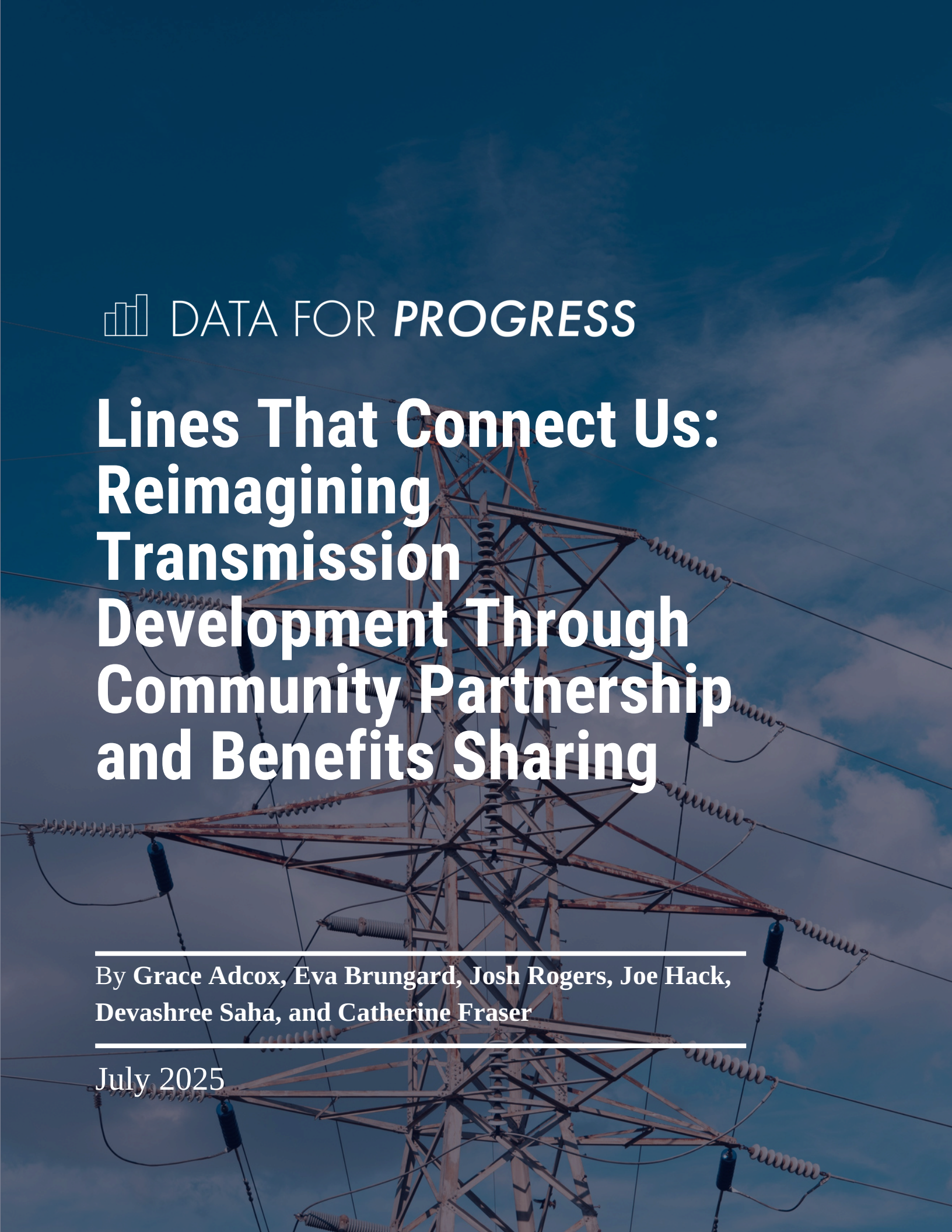

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Lines That Connect Us: Reimagining Transmission Development Through Community Partnership and Benefits Sharing

By **Grace Adcox, Eva Brungard, Josh Rogers, Joe Hack, Devashree Saha, and Catherine Fraser**

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Executive Summary

In this report, researchers from Data for Progress, the World Resources Institute, and the Great Plains Institute examine the potential for community benefits frameworks (CBFs) to address a central challenge to transmission deployment: local opposition. These frameworks, including community benefits agreements (CBAs) and project labor agreements (PLAs), can be an important tool to ensure that tangible benefits from development projects are felt locally, enable communities to create or fund programs that matter to them, and help developers foster local relationships and earn community acceptance of a project.

The U.S. needs to significantly expand its transmission infrastructure to meet growing electricity demand, enhance grid reliability, and connect renewable energy sources in the coming decades. High-value transmission projects face various barriers, including lengthy permitting processes, cost allocation issues, and local opposition, which often leads to project delays or cancellations. CBFs can offer some tools by which to address local opposition, if transmission developers' community engagement and community benefits practices are seen as meaningful and trustworthy.

Case studies of merchant-owned transmission lines (SOO Green, Grain Belt Express, North Plains Connector), interviews and surveys, and focus groups in New England and the Great Plains inform the report's findings and recommendations. Within the report, key findings on the utility of CBFs as a tool for transmission development include:

- Transmission, specifically, is not very familiar to the average American, but the general public is acutely aware of grid reliability challenges and growing energy demand that make it essential to invest in power grid improvements, including transmission upgrades and expansion. Improving grid resilience is seen as essential to prevent disruptions from blackouts, particularly in low-income and rural areas where power restoration can take longer.

- Community concerns about local impacts of transmission projects, such as environmental effects and visual changes, must be addressed to effectively embed community stakeholders as key partners in transmission development and to secure community buy-in for transmission projects. This requires developing a strong understanding of host community considerations, building trust with community stakeholders, and ensuring landowners and community members can share input to meaningfully shape project development.

- Broader goals around reliability and growing demand for energy can feel disconnected from people's day-to-day lives and energy needs, and thus arguments around these goals do not necessarily defuse local opposition toward proposed transmission projects. Emphasizing the consequences and higher long-term costs that electric utility customers will likely face from a failure to invest in transmission grid expansion and upgrade projects may be effective as a way to connect transmission to the average American's daily life.

- Community engagement and benefits best practices, both from the transmission sector and other sectors of the economy, are crucial for mitigating local opposition to transmission projects. These include practicing early and transparent communication, prioritizing landowner needs, and offering monetary and non-monetary benefits to the broader host community.

Transmission advocates must ensure communities have a participatory role in shaping transmission projects. Genuine engagement with trusted partners and tangible local benefits secured through CBFs can offer opportunities to overcome opposition and accelerate grid expansion.

Introduction

The U.S. Needs More High-Voltage Transmission

The U.S. electrical grid is transforming. Given the urgent need to decarbonize and address climate change, as well as the increasing demand for electricity and a more resilient grid, the U.S. must build new high-voltage transmission lines. Failure to invest in the electrical grid is not an option: Without new transmission, the grid will face escalating blackout and brownout intensity and length, costly energy bills and forgone economic investments, national security risks, and prolonged reliance on polluting fossil fuels to support domestic energy needs. However, the development of new transmission lines is not happening fast enough.

Despite significant investments in transmission infrastructure made under the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA), the pace of transmission infrastructure development must more than double that of the past decade to fully realize the potential emissions reduction unlocked by the IRA's investments in clean energy and decarbonization technologies, including grid improvements. Indeed, Princeton University researchers estimate that reaching a zero-carbon grid will require building 75,000 miles of high-voltage transmission lines by 2035, and tripling transmission investments by 2050 to connect renewables to population centers.

However, there are a number of challenges to deploying transmission infrastructure at the scale and pace demanded by growing energy needs and the clean energy transition. As linear infrastructure that often crosses both private and public lands, transmission can be stymied by delays in interconnection, environmental review, and permitting processes; challenges with determining how costs are allocated for projects; and, finally, opposition from landowners and communities near proposed projects.

