IMPROVING THE INVESTMENT CLIMATE FOR RENEWABLE ENERGY

Through Benefit Sharing, Risk Management and Local Community Engagement

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ACKNOWLEDGMENTS

This report is a product of the World Bank's Social, Urban, Rural and Resilience Global Practice and the International Finance Corporation (IFC).

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The team thanks peer reviewer Kennan Rapp, Senior Social Development Specialist from the World Bank, for his valuable comments and suggestions.

The report has benefited from input by Miguel Székely, Ivonne Acevedo, and Iván Flores from the Center for Education and Social Studies (CEES), who provided qualitative and quantitative research and analysis; Prizma LLC (Mehrdad Nazari, Luisa Montes, Esteban Jacques, Melissa Cuevas, and Mario Vega Frola), who contributed private sector research; and Sergio Vargas Tellez, who conducted an extensive literature review on benefit sharing.

The team especially thanks Maria Gonzalez de Asis (Social Development Practice Manager from the World Bank's Social, Urban, Rural and Resilience Global Practice); Jutta Kern (Operations Manager), Gregor Wolf (Program Leader), and Guillermo Hernandez Gonzalez (Energy Specialist)—all from the World Bank's Mexico Country Management Unit; Alexandra Ortiz (Lead Urban Development Specialist and former Program Leader in the Mexico Country Office); Veronica R.E. Nyhan Jones (Head of IFC's Global Infrastructure & Natural Resources, Infrastructure Advisory); and Ary Naim (IFC's Country Manager in Mexico) for their guidance and support. The team also thanks Efrain Villanueva Arcos (Clean Energy General Director from the Secretary of Energy of Mexico—SENER) and Rolando Ocampo Alcantar (Vice-President of Geographic Information from the National Institute of Statistics and Geography of Mexico—INEGI) for orienting and providing information for this report.

The team also extends acknowledgments to the people interviewed for this report. Interviews and field research were undertaken between January and May 2018, in Mexico City and Oaxaca, and involved over 56 interview sessions with 70 people. The team thanks the comuneros from the treatment and comparison municipalities in Oaxaca; Prof. Shalanda Baker from Northeastern University; Roberto Salazar Gil from the General Directorate of Social Impact and Surface Occupation of SENER; Reina Velazquez from the government of Oaxaca; Salomon Nahmed from the Centro de Investigaciones y Estudios Superiores en Antropología Social; Donald McCubbin from the U.S. Agency for International Development (USAID); Carlos Tornel, Jorge Villareal, and Nain Martinez from the Iniciativa Climática de México; and the 15 private sector representatives interviewed for this report.

Cover Photo Image Source: "renewable energies, wind energy" taken on April 30, 2007, by Velaia (ParisPeking) via Flickr CC BY-NC-ND 2.0.

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Abbreviations

CCC	Community consultative committee
CEES	Center for Education and Social Studies
CFE	Comisión Federal de Electricidad (Mexican Federal Electricity Commission)
CSR	Corporate social responsibility
DAF	Development adjustment factor
DECC	Department of Energy and Climate Change
EIA	Environmental impact assessment
ESF	Environmental and Social Framework
FDI	Foreign direct investment
FPIC	Free, prior, and informed consent
GW/GWh	Gigawatt/gigawatt hour (1 GW = 1,000 MW = 1,000,000 KW)
IBA	Indigenous Business Australia
IFC	International Finance Corporation
ILO	International Labour Organization
IPMG	Indigenous Peoples Major Group
KW/KWh	Kilowatt/kilowatt hour
LCOE	Levelized cost of energy
MW/MWh	Megawatt/megawatt hour
MX	Mexico
NGO	Nongovernmental organization
NREL	National Renewable Energy Laboratory
NSW	New South Wales
OECD	Organization for Economic Co-operation and Development
REN21	Renewable Energy Policy Network for the 21st Century
REZ	Renewable energy zone
SENER	Secretaría de Energía (Mexican Ministry of Energy)
SESA	Strategic environmental and social assessment
SIA	Social impact assessment
SLO	Social license to operate
U.K.	United Kingdom
UN	United Nations
UNEP	United Nations Environment Program
USAID	United States Agency for International Development

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Main Messages

1. Around the world countries are stepping up their efforts to combat climate change. In the wake of the Paris Agreement and United Nation's Sustainable Development Goals (SDGs), new actions to address climate change have accelerated, including the adoption of national determined contributions (NDCs)[1] and climate investments for renewable energy.[2]
2. Worldwide investments in clean energy have increased significantly since 2004, reaching a total in 2017 of US$2.9 trillion. Moreover, annual investment in renewable energy reached US$280 billion in 2017, including US$107 billion in new wind energy infrastructure and US$161 billion in solar energy. Compared to 2004, this is a 550 percent increase for wind energy and 1,400 percent increase for solar energy.
3. There are cases of considerable resistance against renewable energy investments around the world. Reasons for the opposition vary, but commonly include legacy issues, lack of participation in decision making around wind projects siting and development, or lack of expected socioeconomic benefits from developments.
4. There are significant risks of social conflicts around infrastructure. For the public sector, conflicts can disrupt efforts to meet national renewable energy targets and international green growth commitments. For the private sector, conflicts can have direct cost implications because of delays or increased costs of project operations. For communities, the perceptions of unfairly distributed benefits, lack of consultation, and missing transparency can lead to a continued sense of discrimination and inequality, especially if benefit sharing through investments is not seen as equitable.
5. This report aims to understand how countries can both maximize financing for development and create an enabling environment for renewable energy investments while generally supporting socioeconomic development, including the local population, and more equitably sharing benefits. To this end, the report completed a comparative analysis of relevant laws and policies in six countries and reviewed literature of over 150 publications. Furthermore, the team undertook a quantitative analysis of wind developments in Southern Mexico, analyzing their socioeconomic development impacts on the local population. Moreover, the authors did field research in Mexico and conducted over 56 interviews with 70 people from the private, public, and international sectors.

[1] See the general SDG website or especially Goal 13 (https://www.un.org/sustainabledevelopment/climate-change-2/); and UNFCCC (2019), Nationally Determined Contributions (https://unfccc.int/process/the-paris-agreement/nationally-determined-contributions/ndc-registry).

[2] Climate Action Tracker (2018), "Some Progress since Paris" (https://climateactiontracker.org/publications/warming-projections-global-update-dec-2018/).

6. This report provides recommendations on how to improve the investment climate for renewable energy and wind energy, in particular, through benefit sharing[3] and local community engagement. Integrating communities through free, prior, and informed consent (FPIC) or benefit sharing mechanisms is costly—but the cost of not integrating communities and of failed projects is even higher.
7. The following recommendations were identified in this report:
   - ***Foster close engagement with the broadest range of stakeholders—including government, private sector, and communities—early on, at best even before the auction phase.*** Community opposition is not entirely directed toward the wind power developments themselves but rather is tied to broader structural factors. These factors include the perception that benefits from investments (such as rent) go to only a few (a neighbor or local politician); a lack of local participation when deciding where to make investments and how to share benefits; historical struggles over poverty and inequality; and mistrust of public and private institutions. Involving communities in the early stages of project development and providing transparent and targeted consultation and benefit sharing schemes are therefore crucial to ensuring a more secure investment climate for both national and international companies.
   - ***Create locally legitimate and cross sector understanding of when a consultation is undertaken "prior" to an investment and what such consultations entails.*** This should be defined together with industry and community stakeholders to enable efficient project development timelines and respect community learning and decision-making processes. The different states of an investment, starting before the auction processes for renewable energy investments, also would have to be taken into consideration.
   - ***Design legal frameworks (or at least guidelines) for benefit sharing and local community participation for investment projects, in line with International Labour Organization (ILO) 169 and FPIC.*** The comparative analysis of benefit-sharing mechanisms, rules, and regulations in six countries has shown that there is a correlation between the existence of even only voluntary guidelines and improved benefit sharing with communities. It is thus recommended that countries establish guidelines for benefit sharing in renewable energy investments and inclusive and prior consultations.
   - ***Support policy coherence, build capacity, and increase funding for staff leading consultations, evaluating assessments, and monitoring benefit-sharing schemes.*** This recommendation involves raising awareness among relevant staff of how to conduct consultations that meet ILO 169 criteria, as well as enhancing the environmental impact assessment (EIA) and social impact assessment (SIA) approval processes. Institutional coordination and administrative efficiency improvements, as well as streamlined processes through policy coherence, can shorten timelines and enhance

[3] Based on the literature reviewed, a good-practice definition of "benefit sharing" is the proactive, systematic effort to identify, maximize, and equitably distribute benefits to directly or indirectly affected communities. The goal of benefit sharing is to increase and share the wide-ranging benefits of investments with local communities and ensure socially inclusive and sustainable development.

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coordination with communities; facilitate close follow-up of investment projects; support assessments in line with regional development objectives; and improve coordination among governments, communities, and the private sector overall.

- ***Develop a territorial development database for renewable energy investments.*** Research has shown the value of a territorial development database containing information on the presence of vulnerable individuals in renewable energy-rich regions, comprehensive socioeconomic indicators, information on development needs, and marginalization rates disaggregated by gender. Such a database can help stakeholders understand local economic conditions and develop informed benefit-sharing mechanisms for their projects. At the same time, a territorial development database would allow governments to better develop and assess EIAs and SIAs before investments start and guide the consultation processes.
- ***Consider ways to increase community participation in completion of studies, for example, in the form of feedback on social and environmental assessments.*** Stakeholders should also agree on a shared definition and acceptable forms of benefit sharing (such as shared revenue, tax relief and subsidies, reduced electricity rates, and so forth). Stakeholder discussions should be led by the government as a guiding interlocutor.
- ***Enable clear and transparent mechanisms for communities to trigger FPIC processes.*** This should go hand in hand with making information on the project accessible to all community members in local languages and with sufficient time to process and deliberate information (accessibility issues could be handled by government agencies, local authorities, international organizations, nongovernmental organizations, or academia).
- ***Establish monitoring and evaluation mechanisms (track data on benefit sharing–related investments).*** Comparative studies have shown that systematic evaluations on the implementation and success of benefit-sharing and investment impacts can guide policy making and the design of benefit-sharing mechanisms, and support sustainable development efforts in the medium term.
- ***Under certain circumstances, facilitate a separate auction process for community-driven wind power projects and reform regulations to enable community-driven models to feasibly compete for grid access.*** Community-owned power parks have been shown to foster prosperity among owners and acceptance of renewable energy installations in general. However, initial efforts to start community wind parks in Chile, Denmark, and Mexico have been unsuccessful because of a lack of political frameworks. Therefore, it is recommended that regulations be designed for community-driven models to compete for grid access.

Objective of the Report

This report, a collaborative effort between the World Bank and the International Finance Corporation (IFC), addresses risk management in renewable energy development with the ultimate objective to improve the investment climate for renewable energy through benefit sharing and local community engagement. This report is based on a knowledge product

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developed in 2018, titled "Sharing the Wind: Promoting Social Acceptance for Wind Power Development in Mexico through Benefit Sharing and Local Participation" (P161977), which was drafted with financial support of the World Bank Mexico Country Office, the IFC, and the Social Global Practice of the World Bank.

This report provides recommendations for establishing benefit-sharing mechanisms and local participation for wind energy development and renewable energy investments. The report analyzed in depth the legal framework of six countries and drew on research and best examples worldwide, including case studies of Australia, the United States, Canada, Denmark, Germany, Mexico, South Africa, and the United Kingdom and Scotland. The authors reviewed the literature of over 150 publications, undertook field research in Mexico, and conducted over 56 interviews with 70 people from the private, public, and international sectors. Furthermore, the team undertook a quantitative analysis of wind developments in Southern Mexico, analyzing their socioeconomic development impacts on the local population.

This report provides recommendations on how to improve the investment climate for renewable energy and wind energy, in particular, through benefit sharing and local community engagement. Integrating communities through free, prior, and informed consent (FPIC) or benefit-sharing mechanisms is costly—but the cost of not integrating communities and of failed projects is even higher.

The recommendations are focused on wind energy developments but can be applied to other renewable energy investments, such as solar.

Report Structure

This report is structured as follows: The first chapter presents the results of a literature review of benefit sharing and local community participation. The chapter provides a comparison of diverse benefit-sharing definitions, typologies, mechanisms, and forms. The second chapter discusses good practices and tools for better risk management and benefit sharing. It also includes a quantitative analysis of wind developments in Southern Mexico, analyzing their socioeconomic development impacts on the local population. The third chapter presents the main findings and recommendations.

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Report Summary

This report provides recommendations for creating an enabling environment for renewable energy investments to continue to foster a transition to a green economy while supporting development and sharing benefits more equitably with the population. It seeks to provide recommendations on how to manage social risks and ultimately contribute to more inclusive green growth investments and maximize finance for development.

Around the world, countries are stepping up their efforts to combat climate change. In the wake of the Paris Agreement and the United Nation's (UN's) Sustainable Development Goals (SDGs), new actions to address climate change have accelerated around the world, including the adoption of national determined contributions (NDCs).[4] At the 24th annual UN Climate Change Conference of Parties (COP24), the World Bank Group committed to doubling its current financial support to US$200 billion. This commitment includes a strong focus on increasing adaptation, leveraging private sector finance, and supporting increased systemic climate action at the country level between 2020 and 2025.[5]

Worldwide investments in clean energy have increased significantly since 2004, reaching a total of US$2.9 trillion by 2017.[6] Although most countries are still off target in achieving their goals, many have been fostering climate investments for renewable energy.[7] In 2017, annual investment in renewable energy reached US$280 billion, including US$107 billion invested in new wind energy infrastructure and US$161 billion in solar energy.[8] Compared with 2004, this is a 550 percent increase for wind energy and a 1,400 percent increase for solar energy.[9]

There are cases of considerable resistance against renewable energy investments around the world. Reasons for the opposition vary, but commonly include legacy issues, lack of participation in decision making around wind projects siting and development, or lack of expected socioeconomic benefits from developments.

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[4] See the general SDG website or especially Goal 13: https://www.un.org/sustainabledevelopment/climate-change-2/; UNFCCC (2019): Nationally Determined Contributions: URL: https://unfccc.int/process/the-paris-agreement/nationally-determined-contributions/ndc-registry

[5] World Bank (2018), "2015 Targets to Step Up Climate Action." URL: http://pubdocs.worldbank.org/en/368601543772742074/2025-Targets-to-Step-Up-Climate-Action.pdf

[6] IRENA (2018) "Global Trends in Renewable Energy Investment." URL: http://resourceirena.irena.org/gateway/dashboard/?topic=6&subTopic=11

[7] Climate Action Tracker (2018), "Some Progress since Paris." URL: https://climateactiontracker.org/publications/warming-projections-global-update-dec-2018/

[8] IRENA (2018), "Global Trends in Renewable Energy Investment." URL: http://resourceirena.irena.org/gateway/dashboard/?topic=6&subTopic=11

[9] IRENA (2018), "Global Trends in Renewable Energy Investment." URL: http://resourceirena.irena.org/gateway/dashboard/?topic=6&subTopic=11

A literature review and interviews conducted for this report show that some community members believe that wind energy development has benefited only a few families in the direct area of influence of the projects. They believe that developments have created marginal employment benefits, disrupted agriculture and livestock, and failed to include communities through participatory processes.[10] In fact, a quantitative analysis done for this report, focusing on the Isthmus de Tehuantepec in Oaxaca, Mexico, shows that company efforts for benefit sharing have had limited impact, particularly because most of them are decoupled from the government. For the report, the researchers identified 78 localities with investments in five municipalities in the Isthmus region, which were called "treatment" localities, and analyzed the socioeconomic impacts of wind park investments in the Isthmus regions between 1990 and 2015. The comparison group ("controls") included 388 localities in 11 municipalities that are geographically close to the treatment localities. The panel data estimation and comparison of groups allowed—with certain limitations[11]—an analysis of the socioeconomic impacts of wind park investments in the Isthmus regions between 1990 and 2015. Results show a positive association between wind power investments and an increase in the percentage of house ownership (a statistically significant increase in the percentage of house ownership in treatment localities of 1.64 percent relative to comparison localities). Results also show a decrease in the percentage of houses with walls made of makeshift materials (a reduction of 14.7 percent in the percentage of houses with walls made of makeshift materials in treatment localities). However, measurements for other socioeconomic indicators did not show statistically significant differences between treatment and control localities.

