, from attitudes that must be overcome (see Toke, 2002, Bell et al., 2005, Strachan et al., 2006, Peel & Lloyd, 2007, Wolsink, 2007b), to empathising with and addressing people's concerns (Aitken *et al.* 2008). One mechanism could be to create inclusive spaces for participation from the start of RET planning, so that affected people can express the capabilities they value, and planners can integrate them in decision-making processes. This is particularly important when projects involve Indigenous populations. In these cases, siting plans should comply with relevant international norms such as the 169 Convention of the International Labour Organisation.

In this regard, participation guidelines and schemes can be jointly agreed upon by the different stakeholders so that voices of all affected parties are heard. To do so, there is a need for the creation of spaces to strengthen capabilities to facilitate the participation of vulnerable groups. Furthermore, asymmetric power relations between communities and developers can be balanced by encouraging the participation of civil society organisations and academia in decision-making processes, so that they can act as impartial experts and advisors.

Finally, decision-makers need to consider the time flexibility required to attain constructive deliberation processes: for instance, participants might require additional time to understand the material given during the informative stage. This study shows how deliberation processes can take months if not a few years, and therefore decision-makers need to take time requirements into account when planning a wind energy project.

Policy recommendations for project developers

This study's findings underlined the importance of communicating basic information about the project to all affected parties, such as details about the project, who the companies are that will finance, build and operate the wind farm, and the specific impacts for the locality. It is recommended that this information is shared in the local language, preferably by neutral sources, in an accessible, non-technical, balanced and clear way.

Processes for information sharing should include spaces where people living in nearby communities can voice doubts and concerns about the possible impacts of the project. These spaces should also consider ways in which people can feedback information to developers on aspects of the cultural and natural heritage in the locality. Subsequently, additional studies should be carried out to address community concerns, e.g. impacts on local wildlife, water availability and agricultural productivity. Furthermore, respondents highlighted that these impact studies should not only focus on one wind farm but on the cumulative impacts of all planned wind farms in the region. Finally, it's important that that results from these studies are widely disseminated so that community members are able to make informed decisions about the industrial activities undertaken in their localities, and that project designs are adjusted in accordance with people's concerns and study results.

Employment should be promoted as a widely accessible benefit of the wind energy industry that can help reduce economic gaps between land tenants and the rest of the community. It is particularly relevant that hiring processes follow transparent and inclusive approaches where the entire community is welcomed to participate and not only landholders. Developers can also provide access to skills training so that the local population has access to qualified jobs in the industry, as well as training for other productive activities that can help diversify income sources in the region.

Moreover, study community participants advocated for developers to establish a unique land tenancy payment structure in the region. This improved payment scheme would follow international standards for land tenancy pricing and would be regulated by a body of representatives constituted of tenants, developers and state and national governments.

Developers can also contribute to enhancing basic education in the localities where they operate so that children can understand and engage with RETs and other sustainability issues from an early age. Particularly, inhabitants in the Isthmus are interested in initiatives that gauge the attention of children in STEM subjects, as a way of training future generations to take part in the industry's qualified workforce. Similarly, developers can provide scholarships for students going through financial and /or personal hardships and for schools to improve infrastructure.

In line with identifying capabilities, findings highlight the importance of understanding, recognising and respecting the local cultural context, the community's everyday functionings as well as decision-making practices, particularly in Indigenous communities.

Benefit-sharing needs to be conceived as a way to address the upward distribution of wealth towards developers and the growing inequalities between tenants and the rest of the community. To do so, benefit-sharing schemes need to be agreed upon collectively, ensuring that benefits reach all the population affected by the wind energy project and not only certain groups. To avoid benefit-sharing schemes being used for political and/or personal purposes, respondents proposed creating a list of community priorities that are associated with valued capabilities. This list can be produced through a process of inclusive public deliberation. Respondents in the Isthmus recommended prioritising long-term social investments, such as capacity building, economic diversification and the recognition and promotion of environmental and cultural resources. It is particularly relevant that decision-making about benefit-sharing not only respects the community's deliberation practices but is also transparent and inclusive. Developers need to widen their focus on leaders and authorities, or in this case the Istmo *caciques*, so that they can also establish relationships with wider assemblies and committees that include women and youth.