Transmission lines face risks of local opposition that can be magnified by the long rights of way required for such projects, which may impact hundreds of landowners. Historical grid development practices have often overlooked the importance of early engagement with the communities that will host grid infrastructure. Many projects are conceptualized and initiated with little community engagement, which can lead to the emergence of local opposition once community members learn about a project. Opposition is particularly likely in cases where a project is not perceived to provide clear, direct benefits for landowners. Importantly, transmission projects can face opposition not just from landowners, but also residents and community organizations, with many examples of communities engaging in collective action to delay and even cancel projects.

Local opposition is not unique to transmission projects. Other clean energy projects have faced opposition as well. Community benefits frameworks (CBFs) have emerged as a mechanism to ensure more authentic community engagement and deliver localized, tangible benefits to communities hosting infrastructure projects, such as solar arrays and wind power facilities. CBFs include written agreements and plans, but can also encompass a wide variety of activities that are typically involved in the community engagement process and delivery of benefits for many

types of development projects. Some key types of CBFs discussed in this report include community benefits agreements, host community agreements, and project labor agreements. These types of written CBFs have not been commonly used in transmission projects, perhaps because of the very nature of such projects. Linear transmission infrastructure often cuts across several communities and involves a variety of stakeholders, and these lines are expensive to build and subject to cancellation risk, all of which may constrain transmission developers and make them more hesitant to pursue a CBF. Reaching consensus about the design of a written CBF across multiple communities may be difficult, but there are opportunities to utilize community engagement and benefits practices from CBFs to enhance local buy-in for transmission projects. Despite potential developer hesitations, effective community engagement and community benefits processes are much needed in the transmission space to overcome potential local opposition challenges, and some developers have already started to apply CBF strategies.

While each major barrier to transmission development must be addressed to meet national energy needs, enhance grid reliability, and address climate change, this report focuses on understanding and responding to ***local opposition, a central factor leading to transmission project cancellation.*** This research identifies specific pain points in the community engagement process and related transmission siting practices that can lead to the emergence of local opposition. Furthermore, this report offers transmission advocates insight into some effective strategies to proactively address community concerns and limit some of the friction that can emerge when transmission projects are proposed.

First, the report will provide a background on the constraints that the transmission grid currently faces. The main body of the report details findings across both qualitative and quantitative research on the perspectives of key transmission stakeholders at the national level, with a more granular focus in a few specific cases and regions. As part of a series of community benefits case studies, three merchant developer[1] transmission lines are examined in greater detail via interviews and literature reviews of these projects. This research includes surveys, focus groups, and interviews with national likely voters, landowners, and rural residents, and key informants in the development of transmission projects, including developers, policymakers, and members of community organizations. The report concludes with discussion of takeaways and recommendations for transmission stakeholders related to mitigating and addressing community concerns and opposition, and suggests opportunities for future research to address remaining gaps in understanding how, and if, community benefits tools can overcome barriers to transmission development.

[1] Merchant transmission developers are independent from utilities, and as a result, do not receive a guaranteed rate of return on their transmission investment. Instead, these developers rely on charging third parties for the use of the line to recoup their costs. Merchant lines comprise a minority of existing transmission lines, but have made up a large percentage of recently proposed long-distance, high-voltage transmission lines. Merchant lines can avoid cost allocation debates and concerns of higher electricity rates among utility customers – overcoming one source of friction in transmission permitting and development.

Needs and Challenges for the Grid and Transmission Infrastructure

Despite recognition of the urgent need to improve and build grid capacity, transmission projects often face significant barriers, including lengthy siting, permitting, and interconnection processes; local opposition; and fragmented regulatory oversight across state and federal jurisdictions. These challenges are further compounded by a transmission policy landscape that has historically favored incremental, localized grid upgrades over large-scale, centralized grid expansion. Additionally, transmission projects and the grid have a complex set of stakeholders that are often misaligned, with utilities, regulators, independent system operators, and community groups holding distinct priorities. Here, the authors describe factors driving U.S. transmission needs, followed by an analysis of key barriers to effective transmission deployment that can give rise to or exacerbate local opposition toward such projects.

Factors Driving U.S. Transmission Deployment

The need for more transmission in the U.S. is broadly accepted, with disagreement among stakeholders arising over how the country can build new transmission fast enough to meet three key factors driving current needs:

1. **Growing national electricity demand:** After three decades of relatively flat demand, the U.S. is experiencing a significant increase in electricity demand, particularly due to new, large commercial energy consumers, like data centers, domestic manufacturing facilities, and electric vehicles and other technologies. In fact, demand is expected to increase by up to 15% in some regions of the country by 2030. The lack of adequate transmission capacity is the biggest bottleneck in meeting this demand, as the grid is currently unable to move low-cost renewable electricity from where it is produced to where it is used. These bottlenecks are, in turn, driving up consumer utility bills via congestion costs – to the tune of an estimated $11.5 billion in costs in 2023.

2. **Heightened grid reliability challenges due to aging transmission infrastructure and intensifying extreme weather:** New transmission lines, along with reconductoring projects and grid-enhancing technologies, can reduce disruptions to and fortify the grid from increasingly frequent extreme weather events. The grid experienced double the number of weather-related outages from 2014 to 2023, compared with the first decade of the 21st century. Indeed, the Intergovernmental Panel on Climate Change Sixth Assessment Report identifies electricity transmission, distribution, and storage investment as an important climate change mitigation strategy. Older transmission infrastructure is more susceptible to extreme weather events, cyberattacks, equipment failures, and wildfires caused by poorly maintained infrastructure. With an average lifespan of 50 to 80 years and around 70% of transmission lines already more than 25 years old, the U.S. does not have long to upgrade its rapidly aging grid.

3. **A growing backlog of renewable energy projects that need to be connected to the grid:** Historically, electricity generation has typically been sited near centers of energy demand by necessity, especially by urban areas along the coasts or in the eastern U.S. However, renewable energy generation potential is generally greater in remote, rural areas. In 2023, 59% of all electricity generated from wind came from five states: Texas, Iowa, Oklahoma, Kansas, and Illinois. To take advantage of these wind resources and other renewable energy projects in the lengthy interconnection queue, long-distance transmission lines are required to transport electricity to customers.

To address these three factors, energy system experts say longer, high-voltage transmission lines, rated for 345-kilovolt (kV) capacity or greater, are a necessity. High-voltage lines, including recent merchant transmission lines, like the ambitious North Plains Connector discussed later in this report, are more efficient and cost-effective than shorter local lines. These lines are better equipped to transport electric power across the country, reduce costs, and enhance grid resilience during extreme weather events.

Yet, more work needs to be done to advance these types of transmission projects. After the end of a spike in construction spurred by the Texas Competitive Renewable Energy Zone[2] lines in 2014, the construction of large, high-voltage projects has stalled over the past decade. Construction dropped from 1,489 new miles a year to just 55 miles in 2023, though construction rose again in 2024 to 275 miles, as shown in Figure 1.

