Setting the Baseline: The Current Understanding of Equity in Land-Based Wind Energy Development and Operation

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National Renewable Energy Laboratory

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Acknowledgments

List of Acronyms

CBA	community benefit agreement
NIMBY	not in my backyard
NREL	National Renewable Energy Laboratory
WEEES	Wind Energy Equity Engagement Series

Executive Summary

As discussions about economic equity and environmental justice have become more prevalent in recent years, the related concepts of "energy justice" or "energy equity" have received increasing attention from policymakers, industry, nonprofits, and academics. Energy justice is defined as "The goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those disproportionately harmed by the energy system" (Initiative for Energy Justice 2019). The state of equity as it applies specifically to wind energy, however, remains relatively unexplored and isolated to academia. As a result, the National Renewable Energy Laboratory's (NREL's) Wind Energy Equity Engagement Series (WEEES) aims to better understand equity in wind energy through engagement with experts and communities, including representation in decision-making around new developments, potential impacts to communities near wind energy installations, and community-level distribution of the benefits and burdens of wind energy.

This report covers the first three phases of WEEES. Phase 1 includes a survey collecting baseline data on wind energy equity from researchers, decision makers, and industry professionals. Phase 2 includes an interview series engaging subject matter experts on their research and experience related to equity in wind energy. Phase 3 includes a virtual workshop of diverse stakeholders to discuss equity and justice in wind energy. Most of the data collected across the phases comes from video recordings, transcripts, and notes taken during interviews and workshop sessions. The qualitative analysis of these materials is presented in the following sections. While the survey conducted in Phase 1 provides some supplemental quantitative data, the small number of responses (a total of 72 respondents completed most of the questions) limited the authors' ability to perform any statistical analysis; therefore, some takeaways from the survey are incorporated into our findings as supplemental information, but overall, the survey did not serve as the primary basis for any key findings.

From the data compiled across the first three phases of the project, three key themes (and respective subthemes) emerged:

- **Early Planning and Capacity**. The importance of engaging with communities impacted by wind energy development early, often, and inclusively was mentioned frequently in each phase. To mitigate existing inequities affecting community members' access to decision-making and planning processes, developers, nongovernmental organizations (NGOs), and governments should work to boost local capacities for participation and advocacy. Subthemes discussed in the body of the report include inclusive early planning, partnerships with trusted NGOs, and audience-friendly terminology.
- **Identity and Agency**. In addition to material concerns, the ability of communities to maintain control over the terms of wind energy development and its effects on social and cultural factors like community identity, history, and sense of place is a critical component of equity. Subthemes discussed in the body of the report include sense of "ownership" and respect; community identity; and the concept of "not in my backyard" is too simplistic.

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- **Salient Benefits**. Project participants emphasized that equity in wind energy requires that the benefits of wind energy be relevant and impactful for community members. Much of the discussion revolved around community benefit agreements. An equitable community benefits agreement prioritizes the distribution of tangible and culturally relevant benefits based on impact, not land ownership. Subthemes discussed in the body of the report include income diversification, community benefit agreements, distribution of benefits, and decommissioning.

The project also identified future research priorities, including:

- **Studying equity from various resolutions and scales**: Participants in the interviews and workshop noted the importance of considering equity from both local and global perspectives.
- **Dedicated research and resource development focused on community benefit agreements:** Participants voiced interest in a community benefit agreements database as well as research into the efficacy of various benefit types.
- **Decommissioning:** Participants expressed need for publicly available resources guiding communities through the decommissioning process.
- **Offshore Wind Energy Equity Research and Engagement:** Despite WEEES's focus on land-based wind energy, several participants regularly brought to the table examples and concerns related to offshore wind, indicating the growing need to address these questions both for land-based and offshore wind.
- **Tribal Engagement:** Participants in WEEES expressed that there is value in conducting outreach to tribes to see if NREL's services in research would be welcomed and helpful for those tribes who are interested in pursuing wind energy and related projects.
- **Impacts of State-Level Action:** WEEES participants expressed that some communities have less resistance to wind energy development when tailored state-level wind regulation or other legislation exists. Based off participant feedback, this project highlights the need for further research and engagement on state-level policy.
- **Partnerships:** WEEES highlighted existing opportunities for key partnerships that have demonstrated increased receptiveness and trust in community engagement processes. For example, extension services—entities often housed at counties or public universities that provide technical support to residents in primarily rural communities—were highlighted as entities with broad reach and extant community trust that could be valuable to target for engagement and information distribution, particularly in communities with hesitancy or concerns surrounding wind energy development.

At the end of this effort, NREL will have collected stakeholder-identified priorities and challenges, examples, and use cases from a diverse and representative set of communities, ideas for further projects and research, and a network of stakeholders and groups already active in this space. The goal of this work is to inform and support other initiatives like Justice40.

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1 Introduction

As discussions about economic equity and environmental justice have become more prevalent in recent years, the related concepts of "energy justice" and "energy equity" have received increasing attention from policymakers, industry, nonprofits, and academics. According to the Initiative for Energy Justice, energy justice is defined as "The goal of achieving equity in both the social and economic participation in the energy system, while also remediating social, economic, and health burdens on those disproportionately harmed by the energy system" (2019). The state of equity as it applies specifically to wind energy, however, remains relatively unexplored. The National Renewable Energy Laboratory's (NREL's) Wind Energy Equity Engagement Series (WEEES) aims to improve understanding of equity in wind energy, including representation in decision-making around new developments, potential impacts to communities near wind energy installations, and community-level distribution of the benefits and burdens of wind energy. Additionally, WEEES focuses largely on rural perspectives, largely due to the significant overlap between wind resources, potential deployment sites, and rural communities. At the end of this effort, NREL will have collected stakeholder-identified priorities and challenges, examples and use cases from a diverse set of communities, ideas for further projects and research, and a network of stakeholders and groups already active in this space. The goal of this work is to inform and support other initiatives including the Biden Administration's Justice40 initiative which commits to allocating 40% of all federal investment to disadvantaged communities (U.S. Department of Energy Office of Economic Impact and Diversity 2022).