In this regard, the need for participatory design is particularly important, i.e. the direct involvement of people in the co-design and co-production of the RET (Schuler & Namioka, 1993; Simonsen & Robertson, 2012). Additionally, the co-design process should go even further and allow local communities to participate in all steps of the RET's life cycle, from initial conceptualisation and assessing the possible impacts, to installation, use, and disposal. Co-production highlights that RETs lead to meaningful jobs and economic opportunities. This was stressed in our case study, as many Indigenous people were seeking employment opportunities from the new energy developments. Yet, for this to be possible, it is key that RETs are able to be locally repaired and disassembled, and that local people have the skills, tools and knowledge to autonomously use and operate them. This could include the local production of spare parts, turbine oil and other components, and might entail community-led modes of governance, in harmony with local culture and tradition. Though this process may be time- and resource-intensive in the short run, it may be necessary to ensure long-term sustainability in the green energy transition.

Policy recommendations for regulators

The need for bottom-up participation does not mean, however, that there is no role for top-down institutions. These are notably important to establish limits or "capability ceilings" subject to democratic deliberation; for instance, when tensions arise between basic liberties and environmental protection (Holland 2008). That is, top-down institutions can set the boundaries within which individual capabilities can flourish. As long as exclusionary power dynamics are observed and addressed, such institutions can also help create the conditions conducive to meaningful bottom-up participation (Arnstein 1969; Chilvers & Kearnes 2016; Gaventa & Cornwall 2008; Stirling 2007).

To avoid the resurgence of conflict between communities and developers, study participants recommended to establish permanent mechanisms for dialogue and conflict resolution. Under these schemes, authorities would need to actively participate and mediate these spaces. Furthermore, regulators need to develop accountability procedures to ensure transparency in the distribution of social benefits, as well as the fulfilment of criteria and priorities established by the community where the project will be installed.

Finally, enforcing cumulative studies of environmental and health effects of wind farms on the region can help local, state and national governments set environmental and health guidelines for installing wind farms in a particular region. For instance, these guidelines could include minimum distances between a wind farm and a locality depending on its geography, biodiversity, land productivity, types of livelihoods and cultural significance.

8.6 Avenues for Further Research

I have identified four ways in which this research could be continued. The first two relate to methodological improvements and the second two point to scope and theoretical extensions.

Though the study had a short timeframe, it was sufficient to analyse the structural nature of injustice and power inequalities that result from the internalisation of dominant views and values (Hooks 1996). However, the cross-sectional methodology may not expand our understanding of the temporal relationship between capabilities and community responses to RET development. Further longitudinal or ethnographic research could draw on the dynamic nature of the CA to observe changes in capabilities over a period of time, and analyse their influence on the community acceptance of RETs.

Selecting three case studies in a specific context enabled the formation of descriptions and understandings of issues raised in the research questions. Yet, the insights generated only correspond to certain circumstances, and thus may not apply more widely to other contexts of wind farm construction. To increase the significance of the findings and the pertinence of the theoretical framework, this methodology should be replicated in other geographical contexts and/or with other RETs, such as solar, hydro, or biomass.

A third avenue for further research includes focusing on the interrelationships between community acceptance and other processes of social acceptance, including public and market acceptance (Wolsink 2018; Wüstenhagen *et al.* 2007a). This could further reflect on societal and organisational structures that enhance or constrain capabilities of local communities, and promote understanding of what such effects mean for dismantling hegemonic infrastructures and disempowering historically currently dominant actors, redefining the choice sets in markets or effectively facilitating the empowerment of citizens to co-produce renewables (Wolsink, 2018: 43-46).

Finally, further research could look at how dynamics of exclusion are shaped by local capitalism. This approach could include an analysis on how elites collaborate with each other to accumulate benefits, forcing fast transactions that prioritise efficiency over consent, and how the dynamics of inhibiting collective bargaining and promoting individual negotiations hamper opportunities for people to mobilise and acquire better benefits from the energy transition.

8.7 Concluding Reflection

The energy transition is an opportunity to recognise and value culture and identities, enable democratic procedures and facilitate fair distributive outcomes. This research builds on three literatures—energy justice, the capability approach, and power analysis—to propose a new analytical framework to explore community acceptance of wind energy technologies. The resulting analysis concludes that the introduction of the wind energy industry in the Isthmus of Tehuantepec over the last decade has to some extent improved people's lives. Nonetheless, wind farm siting approaches in two of the three cases in the Isthmus reproduced existing power dynamics, where certain groups benefited more than others. Such dynamics generally hurt those who were already worse off: the landless and the poor. These groups have thus rejected the wind energy industry to maintain their dignity, even though they are foregoing potential income. This tension has impacted how people in the Isthmus imagine wind farms and has reproduced exclusionary dynamics in the region's energy transition. Thus, the study asserts that a just transition to clean energy can only be attained under full understanding of people's own perspectives of justice and injustice, and by discerning the dynamics of power that prevent certain people from defining and actively participating in climate change interventions.