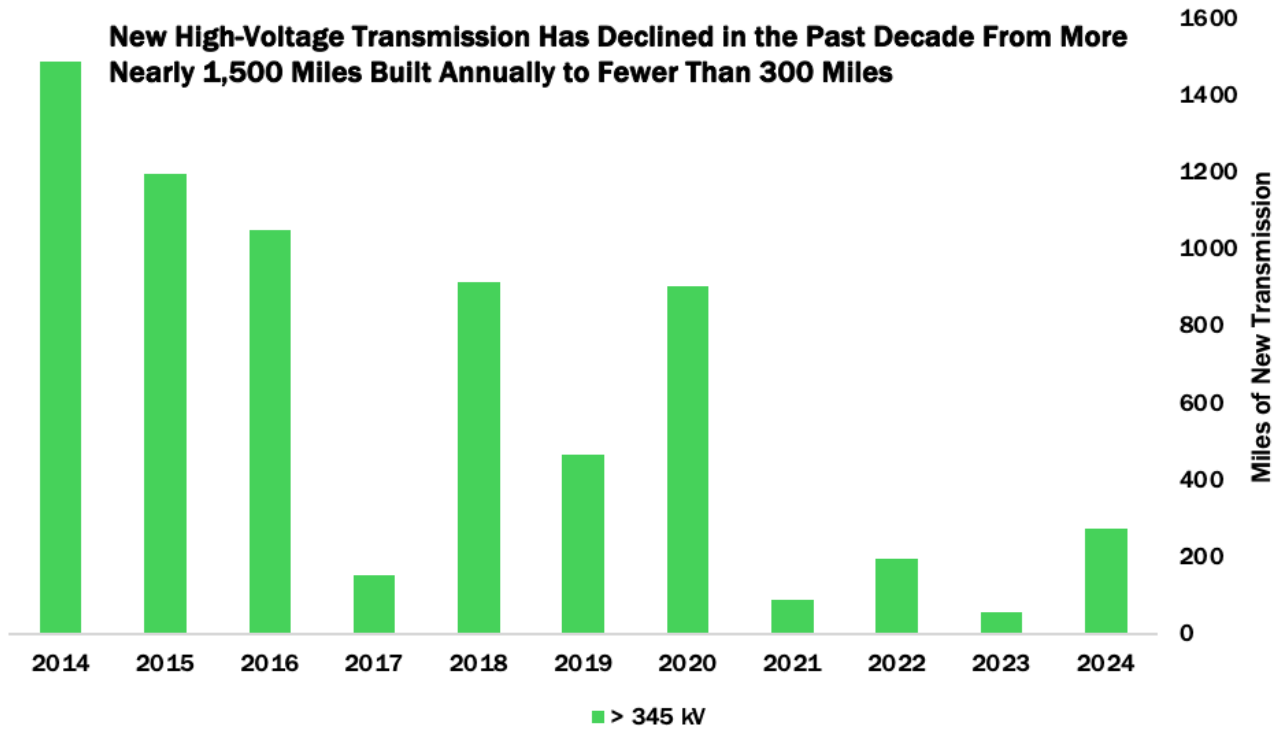


Figure 1: Data from FERC's Office of Energy Projects Energy Infrastructure Updates 2014-2024.

[2] Since 2005, Texas' Competitive Renewable Energy Zones (CREZ) have allowed the Public Utility Commission of Texas and its transmission operator, the Electric Reliability Council of Texas (ERCOT), to designate zones that warrant transmission buildout given their robust renewable resources. This effort represents a proactive investment in transmission infrastructure, rather than a reaction to reliability or congestion issues.

This low volume of new high-voltage transmission construction amid projections of growing energy demand, as well as increased grid reliability challenges due to intensifying extreme weather, poses an important question: If the demand for new transmission is clear, why has it been so challenging to successfully build new transmission lines?

Local Opposition and Its Relationship With Other Transmission Barriers

Building new, interstate transmission lines is easier said than done, as regional and interregional transmission projects are highly complicated to permit and plan. Even after approval, lines may face other challenges that prevent their ultimate siting, permitting, and completion. A central factor complicating transmission buildout is local opposition, which may be stoked by lengthy siting and permitting processes, obstacles to connect new energy generation to the grid, and high capital costs, among other factors.

A recent Niskanen Center report found that, since 2010, litigation and public opposition contributed to delays or cancellations in 27% of 37 transmission lines analyzed. Beyond the landowners whose land a line may cross, the broader community near a proposed route may also organize to oppose the project at any point during the siting and development of the line. Local opposition can take many forms, from disagreements settled privately with a transmission developer to contentious public litigation against a line. A few important barriers to transmission deployment that may arouse or exacerbate local opposition are worth exploring in greater depth:

1. **Siting and Permitting:**[3] Transmission permitting alone takes on average 6.5 years, and often takes 10 years or longer. This is to say nothing of the time that it takes to plan, site, and construct the line. Decision-makers responsible for approving permits at the federal, state, Tribal, local, and even individual level can have conflicting priorities and responsibilities that make consensus difficult in the permitting process. Community and landowner opposition often affects the siting process, when developers must purchase or acquire the rights to the land a line will cross. Individual landowner concerns are extremely common, and whether a developer can and does use eminent domain to obtain access to land can greatly exacerbate tensions surrounding a project. Stakeholders may learn about proposed projects at various times during the siting process, which can lead to tension and opposition if individuals or groups feel they've been left out of earlier parts of the planning process.

   Furthermore, there is no federal permitting process for transmission lines, though the federal government is often involved in transmission projects, such as when proposed

[3] Siting and permitting are typically discussed together, though siting refers to the exact rights of way for a transmission line, and permitting refers to the various approvals required for the line.

lines cross state borders or pass through public lands. In general, states[4] retain the principal authority to site and permit transmission lines. As such, states must ultimately determine if a line is in the public interest through analyses of the electrical grid and a cost-benefit analysis of the project. If a project is deemed in the public interest, states will grant the developer the right to construct, own, and operate the proposed line. This is most often done by granting a certificate of public convenience and necessity (CPCN) to the developer.