The limited positive socioeconomic impacts of wind power developments in the Mexican Isthmus affirm the need for a systematic benefit-sharing and community-engagement strategy. Such a strategy should be led by the public sector through accompanying policies and resources. Such engagement—in Mexico and beyond—can enable sustainable local development in the indirect and direct project areas by taking advantage of the presence of private investments.

There are significant risks to continued social conflicts around infrastructure. For the public sector, conflicts can disrupt efforts to meet national renewable energy targets and

[10] World Bank. 2011. Greening the Wind: Environmental and Social Considerations for Wind Power Development. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/239851468089382658/Greening-the-wind-environmental-and-social-considerations-for-wind-power-development.

[11] There are some considerations regarding the panel data estimation and difference-in-difference methods. First, both empirical strategies measure ex post effects of wind power investments in the region. In this regard, the treatment and comparison groups were not randomly assigned, as would be done in a randomized controlled trial. Second, there might be some concerns related to pre-existent differences between municipalities with wind farms and those without that could have influenced the investment decision, such as the average years of schooling of the population. Third, the assumptions may not hold if there are unobservable characteristics that are unique across municipalities but are varying over time. For example, the effect of wind power investment might differ from municipality to municipality depending on the local capacity of government officials. This study posits that positive or negative correlations can be made from measurement outcomes, but causal inferences cannot be made with certainty. When a coefficient is positive and statistically significant, the inference can be made that treatment localities are better off than the comparison control group, but the difference cannot be causally attributed to wind power investments alone. Therefore, our estimates measure the association between wind farm investment projects and socioeconomic outcomes in the region.

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international green growth commitments. For the private sector, conflicts can have direct cost implications caused by delays or increased costs of project operations. For communities, the perceptions of unfairly distributed benefits, lack of consultation, and missing transparency can lead to a continued sense of discrimination and inequality, especially if benefit sharing through investments is not equitable.

This resistance to infrastructure projects and especially renewable energy investments translates to high-risk context for developers which calls for a more systemic analysis of the social dimensions of wind energy development and renewable energy growth. This is especially important given the climate change goals that countries set forth and the need to maximize financing for development to meet pressing development challenges. Thus, the creation of an enabling environment for private sector investments is recommended through policy reforms of the auction systems; a legal framework for community inclusion, especially in the renewable energy sector; and the design of a risk-management strategy for the government to better manage both community and private sector requests. These approaches can support countries to fully leverage energy resources and maximize financing for both development and private sector investments.

This report analyzed the potential of benefit sharing and local participation for better risk management and more inclusive development from three perspectives:

- Governmental perspective—the actor able to legally provide the framework for an enabling environment to wind energy;
- Community perspective—relevant actors for wind energy investments and for FPIC, local participation, recipients of benefit sharing, and potential actors in the elaboration of impact assessments; and
- Private sector perspective—partner in implementing benefit sharing and local participation and driver of foreign direct investment (FDI).

The primary findings and recommendations of this report are as follows:

1) Investment Climate and Guidelines for Benefit Sharing

Key Findings

- **Social acceptance for wind power developments is complex and dynamic and should be fostered early on in the process.** Community engagement and benefit sharing are essential for fostering, though not guaranteeing, social acceptance of wind power projects. Community engagement usually relies on various engagement methods and tools from dissemination of information and community townhalls to more active forms of engagement such as face to face meetings, community focus groups, participatory planning and monitoring. Benefit sharing can take many forms including revenue sharing, public services and infrastructure, local skills and livelihoods, and environmental initiatives. Many communities do not necessarily oppose wind power projects in and of themselves. Instead, much community opposition seems to be directed towards the lack of positive development outcomes (equitably distributed benefits) and the lack

of appropriate consultations and local participation mechanisms. Early and sustained reciprocal engagements among wind power developers, government, and communities have been shown to foster increased levels of trust, help reduce the possibility of wind farm developments being rejected, and facilitate the acceptance of wind farm developments.[12]

- **In some cases, company efforts for benefit sharing have shown limited impact, particularly if decoupled from the government.** A quantitative analysis done for this report, focusing on the Isthmus de Tehuantepec in Oaxaca, shows that company efforts for benefit sharing have had limited impact on socioeconomic development indicators, particularly as most of them have been decoupled from governments' development plans to foster development in the area. In general, benefit-sharing practices are most effective when they include structured monitoring and evaluation of the efforts and are implemented in a strong partnership with governments and local development strategies, which maximize efforts. It is increasingly evident that company efforts alone, even if improved, are unlikely to satisfy the needs of underserved local populations. A government initiative for the sector, in line with its broader development plans is necessary, in addition to the work of companies, for significant and sustainable benefit-sharing results to be observed.
- **Social risks peak during project development and construction phases.** Interviewees for this study from the private sector noted that special interest groups can leverage their demands by challenging permits and FPIC in courts and generate potentially costly delay risks during the development and construction stages. Community opposition is greatest during those phases, which shows that an engagement with communities and a resolution of complex issues is important early on.
- **Wind power developers may be discouraged by investment uncertainties caused by social conflicts.** Fostering social acceptance of investments is key to continuing to receive investments needed for a country's transition to a greener economy. Improving community engagement and benefit sharing practices can help foster social acceptance and leverage the wind industry's developmental impacts. However, it also must be acknowledged that community engagement and benefit sharing would likely not address all of the root causes of social conflicts or uncertainties facing the industry. Sources of social conflict can include poverty, complexity of land tenure structures, corruption, decreasing security, and failure to secure indigenous peoples' consent. It is therefore crucial to undertake a holistic approach to improve investment climates for renewable energy.
- **There are diverse legal and policy options for community engagement and benefit sharing and a correlation between even voluntary guidelines for benefit sharing and their success.** Some countries, such as Denmark and Germany, have embedded benefit-sharing targets in relevant electricity, planning, and/or renewable energy

[12] REN21 (2017: 19).

Danish Ministry of Energy (1981).

Anker and Jørgensen (2015: 28).

Ernst & Young Australia (2014). See also Ellis and Ferraro (2016: 42); Rand and Hoen (2017).

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laws. Chile recently transformed its Energy 2050 policies to incorporate community participation and benefit-sharing aims into the nation's energy strategy. Other countries, such as South Africa, include local economic development requirements in bid applications for wind power auctions. The United Kingdom emphasizes voluntary good practice guidance. The presence of even voluntary guidelines can pave the way for improved industry practices regarding benefit sharing and community engagement.

Recommendations for developing benefit sharing, risk management, investment climate, and the social license to operate:

- Foster close engagement with the broadest range of stakeholders—including government, private sector, and communities—early on, at best even before the auction phase. This helps to establish a comprehensive and inclusive strategic framework for benefit sharing and local community participation. Consultative committees composed of community representatives (such as the consultative committees in Australia and Chile) could engage stakeholders in processes such as FPIC, impact assessments, and benefit sharing in the medium and long term and on both policy and project levels. At the same time, communities should be provided accurate and comprehensive information on the details of wind power projects, potential negative externalities, and potential benefits.
- Create locally legitimate and cross sector understanding of when a consultation is undertaken before an investment. This should be done together with industry and community stakeholders to both enable efficient project development timelines and respect community learning and decision-making processes. It would involve a clear definition and agreement of what is expected for prior consultations and how the rules apply, including compliance mechanisms. The different states of an investment, starting before the auction processes for renewable energy investments, would have to be taken inconsideration, too.
- Design legal frameworks (or at least guidelines) for benefit sharing and community participation for investment projects, in line with International Labour Organization (ILO) 169 and FPIC. This will guide the private sector to implement benefit-sharing schemes. It is recommended that stakeholders learn from the good practices of countries such as Chile, Denmark, and South Africa, which take diverse approaches to benefit sharing and local community engagement in renewable sectors.

2) Institutional Capacity and Policy Coherence

Key Findings

- **Barriers to the development of sustainable energy infrastructure or benefit-sharing mechanisms can include limited institutional capacity to efficiently oversee social and environmental impacts or monitor results.** Complex administrative processes and responsibilities spread over multiple institutions, which oftentimes work in an

uncoordinated manner, and can create bottlenecks for the approval of impact assessments for renewable energy projects and subsequent monitoring. Strengthening the capacity for government agencies to develop and enforce regulatory frameworks that protect communities and the environment is crucial to sustainable renewable energy investment growth.

- **There may be limited horizontal coordination between ministries or vertical coordination among federal, state, and municipal government entities**. In some countries, ministries do not coordinate on social and environmental impact assessments for wind power projects, and governmental capacity to execute responsibilities and ensure effective benefit sharing and community participation is limited. At times, there is no dedicated window for coordination of stakeholder engagement, which renders the engagement and benefit-sharing process more difficult.

Recommendations for improving institutional capacity and policy coherence:

- Support policy coherence, build capacity, and increase funding for staff leading consultations, evaluating assessments, and monitoring benefit-sharing schemes. This will create awareness of how to conduct consultations that meet ILO 169 criteria and enhance the efficiency and effectiveness of the environmental impact assessment (EIA) and social impact assessment (SIA) approval processes; these actions will also improve coordination with communities, support closer monitoring of impacts of investment projects, facilitate assessments in line with regional development objectives, and improve coordination among government, communities, and the private sector.
- Develop a territorial development database for renewable energy investments—at best provided publicly and free of cost—to support the EIA and SIA processes. The database should indicate the presence of vulnerable individuals (including indigenous peoples) in renewable energy/wind-rich regions, record comprehensive socioeconomic indicators, assess development needs, and record marginalization rates disaggregated by gender. This database will enable stakeholders to understand the local economic conditions and support the design of benefit-sharing schemes for renewable energy projects. The database will also provide relevant information on relevant actors for the organization of prior consultations.

3) Improve Involvement of and Benefits for Local Communities

Key Findings

- **Socioeconomic indicators should be monitored for evidence that local communities benefit from wind power investments.** For example, fieldwork in Latin America highlighted the perception that benefits have accrued primarily to landowners leasing land to companies and to local authorities who may misuse funds intended for communities. Investments were therefore perceived as reinforcing economic inequalities within and among communities.

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- **A quantitative analysis done for this report, focusing on the Isthmus de Tehuantepec in Oaxaca, Mexico, showed that company efforts for benefit sharing have had limited socioeconomic development impact.** For the report, the researchers analyzed the socioeconomic impacts of wind park investments in the Isthmus regions between 1990 and 2015 and found that there is a positive association only between wind power investments and an increase in the percentage of house ownership and a decrease in the percentage of houses with walls made of makeshift materials but no statistically significant differences between treatment and control localities. The limited positive socioeconomic impacts of wind power developments in the Mexican Isthmus affirm the need for a systematic benefit-sharing and community-engagement strategy. It should be led by the public sector through accompanying policies and resources. Such engagement—in Mexico and beyond—can enable sustainable local development in the indirect and direct project areas by taking advantage of the presence of private investments.
- **Communities should have easy access to accurate information on the positive and negative environmental, social, and cultural consequences of installing wind turbines.** Lack of information hinders communities' abilities to assess the opportunity costs of wind turbine installations and negotiate more equitable payments and benefits. Moreover, opposition to wind power projects is associated with a lack of participation mechanisms, such as involvement in FPIC, social and environmental impact assessments, and community-driven wind power projects. A coherent, coordinated negotiation guided by an interlocutor—such as the government or a trusted entity—could mitigate these issues and generate more sustainable, long-term development benefits.

Recommendations for improving involvement of and benefits for communities:

- Consider ways to increase community participation in the completion of studies, for example, in the form of feedback on social and environmental assessments.
- Agree on a shared definition and acceptable forms of benefit sharing (such as shared revenue, tax relief and subsidies, reduced electricity rates, and so forth). Stakeholder discussions should be led by the government as a guiding interlocutor.
- Enable clear and transparent mechanisms for communities to trigger FPIC processes and protocols and ensure consultations. This should go hand in hand with making information on the project accessible to all community members in local languages and with sufficient time to process and deliberate information (accessibility issues could be handled by government agencies, local authorities, international organizations, NGOs, or academia).

[13] The Windpark Druiberg in Dardesheim, Germany, consists of 31 wind turbines (66 MW), which were installed in the early 1990s. Only local residents can own wind park shares, and as of 2014, approximately 90 percent of Dardesheim residents are involved in Windpark Druiberg. The project has increased regional economic growth and strengthened local self-sufficiency in energy production. Profits from the project have been used to support local infrastructure development and other projects and to finance other renewable energy projects. Overall financing was achieved through shareholder capital investment and commercial credit as a cofunding mechanism. (For more information about Windpark Druiberg, see the European Union-funded Climate Policy Info Hub at http://climatepolicyinfohub.eu/community-energy-projects-europes-pioneering-task.).

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- Establish monitoring and evaluation mechanisms (track data on benefit-sharing–related investments into communities) to evaluate implementation and success of benefit sharing, and to potentially amend or adapt during project development.
- Under certain circumstances, facilitate separate auction processes for community-driven wind power projects and reform regulations to enable community-driven models to feasibly compete for grid access. In countries such as Denmark or Germany, partially or wholly community-owned wind power projects have been shown to yield greater employment and income benefits to communities than do noncommunity-driven projects and strengthen local self-sufficiency, bargaining power, and symmetry of information.[13]

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1. Benefit Sharing and Local Community Participation: Factors Enabling Social Acceptance for Wind Power Projects

This chapter presents the results of an extensive literature and country review of benefit sharing and local community participation in the global wind power sector. The chapter discusses and compares a variety of definitions, typologies, mechanisms, and forms related to benefit sharing. Examples of definitions discussed in this chapter include "benefit sharing" and "intended beneficiaries"; typologies discussed include top-down corporate social responsibility (CSR) or community empowerment models; mechanisms include legal, auction bidding requirements, and/or voluntary protocols and good practice guidelines; forms of benefit sharing discussed include payments to landowners, payments to the wider community, and reduced electricity rates.

1.1. Introduction to Benefit Sharing

The hydroelectric and mining industries have shown the importance of benefit sharing and community participation mechanisms for the social sustainability of energy projects. Before the 1970s, many project developers assumed benefits would "trickle down" to communities via market mechanisms. Over time, studies revealed inequities and injustices in project compensation and benefits to local communities, as well as growing conflict. Local stakeholders protest when they perceive the distribution of rents by a firm to be unfair or illegitimate, when agreements are reached in individual negotiations at different times and with limited transparency, or when there are differences in rent levels. One reason is that the expected socioeconomic benefits from wind power developments did not materialize, and this reputation and legacy issues contribute to the stalling of the different infrastructure investments or planning.

In the 1980s, development practitioners concerned with sustainable outcomes and impact assessments promoted a "sustainable development approach" to benefit sharing. This involved not only monetary benefits[14] to communities but also nonmonetary mechanisms.[15] In the 1990s, hydro industry actors realized that there was an additional need to communicate

[14] Monetary benefits, as defined by the United Nations Environment Programme (UNEP) Dams and Development Project (DDP), include revenue sharing, development funds, equity sharing or full ownership, preferential electricity rates, and/or taxes paid to regional or local authorities.