This report covers the first three phases of WEEES, which took place from March through November of 2022. Phase 1 was a survey collecting baseline data on wind energy equity from researchers, decision makers, and industry professionals. Phase 2 was an interview series engaging subject matter experts on their research and experience related to equity in wind energy. Phase 3 was a virtual workshop with diverse stakeholders to discuss equity and justice in wind energy. Most of the data collected across the phases come from video recordings, transcripts, and notes taken during interviews and workshop sessions. The following sections present the findings of the NREL team's qualitative analysis of these materials. The survey conducted in Phase 1 provides some supplemental quantitative data, however, the small number of responses (a total of 72 respondents completed most of the questions) limited the authors' ability to perform any statistical analysis.

From the data compiled across the first three phases of the project, three key themes (and respective subthemes) emerged:

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- **Salient Benefits**. Project participants emphasized that equity in wind energy requires that the benefits of wind energy be relevant and impactful for community members. Much of the discussion revolved around community benefit agreements. An equitable community benefits agreement prioritizes the distribution of tangible and culturally relevant benefits based on impact, not land ownership. Subthemes discussed in the body of the report include income diversification, community benefit agreements, distribution of benefits, and decommissioning.

In addition to contributing to ongoing discussions about energy justice in renewable energy deployment more broadly, the findings in this report will inform Phase 4 of WEEES, a community forum series in which the NREL team, in partnership with local and regional organizations, will hold in-person meetings with stakeholders in three communities across the United States. The community forums will be the final phase of data collection for WEEES and will aim to meet communities where they are, developing the foundation for trusting relationships and gathering information about equity considerations for wind energy in representative community contexts.

2 Methods

NREL completed the first three phases of WEEES, as outlined in this section. These phases were initially proposed by the research team, then revised by Ariana Flores of The Equity Project, a consultancy with expertise in equitable engagement with rural populations, to ensure that research was aligned with equity standards.

2.1 Survey

In Phase 1, NREL conducted a survey of experts within the wind energy equity and broader rural sociology fields to better understand the wind energy equity space. We generated survey questions based on existing literature covering equity, fairness, economic development, and social acceptance in the wind energy industry. The researchers used preliminary outputs from this phase to guide later phases, though response collection continued throughout the duration of the WEEES project to expand the representativeness of the data.

The survey included both closed- and open-response questions. We utilized closed questions, such as multiple choice and Likert scales, to determine the specific benefits and equity-based best practices drawn from existing literature on equitable community engagement, whereas open-response questions, often short-responses that supplemented the closed-response questions, helped the research team gain insight on any strategies, case studies, or other information not covered by the closed-response survey questions.

We designed the survey to include targeted questions for several audiences by providing targeted questions based on user responses. For example, respondents could choose from the following categories: 1) I am a local official, planner, or decision maker, 2) I work for a wind energy or utility company, 3) I am a researcher, academic, or individual with expertise in equity, economic development, or community development, and 4) None of the above. The first three categories led to a series of questions targeted for the expertise selected; the fourth category allowed respondents to briefly provide their thoughts on wind energy equity.

We distributed the survey via email, peer networks, and industry events to ensure a baseline representation of respondents in each of the four categories and to collect diverse and representative data. A total of 103 respondents completed at least a portion of the survey, with 72 participants completing a majority of their assigned questions. The survey contained a total of 71 questions, with 64 pertaining specifically to topics surrounding wind energy equity, and 7 questions covering respondent demographics. Respondents did not see all 64 topical questions, but instead received a subsection of the questions based on the paths described earlier. Twenty-nine respondents stopped responding at or before the demographic section.

2.2 Subject Matter Expert Interviews

Following the initial survey distribution, we conducted a series of 12 semistructured interviews with subject matter experts. The goals of this phase were to better understand 1) if and how equity is being considered in the field and 2) what best practices can be used to promote equity in future projects. Subject matter experts interviewed included academic professionals in rural sociology, wind energy social acceptance researchers, and economic development professionals, as well as decision-makers and developers with practices rooted in equity and community acceptance. Experts hailed from numerous organizations, including universities, NGOs, industry,

and government. The team sent out requests to 20 individuals and held 12 interviews with 13 people (one interview included two experts concurrently) with the goal of achieving representation across different U.S. and international regions. Some interviews were held directly with the original targeted individuals, whereas others were a result of introductions generated by interviewees. Interviewee demographics are described in Figure 1.
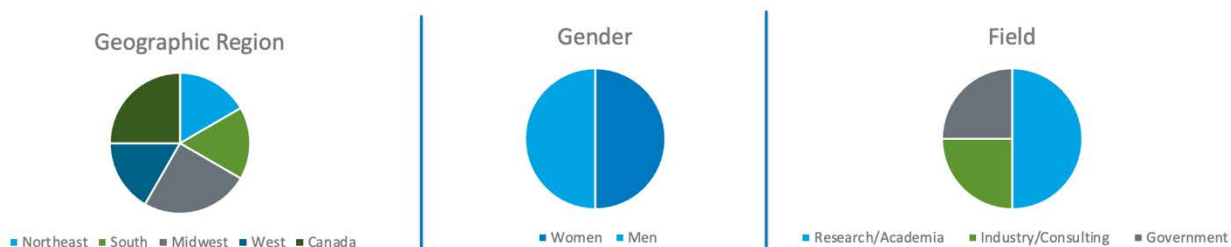
Figure 1. Demographics of subject matter expert interviewees

We designed the semistructured interviews around a core set of themes and objectives that were further tailored by the researchers to align with expertise and individual subject matter expert projects. The general structure of each interview is presented in Figure 2. The interview structures were further informed by expert type, with guiding templates designed for academic experts with primary experience in wind energy, rural sociology, equity and energy equity, or economic development.
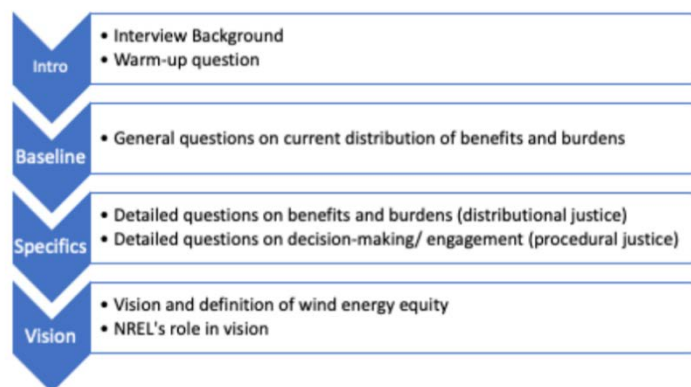
Figure 2. Semistructured interview guidelines

After conducting the initial review of responses, we coded the interview results according to the following categories:

- Trust and perception
- Identity and agency
- Salient benefits
- Capacity and representation
- Communication, language, and narrative
- Community relationships and history
- Impacts and response.