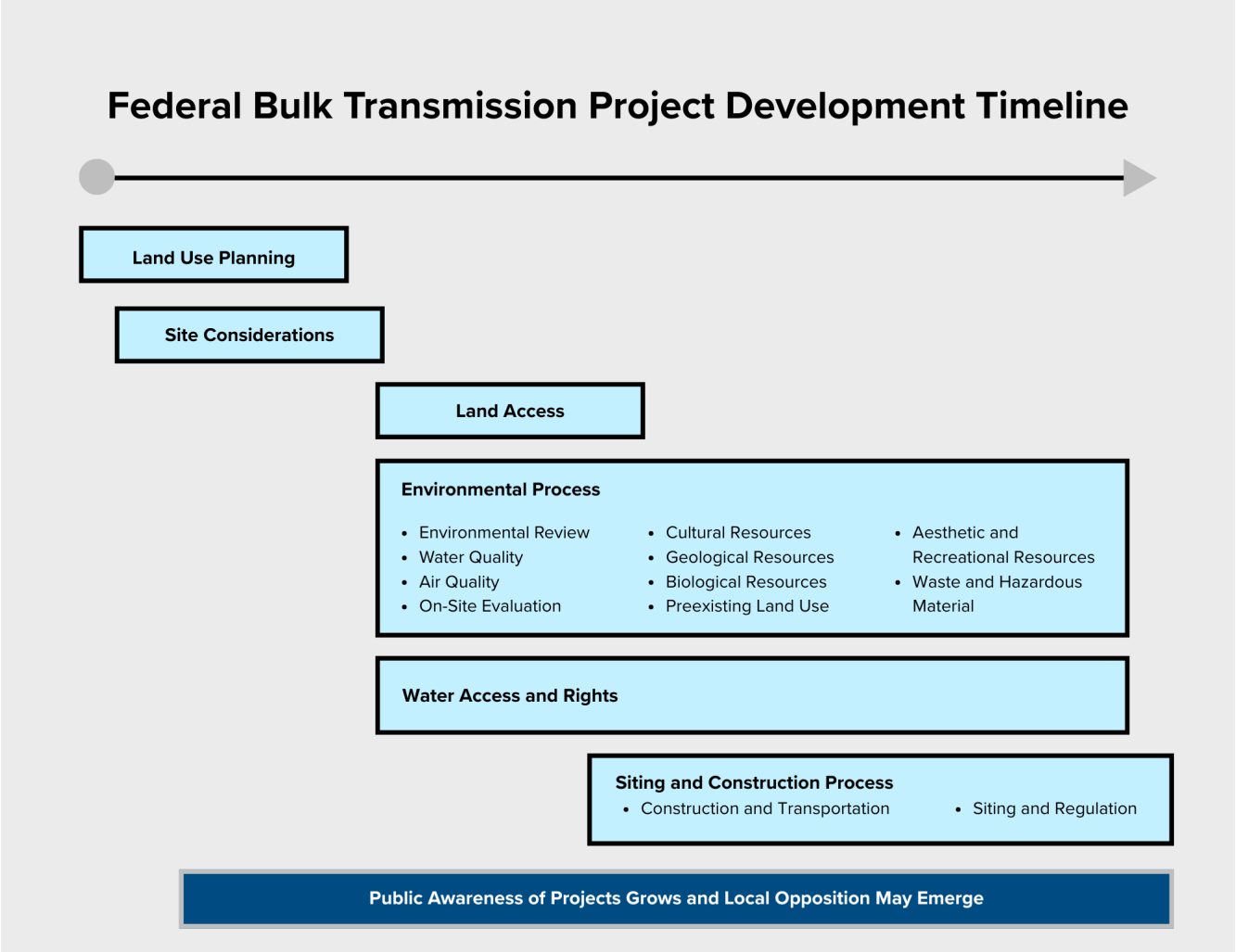


Figure 2: Timeline taken from DOE's Regulatory and Permitting Information Desktop Toolkit on bulk transmission regulations and permitting.

2. **Interconnection:** The inefficient interconnection process poses challenges for transmission buildout and can give rise to community opposition. The amount of time it takes for a new energy project seeking transmission interconnection has increased from

[4] In 33 states, the public utility commission (PUC), public service commission (PSC), corporation commission, or equivalent entity is responsible for approving the need for and route for a transmission line. Eight other states have dedicated siting boards tasked with the approval and siting of transmission lines. The remaining states either leave siting decisions to a state energy or environmental agency or leave most siting decisions to the local level. As a result, a transmission line that crosses state boundaries will see a different process in every state. Since 2005, the Federal Energy Regulatory Commission has held limited "backstop authority" for the permitting of interstate transmission lines in designated "National Interest Electric Transmission Corridors" in order to move forward proposed lines deemed in the public interest. As of 2025, this authority has never been exercised.

less than two years in 2005 to a median of five years in 2023. These long queue times delay the identification of the need for and construction of transmission, raising costs for potential investors in new energy generation projects. In the last two decades, fewer than 19% of projects in the interconnection queue have been built, with most projects withdrawn due to the long queue time. Landowners and communities experience fatigue and become distrustful when asked to engage in a project for an extended period of time – like the interconnection queue timeline — only to be let down when a project ultimately doesn't go forward. This fatigue can pose challenges for future developers who are considering locations that may be open to hosting projects.

3. **High capital costs and misaligned incentives for building transmission:** Transmission projects have high capital costs, and determining how to distribute those costs is often a challenge. However, the existing cost allocation process does not incentivize utilities to build longer transmission lines, as it offers no additional return for utilities that build outside of their service territory. This has led to a surge in transmission lines proposed by merchant transmission companies, which don't rely on utility rate hikes to recoup the costs of their investment. In fact, nearly all recent interregional transmission lines have been proposed by merchant developers. Merchant development differs meaningfully from public utility-led transmission development, with merchant developers required to make the case for the public benefits from and public need for a transmission project before they may receive the authority to pursue development through eminent domain. This may drive, in part, some of the engagement and benefits efforts that merchant developers have undertaken to build public consensus around the lines that they propose. The larger, more expensive, interregional transmission projects pursued by merchant developers face unique challenges with securing community support for a line, leading some merchant transmission developers to pursue community benefits strategies to mitigate local opposition.

Taking into consideration the sum of these challenges, it is clear that effective strategies to inform and engage the public about national transmission needs will be essential, but that one-way, developer-to-community communication is far from sufficient. Communities and impacted landowners also need assurance — via binding contracts, public commitments, or otherwise — that projects will directly and meaningfully benefit them, and that developers of transmission lines can be expected to uphold their responsibilities to deliver benefits from and mitigate impacts of such projects. This assurance can come in a variety of forms, ranging from CBFs negotiated directly with host communities, to compacts that require developers to meet a strong standard for community engagement practices, as in the case of the Colorado Electric Transmission Authority's Principles of Community Engagement. Greater clarity about the types of local benefits that communities can receive from hosting transmission lines, along with positive community reception of benefits negotiation processes, can make the case at the state level that such lines are in the public interest, smoothing potential challenges in the cost allocation process even for complex, multistate lines. Lessons learned from projects in other sectors of the economy that employ community benefits frameworks offer important insights for transmission developers to consider.

Research Approach

To understand under what conditions, if any, communities are willing to accept transmission projects in their area, the researchers undertook a mixed-methods approach, including both desk and field research, to identify current challenges in the transmission sector with local opposition, as well as how various stakeholders are attempting to overcome such challenges. In addition to transmission sector-specific research, the authors collected and produced a database of community benefits frameworks that analyzes the provisions and benefits included within these CBFs across a range of development and energy projects. This analysis was supplemented by literature reviews and extensive conversations with stakeholders involved in advocating for, producing policy around, or negotiating and implementing CBFs. This research builds upon broader findings from the community benefits movement and CBFs used throughout different sectors of the economy, by offering a more granular analysis of community engagement and benefits in the transmission context. It also adds to other efforts undertaken to explore the value of community benefits approaches in the transmission sector, including the PACE of Trust report issued by Americans for a Clean Energy Grid earlier this year.

A DFP survey of national likely voters fielded last fall sheds light on perspectives from the individuals who often have had little or no direct engagement with transmission projects, thus capturing voters' initial impressions and concerns about transmission. For additional insight on grassroots stakeholders, the researchers conducted four focus groups in two regions critical for transmission deployment: New England and the Great Plains. These groups included rural residents and landowners, and probed perceptions of transmission in each respective region — one where a greater share of transmission projects have historically been developed or are under development, and one with great need for transmission and significant congestion impacting the electrical grid.

Three merchant-owned transmission lines – SOO Green, North Plains Connector, and Grain Belt Express – are also examined via case studies to understand how developers engage with key stakeholders, including landowners, government officials, labor and academic partners, nongovernmental organizations (NGOs) and others on projects. These interregional, high-voltage lines are particularly prone to deployment challenges, while being incredibly important for the grid. Researchers engaged in desk research and interviews to study each line's engagement process and negotiation of monetary and non-monetary benefits.

Finally, the researchers conducted semi-structured interviews and a survey of "grasstops" stakeholders in the transmission landscape. In this study, grasstops stakeholders include transmission developers and trade groups, as well as advocates, policymakers, regulators, representatives of community organizations, and legal and academic experts involved in transmission projects. A survey and semi-structured interviews with grasstops stakeholders expose the challenges faced by transmission advocates with community engagement, particularly when incorporating community benefits into transmission projects and their efforts to overcome or mitigate any community opposition. This report synthesizes the findings and recommendations from these case studies, surveys, focus groups, and interviews. Full methodology can be found in the appendix of this report.

Overview of Transmission Project Case Studies

Three high-voltage direct-current (HVDC) merchant projects — the SOO Green, Grain Belt Express (GBX), and North Plains Connector (NPC) lines — are analyzed, with a focus on developers' landowner engagement practices and the monetary and non-monetary benefits offered to host communities. These transmission lines were selected because of their length, capacity, and interregional footprints, meaning they are representative of the very multivalue, high-benefit lines that transmission developers in the U.S. have had such difficulty building to date.

Developers, landowners, officials at various levels of government (including Tribal government), unions, academics, NGOs, and other stakeholders participated in interviews about these projects. By studying these projects, this report explores engagement strategies and community benefits practices that could make interregional lines easier to build.