[15] According to DDP, nonmonetary benefits include livelihood restoration and enhancement strategies, infrastructure development, including roads and schools, and health services (MacDonald 2009: 8, 14).

and equitably distribute a broad range of products and services across communities and sectors.[16] In many countries, the mining industry has found that a variety of benefits lead to positive local economic impacts, including negotiated revenue sharing agreements; the creation of foundations, trusts, and funds; local employment opportunities; and business development programs. These varieties of benefit sharing can help address community concerns and boost efforts to gain social acceptance.[17]

The practice of benefit sharing and community participation in energy projects has since been championed in several national and international initiatives, and global dialogue and interest in effective mechanisms for community benefits and participation continues to grow. Relevant initiatives have been catalyzed at the international, national, and local levels, including the United Nations (UN) Global Compact, the UN Sustainable Development Goals, the Indigenous Peoples Major Group (IPMG), company-led corporate social responsibility programs, and government initiatives in Chile, Mexico, South Africa, and the United Kingdom. The International Finance Corporation (IFC) and the World Bank have also commissioned studies regarding wind power development, in particular how resource investments distribute costs and benefits.[18] In European countries, for example, benefit sharing is now a widely accepted and expected element of wind power developments.

The social license to operate (SLO), or "social license" for short, refers to the ongoing acceptance of a company's presence, operations, and impacts by stakeholders, primarily local community members. Companies increasingly face the need to gain and maintain such acceptance from the people who live in the area of influence of a given project. At the level of individual projects, this acceptance is neither automatic nor unconditional. There is ample evidence that failure to gain and maintain social license can potentially lead to conflict, delays, or stoppages, which can translate into costs for a proposed project or an ongoing operation. In extreme cases, it can lead to project termination. A company's ability to secure and maintain social license is essential for its operations and ultimately for its profitability.

Social license is created and maintained slowly over time as the actions of a company build trust with the communities in the area it operates in and with other stakeholders. The type of relation the company manages to establish with communities depends, to a great extent, on how the company conducts business and carries itself in relation to what matters most to communities. Experience has shown that communities are quite consistent when it comes to defining what matters most to them in terms of company–community relations. A company's policies and practices in the following three areas determine whether the relationship will be a positive or negative one: (i) local benefits and their distribution, (ii) responsibility taken over project impacts, and (iii) company behavior. Table 1 presents some key considerations of company–community relations.

Social license does not depend exclusively on a company's actions. To the extent that communities' expectations and perceptions come into play, social license also depends on factors that help shape them. For example, if expectations are not in line with what can be reasonably delivered, they are likely to remain unfulfilled and generate tension or conflict. Similarly, if benefit distribution is relatively equitable and impacts are handled well, but the community perception differs from that reality, the relationship with the community can deteriorate. Oftentimes third parties have a vested interest and can influence expectations and perceptions

[16] MacDonald (2009: 8, 2).

[17] O'Faircheallaigh (2017: 2).

[18] World Bank (2011). See also Lohde et al. (2015).

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TABLE 1. Key Considerations for Company–Community Relations

LOCAL BENEFITS AND THEIR DISTRIBUTION	RESPONSIBILITY TAKEN OVER PROJECT IMPACTS	COMPANY BEHAVIOR
• Does the project generate tangible economic and social benefits for local communities?	• Does the company take broad responsibility for the range of impacts (both direct and indirect) that affect people's lives, or does it take narrow responsibility?	• Does the company engage with local communities in a manner perceived as open, transparent, and honest?
• Is the way in which the company distributes these benefits perceived as fair, transparent, and equitable?	• Are company actions in this area perceived as fair, transparent, and accountable?	• Do company actions and the behavior of its staff convey respect, caring, and trustworthiness? Or does the company's behavior convey arrogance, disrespect, and lack of caring?
• Are there clear criteria and does the company apply them consistently?		

Source: Based on IFC (2010).

framing the discussion by establishing high and unrealistic expectations or misleading perceptions in pursuit of an agenda. It is important for companies to not only do the right thing but also to communicate effectively. The government also has a role when it comes to shaping expectations so that they are in line with what can be reasonably delivered and informing perceptions so that they are close to reality.

Social risks peak during the project development and construction phases. Interviewees for this study from the private sector noted that special interest groups can leverage their demands by challenging permits and free, prior, and informed consent (FPIC) in courts and generate potentially costly delay risks during the development and construction stages. Community opposition is greatest during those phases, which provides an interesting timeline for recommendations of this report.

Wind power developers may be discouraged by investment uncertainties caused by social conflicts. Fostering social acceptance of investments is thus key to continuing to receive investments. Enhancing community engagement or benefit-sharing can help foster the social acceptance and leverage of the wind industry's developmental impacts. However, it must be acknowledged that community engagement and benefit sharing would likely not address all of the root causes of social conflicts or uncertainties facing the industry. Sources of social conflict can include poverty, complexity of land tenure structures, increasing corruption, decreasing security, and failure to secure indigenous consent. It is therefore crucial to undertake a holistic approach.

By improving a country's legal and regulatory environment regarding benefit sharing and local community participation, governments can lay the foundations for wind power growth that is more sustainable and inclusive—and thereby increase social acceptance, manage risks, and foster green growth. Studies show the importance of institutionalized guidelines or rules in creating a more enabling environment for communities and project developers to engage in benefit sharing and

participatory mechanisms. With regulation, community members can be better protected, receive more benefits, and be more willing to participate in discussions about the design and management of wind project benefits.[19] Institutionalized guidelines provide developers with greater legal assurance, as well as frameworks for engaging with communities, discussing how benefits can best advance community development goals, and planning and executing mitigation tasks.[20]

1.2. Benefit Sharing Definitions and Forms

Definitions regarding "benefit sharing" vary globally. For the purposes of this report, a good-practice definition of benefit sharing is a proactive, systematic effort to identify, maximize, and equitably distribute benefits to communities directly or indirectly affected by wind power developments. The goal of benefit sharing is to increase and share the wide-ranging benefits of investments with local communities and ensure a socially inclusive and sustainable wind power development.[21] This report recognizes "benefits" as distinct from and in addition to "compensation"[22] for negative impacts and externalities from wind projects.[23]

Definitions of "intended beneficiaries" of large-scale wind power projects are also diverse. Various governments have determined the scope of intended beneficiaries through the use of different parameters, including the following:[24]

- Directly and indirectly affected people considered positively or negatively affected by social, environmental, and/or economic impacts, with a special focus on indigenous peoples or other historically disadvantaged populations;[25]
- People in a defined proximity to the investment area;[26] and/or
- People with land ownership status, including landowners and landholders hosting wind turbines or related infrastructure, landowners and landholders of land required for access during construction and/or operations, and the wider community.

[19] Aitken, M. (2010).

[20] Cowell, Bristow, and Munday (2012).

[21] This definition draws upon global literature and World Bank sources. World Bank sources include Wang (2012) and World Bank (2011).

[22] Compensation refers to "remuneration paid to affected community members for an asset, according to the replacement or equivalent costs. . . . Compensation, as a mitigation measure, is usually financed by the project investment budget, while benefit sharing programs in many cases are financed by the operating income of a project" (World Bank (2011)).

[23] Wang (2012: 4–5).

[24] The comprehensive definition is derived from Wang (2012).

[25] For example, black South Africans are as intended beneficiaries through South Africa's Local Economic Development and Broad-Based Black Economic Empowerment requirements in the Renewable Energy Independent Power Producers Program.

[26] In Denmark, for example, according to the Purchase Right Regulations, citizens living within 4.5 km of new wind turbines taller than 25 m are eligible to buy shares in a project (Sperling et al. 2008).

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BOX 1. Germany, the United Kingdom, and South Africa: Inclusive Definitions of "Intended Beneficiaries"

Germany, the United Kingdom, and South Africa show how some governments recognize the importance of including indirectly affected people and stakeholders in benefit-sharing schemes—not just the landowners entering into agreements with project developers or people directly affected by wind turbine installations.

In Germany, for example, the Federal Ministry for Economic Affairs and Energy defines beneficiaries as:

(1) *Involved community members*: Individuals who are "directly involved in the project, e.g. hold voting, profit participation right, or receive payments for land rented out for the construction of the plant;" and
(2) *Wider community members*: Individuals who are "outside of the project but local and can be negatively (e.g. visually) or positively (e.g. through incomes or improved public services) affected by the project."[27]

The United Kingdom's Department of Energy and Climate Change (DECC) similarly recognizes the potentially broad scope and complexity of determining "intended beneficiaries" and communities of concern. According to DECC, it is important to recognize the different forms of community belonging. These forms include "communities of place and communities of interest (a shared outlook to faith, politics, social interaction, ethnicity or common interests)—both of which may be relevant in the context of community benefits around onshore wind energy projects." Therefore, DECC recommends an industry good practice of in-depth community consultations to define the intended beneficiaries. DECC provides voluntary guidance through its "Community Engagement Best Practice Guidance" and "Community Benefits Best Practice Guidance" reports. These resources help project developers obtain "an in-depth understanding of the community or communities who are hosting the wind farm, how they interact with each other, how the wider geography impacts the area, and proposing a solution that suits these circumstances. As part of their community engagement plan, a developer will undertake activities in the area to understand this and should then consult on their definition."[28]

Box 1 continues next page

[27] German Federal Ministry for Economic Affairs and Energy (2016: 11).

[28] DECC (2014: 9).

Box 1 continued

South Africa requires project developers to determine "intended beneficiaries" by a prescribed geographic distance. As part of the Renewable Energy Independent Power Producer Procurement auction for bid proposals in South Africa, project developers are required to assess the socioeconomic needs of communities within a 50-km radius of the project site and develop a local economic development plan. However, reports by various stakeholders, including the South African government, academics, and the World Bank, show challenges with this system. Challenges include the perceived arbitrariness of the 50-km radius requirement, lack of community involvement in determining beneficiaries and risk of dividing communities into beneficiaries and nonbeneficiaries, weak alignment of project developers' economic development plans with local government development plans, and lack of guaranteed benefits to all individuals within the 50-km radius.[29]

1.3. Mechanisms and Typologies of Benefit Sharing and Community Participation

A mapping of benefit-sharing forms that can be regulated or promoted and are applicable to wind (or other) investments is provided (see Table 2).[30] This information is gathered from a literature review on benefit sharing in the wind industry globally; analysis of laws, policies, and guidelines for benefit-sharing arrangements by the public or the private sector in Australia, Denmark, Germany, South Africa, and the United Kingdom; and an ongoing IFC study mapping applicable benefit-sharing models in wind and solar projects globally.

[29] Halsey (2017: 13); Eberhard et al. (2014).

[30] Sources include International Finance Corporation. Forthcoming. "Benefit Sharing in the Wind and Solar Industry," slides 16–20, and World Bank (2011).

[31] World Bank (2011: 84).

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Table 2. Description of Benefit-Sharing Forms in Renewable Energies

FORM	DEFINITION
Payment of rents or royalties to affected landholders and neighbors	Financial flow transferred to the local level. Payments of rents or royalties to affected landholders are usually for: 1) Landowners who rent their land or part of their land in exchange for housing turbines on their property, and 2) Landowners whose lands are used for project-related infrastructure development (for example, roads, electrical instruments) Payments are made either in lump sum or periodically during the life of the project. Periodic payments examples include: 1) a fixed fee per hectare, 2) fixed fee per turbine, 3) royalties (the method for determining amount may vary but often is based on an agreed percentage of a wind project's anticipated gross revenues), or 4) royalties with guaranteed minimum payment. Payments may vary[31] based on power sales prices and project capacity factors. • For example, in the United States, the payment of royalties ranges between 1 and 4 percent of gross income. In Latin America, the range is between 2 and 3 percent. For both fixed fee and royalty payments, the average annual payment was US$2,200/MW (from US$1,200/MW to US$3,800/MW.)[32]
Co-investment or co-ownership structures	Shareholding in the project (company) by individuals, groups of a community, or entities representing the community (for example, community trust, local government). Three prevalent models exist: a) **Subscription:** In this type of structure, the developer operating the wind power project offers a portion of the project's equity to select landowners in the form of individual share subscriptions. The energy projects are established by actors such as energy utilities, and communities' main form of participation is by purchasing shares. Communities have less power in decision-making processes concerning the project. For example, in Uruguay, the public utility UTE established successive funds to finance the Arias (70 MW), Pampa (147.5 MW), and Valentines (70 MW) wind power projects. Small and institutional investors could purchase publicly tradable shares ranging from US$100 to US$2,000—in sum, making up 80 percent of the equity.[33]

Table 2 continues next page

[32] World Bank (2011: 85). In terms of remuneration, according to the Commission for Dialogue with Indigenous Peoples of the Ministry of the Interior of Mexico, "International experience shows that the remuneration paid by the company of a wind farm for the concept of land leasing (land cost) ranges between 1.0 and 5.0 percent of gross revenues from the sale of energy from a wind farm . . . [In Mexico, percentages range] from 0.025 to 1.53 percent" (Ministry of the Interior 2013: 16–17.).

[33] REN21 (2017: 20).

Table 2 continued

FORM	DEFINITION
	b) **Equity Partnership:** A model by which communities co-invest in collaboration with a developer. An entire community or groups within the community buy a part of the project and own a certain percentage of generated income. A common variety of equity partnership is for the community to own a certain number of turbines within a wind farm. The equity partnership model and the subscription and community-owned models described here have become common practices in the European Union. This model can be considered in cases in which communal land is involved.[34] Equity partnership or community-owned models can create cobenefits or spillover benefits. For example, participating community members can leverage local resources, build social capital, and increase employment opportunities at the local and regional level. New workers in an area means there may be increased local spending. These activities can then increase public awareness and knowledge of the project and decrease local opposition.[35] Total benefits delivered may be a combination of different forms of benefits. c) **Community Owned:** Wind farms are owned entirely by a community. The community is responsible for planning, constructing, and operating the wind power project. Community-owned projects pose a greater financial risk to communities, but this scheme has also been shown to generate high returns. • For example, the Hepburn Wind Community Energy in Australia has more than 2,000 cooperative members who own the wind farm. Each member has one vote in the cooperative structure and receives a dividend proportional to investments made.[36] • In Denmark and Germany, most wind turbines are owned by cooperatives or individuals in the community. In Denmark, over 80 percent of all wind turbines were owned by over 175,000 individuals and cooperatives by 2000. By 2002, 15 percent of Denmark's electricity was generated by wind power. In 2015, small private wind energy operators, including household-owned and share-equity projects, made up 50 percent of the electricity market share. Germany's approach to ensuring benefits for local citizens and to the national energy transition is one that also elevates citizen autonomy, nonhierarchical and democratic decision-making processes, and "bottom-up" renewable energy initiatives.[37]

Table 2 continues next page

[34] REN21 (2017: 20).

[35] REN21 (2017: 20).

[36] "Hepburn Wind Community energy Ltd.," www.hepburnwind.com.au/wind-farm/.

[37] Bolinger (2001: 47); Schreuer (2015).