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We used these categories and related details to inform the final phase of WEEES, described in the next section, and comprise a large component of final project findings. Further detail on outcomes can be found in Section 3.

2.3 Workshop

The research team conducted a virtual workshop on October 12–13, 2022. The primary goal was to provide participants with an opportunity to share experiences and ask questions, and for researchers to identify priorities to guide further research and resource development. Additionally, researchers focused on defining wind energy equity, connecting with stakeholders, and building consensus on topic areas from the survey and interview phases. Day 1 focused primarily on themes of procedural justice (e.g., early planning, fairness and community perception, and governance) and Day 2 focused on themes of distributional justice (e.g., siting, community benefits and burdens, and operations). Attendees included participants from prior WEEES phases, as well as additional experts in stakeholder engagement, energy justice, rural sociology, government, and industry.

The workshop included group presentations on daily themes, then participants were divided into breakout rooms to discuss specific topics at a more in-depth level. Breakout rooms were facilitated by WEEES project leads, with support and notetaking from additional researchers on the NREL Stakeholder Engagement and Outreach team.

3 Discussion

Data assessment from the first three phases of WEEES resulted in three high-level themes: 1) early planning and capacity, 2) identity and agency, and 3) salient benefits. These themes represent the types of equity successes and concerns experienced by experts in the wind energy industry.

Throughout this discussion, we will highlight important takeaways across the three overarching themes. In Section 3.1, Early Planning and Capacity, we include participant feedback about inclusive early planning, partnerships with trusted nongovernmental organizations, and audience friendly communication. Section 3.2, Identity and Agency, covers several crucial topics raised by participants, including the importance of a sense of community ownership and respect in the development process, community identity, and a critique of the general understanding of NIMBYism. Finally, in Section 3.3, Salient Benefits, we focus on key ideas raised by participants about wind energy's benefits, including income diversification, community benefit agreements, distribution of benefits, and life cycle impacts.

3.1 Early Planning and Capacity

Involving diverse community members in planning and decision-making from the beginning stages of a wind energy project is key to promoting just outcomes (both procedural and distributive). Early community engagement, when structured to allow for all community members' meaningful participation, can create a strong foundation of mutual trust and respect. Although what an equitable project looks like is subjective and will change in diverse community contexts, equitable engagement strategies can produce benefits for all parties involved—developers can ease strong local resistance to development; local decision-makers can ensure that planned projects align with local needs and values; and most importantly, residents can decide what fair wind energy deployment means to their community. The following sections cover WEEES participants' best practices for equitable engagement, as well as mistakes to avoid.

3.1.1 Inclusive Early Planning

Throughout the first three phases of WEEES, participants emphasized the importance of inclusive early planning processes that focus on increasing community engagement and facilitating two-way (or "bidirectional") learning. Participants who work in or research wind energy development noted that such processes can make development more equitable at the local and regional scales, improving procedural and distributive justice in wind energy communities. Participants also described standards and practices that distinguish equitable planning and engagement from more expedient (or even "bad faith") efforts. They observed that when wind energy developers enter a wind resource community, it is important that they are willing to adapt or change their development plans in response to local priorities and needs. Potential adaptations include changes to the siting of wind energy installations, setback distances, decommissioning plans, views from important areas, wind turbine number, level of access to a turbine installation area, terms of community benefit agreements, and compensation for legal representation. One participant recommended that developers should enter a community with a few plan options that residents and developers can refine, encouraging collaboration and mitigating defensiveness during decision-making processes.

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To qualify as inclusive, planning and engagement efforts also need to "meet people where they are" and account for the target community's capacity to engage. Many interviewees expressed concern about the inadequacy of regulatory requirements that fail to protect community members who will be impacted by wind energy development but may be excluded from important decision-making. For this reason, merely "box-checking" legal requirements for public consultation or compensation is unlikely to yield equitable outcomes and may create lasting harm and distrust. Researchers frequently mentioned examples of communities that did not trust outside developers and government entities due to legacies of economic exploitation or political dismissal. This may be especially true for Native American nations whose sovereignty has been routinely ignored or undermined by outside actors. Acknowledging, respecting, and actively working to avoid perpetuating these legacies is an important precursor to growing a trusting relationship with community members.

Similarly, carefully tailoring the venue, timing, format, and atmosphere of engagement events to suit local work schedules, capacities, and lifestyles is crucial. Interview and workshop participants agreed that providing financial or in-kind compensation like food and childcare for community members who attend engagement events is an equity best practice, though survey results indicate that these practices may still be uncommon among developers. Of the 10 developers who responded to a survey question asking what accommodations their companies provide during engagement events, only one marked "free food and drinks" and none marked "free childcare," "translation or interpretation services," or "monetary compensation." Data collected from other survey groups suggest that decision-making processes remain inequitable partly due to a lack of community access. Over half of researchers and academics (N = 29) disagreed with the statement, "All residents can easily participate in decision-making processes regarding new wind infrastructure project siting" as it applies to the U.S. wind energy sector; 16 responded that the statement was "rarely" or "never or almost never" true, while only six responded "often" or "always or almost always" true.

Interviewees and workshop participants also emphasized that developers alone are unlikely to effectively facilitate equitable and community-guided planning. Many noted that financial incentives tend to encourage developers not only to deal quickly with individual landowners, but also to target low-income and historically marginalized areas with few resources and little knowledge to effectively engage in the development process . One interviewee who works in rural studies stated:

> "It doesn't matter if [wind energy development is] an environmentally benign action. Capitalism's still going to capitalize …. And so you're still going to see inequality in terms of who gets to resist it. And that's really what it ultimately boils down to; if I still don't want a wind turbine right here …. If I'm a person who's educated and able to go to town hall meetings and resist things, I'm going to not end up with one, and someone who can't [resist] is [going to end up with one]….That's an injustice."

The capacity to engage in the development process is not an issue that is unique to wind energy but ensuring that all communities are prepared to advocate for themselves during the wind energy development process is a critical component of equity in wind energy development.

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For this reason, government and nonprofit organizations can play an important role in the earliest phases of wind energy planning by instituting policies and building resources that prepare community members for potential development. Several participants specified the advantages of developing local and regional planning tools preemptively—before developers make an appearance in a community and landowners begin receiving financial offers. Siting matrices that reflect community goals and participatory mapping of "go and no-go" areas for development can lay the groundwork for wind energy development that happens on a community's terms and respects the priorities of diverse stakeholders.