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APPENDIX 1 SEMI-STRUCTURED INTERVIEW GUIDES

Local Community Members

Participant profile

1) How long have you lived here?
2) Age
3) Gender

Valued ways of doing and being

1) What are the most important aspects of a 'good' form of life? Your answers can include aspects of your life that you have or don't have and would like to achieve.
2) Describe the characteristics required for a good form of life.
3) What is the most important characteristic that a friend should have? Why?

Mexico and de wind energy sector

1) How were wind farms first established in the region of the Isthmus of Tehuantepec?
2) How have wind farms impacted your life?

Perspectives about wind farms and causes of opposition

1) What is your opinion about wind farms?
2) What is the opinion of the community in the region of the Isthmus of Tehuantepec about wind farms?
3) Which are the main causes of wind farm opposition?
4) How are communities exercising opposition?
5) What are the consequences for the people that oppose wind farms?

Determinants of acceptability of wind farms

1) Under which conditions would you accept the establishment of a wind farm in your community?
2) Under which conditions would your community accept the establishment of a nearby wind farm?

Local community engagement in wind farm sitting

1) How are decisions about wind farm planning and development taken?
2) What role have you played in this decision-making process?
3) If decision-making processes could change, how would you like to participate?
4) What are the barriers for your participation?
5) How do you think that these barriers could be overcome?
6) Is there (other) people affected by wind farms that (also) don't participate in decision making?
7) What are the barriers for their participation?
8) What do you think that could be done to overcome the barriers for their participation?

Wind Energy Corporative Representatives

Participant profile

1) How long have you worked in this company?
2) What is your position in the company?
3) What are your main responsibilities?

Valued ways of doing and being

1) What are the most important aspects of a 'good' form of life? Your answers can include aspects of your life that you have or don't have and would like to achieve.
2) Describe the characteristics required for a good form of life.
3) What is the most important characteristic that a friend should have? Why?

Mexico and de wind energy sector

1) When was your company established in the region of the Isthmus of Tehuantepec?
2) How was the relationship with the local communities first established?
3) How have company-community relationships have evolved so far?
4) What has been the impact of wind farm siting on local communities?
5) What are the main social challenges that your company is currently facing?

Perspectives about wind farms in the region and causes of opposition

1) What is the opinion of the company about wind farms in the region of the Isthmus of Tehuantepec?
2) What is the opinion of the local community about wind farms in the region?
3) Which are the main causes of wind farm social opposition?
4) How are communities exercising opposition?

Determinants of acceptability of wind farms

1) In your experience, under which conditions do local communities normally accept wind farm siting?
2) What social conditions does the company need to sit a wind farm?

Local community engagement in wind farm sitting

1) How are decisions about wind farm planning and development taken within the company?
2) What role have you played in the decision-making process?
3) What is your stance about community engagement in decision-making processes about wind farm siting?
4) What is the company's stance about community engagement in decision-making processes about wind farm siting?
5) What conditions would you think would be necessary to enhance community engagement in decision-making processes about wind farm siting?
6) What policies would be needed to facilitate community engagement in decision-making processes about wind farm siting?

State and National Government Representatives

Participant profile

1) How long have you been working in the government?
2) What is your position here?
3) What are your main responsibilities?

Valued ways of doing and being

1) What are the most important aspects of a 'good' form of life? Your answers can include aspects of your life that you have or don't have and would like to achieve.
2) Describe the characteristics required for a good form of life.
3) What is the most important characteristic that a friend should have? Why?

Mexico and de wind energy sector

5) When did wind farms established in the region of the Isthmus of Tehuantepec?
6) How did companies establish a relationship with the government?
7) How did companies establish a relationship with local communities?
8) What has been the impact of wind farm siting on the government?
9) What has been the impact of wind farm siting on local communities?
10) Which are the main social challenges in regard to wind farm siting?

Perspectives about wind farms in the region and causes of opposition

1) What is the opinion of the government about wind farms in the region of the Isthmus of Tehuantepec?
2) What is the opinion of local communities about wind farms in the region?
3) Which are the main causes of wind farm social opposition?
4) How are communities exercising opposition?