- **SOO Green:**
  - The SOO Green HVDC Link is a 350-mile interregional underground transmission line that will be built along an existing railroad right of way in Iowa and Illinois. If completed, it will be the longest underground transmission line in the U.S., connecting wind resources in the Midcontinent Independent System Operator (MISO) region to the Pennsylvania-New Jersey-Maryland Interconnection (PJM) market. The project is being developed by a project-specific limited liability company (LLC), in collaboration with a wide range of investors and partners, including Jingoli Power and Siemens Energy. SOO Green is in the permitting and siting phase, and expects to be operational by the early 2030s.

- **Grain Belt Express (GBX):**
  - GBX is an 800-mile, 5,000 MW, 600-kV HVDC transmission line connecting wind resources in Kansas and Oklahoma to load centers in PJM, MISO, and Southwest Power Pool (SPP). If completed, it will be the longest transmission line in the U.S. The project was originally owned by the merchant transmission developer Clean Line Energy before being sold to Invenergy in 2018. While initially proposed in 2010, GBX is still in the permitting and siting process, with the first phase of the line expected to be operational by 2029, and construction in Kansas and Missouri set to begin in 2026.

- **North Plains Connector (NPC):**
  - NPC is a 420-mile, 525-kV HVDC transmission line running from Montana to North Dakota. Grid United is developing NPC along with various utility partners, including Allete and Portland General Electric. The line will connect the Western and Eastern Interconnections, adding 3,000 MW of bidirectional transfer capacity — more than double the current capacity — between the two grid systems. The line will also facilitate trading between the SPP, MISO, and Western electricity markets. This is important for improving grid resilience during extreme events, by allowing the import of electricity from other markets. For example, research shows

interregional transmission could have prevented 80% of the blackouts experienced in Texas during Winter Storm Uri. NPC is in the permitting and siting phase, with construction slated to commence in 2028 for the line to be operational by 2032.

Overview of Regions Selected for Transmission Focus Groups

Transmission projects face unique challenges that can vary widely by region. This study focuses on New England and the Great Plains to examine diverse transmission environments and challenges, including those that are grounded in how the public perceives transmission and its impact on their communities.

Two focus groups were conducted in each region, for a total of four groups, with discussions lasting 90 minutes and taking place over Zoom. In total, 43 participants joined the focus groups, with no focus group having fewer than 10 participants. DFP worked with an external firm to recruit participants for the groups, setting quotas to seat a representative sample of residents in each region, including overrecruitment of landowners and rural residents. DFP worked with WRI to develop the discussion materials, and a trained DFP moderator led the focus group discussions with support from DFP staff. The discussions were designed to probe perceptions of transmission infrastructure and the electric grid, and to understand how residents viewed CBFs as a potential tool to mitigate concerns about transmission development and deliver tangible benefits to their communities.

New England

New England – defined in this study as Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont — has some of the lowest transmission congestion in the country. The lack of congestion is a result of significant transmission investments over the past decade by incumbent utilities, which have nearly eliminated congestion costs in the region.[5]

Despite the benefits of these investments, they've resulted in high transmission service costs as utilities have issued rate increases to recoup their investments in the grid. In fact, the Department of Energy's 2023 National Transmission Needs Study found the cost to build transmission in New England is $5.90/MWh, more than three times the national average between 2011 and 2020 of $1.80/MWh, which translates into higher costs for ratepayers in the region. New England has more than 9,000 miles of high-voltage transmission lines, including 13 interconnections to neighboring grids in New York and Canada for importing electricity. As a result of transmission investments, New England is able to readily dispatch electricity to other regions as needed, connect new renewables to the grid, and limit power outages.

Nonetheless, new transmission is still needed in New England to upgrade aging infrastructure, bring more renewable energy online, and lower energy prices. Specifically, ISO New England estimates between $620 million to $1 billion in new transmission investments will be needed

[5] Congestion costs refer to the additional expense utilities must pay for higher-cost generation due to a lack of capacity on the transmission grid to deliver the lowest-cost electricity, which raises customer costs.

every year through 2050 to ensure reliability and accommodate clean energy from offshore wind and Canadian hydropower. Notably, New England has been the location of several contentious transmission projects – such as the New England Clean Energy Connect project and its connection to the Northern Pass proposal, both aiming to bring power from Canada into the U.S. – in recent years, making it an important region to study in order to understand patterns around local opposition to transmission projects.

The Great Plains

The central and northern Great Plains states lie within one of the most transmission-constrained regions of the country. For the purposes of this study, the Great Plains includes Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. This region has the second highest intraregional transmission growth needs nationally,[6] with an estimated 119% increase in capacity needed by 2035, relative to the 2020 system, under a moderate load and clean energy growth projection model.

Additionally, the North American Electric Reliability Corporation (NERC) identified the Great Plains as having some of the lowest transmission transfer capability in the country. This means that the region has difficulties ensuring reliability during extreme weather events, as it has little ability to pull electricity from other regions. Given that the region experiences a variety of extreme weather and climate-related disasters, including floods, droughts, extreme heat, tornadoes, hurricanes, and winter storms, its limited transfer capability presents acute and ongoing threats to grid reliability.

Due to their central location and vast wind resources, the Great Plains are crucial for further interconnection of the Eastern and Western grids to improve interregional congestion and distribute clean wind power. In particular, the Great Plains[7] are home to a significant percentage of the country's untapped renewable energy potential, containing 76% of total U.S. wind capacity in 2019. Thus, to connect low-cost wind resources to Americans across the country, additional transmission capacity is needed.

Fortunately, the region has already proposed 11 new transmission projects. Many of these lines would be the longest lines built in decades, including the 800-mile Grain Belt Express and the 420-mile North Plains Connector. Despite the high cost of transmission, increased transfer capability is cost-effective for neighboring regions, meaning that the short-term costs may be outweighed by long-term benefits and regional cost savings.

[6] Texas is the only region with higher transmission needs under a moderate load and clean energy growth projection model.
[7] The authors of this report defined the Great Plains to align with the U.S. Census definition for the "West North Central" division in the Midwest.

Key Lessons From Community Benefits Frameworks in the Context of Large Development Projects

Community Benefits Abbreviations

BIL	Bipartisan Infrastructure Law
CBA	Community Benefits Agreement
CBF	Community Benefits Framework
CBO	Community Benefits Ordinance
CBP	Community Benefits Plan
CWA	Community Workforce Agreement
DOE	Department of Energy
GNA	Good Neighbor Agreement
HCA	Host Community Agreement
IRA	Inflation Reduction Act
PLA	Project Labor Agreement
PWA	Project Workforce Agreement

CBFs are sets of agreements and plans that can deliver tangible, direct benefits to communities impacted by development projects through direct engagement and negotiation with a community. CBFs include formal, legally binding CBAs, which are signed between a community coalition and a project developer, as well as a suite of other frameworks, GNAs, HCAs, and PWAs. These frameworks have a long history, with one type of CBF – PLAs – dating to the 1930s, when the federal government used PLAs for dam construction projects. CBFs have been employed across a wide range of sectors, from mines to renewable energy facilities.

CBFs may involve diverse negotiation strategies and partners, and lead to a wide range of project outcomes. Often, these are voluntary agreements that may be initiated by a community group that engages in a development process or by a developer seeking to overcome local opposition to a project; however, they can also be required, as in the case of municipal CBOs that apply to all development projects that meet certain criteria. Frameworks can also vary widely in terms of who participates in the negotiation process and what benefits are promised as part of a project. Labor benefits, including local hire provisions, benchmarks for diverse hiring, and apprenticeship and training opportunities, are common features of CBFs. Other benefits may focus on education, housing, economic development, environmental improvements, and infrastructure. CBFs offer more expansive benefits than the jobs or economic investments that typically come with a development project, with communities securing benefits like union labor commitments, educational programs, and road improvements.