Policies at the state level can also support communities' autonomy. An interviewee who works in state-level policy development described a proposal to give communities a "menu of options" that explains the types of community benefits that residents could request from developers and provides benchmarks for the money they can expect to receive for different amounts of energy generation. While policies guaranteeing some universal protections and benefits can be helpful for avoiding a confusing "patchwork" of regulations that vary from county to county, these equity-centered approaches primarily aim to promote local-level community control over wind energy development.

Comprehensive or intensive engagement is not necessarily equitable. For example, several interviewees noted the dangers of engagement serving as tokenism or manipulation. One academic researcher studying equity in renewable energy development pointed to social worker Sherry Arnstein's frequently cited, *A Ladder of Citizen Participation* (Arnstein 1969), which suggests that some forms of engagement can actually damage relationships between outside actors (in the case of wind energy, development companies) and community members, creating a sense of distrust and reducing the possibility of just decision-making. To increase equity, engagement must involve power-sharing with participant community members: there needs to be a clear connection between community members' input and the subsequent actions of the engaging party. In general, transparency is key to building and maintaining equitable relationships between wind energy developers, operators, and community members.

Citing similar reasons, academic, industry, and nonprofit experts repeatedly mentioned the importance of timing engagement carefully. Early engagement—which takes place well before benefits agreements or construction plans have been finalized—can allow community members to influence the project before large capital investments have been made and expectations have been set. Engagement that begins too late in the process may preclude community members from altering a project plan and can exacerbate feelings of division and distrust. (For instance, once development agreements have been established with landowners, soliciting community feedback may provoke community tensions.) One interviewee who works on engagement for a development firm said:

> "Timing is everything. You don't want to go so early that you have nothing to tell the community, but you also want to make sure that you're early enough that their voice, their concerns, their use of land...are able to play a part in how you design your project."

Attempting to engage community members too early, however, can also create burdens. Time poverty, or "the concept that individuals do not have enough discretionary time—the time available after engaging in necessary activities like sleep and in the committed activities of paid

and unpaid work to engage in activities that build their social and human capital" (Kalenkoski et al. 2011), was mentioned as one of the top obstacles to equitable wind energy development. Attending meetings, providing feedback, and following often complex planning processes takes substantial time—which can be in short supply among working populations. Trying to initiate conversations with community members before a developer has "anything to tell" can waste valuable time.

3.1.2 Partnerships With Trusted Nongovernmental Organizations

Wind energy developers' financial resources, technical expertise, legal staff, and previous experience with planning and construction processes create a power imbalance or "asymmetry" between development firms and wind resource communities that do not benefit from the same advantages. According to interview and workshop participants, regional and local NGOs can help by bolstering community members' capacity for informed participation in development negotiations and planning.

Developers can partner with community-based or locally connected "bridging organizations" to build trust and lighten the burden of engagement, planning, and legal negotiations. The type of organization best suited to do this work will vary, but may include university extension services, faith groups, agricultural associations, or other local or regional non-profits. Partnerships with these organizations can be especially valuable due to the knowledge they have about local culture, social dynamics, and values, which can help outsiders to navigate engagement with sensitivity and respect. Interviewees also emphasized the importance of partnering with multiple organizations. Different organizations are likely to have connections with different groups, and feedback gathered through a single partner organization is unlikely to reflect the diversity of perspectives and experiences within a community. As one interviewee remarked, "Communities are diverse…just because 'the community' buys into something doesn't mean that everybody in the community is getting an equitable experience." Who defines an equitable outcome is subjective, but working with many different types of community partners and the developer can help to ensure that diverse perspectives are considered and that engagement resources are used effectively.

In addition to adding knowledge and connections, partner organizations may help outside companies, researchers, and governmental agencies avoid making harmful mistakes. Workshop participants noted that these organizations can help developers build strong local relationships without feeling pressure to appear more local than they actually are—a strategy that can often backfire and increase distrust. Organizations can also provide a first round of feedback, improving community participation in engagement activities by decreasing the time burdens placed on busy community members. Many participants agreed that nonprofit and partner organizations can be extremely important to promoting equity in wind energy development, as they "make sure folks know there is even a [decision-making] process to engage in" and work to make those processes accessible.

In some cases, developers have paid for "community representatives" or liaisons to participate in the development process on behalf of community members. Experts interviewed had examples of these arrangements working well, such as in the development of the Block Island Wind Farm in Rhode Island. Several interviewees emphasized the importance of always allowing community members to select their own representation, regardless of who will be paying the representative's

fees. One interviewee also suggested a possible policy intervention: a state government could set up a fund to pay community-appointed representatives with money pooled from different wind energy development companies, thereby neutralizing the potential for a conflict of interest.

The realities of hiring community representation will be complicated across projects, however, participants consistently raised the concept of a liaison/representative as a critical concept for increasing community capacity and advancing equity in land-based wind development. This is important to not only facilitate discussions between developers and the community but also the level the playing field (knowledge and capacity to engage) between developers and a community. No solution will satisfy all stakeholders but having a liaison may increase the perception of fair representation in the process.

3.1.3 Audience-Friendly Communication

Improving equity in wind energy requires diverse stakeholders to work together, which requires effective communication. Developers, researchers, government officials, and community members must be able to build trust, share knowledge, and negotiate development plans in easily understood terms that avoid reinforcing unjust power dynamics. As many workshop and interview participants advised, terms that are commonly used to describe equity and justice in research settings may be understood very differently in the communities where wind energy is developed. The word "equity" itself can be polarizing; several participants cautioned against using social justice terminology (or "woke" language), which may be politically alienating or carry associations with which wind resource community members do not identify. Though they may not be very specific, more widespread terms like "fairness" are usually preferable. Similarly, experts should explain technologies, development and operations, and legal arrangements using plain language, and they should provide materials and presentations in the languages spoken in the community.