Determinants of acceptability of wind farms

1) In your experience, under which conditions do local communities normally accept the establishment of wind farms in the region?
2) Under which conditions does government accepts the establishment of a wind farm in the region?
3) In your experience, which would be the ideal social conditions for the establishment of wind farms?

Local community engagement in wind farm sitting

1) How are decisions about wind farm planning and development taken within the government?
2) What role have you played in the decision-making process?
3) What is your stance about community engagement in decision-making processes about wind farm siting?
4) What is the government's stance about community engagement in decision-making processes about wind farm siting?
5) What conditions would you think adequate for community engagement in decision-making processes about wind farm siting?
6) What policies would be needed to facilitate community engagement in decision-making processes about wind farm siting?

APPENDIX 2 CAPABILITIES AND WIND FARMS QUESTIONNAIRE

Capabilities and Wind Farms Questionnaire (based on

Name of Interviewee:			
Interview Number:		Date:	
Location:		Selection Method:	

Introduction:
Good Morning/Afternoon, my name is____. I am a Mexican student doing research on people's perceptions of well-being and its relationship with wind farms. I would like to assure you that all the information you provide will be kept fully confidential and that you will not be identified in any of the reports published out of this study. These data will be used only for the sake of this research and will not be given to any third party. You have the right to refuse answering any question or to say that you do not know the answer if you do not have the requested information. You can also ask for clarification if the question is not clear. Can I take notes during the interview to write your exact answer?

1. Personal Details

3. Interviewee's Name			
4. Locality	El Espinal (1) Santo Domingo Ingenio (2) Unión Hidalgo (3)		
5. Neighbourhood			
8. Gender	Male (1)	**9. Year of birth (aaaa)**	
	Female (2)		Refusal (99)
10. Marital Status	Single (1)	**11. Education**	Never attended school (1)
	Married (2)		Primary School (2)
	Cohabitation (3)		Secondary School (3)
	Separated (4)		High School) (4)
	Divorced (5)		University Education (5)
	Widowed (6)		Post-graduate studies (6)
	Other (996)		(996)
12. Main Occupation	Agriculture (1) Livestock Farming (2) Homemaker (3) Teacher (4) Professional (5) Other (6)		
13. Employment status	Permanent (1)	**14. Link to the wind energy industry**	Landowner w/contract (1)
	Temporary/Casual (2)		Family member w/contract (2)
	Informally self-employed (3)		Permanent Worker (3)
	Formally self-employed (4)		Casual Worker (4)
	Retired (5)		Family Member Perm. Work (5)
	Unemployed searching (6)		Family Member Casual Work (6)
	Unemployed n/searching (7)		Supplier (7)
	Student (8)		No relationship (8)
	Refusal (99)		Other (996)
	Other (996)		
15. Speaks Zapoteco	Yes (1) No (2) Refusal (99)		

2. General Capabilities

Elements of a Good Life:

16.   What do you think are the three most important elements of a good life?

1.
2.
3.

17.   Which is the most important element and why?

Dimension:
Reason to value:

Unfulfilled "Capabilities" (valuable ways of doing and being)

18.   What are the three most important things that you wish to achieve in life but couldn't?

1.
2.
3.

19.   Why can't you achieve them?

1.
2.

3.

3. Socio-economic variables (resource based)

Income/Money:

20.   Why do you think that money is important?

21.   What are/is your main source(s) of income?

Sources of Income
1.
2.
3.

22.   Average Income earned per month: - ≤ 2000 (below $4 a day)   - ≤ 6000 (below $10 a day) - ≤ 12000 (middle income)   - ≤ 25000 (well off)

23.   Do you consider this money sufficient for you and your family?
-      Yes (1)   - No (2)   - Refusal (99)   - Do not Know (94)

24.   If you had an increase in your income, what would you buy?

1.
2.
3.

Employment:

25.   Why do you think having a job is/isn't important?

Say: *You told me that your main occupation is:----------------------------*

26.   Are you satisfied with your current employment?
-      Yes (1)   - No (2)   - Refusal (99)   - Do not Know (94)

27.   Why have/haven't you succeeded in obtaining a job that you are generally satisfied with?

28.   To what extent do your work make use of your skills and talents?
-      All the time (1)   - Most of the time (2)   - Rarely (3)   - Never (4)   - Refusal (99)

Education:

29.   Why do you value education?

1.
2.
3.