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Table 2 continued

FORM	DEFINITION
Tax relief or subsidies	Diverting part of project's revenue into local-level public spending.[38] • Germany has provided tax deductions for wind farm share purchases.[39] In Denmark, municipalities can apply for subsidies to support activities aimed at strengthening public acceptance of new wind power projects. Specifically, the subsidies (referred to as the Green Scheme) should cover expenses for local projects that 1) enhance the landscape or recreational values, or 2) promote informational or cultural activities through local associations to garner acceptance in the municipality for renewable energy technology.[40]
Preferential electricity rates	Preferential/discounted electricity rates for already existing electricity services for a specific customer group. • According to the New South Wales (NSW) state government in Australia, electricity rates are reduced as a benefit in NSW, but this practice is limited. For communities in NSW to receive discounted electricity, a developer must use project profits to purchase the electricity on behalf of the community.[41]
Employment	Employment through the project company and/or subcontractors throughout project life cycle—development, construction, operations and maintenance, and decommissioning. This includes local workforce development and training (including skills development for project employment). Local employment opportunities are available in the areas of manufacturing, construction, and operation and maintenance, with construction typically serving as the phase of greatest employment.[42] In the construction phase, jobs are available particularly for activities regarding transport, cleaning, construction of access roads, excavation, and construction of turbine bases. During the operations phase, job creation is mostly related to provision of services, such as technical operations, and many skilled foreigner workers are likely hired.[43] Construction-related jobs are temporary employment. Data on the volume of jobs created by wind power projects vary, depending on calculation assumptions and methods.[44]

Table 2 continues next page

[38] REN21 (2017: 19).

[39] Danish Ministry of Energy (1981).

[40] Anker and Jørgensen (2015: 28).

[41] Ernst & Young Australia (2014: 14–16).

[42] Nahmad et al. (2014: 82).

[43] World Bank (2011: 86).

[44] During the construction phase, an average of 2.5 jobs are created for each megawatt generated, compared with 0.27 jobs for each megawatt generated during the operation phase (Wei et al. 2010). A 2013 report by the Swedish Environmental Protection Agency estimates the creation of one job for each megawatt generated in a community wind farm and financed locally (Henningsson et al. 2013). A World Bank report states that in the United States, a 50-MW wind farm could generate up to 40 jobs during the construction phase, and 10 jobs in the operation and maintenance phase (World Bank 2011).

Table 2 continued

FORM	DEFINITION
Local or preferential procurement	Preferential procurement of local goods and services, and the creation of value chains such as the manufacture of wind turbine components (including blades and electric parts). • Brazil has developed equipment supply chains to serve the national wind market with turbine factories, towers, rotors, and blades.[45] In South Africa, preferential procurement focuses on subcontracting to empowered enterprises and enterprises owned by women.
Local infrastructure	Local infrastructure development (such as substations, roads, and fences). This benefit is linked to infrastructure created by and for the project. However, project infrastructure sometimes can be modified to maximize benefits for the local community in the long run, beyond the wind investment. An example would be construction of scenic overlooks on the road to promote tourism.
Payments, donations, and/or social benefits to broader communities	Payments to broader communities (for example, in the form of community initiatives and amenities). These payments can either be connected directly to the revenue stream or made through dedicated funds or charities distinct from the project revenue stream (as part of company's CSR or philanthropy strategy). The payments can be used for community initiatives or amenities such as improving local infrastructure, constructing community centers, or providing other scholarship funds and grants.
Public services	Supporting the public provision of water, sanitation, health, and education, for example.
Alternative skills and livelihoods	Provision of non-project-related skills training and livelihood strategy support (such as microcredit for small and medium enterprise development, or ecotourism) benefiting communities living in direct or indirect project areas.
Local institutional capacity building	Establishment or enhancement of the effectiveness of community-based organizations or public institutions (for example, community development trusts).
Environmental enhancements (beyond compensation)	Low-carbon community development efforts addressing climate change mitigation or adaptation objectives (such as home improvement). • In Germany, one category of benefits is "environmental benefits," which enables improvements to the local environment or funding for local environmental projects.[46]

[45] Global Wind Energy Council et al. (2011).

[46] German Federal Ministry for Economic Affairs and Energy (2016: 23).

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There are diverse legal and policy options for community engagement and benefit sharing. Some countries, such as Denmark and Germany, have embedded benefit-sharing targets in relevant electricity, planning, and/or renewable energy laws. Chile recently transformed its Energy 2050 policies to incorporate community participation and benefit-sharing aims into the nation's energy strategy. Other countries such as South Africa include local economic development requirements in bid applications for wind power auctions. The United Kingdom emphasizes voluntary good practice guidance. The presence of even voluntary guidelines can pave the way for improved industry practices regarding benefit sharing and community engagement.

There is a growing international interest in exploring community participation mechanisms. Community participation can take many forms, including the following:[47]

- Community involvement in wind power project development procedures, such as project site identification, FPIC, and social and environmental impact assessments.
- Community decision making, which allows communities to participate in determining what benefits are shared with them and how that sharing is administered. According to the 2011 World Bank report "Greening the Wind," when local residents "have a direct economic stake in the development and operation of a wind project, the project's local image can seem even more enhanced."[48]
- Community ownership, either from community-owned wind projects or impacts shared with the communities, which cultivates social capital and/or a communal sense of ownership of the project. According to the Renewable Energy Policy Network for the 21st Century (REN21), which co-hosted the 7th International Renewable Energy Conference with the Government of Mexico in September 2017, especially in regions with indigenous populations, community-driven wind power projects are an opportunity to "promote local development, self-determination and identity, while ensuring communities' control over the mitigation and management of local environmental impacts."[49]

[47] International Finance Corporation. Forthcoming. *Benefit Sharing in the Wind and Solar Industry*.

[48] World Bank (2011: 91). Additionally, the 2015 World Bank study titled "Indigenous Latin America in the Twenty-First Century" states: "Experience of recent decades shows that, no matter how imperfect, the only way to advance development projects successfully within indigenous territories is through indigenous peoples' involvement in the design, implementation, and monitoring of development programs. By de facto rule or by law, the question in Latin America is no longer whether indigenous peoples should be involved in decision making, but how and when" (World Bank 2015).

[49] REN21 (2017: 21).

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2. The Trajectory Toward Benefit Sharing and Risk Management for Maximizing Finance for Development

2.1. Quantitative Analysis of Benefit-Sharing Mechanisms in Oaxaca, Mexico

For various reasons, communities and civil society organizations in Oaxaca have organized considerable resistance against renewable energy investments within their territories. Community opposition is not entirely directed toward the developments themselves but rather is tied to broader structural factors. These factors include the perception that benefits from investments (such as rent) go to only a few (a neighbor or local politician); lack of local participation when deciding where to make investments and how to share benefits; historical struggles over poverty and inequality; and mistrust of public and private institutions. A literature review and research conducted for this report show that some factions of communities believe that wind energy development has benefited only a few families in the direct area of influence of the projects, created marginal employment benefits, disrupted agriculture and livestock, and failed to include communities through participatory processes.[50]

In Mexico, for instance, conflicts over wind power projects became highly visible in public discourse through the Piedra Larga project in 2011 and Mareña Renovables project in 2012, both in Oaxaca. In the case of Mareña Renovables (also known as Energía Eólica del Sur), opposing communities criticized a lack of appropriate consultations and development activities (including inequitably distributed benefits and a lack of local participation mechanisms) and a failure to account for the communal land tenure, social structure and customs, and legal rights of local indigenous communities. These events are especially important given that the Mexican state with the biggest potential for wind energy development and supporting the Mexican green growth agenda is Oaxaca. The state of Oaxaca is considered by diverse stakeholders as the "wind powerhouse" of Mexico, with "good to excellent" wind resources (wind power classes 4 to 7, with 7 being the highest)[51] and a total of 44,000 MW wind potential.[52] The best wind resources are concentrated in the southeastern region of the state, primarily in the southern part of the Isthmus of Tehuantepec (here referred to as "the Isthmus"). As a result, of 31 large-scale wind power projects that have operated in the country, 27 have been located in the Isthmus and operated by firms, including

[50] World Bank (2011).

[51] NREL (2013).

[52] NREL (2013).

Iberdrola, Enel Energy, Acciona, Desarrollos Eolicos Mexicanos, Penoles, Gas Natural Fenosa, Eolica de Francia, and Gamesa. However, despite having the greatest potential for wind power in Mexico and attracting the largest share of wind energy investments, the Isthmus has high rates of poverty and seems to have scarcely benefited economically from wind power developments and the influx of investments. Wind power projects in Oaxaca are in six remote and marginalized municipalities with high economic development needs: Asunción Ixtaltepec, El Espinal, Juchitán de Zaragoza, San Dionisio del Mar, Santo Domingo Ingenio, and Unión Hidalgo.

A quantitative analysis done for this report, focusing on the Isthmus de Tehuantepec in Oaxaca, Mexico, shows that company efforts in benefit sharing had a limited socioeconomic development impact between 1990 and 2015. The researchers identified 78 localities with wind energy investments in five municipalities in the Isthmus region, which are called "treatment" localities. The comparison group ("controls") includes 388 localities in 11 municipalities that are geographically close to the treatment localities. Figure 1[53] shows the geographical distribution of the treatment and comparison groups. The researchers relied on an ex post econometric estimation to identify the potential association between wind energy investments and local development and used two measurement methodologies: panel data estimation and a difference-in-difference design.[54] The panel data estimation and difference-in-difference design are characterized by comparing observed changes in the treatment localities to similar localities that did not benefit from the wind power investments. For both estimations, the treatment group remained the same, but the comparison groups varied to account for pre-existent differences between localities with wind farms and those without. In this sense, when estimating the effects on different outcomes, group localities among the 11 municipalities that are, on average, more similar to the treatment localities were compared. The panel data estimation and comparison of groups allowed—with certain limitations[55]—an analysis of the socioeconomic impacts of wind park investments in the Isthmus region between 1990 and 2015.

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[53] Treatment Municipalities: Asunción Ixtaltepec, El Espinal, Juchitán de Zaragoza, Santo Domingo Ingenio, and Unión Hidalgo. Comparison municipalities: El Barrio de la Soledad, Ixtepec, Santiago Niltepec, San Blas Atempa, San Dionisio del Mar, San Francisco del Mar, San Mateo del Mar, San Miguel Chimalapa, San Pedro Huilotepec, Santa María Xadani, and Santo Domingo Chihuitán.

[54] Different methodologies can be used to measure how wind power projects affect local development of a region, and using different methods to account for potential effects is desirable. For example, INEGI apply an exploratory approach consisting of comparing the socioeconomic outcomes of the localities with wind farms before and after installing the wind power projects. However, under this approach, it is not possible to verify whether the socioeconomic outcomes would have been any different without the wind farm projects. As a result, this design could not be inferred as a causal effect (that is, attributable to the investments in wind power) because there is no counterfactual to make the comparison. Moreover, as of 2016, there are more than 298 active social programs in the State of Oaxaca that could also have an impact on the local development of the region (Székely, Rodríguez-Castelán, Flores, Leyson, & Mendoza, 2017). Thus, comparing outcomes for the same localities in two periods of times does not allow associating the observed changes to a particular event.

[55] There are some considerations regarding the panel data estimation and difference-in-difference methods. First, both empirical strategies measure ex post effects of wind power investments in the region. In this regard, the treatment and comparison groups were not randomly assigned, as would be done in a randomized controlled trial. Second, there might be some concerns related to the pre-existent differences between municipalities with wind farms and those without that could have influenced the investment decision, such as the average years of schooling of the population. Third, the assumptions may not hold if there are unobservable characteristics that are unique across municipalities but are varying over time. For example, the effect of wind power investment might differ from municipality to municipality depending on the local capacity of government officials. This study posits that positive or negative correlations can be made from measurement outcomes, but causal inferences cannot be made with certainty. When a coefficient is positive and statistically significant, the inference can be made that treatment localities are better off than the comparison control group, but the difference cannot be causally attributed to wind power investments alone. Therefore, our estimates measure the association between wind farm investment projects and socioeconomic outcomes in the region.

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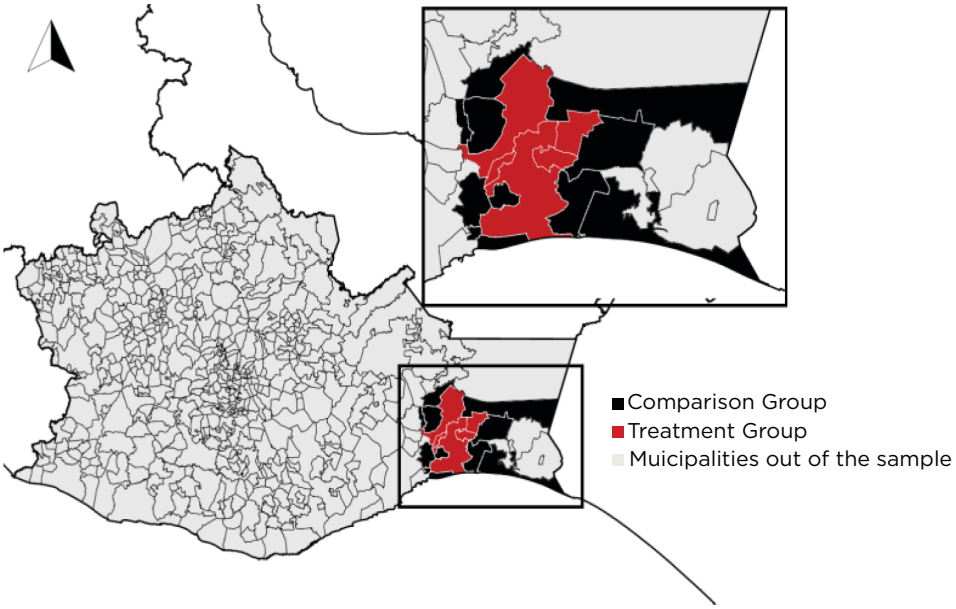
FIGURE 1. Comparison and Treatment Municipalities



Source: Author's data collection and map design.

DATA SOURCES

The quantitative analysis conducted for this report focused on a broad set of development and socioeconomic outcomes:[56] housing conditions, education, health, labor, financial inclusion, and poverty. The study uses official government data from the National Institute of Statistics and Geography (INEGI) (public data from a set of national censuses available for the period 1990–2015).[57] In particular, the Population and Housing Census for 1990, 1995, 2000, 2005, and 2010 were used for information on household assets, employment, food security, education, migration, health care use, birth histories, and so forth. The 2015 Intercensal Survey complemented the data, collecting sociodemographic information comparable to the census data. The Economic Census for 1998, 2003,

[56] *Housing*: Percentage of households with drainage, electrical energy, and a decrease in the percentage of households with dirt floor. *Education*: Illiteracy rate, educational lag, and the percentage of people with incomplete primary education. *Health*: Mortality rates, number of physicians per medical unit, birth rate. *Employment*: Percentage of workers employed in the primary (agriculture, extraction of raw materials), secondary (manufacturing), and tertiary (commerce and services) sectors, self-employed individuals. *Financial inclusion*: Financial institutions per 10,000 adults, ATMs per 10,000 adults, point of sale (TPV or terminal de punto de venta, a system that manages a transaction, including credit and debit card processing, in retail and service establishments); *Income*: Percentage of workers earning up to two minimum wages (if hourly wage is equivalent to two minimum wages), between five and 10 minimum wages, and more than 10 minimum wages; *Economic activity:* Statistical units on which the information is collected. The economic unit engages, under single ownership or control, in one or predominantly one kind of economic activity at a single physical location (that is, business, shop, firm) from which information is collected. *Poverty*: Percentage of population living in overcrowded homes, with food insecurity, in moderate poverty, without access to health services. *Social expenditure:* Household beneficiaries of Prospera (a Mexican conditional cash transfer program coordinated by Secretariat of Social Development), household beneficiaries of LICONSA (Leche Industrializada Conasupo; a social and nutritional program that distributes high-quality milk at subsidized prices for vulnerable families), total expenditure on social infrastructure.

[57] For some outcome variables, the data are available until 2010 or 2013.

2008, and 2013, containing information on all economic activities in the country, was also drawn upon. These censuses collect data from manufacturing, commerce, and services establishments. The information is desegregated by geography and economic activity. Finally, the Municipal and State Data System (Sistema Estatal y Municipal de Bases de Datos, SIMBAD) from INEGI offered additional information at the municipal and state levels. Complementary indicators are obtained from the National Institute for Federalism and Municipal Development (INAFED), National Council for the Evaluation of Social Development Policy (CONEVAL), and the national Banking and Securities Commission (CNBV).