Participants also reflected on the importance of the narratives that are told about wind energy development and the communities it impacts, as those narratives influence action. Recognizing legacies of exploitation and neglect that have harmed wind resource communities can help outsiders to identify and avoid perpetuating patterns of inequity. This sort of recognition, however, should not be used as part of a "savior" narrative in which wind energy "rescues" communities that are cast as damaged or helpless. Other problematic framings characterize rural areas as empty or lacking aesthetic and cultural interest while describing rural residents as uninformed, unengaged, or in need of "education" from outside experts. In addition to being disrespectful, these sorts of characterizations put communities at a deficit by describing them in terms of what they do not have, which negates the idea that wind energy might, in some ways, negatively impact them. Workshop participants stressed the value of using language that emphasizes the knowledge, expertise, and cultural diversity that communities contain. Especially prominent was the concept of a two-way (or bidirectional) learning, which is an approach to engagement that recognizes that both community members and wind energy professionals have important information and expertise to contribute to planning and development processes.

3.2 Identity and Agency

The impacts of wind energy development go far beyond its material or economic effects. Introducing wind energy to a landscape can alter the way people feel about the places they live,

shifting land uses and residents' sense of place or community identity. Some communities may also have had negative experiences with outside development in the past, leading residents to be skeptical of wind energy proposals. Across all three WEEES phases, participants stressed that equity in wind energy requires taking these concerns seriously and actively working to avoid harmful effects. The following section discusses the key considerations needed to respect the many different facets of a community.

3.2.1 Sense of Ownership and Respect

Participants repeatedly emphasized the importance of social and cultural relationships to wind energy and development; how community members living near wind energy installations relate to their development process and its cultural significance is an important equity consideration. Researchers often noted that, regardless of material project outcomes, community members tend to feel that a project is equitable when they have been treated with respect and have developed a sense of pride in a project. As one interviewee said, "It is a human need to be engaged respectfully."

For many communities, pride in a wind energy project coincides with a perception that the project has tangible benefits for residents. According to several interviewees, some of the most desired benefits, like using the energy generated by the project to power the local community, are often not feasible for utility-scale wind projects. Regardless, it is important that developers, community members, and officials work to "co-create" benefits that are well-suited to local needs and identity. This approach is especially true for large-scale projects. One interviewee observed:

> "[Community members] want to see that as the hosts of these projects, that they don't just bear the burden, but that they get to negotiate a benefit....You know, they're not always wanting to be an equity partner, but they want to see something substantial, something real that's coming back into their community."

Several participants noted that one of the best ways to promote a "sense of ownership" is to split actual ownership shares in a wind energy project with the community that houses it. In the academic and researcher survey group, "community ownership" was frequently mentioned in a short answer section about how to make wind energy development more equitable. What community ownership would mean for developers is less clear, as sharing ownership of wind energy projects with community members is be very uncommon in the United States. Of the small group of developers (N = 10) who responded to a question about how frequently their company's projects incorporated "Gifts of shares in the wind energy project to impacted community residents," five answered "Never," one answered "Rarely," and the remaining four answered "Not Sure." (Though it should be noted that the phrasing "gifts of shares" may have been somewhat confusing, as it seems to exclude co-investment arrangements.)

Community ownership as a form of equity appears to be more common outside of the United States. In an interview, an industry representative from Canada described his company's definition of "true equity" as a model of splitting ownership in a wind energy project with the wind resource community that houses it, with 51% of shares held by the community and 49% held by the company. In his experience, this approach tends to create a "true partnership" with community members and a better understanding of "what the community wants." However, he

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also acknowledged that this approach has only proved feasible for small- and medium-sized developments in Canada, not the larger projects typical in the U.S. market. Other pitfalls include defining who the "community" is in these circumstances, and how the money should be distributed—with both possibly leading to equity issues. Above all, interviewees stressed the importance of shielding communities from the risk of project failure in these arrangements, which may require a development company to take on the costs of early, high-risk development stages before opening the project to community investment.

Some participants found that proactively organizing at the local level can also create a "sense of ownership." Several researchers described cases in which community members were able to secure more equitable development agreements by deciding on collectively favorable terms for a wind energy development before beginning negotiations with a developer. A few regional organizations are working to prepare rural areas for potential wind energy development, and in some places, forming community or landowner coalitions is "empowering communities to put out their own RFPs," (requests for proposals) shifting more power to community members. By creating a united front, community members can safeguard shared priorities, rather than operate on property rights alone.

3.2.2 Community Identity

Wind energy projects can also offer intangible benefits, like a sense of community pride in producing power. Depending on a community's relationship to the development, shifting its identity to include wind energy production can be perceived as a negative impact, as some residents may feel that wind energy development threatens existing agricultural or rural identities. Though likely to be dismissed or overlooked next to quantifiable economic or environmental impacts, social factors like community character and self-perception are central to a sense of freedom and empowerment, and are thus important equity considerations.

Several of the experts interviewed in Phase 2 specialize in rural research, and they emphasized that, despite reductive mainstream characterizations, rural places are diverse and face challenges that may not be readily apparent to outside observers. Unlike in more urban and suburban areas, landownership is not necessarily associated with wealth, and land-rich farmers may be in a precarious financial position. Political and economic power do not always follow predictable patterns, and various community members are likely to have different goals for their area. For many year-round residents, rural areas are both living and working landscapes used for ranching and agriculture, whereas seasonal residents or retirees may think of rural areas primarily in terms of their recreational or aesthetic value. These different perceptions contribute to what one researcher deemed the "rural idyll," stating,

> "We have this image of what a rural place is, and we both receive that and enact it. So for instance, if we think of a rural area as being one that's small family farms, small, poorly maintained roads, that's the kind of thing we're going to create as a society. And I think that what we're seeing is a transition in the U.S. where we're okay with rural areas as a place of renewable energy."

That transition has not happened evenly, however, and some rural residents are less comfortable with renewable energy development than others. This reality is complicated by the different scales at which equity in wind energy development can be analyzed. Some interviewees saw the

shift to rural energy development as being equitable on a regional and national scale, as urban areas are historically overburdened by energy generation infrastructure, leaving rural areas relatively "underburdened." At the national and global levels, transitioning to renewable energy as quickly as possible is a clear social justice goal, since both pollution and climate change severely threaten many people around the world, and especially historically marginalized groups. Equity considerations look quite different on a local level, however, where differences in "ability to resist" development create inequities in the location of wind energy installations and distribution of benefits. While wind energy does not present the same environmental and health risks associated with fossil fuels, changes in the character of rural landscapes are likely to be inequitably distributed, potentially provoking local tensions or feelings of distrust.