Say: *You told me that you reached _____ years in education/ never attended school*

30.   Do you think these years of education were enough for you to achieve your goals in life?
-      Yes (1)   - No (2)   - Refusal (99)   - Do not Know (94)

If not, Why?.

31.   How do you evaluate the existing educational services in your area?
-      very good (1)   - good (2)   - bad (3)   - very bad (4)

Health:

32.   Do you suffer from any health problem that limits your daily activities in any way?
-      Yes (1)   - No (2)   - Refusal (99)   - Do not Know (94)

33.   In case of a health problem, do you have access to adequate health services?
-      Yes (1)   - No (2)   - Refusal (99)   - Do not Know (94)

34.   How do you evaluate the health services in your community?
-      Very good (1)   - Good (2)   - Bad (3)   - Very bad (4)

Safety

35.   Do you feel safe walking alone in your area at any time of the day?
-      Very safe (1)   - Fairly Safe (2)   - Fairly unsafe (3)   - Very unsafe (4)   - Refusal (99)
 - Do not Know (94)

36.   Have you ever been the victim of some form of violent assault or attack?
-      Yes (1)   - No (2)   - Refusal (99)

4.   Perceptions of wind farms and its relation to capabilities

37.   Do you consider that wind energy firms have contributed to the improvement of your wellbeing?
- Yes (1)   - No (2)   - Refusal (99)   - Do not Know (94)

Reasons for of Wind Energy Companies (not)contributing to the wellbeing of the respondent
1.

2.	
3.	

38. Do you consider that wind energy firms have signified an increase in your family's income?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

39. Do you consider that wind energy firms have increased your opportunities to have the job that you would like to have?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

40. Do you consider that wind energy firms have increased your opportunities to have the level of education that you would like to attain?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

41. Do you consider that wind energy firms have increased your possibilities of improving your heath?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

42. Do you consider that since wind energy firms arrived, has insecurity decreased, maintained the same or increased?

\- Decreased (1) \- Maintained the same (2) \- Increased (99) \- Do not Know (94)

43. From 1 to 10 being 1 worsen and 10 improve, which has been the impact of windfarms on the natural environment of your community?

\- (1) \- (2) \- (3) \- (4) \- (5) \- (6) \- (7) \- (8) \- (9) \- (10)

44. Do you consider that wind energy firms have increased your opportunities to promote local culture?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

45. Do you consider that wind energy firms have improved, maintained the same or worsen your family ties?

\- Improved (1) \- Maintained the same (2) \- Worsen (99) \- Do not Know (94)

46. Have you ever asked help from a wind energy company?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

47. Have you ever participated in an event where decisions about benefits and impacts of wind energy have been discussed?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

48. Do you consider that wind energy firms have treated you equitably?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

49. Do you ever been discriminated by a wind energy company?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

50. Do you consider that wind energy firms have contributed to the improvement of the wellbeing of the community?

\- Yes (1) \- No (2) \- Refusal (99) \- Do not Know (94)

Reasons for of Wind Energy Companies (not) contributing to the wellbeing of the community
1.
2.
3.