PANEL DATA ESTIMATION

The first model is a panel data estimation that explains the changes in the set of outcome variables over time as a function of the wind power projects in the municipality, and time and municipal fixed effects. The model specification is shown in equation 1:

$$y_{it} = \beta_0 + \beta_1 D_i + \beta_2 y_{i,t=1990} + \delta_m + \alpha_t + \varepsilon_{it}, \quad (1)$$

where y_{it} is the outcome variable for locality i in time t (excluding the year 1990). D_i is the treatment variable that takes the value of 1 if the locality is situated in a municipality with wind farms, and 0 otherwise. $y_{i,1990}$ is the value of the outcome variable for locality i in 1990. δ_m and α_t are municipal and time fixed effects, respectively. ε_{it} is the error term. In equation 1, the coefficient β_1 measures the effect of wind power investments on the outcome variable.

One important assumption for the panel data estimation is that after controlling for municipal and time fixed effects, the model is accounting for the time-invariant components in the error term. Certainly, one concern for this specification is that the fixed effects are correlated with the treatment variable D_i, which could bias the estimates. As a result, controlling for fixed effects improves the precision of the model (Wooldridge, 2010).

DIFFERENCE-IN-DIFFERENCE ESTIMATION

The second model is a difference-in-difference (DiD) estimator, which is a quasi-experimental design that makes use of panel data, allowing the proper construction of a counterfactual for estimating a causal effect. Thus, this technique compares the changes in the set of outcomes over time between the treatment and comparison localities. The advantage of the DiD estimator is that it not only accounts for fixed effects but also includes the time trend. The specification for this model is as follows:

$$y_{it} = \beta_0 + \beta_1 D_i + \beta_2 POST_{1990} + \beta_3 D_i \times POST_{1990} + \delta_m + \varepsilon_{it}, \quad (2)$$

where y_{it} is the outcome variable for locality i in time t. D_i is the treatment variable that takes the value of 1 if the locality is situated in a municipality with wind farms, and 0 otherwise. $POST_{1990}$ is an indicator variable that is equal to 1 from 1991 and onward and 0 otherwise. δ_m are municipal fixed effects. ε_{it} is the error term. In equation 2, β_2 is the time trend for treatment and comparison localities, and the coefficient β_3 is the DiD estimator that measures the effect of wind power investments on the outcome variable. As mentioned, this quasi-experimental design has been widely used in the empirical literature to measure potential effects of resource-based projects (Black, McKinnish, & Sanders, 2005; Costa & Veiga, 2016; Aragón & Rud, 2013).

The main assumption for the DiD estimator is the parallel trend. Basically, this assumption requires that the observed trend in the outcome of the comparison group is the same as the counterfactual trend of the treatment group. This assumption cannot be directly tested, but usually a visual inspection of the data can support that it holds.

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The following section presents the descriptive statistics, including a trend analysis for the set of outcome variables for treatment and comparison groups, and a mean tests analysis (Figures 2–11).[58]

Results show a positive association between wind power investments and an increase in the percentage of house ownership (a statistically significant increase in the percentage of house ownership in treatment localities of 1.64 percent relative to comparison localities). Results also show a decrease in the percentage of houses with walls made of makeshift materials (a reduction of 14.7 percent in the percentage of houses with walls made of makeshift materials in treatment localities). These results can be explained by landowners who receive a steady income stream from lands leased to project developers being able to improve their living conditions. Therefore, landowners receiving direct payments from developers are more likely to experience positive impacts from wind energy investments. At same time, measurements for other socioeconomic indicators did not show statistically significant differences between treatment and control localities.

FINDINGS OF STATISTICAL RESULTS

(1) Trends in Population Structure

Trends in the population structure for different age cohorts for the treatment and comparison municipalities show that the treatment municipalities, on average, have a larger population than do comparison municipalities. The data show an increasing trend for the cohort ages 25 to 59 years, but the difference is not statistically significant. Treatment municipalities exhibited a statistically significant increase in people aged 60 and older relative to comparison municipalities. There is a statistically significant decreasing trend in treatment municipalities of population speaking an indigenous language. Although an important finding, this is a trend found throughout Mexico and thus not necessarily related to wind farm investments.[59]

(2) Housing Outcomes

Data on housing outcomes for both treatment and comparison municipalities show a similar average increase in the percentage of households with drainage, electrical energy, and a decrease in the percentage of households with a dirt floor. However, these outcomes are not statistically significant and thus do not reveal a difference between treatment and comparison groups.

(3) Educational Outcomes

The data show a decrease in the illiteracy rate, educational gap, and percentage of people with incomplete primary education for both treatment and comparison municipalities. Treatment municipalities show a greater increase in the percentage of people with postsecondary and tertiary education than does the comparison group. Although this increase is statistically significant when analyzing the mean difference, it is not possible to determine which programs or initiatives led to the differences

[58] Both empirical strategies are measuring ex post effects of wind power investments in the region. In this regard, the treatment and comparison groups were not randomly assigned, as would be done in a randomized controlled trial. Second, there might be some concerns because of pre-existent differences between municipalities with wind farms and those without that could have influenced the investment decision, such as the average years of schooling of the population. Third, the assumptions might not hold if there are unobservable characteristics that are unique across municipalities but are varying over time, for example, the effect of wind power investment might differ from municipality to municipality depending on the local capacity of government officials. Taking into account these limitations, the authors are cautious about interpreting the results as a causal effect. In this sense, the coefficients do measure the differences between treatment and comparison localities. As a result, when a coefficient is positive and statistically significant, we can infer that the treatment localities are better off than the comparison group, but we cannot be certain that the difference is entirely due to wind power investments. Consequently, our estimates are measuring the association between wind farm investment projects and socioeconomic outcomes in the region. Nevertheless, both empirical strategies provide more robust and compelling evidence than the before/after design discussed.

[59] According to a 2013 report by the Oaxaca State Government, the decrease in the percentage of people speaking an indigenous language could be explained by the increasing migration patterns in the region.

FIGURE 2. Mean Test for the Population Outcomes[60]

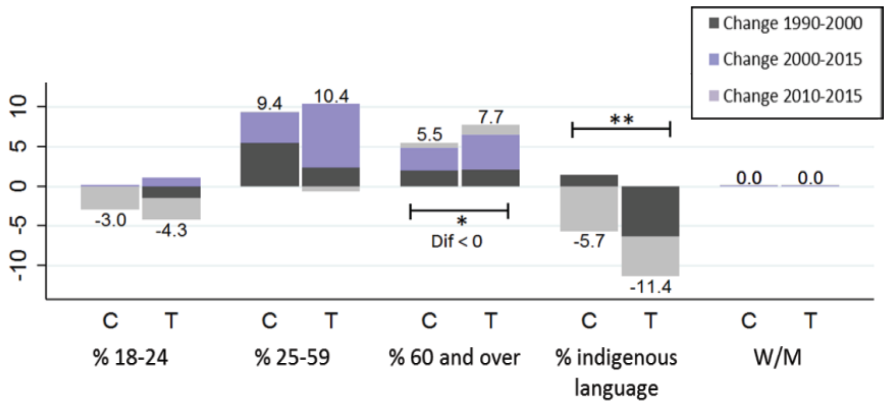


FIGURE 3. Mean Test for Housing Outcomes[61]

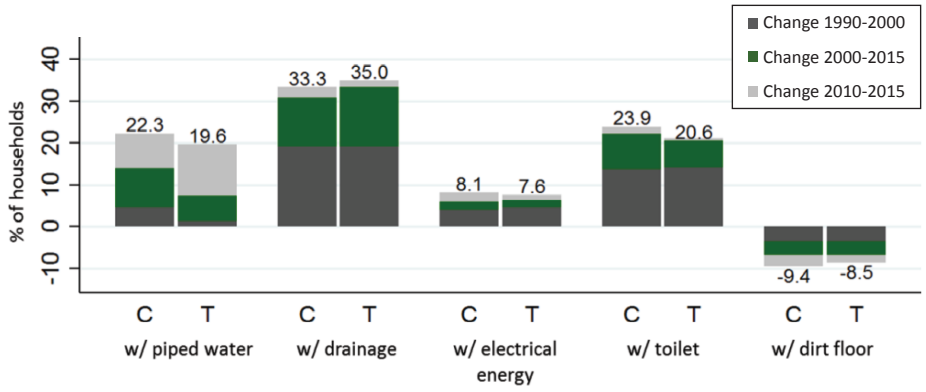
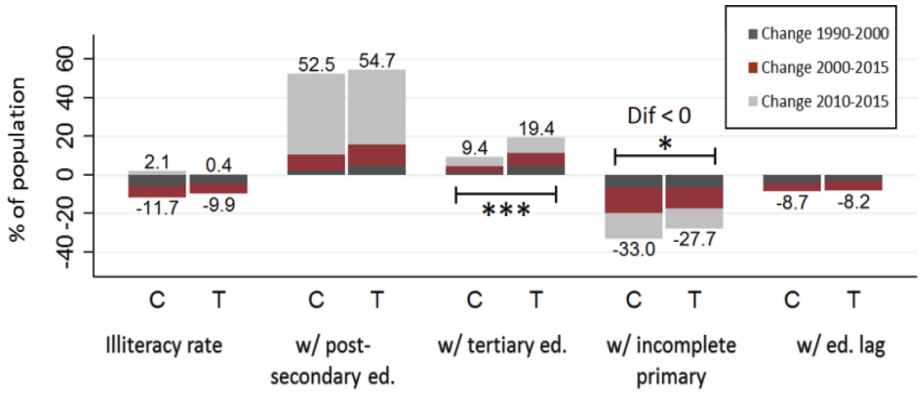


FIGURE 4. Mean Test for Educational Outcomes[62]



[60] Note: Includes the 11 municipalities in the comparison group. C: Comparison group; T: Treatment group. Mean test for C and T: ***p < 0.01, **p < 0.05, *p < 0.1. (Source: Authors' calculations; data from SIMBAD and INEGI.)

[61] Includes four of 11 municipalities in the comparison group: Santiago Níltepec, El Espinal, El Barrio de la Soledad, and Ciudad Ixtepec. (Source: Authors' calculations, Population and Housing Census for 1990–2010, and Intercensal Survey, 2015.)

[62] Includes the 11 municipalities in the comparison group. C: Comparison group; T: Treatment group. Mean test for C and T: ***p < 0.01, **p < 0.05, *p < 0.1. (Source: Authors' calculations, data from INEGI.)

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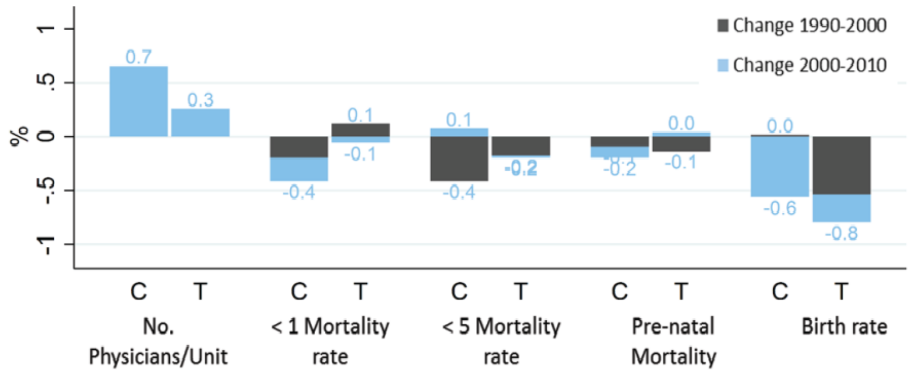
FIGURE 5. Mean Test for Health Outcomes[63]



because 43 percent of the active governmental programs in the region target the improvement of basic needs, including access and quality of education. The authors cannot deduce whether the improvement in education is attributable to governmental programs, the investments of wind park developers (for example, in educational facilities), or the attraction of externally procured workers increasing levels of education.

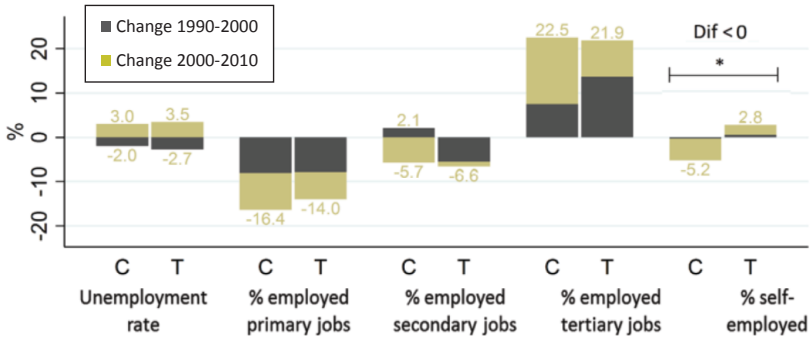
(4) Health Outcomes

In both the treatment and comparison municipalities, the data show a decrease in mortality rates and an increase in the number of physicians per medical unit. Birth rates have decreased more in the treatment group than in the comparison municipalities. However, the mean differences in the health outcomes are not statistically significant.

(5) Employment Outcomes

The percentage of employed workers in primary and secondary sectors[64] has decreased over the measurement period for both groups, which is consistent with an observed increase in tertiary employment, similar for both groups. As pictured in Figure 6, only the increase in self-employment shows a statistically significant difference, which is in favor of the treatment group.

FIGURE 6. Mean Test for Employment Outcomes[65]



[63] Includes the 11 municipalities in the comparison group. C: Comparison group; T: Treatment group. Mean test for C and T: The mean differences are not statistically significant. (Source: Authors' calculations, data from INEGI.)

[64] Employment sectors: Primary (agriculture, extraction of raw materials), secondary (manufacturing), and tertiary (commerce and services)

[65] Includes four of 11 municipalities in the comparison group: El Barrio de la Soledad, Ixtepec, San Blas Atempa, and San Pedro Huilotepec. Mean test for C and T: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$ (Source: Authors' calculations, data from INEGI.)

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(6) Financial Inclusion Outcomes

Both treatment and comparison group outcomes experienced an increase in financial inclusion outcomes, although the treatment group showed more pronounced changes than did the comparison group. When analyzing the mean changes, only the increase in the treatment group in the number of establishments with TPV[66] is statistically significant (Figure 7). This could, coupled with the indicator of income, have resulted in an increase in sales because of an increase in income in treatment localities and thus an improvement in purchasing power and financial inclusion.