These misgivings can translate into policies opposing renewable energy development altogether. As one participant noted, some counties in the Midwest have restricted wind energy development to land that has a low "corn suitability rating," (a measure of potential agricultural yield) in an effort to preserve an "agricultural lifestyle." Because much of the corn developed on the land excluded from wind energy development contributes to ethanol production, it is important to recognize the ways in which such policies can affect the broader energy system. Other workshop participants felt that strong statewide regulation lessened local-level resistance to wind energy development, perhaps by making it feel less frenzied or predatory to rural residents. Interviewees also mentioned the value of decision makers presenting wind energy in terms of energy "trade-offs"—less renewable energy development necessitates more fossil-fuel extraction and combustion, which is generally more destructive and disruptive in the places it occurs. For rural areas that do not have direct experience with oil, natural gas, or coal extraction, making this trade-off feel locally relevant can be challenging.

3.2.3 "NIMBY" Is Too Simplistic

While the resources to engage in wind energy development are inequitably distributed, those who are able to express their concerns may still be dismissed. The concept of "NIMBY," or "not-in-my-backyard," is meant to describe the tendency of people in privileged positions to reject changes that are in the public interest (and which they ostensibly support) when they are personally affected by them. This phenomenon can affect wind energy development to some extent. According to interview participants who work in the industry, a very vocal minority of relatively privileged residents can give the appearance that an entire community opposes wind energy development, when in fact many community members are supportive, or at least ambivalent. However, calling concerns about a proposed development "NIMBY-ism" generally does little to resolve differing community perspectives and may instead minimize genuinely felt concerns.

Workshop participants recounted troubling uses of the term. For example, community members may be called "NIMBY" when protecting places that are environmentally or culturally important, or when calling out undemocratic or procedurally unjust processes. Some of the objections that a community has against wind energy development may not be easily quantified or monetized, and they frequently go beyond legal rights or property ownership, making them "invisible" in a traditional cost-benefit analysis or contract negotiation. It is important to remember that intangible, externalized, and dispersed impacts are valid concerns in terms of equity and justice. In addition to changing community identity and sense of place, developments may affect shared land and water resources, wildlife habitat, and migration patterns.

Furthermore, these impacts are likely to place greater burdens on some members of the community than others. Of the academics and researchers (N = 23) who responded to a question about how fairly the negative impact of "Environmental or ecological damage" is currently distributed in communities with wind energy, almost half (N = 11) answered "Somewhat Unfair" or "Very Unfair."

Workshop participants noted that concerns affecting "front-line" communities, meaning people who are most impacted by environmental hazards, have frequently been ignored by the environmental movement, which has a history of racism and classism (Purdy 2015). While workshop and interview participants found that renewable energy development on tribal land tended to produce relatively equitable outcomes due to stricter legal protections, Native communities and Indigenous people living outside of tribal lands can have very different experiences. Priorities that do not comply with Western or Eurocentric values may be subjected to intense criticism or claims of "overreaction," perpetuating attempts to erase Indigenous cultures and values. (It should be noted that no Indigenous people participated in phases 1–3 of the WEEES project; this information comes from participants who have interviewed or partnered with Native groups in the past. This gap is noted by the research team and is addressed in Section 4, Future Phases). In a just and equitable process, developers and decision-makers should work with community members to adapt development plans, rather than dismissing concerns and continuing legacies of harm.

3.3 Salient Benefits

Ensuring wind energy development benefits impacted communities is critical to promoting equitable outcomes. Participants in the interviews and workshop consistently highlighted salient, or noticeable, and relevant benefits as a core component of wind energy equity and perceptions of fairness in the industry. In this section, we highlight the key ideas raised by participants, including income diversification, community benefit agreements, distribution of benefits, and life cycle impacts.

3.3.1 Income and Tax Diversification

Participants in the workshop emphasized the importance of salient economic benefits for rural communities. Agricultural communities are susceptible to changing weather patterns and fluctuations in commodity prices (Shoeib et al. 2021). For decades, research on the economic development impacts of wind has shown that tax diversification and individual income diversification in farming communities motivate development interest across many rural areas (Shoeib et al. 2021). Feedback from workshop participants mirrored this research and added context about specific equity considerations. One interviewee remarked:

> "wind turbines on your property will ensure a guaranteed income. Your children might be more easily interested in staying on the farm."

Participants broadly indicated that wind energy injustices and benefits tend to be economic rather than environmental or health impacts. However, when the only financial benefit felt by the broader community are taxes paid to the county, workshop participants noted that benefits are less salient to community residents themselves. For example, residents may not link a new

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program funded by increased county tax revenue to a wind energy project. On this subject, one workshop participant remarked:

> "In regards to property tax reductions, you know, they want to see that as hosts for these projects that they don't just bear the burden…You know, they're not necessarily always wanting to be an equity partner, but they want to see something substantial—something real that's coming back into their community."

Although both the interviewees and workshop participants highlighted the importance of taxes and direct payments to farmers and landowners, the information gleaned from the participants stressed that more than these measures are needed to advance perceptions of fairness in the process, and that specific structures generated more buy-in than others.

3.3.2   Community Benefit Agreements

WEEES participants raised several important considerations of community benefits agreements. First, participants emphasized transparency as being critical to securing a community benefit agreement that the community feels is fair. In addition, participants noted that trusted entities and individuals should be included in the community benefit agreement development process. Finally, participants also reported that addressing community capacity to understand how these agreements ensure fairness was critical.

Workshop participants also identified that community benefit agreements should reflect the values and priorities of the community. For example, participants highlighted that youth and college scholarship opportunities were accepted and valued. Further, participants remarked that investment in infrastructure like schools, broadband, and parks gained the most trust from community members. Several workshop participants also raised the idea that lower energy bills are particularly salient. They noted that linking the project to lowered energy bills increased perceptions of fairness in their experience. One survey participant stated:

> "Wind needs to be put into the context of what's important to these audiences, as opposed to expecting them to understand and engage in the typical ways in which projects are presented and developed."

Another tenet of community benefits agreements that participants highlighted was the role of state policy. State-level action can determine whether these agreements are developed, and what is included. A primary example of state-level policies is local procurement requirements. Procurement requirements can include requiring locally procured materials and local hiring. Participants indicated that when these requirements are instituted at the state level it avoids disincentivizing shifting development from local regions that institute requirements to nearby regions that do not. Other state-level requirements were also discussed, including the New York State Accelerated Renewable Energy Growth and Community Benefit Act. This law was the most prominent example of state-level standard setting. The act mandates that three key provisions apply to community benefits. First, the Public Service Commission must determine an appropriate benefit package for hosting a large-scale renewable energy project (New York State Energy Research Development Authority 2020). Second, local government and community groups will receive variable funds directly from the state, depending on the project size. Finally,

the law requires community benefit packages as a part of the permitting process (New York State Energy Research and Development Authority 2020). Participants were generally supportive of this type of law at the state level.