In recent decades, two key developments have driven heightened interest in CBFs. The first took place in the late 1990s and 2000s, with the emergence of a national community benefits movement advocating for the use of CBAs. Building on efforts from legal scholars, like Julian Gross, and labor and economic development movement partners, these advocates identified

past patterns of project development that resulted in an unequal distribution of negative local environmental, social, and economic impacts, and sought to improve development practices through CBAs. With CBAs, advocates worked to deepen community engagement and improve development processes for large-scale urban infrastructure projects, like sports stadiums or airports. In particular, members of the community benefits movement premised their CBA efforts on the idea that development projects should bring quantifiable positive impacts and benefits to host communities, and especially low-income communities and Black and Latino communities that have endured environmental and economic injustice.

The first[8] "fully fledged" CBA was negotiated in 2001 between community groups and the developer of the Staples Center in Los Angeles, California (presently named the Crypto.com Arena). This project engaged more than 20 community groups in the CBA negotiation and yielded an estimated $150 million in committed benefits. Since 2001, dozens of community benefits negotiations have taken place nationwide. These negotiations have yielded tangible benefits for communities across many sectors and states, while also raising questions among groups over how to make CBFs a more durable strategy for reshaping economic development. To this end, the community benefits movement has worked to embed community benefits in local, state, and even federal policy.

Second, the development of government-mandated CBFs has heightened interest in the frameworks. Historically, CBFs had largely been driven by community groups that engaged with the private sector in response to individual development projects. In the 2010s, however, Detroit, Michigan, pioneered the country's first CBO, which codified a formal CBF into law for certain development projects. Additionally, certain states, like New York, also worked to make certain types of projects subject to community benefits requirements. Organizations like Jobs to Move America, Reimagine Appalachia, and Fair Shake Environmental Legal Services have taken central roles in negotiating or creating capacity for organizations to enter into CBAs and building consensus around the opportunities offered by CBFs for reenvisioning how economic development can be done.

It's within this context, then, that federal policymakers sought to ensure that developers seeking public, federal funding engaged with communities and delivered community benefits. The Bipartisan Infrastructure Law of 2021 and the Inflation Reduction Act of 2022 required developers to submit community benefits plans (CBPs) for most projects that would receive Department of Energy (DOE) funding, including transmission upgrade and expansion projects advanced under these laws.[9] CBPs outline the community and labor benefits developers would embed in their projects, as well as how they intend to engage with the project's host community,

[8] Notably, while the Hollywood and Highland Center development in Los Angeles underwent a community benefits negotiation three years earlier in 1998, this development is seen by some sources as an archetype and predecessor of later CBAs. It shares many characteristics, with the exception that this project was initiated by a local politician (specifically, Los Angeles Councilwoman Jackie Goldberg worked with the Los Angeles Alliance for a New Economy to advocate for this CBA), rather than a community coalition.

[9] CBPs are distinct from CBAs as they are agreements between the developer and federal government, rather than with communities.

address community concerns, and integrate community input into a project plan.[10] Adding to successes achieved via PLAs for public infrastructure projects, CBPs marked an expansion of efforts to ensure that projects receiving public funds deliver tangible benefits to communities.

In particular, the Biden administration saw CBPs as a tool that the federal government could wield to reduce local opposition and delays to project construction in the clean energy sector, while ensuring economic and other material benefits accrued to communities that have faced historic disinvestment. By requiring developers to meet their stated CBP objectives to pass the DOE's Go/No-Go periodic review process and receive their funding award, CBPs also increased developer accountability.

While the current administration has deprioritized community benefits, and it is unlikely that the federal government will require CBPs under any new funding opportunities in the near future, CBPs are still shaping the implementation of hundreds of federally funded clean energy and grid projects. Despite headwinds federally, the community benefits movement remains strong at the state and local level, with communities, policymakers, and developers nationwide exploring CBFs.

Learnings From Community Benefits Frameworks

Although CBFs for linear infrastructure face unique negotiation and implementation challenges due to the number of communities and stakeholders that may be impacted by a project, CBFs successfully used in a wide range of development projects can still offer applicable lessons for the transmission context. The following is a set of best practices for engaging a community to develop CBFs that are effective and durable. These best practices emerged from the case studies and an evaluation of CBFs contained in this database:

1. **Capacity and resources:** Effective community participation in community benefits negotiations requires that community groups and members have sufficient capacity, information, and resources to engage at the negotiation table. This may include technical, legal, financial, and regulatory resources, depending on the project and impacted community.
2. **Transparency and communication:** Stakeholders interested in pursuing a CBF should undertake transparent, ongoing community engagement processes that allow for multiway communication between a developer and community stakeholders, rather than just one-way notice of a project by a developer to a community.
3. **Trusted representatives:** CBF negotiators must be trusted representatives of the impacted community, who understand its needs and concerns about potential infrastructure impacts and can liaise effectively between a community and a developer.

[10] CBPs contractually bind developers to the government as a condition for receiving federal funding, though they are not necessarily equivalent to other CBFs in design or function. That said, a CBP may later result in a legally binding agreement, such as CBA, PLA, or GNA.

4. **Context-specific:** A one-size-fits-all approach to crafting a CBF is unlikely to yield an effective or locally relevant CBF. It is essential that CBFs are tailored to a community, such that their design, benefits, and other commitments are responsive to community needs, concerns, and goals.

5. **Specific and measurable:** CBFs should be specific, measurable, and clear, both about what benefits are promised as part of a project, and how and when those benefits will be delivered.

6. **Accountability:** Durable CBFs should include provisions for the monitoring and enforcement of any agreement, and, as needed, details on how developers will be held accountable for any noncompliance with the terms of a CBF.

The short case study below offers an example of a successful CBA negotiated between a carbon dioxide pipeline developer and a community organization that shares some similarity with transmission lines, as a pipeline is also a form of linear infrastructure impacting many communities.

CASE STUDY: TALLGRASS TRAILBLAZER CARBON DIOXIDE PIPELINE

By pursuing effective community engagement and benefits strategies, some large right-of-way projects have experienced success in recent years, such as the Tallgrass Trailblazer 392-mile carbon dioxide pipeline from Nebraska to Wyoming. The $1.5 billion Trailblazer project will transport CO2 from ethanol production in Nebraska to be sequestered underground in Wyoming. The project's success in overcoming community opposition can be attributed to the developer's robust community engagement and the negotiation of a first-of-its-kind CBA with Bold Alliance for a carbon dioxide pipeline. Notably, as of February 2025, Tallgrass secured 100% of the project right of way without the use of eminent domain, signing more than 1,000 easement agreements.

In 2024, Tallgrass signed a first-of-its-kind community benefits agreement with Bold Alliance. Bold Alliance, formerly Bold Nebraska, served as the community partner on this project, engaging with Tallgrass because of its roots in the state and well-established reputation with local stakeholders, including landowners currently hosting natural gas pipeline infrastructure, who would be impacted by the project. The CBA establishes a series of community initiatives and creates landowner rights protections throughout the pipeline's life cycle, from early project development through easement negotiations, operations, and decommissioning. One such initiative, which is unique in the development of CO2 pipeline infrastructure, is Tallgrass' agreement to pay a 10-year, two-part, shared value program, where landowners and a community foundation both receive an annual endowment – equal to $0.10 per ton of CO2 sequestered on the system annually. Other benefits in the CBA include the option for landowners to receive a lump-sum upfront payment or annual payment for the easement, the requirement for Tallgrass to remove the

pipeline at the project's end of life or provide an additional $15,000 per landowner to leave it in place, training and equipment for first responders along the route, the distribution of annual public safety notices, and a $500,000 initial donation to a community fund. These benefits were responsive to local concerns about the project and helped achieve greater community buy-in for the pipeline conversion.

However, CBFs can fall short, particularly when community participation is low or nonrepresentative, or if negotiators are not able to effectively identify and represent a community's needs at the table. A CBF can be weak if an agreement lacks enforcement mechanisms or when its benefits are nonbinding or arbitrary. As a result, CBFs should be viewed as one part of a comprehensive engagement strategy that aims to mitigate local opposition and ensure community benefits, rather than a standalone solution.