(7) Income Outcomes

The percentage of workers earning only up to two minimum wages showed a statistically significant decrease in treatment municipalities. These changes

FIGURE 7. Mean Test for Financial Inclusion Outcomes[67]

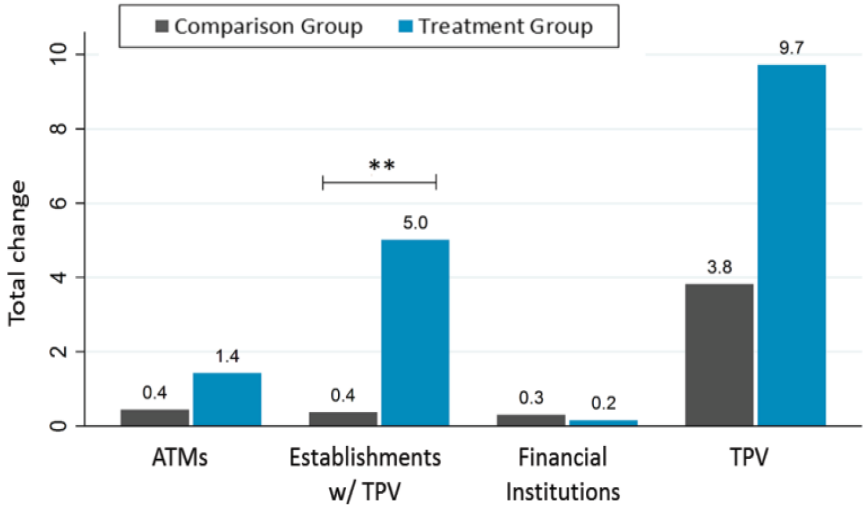
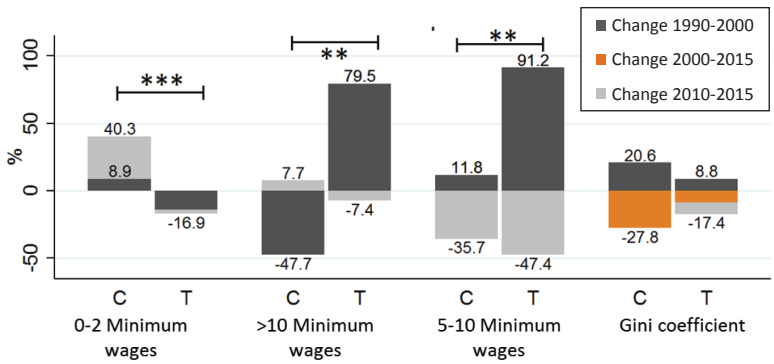


FIGURE 8. Mean Test for Income Outcomes[68]



[66] TPV or terminal de punto de venta, a system that manages a transaction, including credit and debit card processing, in retail and service establishments.

[67] Includes the 11 municipalities in the comparison group. C: Comparison group; T: Treatment group; Mean test for C and T: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. (Source: Authors' calculations, data from CNBV.)

[68] Includes eight of 11 municipalities in the comparison group. The excluded municipalities are: El Barrio de la Soledad, San Miguel Chimalpa, and Santo Domingo Chihuitán. Mean test for C and T: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. (Source: Authors' calculations, data from INEGI.)

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are consistent with a statistically significant increase in the percentage of workers earning between five and 10, and more than 10 minimum wages in the treatment municipalities (that is, the areas with wind parks). However, the income increases are not accompanied by a similar decrease in inequality, as measured by the Gini coefficient. The orange bars (Figure 8) show that inequality is decreasing in both treatment and comparison localities (and even more rapidly decreasing in comparison localities). However, there is no statistically significant difference in inequality changes between treatment and comparison municipalities (Figure 8, likely because only a small percentage of the local population (people leasing land or through another ownership mechanism) benefit from wind power projects.

(8) Economic Activity Outcomes

As for economic activity outcomes, the data show an increasing trend for all indicators in the treatment municipalities. Only the increase in the economic units is statistically significant for the treatment group (Figure 9).[69] From this indicator, an increase in economic activity—which also influences financial inclusion and the rise in wages discussed—can be explained.

(9) Poverty Outcomes

There are no significant differences in poverty outcomes when comparing treatment and comparison municipalities (Figure 10). This is an interesting and complex finding, especially in regard to the rise in economic activity, financial inclusion, and higher wages found in the treatment locality.

(10) Social Expenditure Outcomes

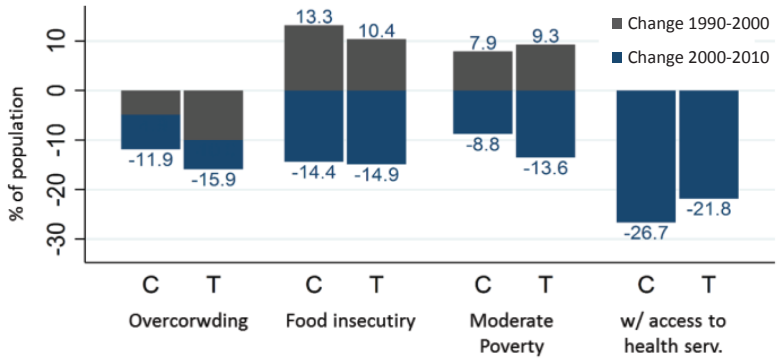
Expenditures for social programs, such as PROSPERA and LICONSA, increased for both groups but with

FIGURE 9. Mean Test for Economic Activity Outcomes[70]

[69] Economic units are the statistical units on which information is collected. The economic unit engages, under single ownership or control, in one or predominantly one kind of economic activity at a single physical location (for example, a business, shop, or firm).

[70] Includes the 11 municipalities in the comparison group. C: Comparison group; T: Treatment group. Mean test for C and T: The mean differences are not statistically significant. (Sources: Authors' calculations, data from SIMBAD and INEGI.)

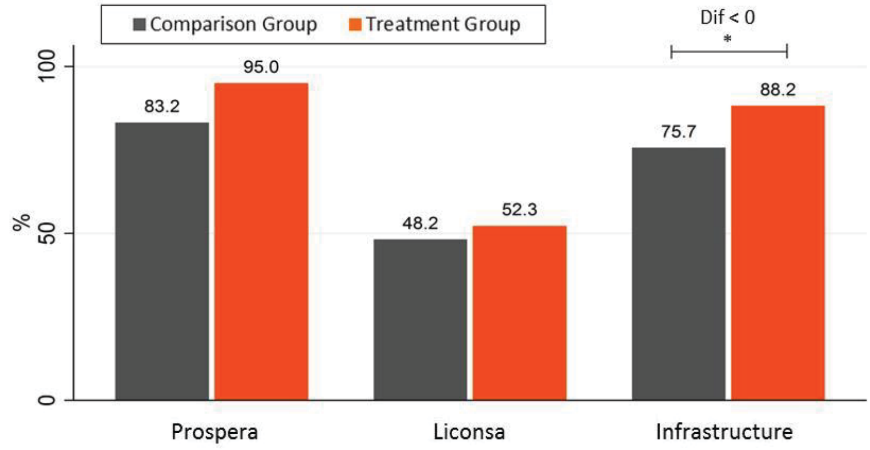
FIGURE 10. Mean Test for Poverty Outcomes[71]



no significant differences.[72] As for social infrastructure expenditures,[73] the treatment group displays a statistically significant increase relative to the comparison municipalities (Figure 11).

The limited positive socioeconomic impacts of wind power developments in the Mexican Isthmus affirm the need for a systematic benefit sharing and community engagement strategy, led by the public sector through accompanying policies and resources. Such engagement—in Mexico and beyond—can enable sustainable local development in the indirect and direct project areas by taking advantage of the presence of private investments.

FIGURE 11. Mean Test for Social Expenditure Outcomes[74]



[71] Includes six of 11 municipalities in the comparison group. Includes El Barrio de la Soledad, Ixtepec, San Blas Atempa, San Francisco del Mar, Santa María Xadani, and Santo Domingo Chihuitán. C: Comparison group; T: Treatment group. Mean test for C and T: The mean differences are not statistically significant. (Sources: Authors' calculations, data from CONEVAL.)

[72] PROSPERA is a Mexican conditional cash transfer program, coordinated by Secretariat of Social Development. Leche Industrializada CONASUPO (LICONSA) is a social and nutritional program that distributes high-quality milk at subsidized prices for vulnerable families.

[73] The social infrastructure expenditure comes from the budget of the Program Ramo 33 for social infrastructure. Ramo 33 is a budgetary mechanism for transferring funds to municipalities and states. The social infrastructure budget funds public goods, such as drainage, urban infrastructure, piped water, basic infrastructure for education and health, roads, and so forth.

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The considerable resistance against infrastructure projects and especially renewable energy investments and high-risk context for developers calls for a more systemic analysis of the social dimensions of wind energy development and renewable energy growth. This is especially important given the climate change goals that countries set forth and the need to maximize financing for development to meet pressing development challenges. The creation of an enabling environment for private sector investments is thus recommended through policy reforms of the auction systems; a legal framework for community inclusion, especially in the renewable energy sector; and the design of a risk-management strategy for the government to better manage both community and private sector requests. These approaches can support countries to fully leverage their energy resources and maximize financing for both development and private sector investments.

2.2. Good Practices of Local Community Participation for Enabling Social Acceptance

There are significant risks to continued social conflicts around infrastructure. For the public sector, conflicts can disrupt efforts to meet national renewable energy targets and international green growth commitments. For the private sector, conflicts can have direct cost implications because of delays or increased costs of project operations. For communities, the perceptions of unfairly distributed benefits, lack of consultation, and missing transparency can lead to a continued sense of discrimination and inequality, especially if benefit sharing through investments is not equitable.

A variety of mechanisms exist to integrate local communities in wind power development processes and enable social acceptance, including local community participation. Early and sustained reciprocal engagement between wind power developers, government, and communities—and allowing for different forms of community participation—has been shown to foster greater levels of trust, help reduce the possibility of wind farm developments being rejected, and facilitate the acceptance of wind farm developments.[75] For example, a survey of 1,800 respondents (total) in Poland and Germany shows that people in both countries are willing to accept wind power projects in their communities if they can participate in decision-making processes, turbines are owned by citizens, and electricity is locally distributed rather than exported.[76] When wind farms were introduced in Nova Scotia, Canada, communities were highly involved in the project, which opened space toward greater social acceptance and a reduction in conflict.[77] The same evidence is observed in Australia[78] and the United Kingdom.[79] Dissatisfaction with decision-making processes can be the prime reason for community opposition to a wind energy project. Conversely, a project can gain acceptance when decision-making processes are perceived as being fair and transparent.[80] Recognizing the importance of participatory decision-making processes in fostering trust, some developers seek the use of intermediaries because

[74] Includes the 11 municipalities in the comparison group. C: Comparison group; T: Treatment group. Mean test for C and T: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. (Sources: Authors' calculations, data from SEDESOL and INAFED.)

[75] Wolsink (2012); See also Warren and McFadyen (2010); Rogers et al. (2008); Musall and Kuik (2011).

[76] Liebe et al. (2017). See also Ellis and Ferraro (2016: 53).

[77] Corscadden et al. (2012).

[78] Gross (2007).

[79] Breukers and Maarteen Wolsink (2007).

[80] Gross (2007).

local communities may distrust wind power developers' motives.[81]

In some cases, partially or wholly community-owned wind power projects have been shown to yield greater returns and benefits to communities, as well as to strengthen local self-sufficiency.[82] Community members who have a voice in project decision-making processes can make more complete evaluations of the positive and negative impacts of wind power projects and obtain higher levels of benefits compared with compensation schemes without community involvement.[83] Locally owned and controlled wind power projects can also broaden the local income tax base, again benefiting the broader community.[84] In a 2009 study of community wind projects in the United States, researchers analyzed the economic impacts from three types of projects: a project owned by a local municipal utility, a project owned by local investors, and a set of community projects.[85] The authors concluded that community wind projects can use higher levels of local inputs, such as labor and materials, than can other projects. Their estimates suggest an increase in employment of four to six jobs per megawatt during the construction phase and 0.3–0.6 long-term jobs per megawatt during wind power project operations.[86] Traditional wind farms, on the contrary, are estimated to create (during construction and the manufacturing and installation phases) between 0.43 and 2.51 jobs per megawatt and 0.27 jobs per megawatt during operation.[87] Although these jobs generate additional sources of economic income for local communities, civil works related to the project represent only about 1 to 6 percent of total investments, whereas the wind turbines account for 74 to 82 percent of this amount. Thus, there are certain limitations to the direct benefits that wind energy can bring to local the community, particularly the wider community.[88] A study on the potential economic impacts of a wind power project in the Shetland Islands, Scotland, shows that local ownership schemes generate greater economic impacts for local communities compared with benefit schemes for which project developers make voluntary monetary contributions to communities.[89] Community-owned projects may also be smaller in scale, affecting smaller land areas. A relevant example from the solar industry in Australia illustrates this case (Box 2).

Community-owned parks, if considered, need to be accompanied by adequate legal frameworks. Legal and regulatory complexities around wind power development processes made it difficult for alternative models of wind power projects to launch

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[81] Devine-Wright (2013).

[82] The Windpark Druiberg in Dardesheim, Germany consists of 31 wind turbines (66 MW), which were installed in the early 1990s. Only local residents can own wind park shares, and as of 2014, approximately 90 percent of Dardesheim residents are involved in Windpark Druiberg. The project has increased regional economic growth and strengthened local self-sufficiency in energy production. Profits from the project have been used to support local infrastructure development and other projects, while also financing other renewable energy projects. Overall financing was achieved through shareholder capital investment and commercial credit as a co-funding mechanism. (For more information about Windpark Druiberg, see the European Union-funded Climate Policy Info Hub at http://climatepolicyinfohub.eu/community-energy-projects-europes-pioneering-task.)

[82] German Federal Ministry for Economic Affairs and Energy (2016: 23).

[83] Cowell et al. (2012).

[84] World Bank (2011: 88).

[85] Combines corporate investors with local investors.

[86] Lantz and Tegen (2009).

[87] Huesca-Perez et al. (2016).

[88] Wider communities are those individuals that are outside of the direct project area but can be negatively (for example, visually) or positively (for example, through income or improved public services) affected by the project.

[89] Allan et al. (2011).

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BOX 2. Australia: Community-Based Solar Project by the Manungurra Aboriginal Corporation

The Manungurra Aboriginal Corporation, in partnership with Australian government's Indigenous Business Australia (IBA), established a community-based solar project in Australia's Northern Territory in 2018. The IBA contributed US$240,000 in funding, 36 kW of solar panels, and 67 kWh of gel battery storage. This project allowed indigenous community members to return to their lands, where they benefited from lower electric costs, became more self-sufficient, and protected their indigenous culture while developing a sustainable new source of energy.[90]

in Mexico. For example, in 2008 the Yansa Ixtepec Community Interest Company tried to establish a community-owned wind farm that would enable renewable energy generation; community empowerment; continued ownership of lands with deep cultural and livelihood significance; and equitable benefit sharing to the Ixtepec community members. However, legal and regulatory problems, and associated funding problems, have prevented the launch of the wind farm (Box 3).[91]

Participatory mechanisms regarding wind power projects should be adapted to specific local contexts to be implemented successfully in developing countries. Although some participatory mechanisms may work in developed countries, in developing

BOX 3. Mexico: Yansa Ixtepec Community Interest Company

In 2008, community members in Ixtepec, a municipality in the Juchitán district of the Isthmus, partnered with the Mexico-based NGO Yansa to develop a community-owned wind farm project that would enable renewable energy generation, community empowerment, continued ownership of lands with deep cultural and livelihood significance, and equitable benefit sharing to Ixtepec community members. The Yansa Ixtepec Community Interest Company (comprised of Yansa and the locals of Ixtepec) requested to participate in the bidding process for a public tender on 200 MW of access to the Federal Commission for Electricity (CFE) substation in the town of Ixtepec, Oaxaca. The estimated cost was US$200 million, and the project was to have 34 turbines and a capacity of 3 MW. Yansa amassed financial backing from Mexican and international impact investors, private foundations, and development banks. The total estimated annual surplus from the wind farm (after servicing debts and interest payments to investors

Box 3 continues next page

[90] Indigenous Peoples Major Group (2018: 10).

[91] Interviews for this report. See also Howe and Boyer (2015, 2016).

Box 3 continued

and banks) was expected to be Mex$50 million (US$3.81 million) annually. In terms of benefit sharing:

- 50 percent of this surplus would be returned to the community in the form of payments to community members, funding for social projects, and a pension fund for aging farmers;
- 12.5 percent would be allocated to a Yansa Ixtepec project-specific guarantee trust;
- 12.5 percent would be allocated to a mutual guarantee fund for all wind farm projects supported by Yansa; and
- The remaining 25 percent would be allocated to Yansa for investing in other community wind farms around the world.