Workshop and interview participants raised mismatched development and process timelines between communities, decision-makers, and developers as a challenge to creating equitable community benefit agreements. Participants noted that effective community engagement and trust-building take time. However, governments looking to address climate change and developers of renewable energy projects want processes to move quickly. Further, the timeline for benefits also varies. Leasing landowners may see monetary benefits long before the rest of the community.

Finally, WEEES participants raised the impacts of additional energy infrastructure. One discussion highlighted that developers and decision makers cannot separate the effects of transmission and wind energy on communities, because a certain amount of transmission will be required for any wind energy installation. The interview participants indicated that the discussion of equity is often highly focused on the project footprint, but community benefit agreements should include compensation for transmission impacts. Further, participants indicated that current transmission queues can cause significant delays in projects, delaying benefits for the community. Participants emphasized that transmission delays should be considered in community benefit agreements as transmission becomes a more considerable barrier to renewable energy deployment.

3.3.3 Distribution of Benefits

WEEES participants highlighted the importance of the scale of benefits and burdens, and more specifically, how those are distributed. In particular, they indicated that direct payments, tax benefits, and community benefits associated with wind energy are currently not spread fairly across the community. An example that occurred throughout several discussions was the prioritization of landowner profits through lease agreements, leaving those community members who do not own land out of the benefits process.

When looking at the project footprint and local community impacts, tangible, meaningful benefits are vital to encouraging perceptions of equity and fairness in the wind energy development process and subsequent outcomes. However, participants also noted that global abstract benefits, outside the scope of individual communities, were also important. For example, an interviewee highlighted that historically the burden of the energy system was borne by predominantly urban populations and communities of color. Through the energy transition, more of the burden will now be placed on rural areas where the renewable energy resource is most abundant (specifically for land-based wind energy).

Participants and interviewees also highlighted the relative benefits and burdens of wind energy and other technologies and industries. Participants emphasized that the perception is that wind has relatively lower local, long-term job benefits compared to other energy technologies. One interviewee shared:

> "Usually what I see is that people go in, and then they make a big press announcement about this great wind project that's coming and that it's going to

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bring lots of jobs and be the greatest thing since sliced bread. It usually is not. That's not how projects work. They are nice projects. They do have a lot of benefits to it but making them be the end all be all is, I think, a big mistake."

Participants also highlighted that perceptions of equity depend significantly on how benefits are distributed within a community. Although equity between communities is an important consideration, participants highlighted that the uneven distribution of benefits and burdens within a community is particularly salient. Developers may approach one landowner about development without compensating neighbors. This can result in animosity, because neighbors may hear and see wind turbines or be impacted negatively by construction without receiving any benefits.

Workshop participants highlighted that communities are often concerned about the disparity between where energy is produced and where it is consumed. For example, one interviewee highlighted the tensions between the upper and lower regions of New York State:

"In New York, we have this big upstate and downstate tension. You know, big old New York City taking our stuff…So from a natural resource perspective, there's some history there of downstate benefiting from upstate. But if those people thought that they were getting access to those electrons locally, they would be a lot happier with their wind project."

The interviewee went on to hypothesize that this phenomenon will grow due to the nature of wind energy resources, which are often located in rural areas, as more energy is produced in rural areas and sent to urban centers. This discussion also linked to the concept of lowering energy bills (local electrons) as a part of community benefits agreements, as a way to increase the perception that the benefits and burdens of the project were distributed fairly. Survey respondents mirrored these observations. One stated:

"As a country, we're asking rural communities to bear the bulk of our future energy production. External resources (funding, capacity, etc.) need to be allocated appropriately. This way, communities have the ability to adequately consider equity internally. Otherwise, underserved communities will continue to get worse wind energy development deals than their wealthier counterparts."

The survey provided baseline data on how participants perceived the importance of benefits and burdens, and their subsequent distribution throughout communities. Although different participant types were asked differing questions to ensure subject relevance, all stakeholders indicated the importance of salient benefits for wind energy footprint communities.

When subject matter experts were asked if the benefits of wind energy development are distributed equally, the largest percentage of participants, 45%, responded "Sometimes," 31% responded "Rarely," and 14% responded "Often" (N=11). When decision makers were asked if the benefits of wind energy were distributed fairly, the largest percentage, 30%, indicated that they had not considered the question. However, 60% of the respondents indicated that it was either extremely important, moderately important, or slightly important. Further, 45% of decision makers also indicated that wind energy had benefited more residents than it had harmed (N=10). The survey data mirrors outcomes from the workshop and interviews in that benefits and burdens vary widely across communities and contexts. Certain communities and jurisdictions are ensuring community benefit agreements are considered, whereas others are not.

3.3.4 Life Cycle Impacts

As wind energy's scale and perceived impact expand, and as the first wave of wind plants begin to reach their end of life, decommissioning concerns are rising to the surface; in particular, this theme emerged several times throughout the workshop (Phase 3). Participants highlighted that few resources for communities exist on decommissioning, and protections are complex and highly legalistic. The regulatory environment for wind energy, especially decommissioning, has little uniformity or broader protections. Across communities, decommissioning protections vary drastically; some are effective, others nonexistent. For example, one interviewee noted:

> "I think it needs to be something that's written and agreed upon at the start of the project so that the landowner understands what the cost is or understands that it will be removed. And then the town just knows that maybe the landowner is protected up to a certain point, and if they're not, then the town will have that backstop."

Participants noted that resources outlining the legal process, requirements, and mechanics for the decommissioning bonds required to protect communities from decommissioning costs are needed. Many participants highlighted that information on best practices and standards would be the most helpful resource for addressing decommissioning and project end-of-life concerns.

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4 Future Research

WEEES has presented opportunities for continued engagement on the same themes, as well as provided topics for consideration for future projects. These are described as follows.