APPENDIX 3 LIST OF INTERVIEWEES

Code	Position/Profession	Place
Non-Beneficiaries, Residents		
C1	Cab driver	El Espinal
C2	Market vendor	El Espinal
C3	Running club coach	El Espinal
C4	Director of local school	El Espinal
C5	Business owner	El Espinal
C6	Notary Public	El Espinal
C7	Director of local school	SDI
C8	Spouse of wind farm employee	Santo Domingo Ingenio
C9	Chicken vendor	Santo Domingo Ingenio
C10	Festivities coordinator	Santo Domingo Ingenio
C11	Festivities coordinator and bank cashier	Santo Domingo Ingenio
C12	Director of local school	Santo Domingo Ingenio
C13	Spouse of wind farm employee and business owner	Santo Domingo Ingenio
C14	Grocery store owner	Santo Domingo Ingenio
C15	Retired schoolteacher	Santo Domingo Ingenio
C16	Secondary schoolteacher	Santo Domingo Ingenio
C17	Director of local school	Unión Hidalgo
C18	Coffee shop owner and member of a culture collective	Unión Hidalgo
C19	NGO employee and communera	Unión Hidalgo
C20	Business owner and communera	Unión Hidalgo
C21	Business owner and communero	Unión Hidalgo
C22	Farmer	Unión Hidalgo
C23	Farmer and leader of communeros	Unión Hidalgo
C24	Retired schoolteacher	Unión Hidalgo
C25	Undergraduate student	Unión Hidalgo
C26	Undergraduate student	Unión Hidalgo
C27	Farmer	Unión Hidalgo
C28	Primary schoolteacher	Unión Hidalgo
C29	Farmer	Unión Hidalgo
C30	Consultant	Unión Hidalgo
C31	Homemaker	Unión Hidalgo
C32	School teacher	Unión Hidalgo
C33	Homemaker	Unión Hidalgo
C34	Farmer	Unión Hidalgo
C35	Taxi driver	Unión Hidalgo
Landowners		
L1	Farmer and President of Landowner Committee	El Espinal
L2	Farmer and Treasurer of Landowner Committee	El Espinal
L3	Landowner and business owner	El Espinal
L4	Farmer and Secretary of Landowner Committee	El Espinal
L5	Farmer and President of Landowner Committee	Santo Domingo Ingenio
L6	Farmer	Santo Domingo Ingenio
L7	Farmer	Santo Domingo Ingenio
L8	Farmer	Santo Domingo Ingenio
L9	Farmer	Santo Domingo Ingenio
L10	Farmer	Santo Domingo Ingenio
L11	Farmer and Ejido Commissariat	Santo Domingo Ingenio
L12	Farmer and business owner	Santo Domingo Ingenio
L13	Farmer, Ejido Commissariat and President of Landowner Committee	Santo Domingo Ingenio
L14	Farmer and business owner	Santo Domingo Ingenio
L15	Farmer and Accountant	Santo Domingo Ingenio
L16	Schoolteacher and Treasurer of Landowner Committee	Unión Hidalgo
L17	Farmer and Secretary of Landowner Committee	Unión Hidalgo
L18	Farmer and Treasurer of Landowner Committee	Unión Hidalgo
L19	Farmer and President of Landowner Committee	Unión Hidalgo
L20	Retired school administrative	Unión Hidalgo
L21	Schoolteacher and Treasurer of Landowner Committee	Unión Hidalgo
L22	Farmer and Secretary of Landowner Committee	Unión Hidalgo
L23	Farmer and Treasurer of Landowner Committee	Unión Hidalgo

L24	Farmer and President of Landowner Committee	Unión Hidalgo
L25	Farmer and President of Landowner Committee	Unión Hidalgo
L26	Farmer	Unión Hidalgo
Government		
G1	Health Councillor	El Espinal
G2	Culture Councillor	El Espinal
G3	Mayor	El Espinal
G4	Public Officer and the Ministry of Energy	Mexico City
G5	Public Officer Commission for Indigenous People	Mexico City
G6	Public Officer Government of Oaxaca	Oaxaca City
G7	Public Officer Government of Oaxaca	Oaxaca City
G8	Mayor's spouse	Santo Domingo Ingenio
G9	Health Councillor	Santo Domingo Ingenio
G10	Mayor	Santo Domingo Ingenio
G11	Secretary to the Trustee	Unión Hidalgo
G12	Treasurer	Unión Hidalgo
G13	Mayor	Unión Hidalgo
G14	Infrastructure Treasurer	Unión Hidalgo
G15	Former Treasurer	Unión Hidalgo
Wind Energy Developer Employees		
D1	Engineer	Santo Domingo Ingenio
D2	Social Relations	Santo Domingo Ingenio
D3	Social Relations	EL Espinal
D4	Security	EL Espinal
D5	Social Relations	EL Espinal
D6	New Developments Coordinator	All three communities
D7	New Developments Coordinator	All three communities
D8	Social Relations	EL Espinal
D9	New Developments Coordinator	Santo Domingo Ingenio
D10	Community Coordinator	Santo Domingo Ingenio
D11	EIA and SIA Consultant	Mexico City
D12	Overall Director Renewable Energy	Mexico City
D13	Social Relations	Mexico City
D14	Social Relations	Mexico City
D15	New Developments Coordinator	Mexico City
D16	Overall Director Renewable Energy	Mexico City
D17	CEO	Mexico City
D18	CEO	Mexico City
D19	Technical Director	Mexico City
D20	CEO	Mexico City
D21	New Developments Coordinator	Mexico City
D22	New Developments Coordinator	Mexico City
D23	Engineer	Mexico City
Non-Governmental Organisation Representative		
N1	Transnational Justice Coordinator	Mexico City
N2	Human and Environmental Rights Manager	Mexico City
N3	Human Rights Director	Mexico City
Academia		
A1	Professor in Anthropology	Mexico City
A2	Lecturer in Anthropology	Mexico City