Despite the Yansa Ixtepec wind farm project's planning and financial backing, in 2012, the CFE dismissed the project's bid for grid access by claiming that the community project could not provide proof of sufficient capital or letters of credit, or proof that investors had a 20 percent equity ownership. This provided problems insofar as Yansa's investors would only guarantee the credit if Yansa first won the bid and contracted with CFE for access to the grid. The Yansa Ixtepec project has not been able to successfully launch.[92]

country contexts, stakeholders can face particular institutional and governance challenges. For example, a 2011 World Bank report posits that in Mexico, for a cooperative model to work effectively, "a concerted effort would have to be made to adapt European cooperative ownership models to developing country circumstances—unless it is possible that home-grown local ownership models could emerge on their own, or otherwise be cultivated."[93] At the same time, it is crucial to take into consideration the development needs, forms, and time needed for community decision making, and specific uses and customs, among others. Additional challenges to more-effective public participation include overcoming consultation fatigue, generating trust, ensuring continued engagement and feedback loops, making information accessible and understandable, and engaging historically or traditionally disadvantaged groups, including women and minorities.

Developer-led engagement should happen early on and in culturally appropriate timelines. Failure to engage could lead to frustration on the part of many communities and generate distrust of the motives for participatory mechanisms.[94] Case studies of wind power projects in Finland, Norway, and Sweden, for example, show that an emphasis on speeding up decision-making processes in a way that suppresses conflict can contribute to community resentment.[95] It is therefore important to consider ways to increase community participation in completion of studies, for example, in the form of feedback on assessments.

[92] Interviews for this report. See also Howe and Boyer (2015, 2016).

[93] World Bank (2011: 93).

[94] Ellis and Ferraro (2016).

[95] Ellis and Ferraro (2016).

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BOX 4. Consultative Committees

In Chile, a Consultative Committee was created in 2014 for the development of Chile's new long-term National Energy Policy to 2050 (Energy 2050). The Committee, housed under the National Corporation for Indigenous Development, included representatives from the public and private sectors, civil society, and academia. The Committee's objective was to incorporate indigenous perspectives into Energy 2050.

In the New South Wales state of Australia, the Department of Planning and Environment requires developers to create community consultative committees (CCC)—nonregulatory, advisory committees that facilitate open discussions among communities, developers, local government councils, and other stakeholders on wind farm development assessments. If the Department of Planning and Environment determines that the developer's community engagement strategy is localized and aligns with the Department's best practice standards, a CCC is not required.[96]

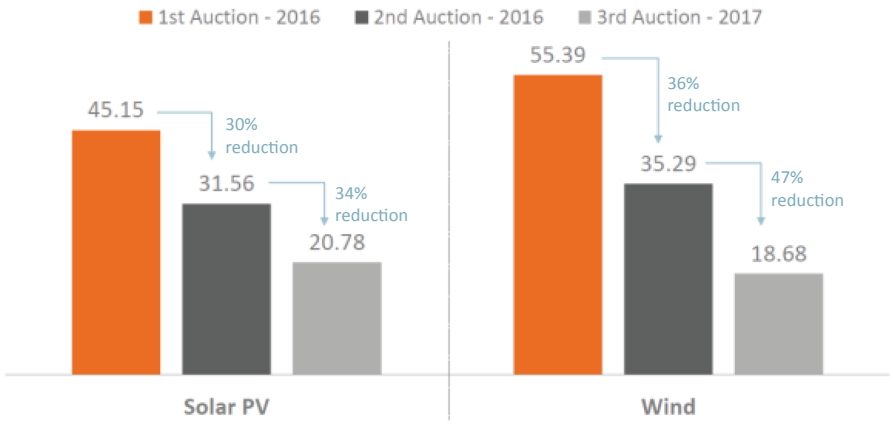
Stakeholders should also agree on a shared definition and acceptable forms of benefit sharing (such as shared revenue, tax relief and subsidies, reduced electricity rates, and so forth). Stakeholder discussions should be led by the government as a guiding interlocutor. Engagements can also happen through consultative committees made up of community representatives (for example, consultative committees in Australia and Chile) to meaningfully engage stakeholders in processes such as FPIC, impact assessments, and benefit sharing in the medium and long term, and on both policy and project levels (see Box 4). At the same time, communities should be provided accurate and comprehensive information on the details of wind power projects, potential negative externalities, and potential benefits.

It is important to align expectations of benefits with sector policies, which determine the room the private sector has to deliver benefits, as well as private sector and public sector initiatives seeking to foster community engagement and benefits. Regulatory reforms in the energy sector in many countries have enabled favorable conditions for significant private sector participation in renewable energies. Mexico, for instance, since 2016, has completed three successful power auctions and has seen significantly declining costs. Average tender costs per megawatt hour for wind dropped by more than half, from US$53.39 in the first auction in 2016 to US$18.68 in the third auction in 2017 (Figure 12).[97] At the same time, however, this auction system favors the most competitive companies and prices, adding pressure on voluntary benefit-sharing budgets, capital and operating costs, as well as profit margins, affecting the will to develop and implement voluntary benefit-sharing budgets.

[96] Department of Planning & Environment, New South Wales Government (2016).

[97] Viscidi (2018).

FIGURE 12. Declining Average Awarded Levelized Cost of Energy (LCOE) for Solar Photovoltaic and Wind in Mexico for 2016 and 2017 Long-term Auctions (US$/MWh)



Source: Mexican Wind Energy Association (2018).

2.3. Key Instruments and Challenges for Benefit Sharing and Local Participation

Four key instruments supporting wind power projects were identified by the report as relevant to local community engagement and participation in wind power development processes, based on the comparative analysis and literature review. These are: (1) free, prior, and informed consent (FPIC); (2) impact assessments (social impact assessments [SIAs], environmental impact assessments [EIAs], or strategic, environmental, and social assessments [SESAs]); (3) policy coherence for sustainable development and institutional coordination; and (4) promoting standardization and guidelines for community engagement and benefit sharing good practice.

(1) Free, prior, and informed consent

International conventions and best practices uphold FPIC as a way to protect and involve local communities in wind power development. FPIC has particular relevance for consultation with indigenous communities, which often face historical and socioeconomic vulnerabilities. Several human rights-related international treaties[98] provide the legal basis for FPIC,[99] as well as national laws. Evidence has shown how community participation can enable greater trust between communities and wind power developers, strengthen perceptions of fairness and transparency, and increase self-sufficiency. FPIC, as a consultation mechanism, can therefore be an effective vehicle for promoting social acceptance.

The World Bank's new Environmental and Social Framework (ESF)[100] recognizes that indigenous peoples/sub-Saharan African historically underserved traditional local communities may be particularly vulnerable to the loss of, alienation from,

[98] These include: The United Nations Declaration on the Rights of Indigenous Peoples; Agreement 169 of the International Labour Organization on Indigenous and Tribal Peoples in Independent Countries; and The World Bank and IFC's performance and safeguards standards when implementing projects financed by the World Bank Group.

[99] The most recent incarnation of this policy requires "free, prior, informed consultation," rather than "free prior informed consent" (World Bank 2011: 107).

[100] World Bank (2016b).

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or exploitation of their land and access to natural and cultural resources. In recognition of this vulnerability, in addition to the general requirements of ESF, FPIC of the affected indigenous peoples/ sub-Saharan African historically underserved traditional local communities can be required in circumstances in which the project will (a) have adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation; (b) cause relocation of these populations from land and natural resources subject to traditional ownership or under customary use or occupation; or (c) have significant impacts on the cultural heritage of these populations that is material to the identity and/or cultural, ceremonial, or spiritual aspects of their lives. Additionally, consultations, through the ESF Standard 10, play an important part of project preparation and implementation, to ensure that communities' voices are heard and integrated into project design.

Administering FPIC is challenging when financial incentives encourage rapid community consent for project developments. Government staffing capacity and budgetary resources to conduct FPIC are sometimes limited, which can impede (a) gaining a deep understanding of a community's customs and traditions, interests, and concerns; (b) building trust with local communities and gaining local insight and knowledge to administer informed, culturally sensitive consultation processes; and (c) following up on agreements as needed to reach a long-term agreement sufficient to communities.

It is recommended to design voluntary guidelines or, at best, legal frameworks for benefit sharing and community participation that are in line with ILO 169 and FPIC. One can derive good practice learnings from countries such as Chile, Denmark, and South Africa, which exhibit diverse approaches for benefit sharing and local community engagement in renewable sectors. Furthermore, it is important to create locally legitimate and cross sector understanding of when a consultation is undertaken "prior" to an investment. This should be done together with industry and community stakeholders to both enable efficient project development timelines and respect community learning and decision-making processes.

Early engagement through FPIC—in a culturally appropriate manner and timeline—can help to establish a comprehensive and inclusive strategic framework for benefit sharing and local community participation with diverse stakeholders, including government, private sector, and communities. This could be done via consultative committees made up of community representatives (for example, consultative committees in Australia and Chile) to meaningfully engage stakeholders in processes such as FPIC, impact assessments, and benefit sharing in the medium and long term, and on both the policy and project levels (see Box 4). At the same time, communities should be provided accurate and comprehensive information on the details of wind power projects, potential negative externalities, and potential benefits translated into local languages.

(2) Social impact assessments, environmental impact assessments, and strategic environmental and social assessments

Wind power developers that want to follow best practices should submit assessments that consist of the identification, characterization, prediction, and assessment of social and environmental impacts, as well as the corresponding mitigation measures. Moreover, the assessments should identify indigenous peoples and communities within the area of direct and indirect influence of a project. Both the EIA and the SIA are recommended at best in a joint

[101] For an example of an EIA, see the assessment for Yucatan, Mexico: https://mayaenergia.files.wordpress.com/2017/03/eolico-sinanche_31yu2016e0013.pdf.

[102] Sperling et al. (2008).

[103] Sperling et al. (2008).

document. They should also be disclosed on a government web portal, and the public should have adequate time to respond with feedback.[101]

Studies have shown that incorporating public participation can generate more legitimacy for projects[102] and lead to improved impact assessment-related decision-making.[103] Similarly, the public consultation and disclosure for assessments could be another mechanism for greater community involvement and social acceptance. For best outreach, assessments should be published in an accessible language and provide culturally sensitive feedback mechanisms, among other things. Effective dissemination should go hand in hand with collaborating with stakeholders on a shared understanding of benefit sharing and acceptable forms of benefit sharing (including shared revenue, tax relief and subsidies, reduced electricity rates, and so forth).

Strategic environmental assessments take into account multiple interacting factors, including wind resource potential, environmental and cultural precautions, and socially sensitive areas. As such, SESAs can provide information normally not available through traditional assessments.[104] This includes comprehensive, aggregated information on the demographic, socioeconomic, and sociocultural qualities of communities, disaggregated by gender; vulnerable individuals and groups; and statistical data on existing social development programs. Such information can equip developers and local authorities with a deeper understanding of potential project sites, including the population's needs, living conditions and concerns, and opportunities for sustainable renewable energy growth given the existing local planning and social services infrastructure.[105] As with EIAs or SIAs, SESAs also serve as another mechanism for assessing the cumulative environmental impacts of multiple wind farms within a wind resource area; as a mechanism for information exchange between different wind farm operators; for analyzing alternative power generation options (in addition to wind) within a planning area; and for providing a platform for involving different stakeholders, including the most vulnerable, in the decision-making process regarding wind development. [106]

SESAs can produce overlay maps showing zones of high wind power potential in relation to environmentally and socially sensitive areas. They can also contribute to zoning maps indicating, for example, (1) "red" zones, from which wind farms and transmission lines should be prohibited; (2) "yellow" zones, signifying the need for wind farms to follow particular precautions regarding environmental and cultural resources; and (3) "green" zones, which can be screened for wind farm development approval or wind farm development can actively be promoted. SESAs can integrate constraints, risks, and opportunities into cumulative impact determinations. Box 5 describes a potential application and use of SEASs to define renewable energy zones (REZs).

It is therefore recommended that countries develop a database indicating the presence of vulnerable individuals in wind-rich regions, comprehensive socioeconomic indicators, development needs, marginalization rates, as well as existing local development efforts disaggregated by gender. This database—at best publicly available and free of cost—will enable stakeholders to understand the local economic conditions and the population's needs, and support the design of benefit-sharing

[104] World Bank (2011: 40). Environmentally or socially sensitive areas are likely to include, among other features: (i) protected areas and other sites of concern from a biodiversity standpoint, (ii) areas important for tourism where visual impacts would be of concern, (iii) areas with uncertain or disputed land ownership, (iv) areas with indigenous or other traditional rural populations where greater-than-usual efforts might be needed to design culturally appropriate benefit-sharing measures and obtain broad community acceptance, (v) radar and telecommunications facilities where turbines could cause interference, and (vi) areas close to airports.

[105] USAID (2017).

[106] World Bank (2011).

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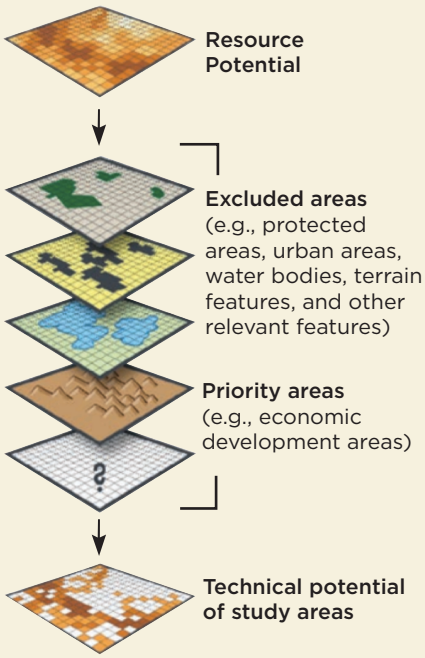
BOX 5. Learning from Renewable Energy Zones

Renewable energy zones (REZs), which are created in diverse regions including the United States and parts of Africa, provide an example of how SESAs can be successfully implemented to provide comprehensive information on a potential project site, involve local communities in the assessment process, and yield significant benefits for local communities. REZs are designated geographic areas that are characterized by features that enable cost-effective wind power development, such as a high-capacity factor for wind production, strong investor interest, and suitable topography. In REZs, new transmission lines are directly built in the regions with the best areas for wind generation.

REZs are a solution to regions that have experienced wind power project setbacks given that they allow several layers of assessment in evaluating potential REZs. For example, Figure B5.1 depicts screening criteria from a USAID best practice guide.[107] Steps in screening the resource potential process for REZs include (1) evaluating resource potential for high-quality wind power; (2) identifying excluded areas;[108] and (3) identifying priority economic development areas (anticipate economic growth and increased demand for electricity, considering costs and benefits and economic considerations).

A development adjustment factor (DAF) is also calculated as an "estimated percentage of total potential capacity likely to be developed after accounting for the potential reasons that investment might not occur on a specific site (e.g., limited capital) despite technical feasibility." The DAF is calculated in collaboration with local community stakeholders who can provide "often subjective" reasons for why an investment might not occur.[109]

FIGURE B5.1. Process of Screening Resource Potential to Calculate the Technical Potential of Study Areas



Source: USAID/NREL (2017).

Box 5 continues next page

[107] USAID/NREL (2017).

[108] Constraints to project development can pertain to land, such as water features and urban areas; topography, such as slope of the land; protected areas, including government-protected or critical environmental areas (such as bird migratory pathways) and areas important for social or cultural reasons; and other state/local issues that restrict development.

[109] USAID/NREL (2017: 6).

Box 5 continued

Renewable energy zones have also created significant spillover benefits to some customers and communities. Because new transmission lines are directly built in the regions with the best areas for wind generation, the electricity produced per unit of capital invested yields high returns and potentially large benefits to customers and broader communities. The International Renewable Energy Agency found that REZ creation in parts of Africa could not only maximize transmission capacity utility but also minimize land use and increase returns on investment for wind power projects.[110]

schemes when planning renewable energy projects. The database will also provide relevant information for the organization of prior consultations.