Pairing Community Benefits Frameworks and Transmission

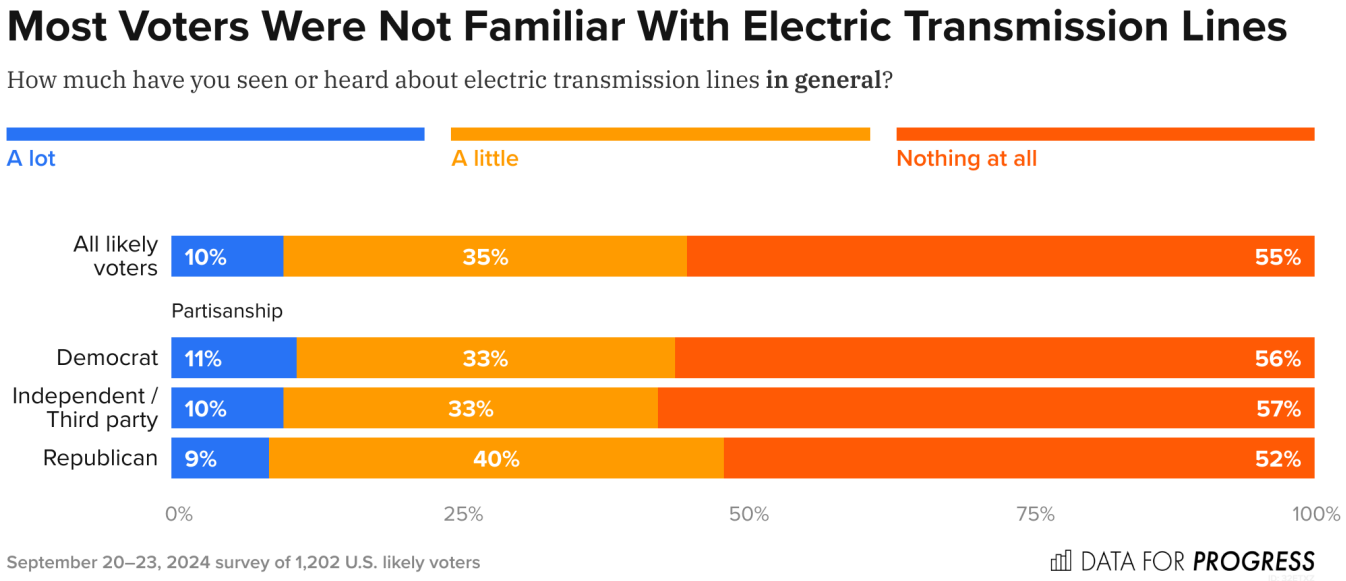
Transmission advocates are already thinking about CBFs as potential tools to mitigate local opposition toward transmission projects. Transmission developers, national NGOs, and state and local groups involved in transmission deployment are exploring lessons from CBFs, leading to outcomes like the consensus-based process to develop the PACE of Trust framework or above-and-beyond community engagement and benefits efforts undertaken by merchant transmission developers.

For example, the Colorado Electric Transmission Authority (CETA) engaged with transmission and clean energy developers, clean energy trade associations, and public officials and community groups to develop community engagement and benefits principles. These principles went through iterative review and public comment throughout 2024, with CETA's board voting to implement the principles as a conditional requirement for CETA to work with prospective transmission developers in Colorado. CETA's transparency throughout the development, drafting, revision, and ultimate adoption of these principles was a strength of its engagement process. While there has been limited opportunity to evaluate their success given their recent adoption, these principles will be a valuable model for other state transmission authorities to consider as a complementary, above-and-beyond approach to the public engagement required by the transmission siting and permitting process.

What Does the Average American Think About Transmission?

Initial Perceptions and Views About Transmission

While power reliability and energy costs in general may be topics of household discussion, Americans are less informed about the structure and function of key grid infrastructure. In a September 2024 Data for Progress survey, voters were generally not familiar with electric transmission lines. More than half of voters (55%) said they had heard nothing at all about transmission lines, with only 1 in 10 voters saying that they had heard a lot about them. This low level of awareness has contributed to challenges in building out transmission infrastructure, as opposition often stems from a vocal minority of individuals who are primarily concerned about the visual, landowner, or cost impacts, rather than the broader needs of the electrical grid. A majority of voters are unaware of transmission projects altogether and are not engaged enough to support or oppose them based on their impacts.



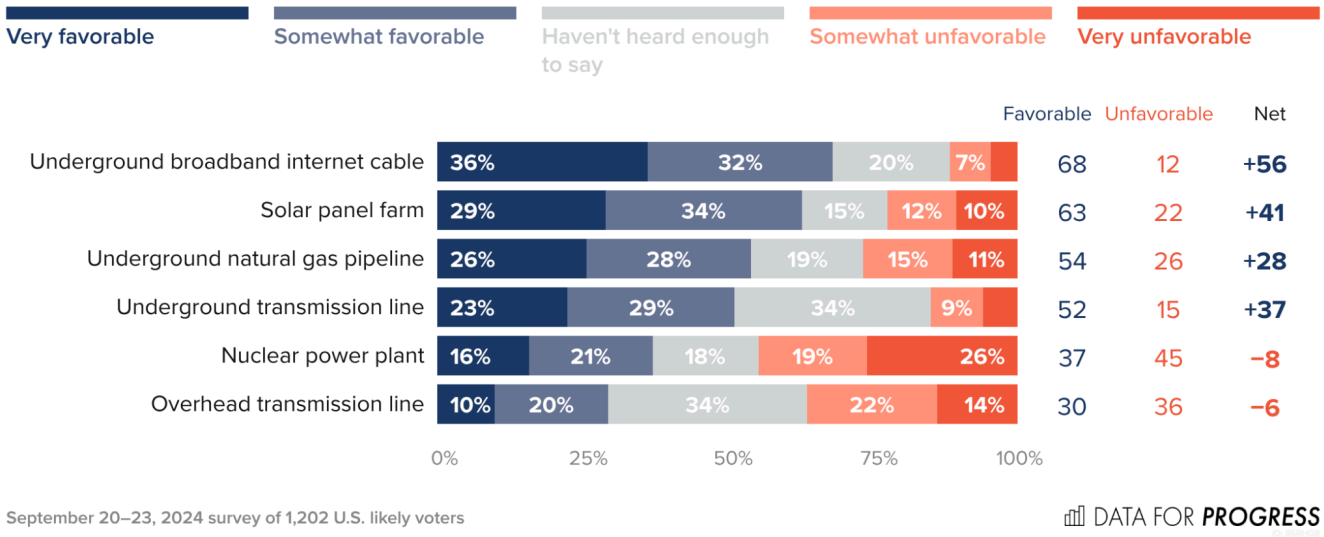
In focus groups, participants could identify that transmission infrastructure had something to do with the electrical grid, but were relatively unfamiliar with the difference between transmission and distribution lines. Some participants – particularly in the New England focus groups – had a more sophisticated understanding of transmission, which they attributed to familiarity with transmission policy developments at the state level, like the NECEC CMP Corridor Project in Maine that was defeated by a state ballot referendum in 2021 (though construction restarted in 2023 after the Maine Supreme Judicial Court declined to uphold the ballot initiative after the developers went to trial), nearby transmission projects, or actions taken by their utility company related to grid infrastructure, like proposals to raise rates. Overall, these findings highlight a communication and knowledge gap that project developers, utility companies, and other stakeholders involved in the siting of transmission projects need to fill.