4.1 Future Phases of WEEES

To ensure that themes collected from subject matter experts, industry leaders, decision makers, and other influential actors resonate at the community level, NREL researchers will be extending WEEES to include a "Community Forums" phase. This phase will take place both virtually and in person in representative communities across the United States and encourages feedback from community members and community-based organizations on equity themes discovered through the initial WEEES phases. Notably, this phase is being designed in collaboration with equity consultant Ariana Flores of The Equity Project to minimize extractiveness (or, taking value such as local knowledge from a community, without offering value in return), bias, and other potential pitfalls presented by federal researchers entering established communities to conduct social research. This final phase also allows NREL to practice bidirectional learning, which many WEEES participants highlighted as being critical to equitable and nonextractive work.

4.2 Future Topic Areas

Throughout the course of WEEES research and result synthesis, the following topic areas emerged that may require future research.

4.2.1 Varying Resolutions and Scale

Participants in the interviews and workshop noted the importance of considering equity from both local and global perspectives. This project collected perspectives on wind energy equity in project footprint communities, but broader conceptions of justice and equity of the energy transition should also be considered. For example, on a regional level, if a project is rejected in one community it may shift to another community that already host wind projects. In most decarbonization scenarios, wind energy must play a central role in the energy transition to avert the worst effects of climate change. The conflicting timelines of equitable decision-making locally, which must work relatively slowly, are in direct conflict with rapidly accelerating decarbonization timelines. More research and focus on the regional and global scale should be considered and put in conversation with conceptions of equity on the community level.

4.2.2 Community Benefit Agreements

Participants in several phases expressed interest in a consolidated community benefit agreement database that could be used to reduce overhead as well as provide critical industry context to communities that are unfamiliar with or considering entering the wind energy industry for the first time. Additionally, participants expressed interest in research particularly focused on the effectiveness of different benefit types, as well as perceptions of fairness. NREL is beginning to address these concepts in a Fiscal Year 2023 project covering community benefits agreements.

4.2.3 Decommissioning

Several workshop participants brought up concerns of equity in the decommissioning phase of land-based wind energy. Some communities are already experiencing burdens of material

disposal and negotiating repowering contracts, and as a result there is an expressed need for publicly available resources for both anticipating this phase in advance and navigating through it.

4.2.4 Offshore Wind Energy

Despite WEEES's focus on land-based wind energy, several participants regularly brought to the table examples and concerns related to offshore wind. This level of interest demonstrates that a similar effort focused particularly on offshore wind is warranted, due to the differences in land use, community impacts, and other infrastructural development.

4.2.5 Tribal Engagement

As a result of sovereignty, various governing structures, social differences, and other compounding factors, many of the lessons learned through this series cannot be to applied to tribal lands without a separate engagement effort geared toward tribal nations. Participants in WEEES expressed that there is value in conducting outreach to tribes to see if NREL's services in research would be welcomed and helpful for those tribes who are interested in pursuing wind energy and related projects. Notably, this research should only be pursued in partnership with tribes, rather than as an external, extractive effort.

4.2.6 Impacts of State-Level Action

WEEES participants expressed that some communities have less resistance to wind energy development and better success securing community benefit agreements when tailored state-level wind regulation or other legislation exists. Participants indicated that more research on the impacts of state level policy from the labs and the U.S. Department of Energy would be warranted.

4.2.7 Partnerships

WEEES highlighted opportunities for key partnerships that have demonstrated increased receptiveness and trust in community engagement processes. For example, extension services— entities often housed at counties or public universities that provide technical support to residents in primarily rural communities—were highlighted by several participants as entities with broad reach and extant community trust in rural areas that could be valuable to partner with for engagement and information distribution, particularly in communities with hesitancy or concerns surrounding wind energy development. This is in part due to their existing role as trusted scientists and facilitators of success in agricultural and land management practices, which have significant overlap with wind turbine siting and operations.

5 Conclusions

Although current energy justice scholarship does not map directly to wind energy technologies and resources, energy justice remains an important consideration for policymakers, developers, and communities living near wind energy installations. As a result, NREL's efforts provide a lens into current perceptions of equity and fairness in the wind energy community and outline where stakeholders indicate future effort is needed. NREL established baseline concepts for understanding wind energy equity through various outreach mechanisms with wind energy stakeholders. Several key themes emerged through the survey, interviews, and workshop, including early planning and capacity, identity and agency, and salient benefits. Through this report, NREL outlined how stakeholders perceive these themes and set a baseline for future research.

As the land-based wind industry emerges, new equity and community impact and research objectives should be considered, including recent trends and best practices for community benefit agreements and decommissioning protections, offshore wind energy equity research, and tribal impacts. This project also highlighted important methods for engaging in equity research and community engagement moving forward.

The next phase of engagement will focus on gathering direct community feedback. Historically, it has been difficult for federal entities to engage directly with communities to gather input. In this case, NREL will partner with local community-based organizations to solicit perspectives from representative wind energy communities across the United States and benefit from the guidance of established equity professionals. It is important to note that not all perspectives were represented in this effort.

Under current decarbonization scenarios, land-based wind energy is central in transforming the energy system. The scale, land-use change, and community impact will benefit the nation's rural, wind-rich areas. As a result, further research and continued engagement are essential to mitigating the adverse effects and maximizing the benefits of this transformation.

References

Arnstein, Sherry.1969. "A Ladder of Citizen Participation." *Journal of the American Institute of Planners*, 35: 4, 216-224, https://doi.org/10.1080/01944366908977225.

Initiative for Energy Justice. 2019. https://iejusa.org/wp-content/uploads/2019/12/The-Energy-Justice-Workbook-2019-web.pdf.

Kalenkoski, C. M., Hamrick, K. S., and Andrews, M. 2011. "Time poverty thresholds and rates for the US population." *Social Indicators Research*, *104*, 129-155. https://link.springer.com/article/10.1007/s11205-010-9732-2.

New York Energy State Energy Research and Development Authority. 2020. "Accelerated Renewable Energy Growth and Community Benefit Act For Local Governments." https://ores.ny.gov/system/files/documents/2020/07/accelerated-renewables-fact-sheet.pdf

Purdy, J. 2015. "Environmentalism's Racist History." *The New Yorker*. https://www.newyorker.com/news/news-desk/environmentalisms-racist-history.

Shoeib, Eman Ahmed Hamed, Elisabeth Hamin Infield, Henry C. Renski. 2021. "Measuring the impacts of wind energy projects on U.S. rural counties' community services and cost of living." *Energy Policy*, *153*, 112279. https://doi.org/10.1016/j.enpol.2021.112279.

U.S. Department of Energy Office of Economic Impact and Diversity. 2022. "Justice40 Initiative." https://www.energy.gov/diversity/justice40-initiative.