(3) Policy coherence for sustainable development and institutional coordination to help create a supportive regulatory environment for effective benefit sharing

Individual company efforts to share benefits, together with trickle-down effects, are likely to have limited impact. This reflects in the structure of the industry, which is highly capital intensive with equipment produced elsewhere (thus providing limited local employment) and uses technology that requires relatively low operation costs. Moreover, the existing pricing schemes—associated with an auction model that tends to decrease margins—do not leave room for significant company-driven, benefit-sharing schemes. Company efforts, even if improved, are unlikely to satisfy expectations of addressing needs of the local population. Although the sector can have an impact, benefits cannot depend only on what companies do.

The presence of investment and growth in the sector represent an opportunity. However, only a sector initiative involving government action in addition to the work of companies can result in significant and sustainable benefit-sharing alternatives. This is likely to require that the government incorporates revenue-sharing considerations in its policy, as it does in the mining and oil and gas sectors, as part of a clear and stable legal framework for the sector.

Countries have set ambitious climate change and clean energy targets and introduced key policy and procurement measures to deliver on commitments. However, critical barriers to the development of sustainable energy infrastructure involve limited institutional capacity to efficiently oversee social and environment impacts, monitor benefit-sharing mechanisms, and develop and enforce regulatory frameworks that protect communities and the environment.

Research for this report has shown that in many countries, there is limited horizontal coordination among ministries and vertical coordination among federal, state, and municipal government entities. Ministries do not coordinate on social and environmental impact assessments for wind power projects, and governmental capacity to execute responsibilities and ensure effective benefit sharing and

[110] Green Tech Media (2015).

[111] El Siglo de Torreón (2017).

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community participation is limited. At the same time, staffing and financial resources are limited. In 2017 in Mexico, for example, the Energy Ministry (SENER) experienced a backlog of 563 project SIAs.[111] SENER's consultation staff, based in Mexico City, is often responsible for serving ethnically diverse and geographically distributed regions. With limited timelines, staff face challenges in analyzing SIAs on time, coordinating with relevant secretaries and across horizontal and vertical lines, and supervising consultations.

The public sector should take ownership for coordinating different actors and monitoring impacts. The 15 companies interviewed for this report noted that the private sector cannot take on the local development role of the government. Furthermore, private sector interviewees noted that numerous companies and contractors may be involved at different stages of a project and that ownership of the project may change numerous times during the project life cycle and thereby change formal and informal benefit-sharing commitments and implementation plans. As a result, communities may feel deceived or discounted by companies. A strong interlocutor from the public side, harnessing and coordinating the various actors, is crucial.

It is recommended that renewable energy investment approval processes be coordinated through a dedicated working group with established communication and transparency mechanisms. This should go hand in hand with an increase in resources and personnel for assessment revisions, consultation processes, and follow-up during implementation of renewable energy projects. This will also help to support enhanced coordination with communities and a close follow-up of investment projects.

(4) Promoting standardization and guidelines for community engagement and benefit sharing good practice

A selected review of the shareholding structure of wind farm developers and operators shows that, in general, they count development and other financial institutions as shareholders or investors. Such lenders or investors require wind developers to align their projects and operations with the IFC performance standards, or similar standards. The Environmental and Social Framework (ESF) introduced by the World Bank in 2018 to lead safeguards and sustainability of its projects can also provide good guidance, especially for the public sector, on consultations, community engagement, and land tenure structures, among others. In practical terms, partnering with international development or financial institutions means the companies have developed relevant policies, routinely conduct environmental and social impact assessments, plan and implement structured stakeholder engagement, and systematically address their social risks and opportunities.

Promoting standardization and guidelines for community engagement and benefit sharing good practice can further improve and structure benefit-sharing practices in line with good industry CSR practices. A strong partnership with national and subnational governments is key. Even voluntary guidelines on community engagement and benefit sharing has shown to yield important results in engaging with stakeholders. A sector initiative involving government action in addition to the work of companies can result in significant and sustainable benefit-sharing alternatives.

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3. Recommendations

Key concerns underlying social conflicts on wind developments involve less of the "not in my backyard" phenomenon but instead are related to historical struggles over poverty and inequality, land ownership, and political elite capture of benefits. This history leads to mistrust in public and private institutions, including decision-making and implementation processes regarding benefit sharing and local community participation.[112] Although benefit sharing does not guarantee social acceptance, a systematic benefit-sharing mechanism that responds to a local community's needs and concerns and is led by the public sector through accompanying policies and resources can take advantage of the presence of private investment. Benefit sharing can help give renewable energy projects a social license to operate and can support sustainable local development in indirect and direct project areas.

Worldwide investments in clean energy have increased significantly. Over US$2.5 trillion has been invested worldwide in renewable energy since 2008. In 2016, total annual investment in renewable energy reached US$455 billion, including US$270 billion in developing countries (with US$56 billion coming from international investments). Solar energy annual investment increased over 260 percent and wind power investment increased by 43 percent from 2008 to 2017. However, this number falls well short of the most conservative estimates of what is needed to mitigate climate change entirely—around US$600 billion a year. Maximizing finance for development, fostering a positive investment climate for renewable energy projects, and at the same time sharing the benefits with the communities is thus all the more important.

Local participation mechanisms (such as community participation in policy development, benefit-sharing decisions, or community-driven wind power projects) can enable greater trust, strengthen perceptions of procedural fairness, and generate more sustainable outcomes for wind power projects. Especially when socioeconomic conditions and cultural sensitivities inspire community resistance, the government and industry actors should pursue equitable benefit-sharing and meaningful community-participation mechanisms to manage risks. Achieving these aims requires commitment, interest, and openness among stakeholders. It also requires data-driven analysis of relevant legal frameworks; socioeconomic context; and industry perceptions, norms, and practices. Finally, equitable benefit sharing and meaningful community participation require an enabling legal framework.

This report analyzed the potential of benefit sharing and local participation from three perspectives:

- Governmental perspective—the actor able to legally provide the framework for an enabling environment to wind energy;

[112] Davis and Franks (2014).

- Community perspective—relevant actors for wind energy investments and FPIC, local participation, recipients of benefit sharing, and potential actors in the elaboration of a SIA; and
- Private sector perspective—partner in implementing benefit sharing and local participation.

The primary findings and recommendations of this report are as follows.

1) Investment Climate and Guidelines for Benefit Sharing

Key Findings

- **Social acceptance for wind power developments is complex and dynamic and should be fostered early in the process.** Benefit sharing is essential for fostering (but does not guarantee) social acceptance of wind power projects. Benefit sharing can take many forms, including revenue sharing, reduced electricity rates, and funding for community initiatives and programs. Many communities do not necessarily oppose wind power projects in and of themselves. Instead, much community opposition seems to be directed toward the lack of positive development outcomes (equitably distributed benefits) and appropriate consultations and local participation mechanisms. Early and sustained reciprocal engagements among wind power developers, government, and communities have been shown to foster increased levels of trust, help reduce the possibility of wind farm developments being rejected, and facilitate the acceptance of wind farm developments.[113]
- **In some cases, company efforts for benefit sharing have shown limited impact, particularly if decoupled from the government.** A quantitative analysis done for this report, focusing on the Isthmus de Tehuantepec in Oaxaca, shows that company efforts for benefit sharing have had limited impact on socioeconomic development indicators, particularly as most of them have been decoupled from governments' development plans. In general, benefit-sharing practices are most effective when they include structured monitoring and evaluation of their efforts and are implemented in a strong partnership with governments and local development strategies, which maximize efforts. It is increasingly evident that company efforts alone, even if improved, are unlikely to satisfy the needs of underserved local populations. A sector initiative in line with government development plans in addition to the work of companies is needed if significant and sustainable benefit-sharing results.
- **Social risks peak during project development and construction phases.** Interviewees for this study from the private sector noted that special interest groups can leverage their demands by challenging permits and FPICs in courts and generate potentially costly delay risks during development and construction stages. Community opposition is greatest during those phases, which shows that an early engagement with communities and a resolution of complex issues is important.
- **Wind power developers may be discouraged by investment uncertainties caused by social conflicts.** Fostering social acceptance of investments is key to continuing to

[113] REN21 (2017: 19).
Danish Ministry of Energy (1981).
Anker and Jørgensen (2015: 28).
Ernst & Young Australia (2014). See also Ellis and Ferraro (2016: 42).

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receive investments needed for a country's transition to a greener economy. Enhancing or increasing benefit-sharing practices would improve social acceptance and leverage the wind industry's developmental impacts. However, benefit sharing would not address all of the root causes of social conflicts or uncertainties facing the industry. Sources of social conflict can include poverty, complexity of land tenure structures, corruption, decreasing security, and failure to secure indigenous consent. It is therefore crucial to undertake a holistic approach to improve investment climates for renewable energy, which include clear policies to address needs on the part of governments.

- **There are diverse legal and policy options for benefit sharing and a correlation between even voluntary guidelines for benefit sharing and their success.** Some countries, such as Denmark and Germany, have embedded benefit-sharing targets in relevant electricity, planning, and/or renewable energy laws. Chile recently transformed its Energy 2050 policies to incorporate community participation and benefit-sharing aims into the nation's energy strategy. Other countries, such as South Africa, include local economic development requirements in bid applications for wind power auctions. The United Kingdom emphasizes voluntary good practice guidance. The presence of even voluntary guidelines can pave the way for improved industry practices regarding benefit sharing and community engagement.

Recommendations for developing benefit sharing and improving risk management, the investment climate, and the social license to operate:

- Foster close engagement with the broadest range of stakeholders—including government, private sector, and communities—early on, at best even before the auction phase. This helps to establish a comprehensive and inclusive strategic framework for benefit sharing and local community participation. The framework should help align expectations to what can be effectively delivered given the existing sector policies. Consultative committees composed of community representatives (such as the consultative committees in Australia and Chile) could engage stakeholders in processes such as FPIC, impact assessments, and benefit sharing in the medium and long term and on both the policy and project levels. At the same time, communities should be provided accurate and comprehensive information on the details of wind power projects, potential negative externalities, and potential benefits.
- Create locally legitimate and cross sector understanding of when a consultation is undertaken "prior" to an investment. This should be done together with industry and community stakeholders to both enable efficient project development timelines and respect community learning and decision-making processes. It would involve both a clear definition and agreement of what is expected for prior consultations and also how the rules apply, including compliance mechanisms. The different states of an investment, starting before the auction processes for renewable energy investments, would have to be taken inconsideration, too.
- Design legal frameworks (or at least guidelines) for benefit sharing and community participation for investment projects, in line with ILO 169 and FPIC. This will guide the private sector to implement benefit-sharing schemes. It is recommended that stakeholders learn from the good practices of countries such as Chile, Denmark, and South Africa, which take diverse approaches for benefit sharing and local community engagement in renewable sectors.

2) Institutional Capacity and Policy Coherence:

Key Findings

- **Barriers to the development of sustainable energy infrastructure or benefit-sharing mechanisms can include limited institutional capacity to efficiently oversee social and environmental impacts or monitor results.** Complex administrative processes and multiple responsible, but at times uncoordinated, institutions can create bottlenecks for the approval of impact assessments for renewable energy projects and subsequent monitoring. Strengthening the capacity for government agencies to develop and enforce regulatory frameworks that protect communities and the environment is crucial to sustainable renewable energy investment growth.
- **There may be limited horizontal coordination among ministries or vertical coordination among federal, state, and municipal government entities**. In some countries, ministries do not coordinate on social and environmental impact assessments for wind power projects, and governmental capacity to execute responsibilities and ensure effective benefit sharing and community participation is limited. In addition, at times there is no dedicated window for coordination of stakeholder engagement, which renders the engagement and benefit-sharing process more difficult.

Recommendations for improving institutional capacity and policy coherence:

- Support policy coherence, build capacity, and increase funding for staff leading consultations, evaluating assessments, and monitoring benefit-sharing schemes. This will create awareness on how to conduct consultations that meet ILO 169 criteria, enhance the efficiency and effectiveness of the environmental impact assessment (EIA) and social impact assessment (SIA) approval process; these actions will also improve coordination with communities, support closer monitoring of impacts of investment projects, facilitate assessments in line with regional development objectives, and improve coordination among government, communities, and the private sector.
- Develop a territorial development database for renewable energy investments—at best provided publicly and free of cost—to support the EIA and SIA processes. The database should indicate the presence of vulnerable individuals (including indigenous peoples) in renewable energy/wind-rich regions, record comprehensive socioeconomic indicators, assess development needs, and record marginalization rates disaggregated by gender. This database will enable stakeholders to understand the local economic conditions and support the design of benefit-sharing schemes for renewable energy projects. The database will also provide relevant information on relevant actors for the organization of prior consultations.

3) Improve Involvement of and Benefits for Local Communities

Key Findings

- **Socioeconomic indicators should be monitored for evidence that local communities benefit from wind power investments.** For example, fieldwork in Latin America highlighted the perception that benefits have accrued primarily to landowners leasing land to companies and to local authorities who may misuse funds intended for communities. Investments were therefore perceived as reinforcing economic inequalities within and among communities.

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- **A quantitative analysis done for this report, focusing on the Isthmus de Tehuantepec in Oaxaca, Mexico, showed that company efforts for benefit sharing have had limited socioeconomic development impact.** For the report, the researchers analyzed the socioeconomic impacts of wind park investments in the Isthmus regions between 1990 and 2015 and found that there is a positive association only between wind power investments and an increase in the percentage of house ownership and a decrease in the percentage of houses with walls made of makeshift materials but no statistically significant differences between treatment and control localities. The limited positive socioeconomic impacts of wind power developments in the Mexican Isthmus affirm the need for a systematic benefit-sharing and community engagement strategy. It should be led by the public sector through accompanying policies and resources. Such engagement—in Mexico and beyond—can enable sustainable local development in the indirect and direct project areas by taking advantage of the presence of private investments.
- **Communities should have easy access to accurate information on the positive and negative environmental, social, and cultural consequences of installing wind turbines.** Lack of information hinders communities' abilities to assess the opportunity costs of wind turbine installations and negotiate more equitable payments and benefits. Moreover, opposition to wind power projects is associated with a lack of participation mechanisms, such as involvement in FPIC, social and environmental impact assessments, and community-driven wind power projects. A coherent, coordinated negotiation guided by an interlocutor—such as the government or a trusted entity—could mitigate these issues and generate more sustainable, long-term development benefits.

Recommendations for improving involvement of and benefits for communities:

- Consider ways to increase community participation in the completion of studies, for example, in the form of feedback on social and environmental assessments.
- Agree on a shared definition and acceptable forms of benefit sharing (such as shared revenue, tax relief and subsidies, reduced electricity rates, and so forth). Stakeholder discussions should be led by the government as a guiding interlocutor.
- Enable clear and transparent mechanisms for communities to trigger FPIC processes and protocols and ensure consultations. This should go hand in hand with making information on the project accessible to all community members in local languages and with sufficient time to process and deliberate information (accessibility issues could be handled by government agencies, local authorities, international organizations, NGOs, or academia).
- Establish monitoring and evaluation mechanisms (track data on benefit sharing-related investments into communities) to evaluate the implementation and success of benefit sharing and potentially amend or adapt during project development.
- Under certain circumstances, facilitate separate auction processes for community-driven wind power projects and reform regulations to enable community-driven models to feasibly compete for grid access. In countries such as Denmark or Germany, partially or wholly community-owned wind power projects have been shown to yield greater employment and income benefits to communities than have noncommunity-driven projects while strengthening local self-sufficiency, bargaining power, and symmetry of information.

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