Views of Transmission Compared With Other Types of Large Energy Infrastructure

Survey respondents were also asked whether they had favorable or unfavorable views of building other kinds of energy infrastructure projects in their communities. Thirty percent of likely voters (a -6-point net margin) perceived overhead transmission lines favorably. Underground transmission lines fared better: 52% of voters viewed them favorably (a +37-point margin). Underground transmission lines had a comparable favorability rating to underground natural gas pipelines, which were viewed favorably by 54% of voters (a +28-point margin). Altogether, transmission lacked familiarity when compared with other types of energy infrastructure. When paired with focus group findings and the SOO Green case study, responses suggest that undergrounding infrastructure could foster greater community acceptance of a transmission project.

Voters Viewed Underground Transmission Lines More Favorably Than Overhead, Though Both Are Less Familiar Than Other Energy Infrastructure

Do you have a favorable or unfavorable opinion, if any, of the following types of projects being built in your community?



September 20–23, 2024 survey of 1,202 U.S. likely voters

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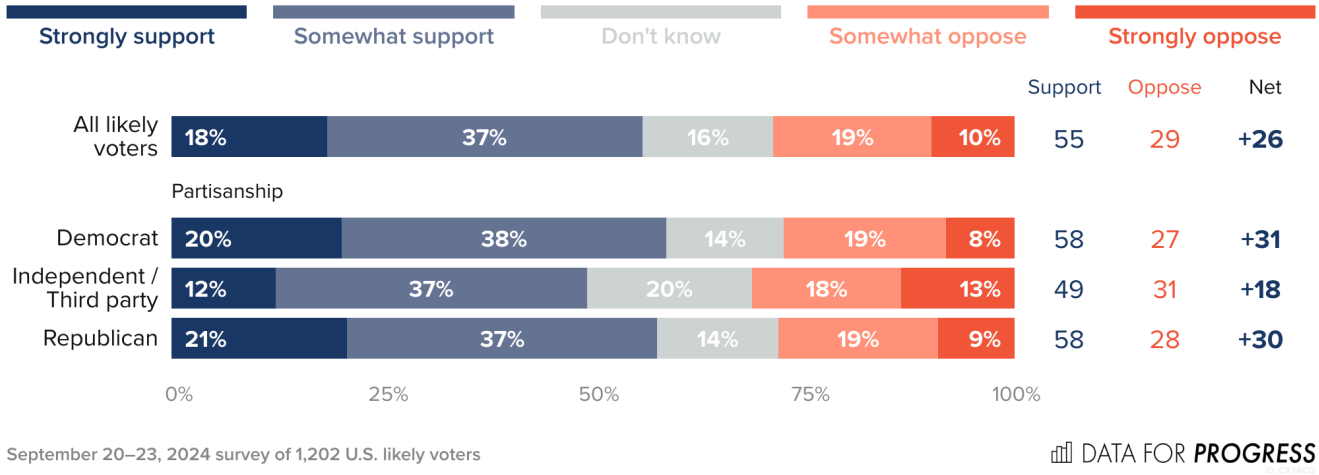
Furthermore, a little over half of voters (55%) said they would support having a transmission project built in their community after reading a short description of transmission lines, which mentioned their purpose and noted that they are typically installed overhead. Around 3 in 10 voters (29%) said they would oppose having a line built in their community, while 16% were unsure either way.

A Majority of Voters Supported a Potential Transmission Line Being Built in Their Community

Transmission lines carry energy from one point of the electric power system to another. These lines are typically overhead and they transport large quantities of high-voltage electricity over long distances.

In general, would you support or oppose a **transmission project** being built in your community?



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At the beginning of each focus group, participants shared about their existing understanding of transmission infrastructure. In addition to correctly describing transmission lines' function in moving electricity from where it is generated to where it is used, participants also generally described transmission lines as being tall and overhead. After they were presented with images demonstrating what transmission infrastructure looks like and descriptions of its function, respondents questioned why so many lines were overhead instead of underground.

Participants had initial concerns about both the visual impacts of transmission and adverse impacts to overhead lines from winter storms, in addition to concerns about the impacts of clearing land to install lines. A participant in the Great Plains asked, "Do we have any better solution? … Can we put it underground or something? We don't want to see it. It's ugly." Many participants correctly surmised early in the discussion that placing transmission infrastructure underground must be much more expensive, if not completely prohibitive, given the proliferation of overhead energy infrastructure. Participants generally lacked strong initial views toward transmission due to limited familiarity, but their immediate questions about the potential impacts of a line reflect the importance of listening to and responding to community members who voice concerns about transmission – as those concerns could turn into focal points of local opposition if not sincerely addressed.

Americans Recognize Transmission Is a Priority for the Grid

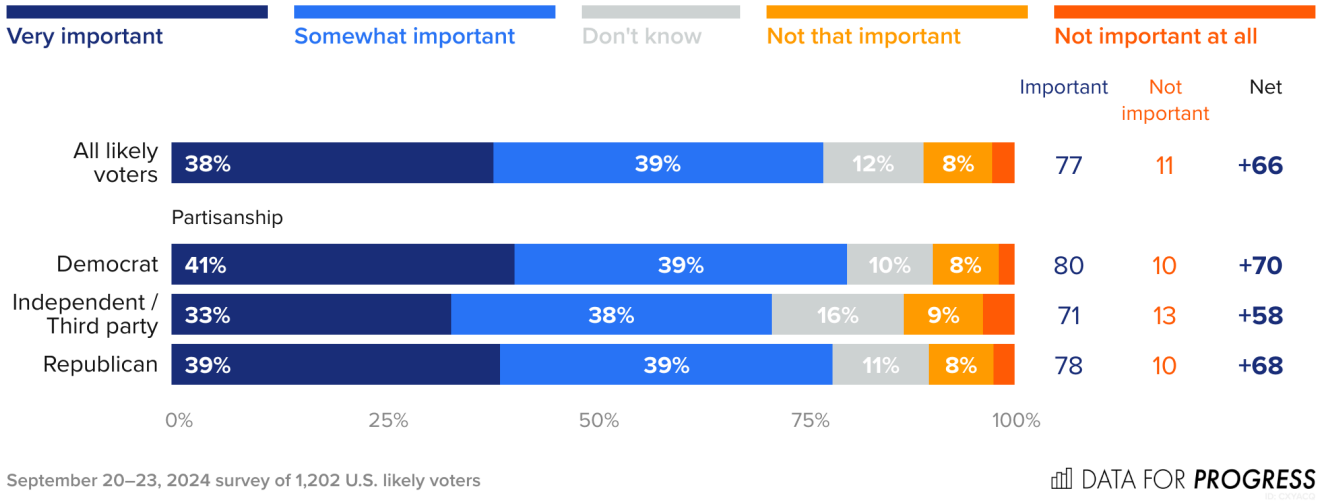
Despite concerns, focus group participants recognized that improving the transmission grid – insofar as it would enable greater reliability and accommodate necessary power demand – is an important priority. However, these broader goals around reliability and growing demand for energy can feel disconnected from people's day-to-day lives and energy needs, and thus

arguments around these goals do not necessarily defuse local opposition toward proposed transmission projects.

After voters read the short description of transmission infrastructure, there was strong consensus that it is somewhat or very important (77%) to expand the transmission grid in the U.S. Only 11% of voters thought it was not very important or not important at all to expand the grid, while 12% of respondents said they were unsure.

A Strong Majority of Voters Said Expanding the Transmission Grid Is Important

In your opinion, how important is it, if at all, to expand the transmission grid in the U.S.?



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The focus groups provide further context to these survey findings, with participants recognizing that the U.S. is experiencing growing electricity demand and is at risk of, and already experiencing, challenges with grid reliability. Although this research suggests communities understand the national importance of transmission infrastructure, this may not align with community perceptions of its local impacts. Communities experience the direct consequences of transmission construction, without necessarily feeling tangible, local benefits beyond the broad – and often indirect – reliability benefits from transmission.

That said, focus group participants held strong concerns about losing reliable access to power. As such, framing transmission projects by emphasizing the consequences and costs that electric utility customers will likely face from a failure to invest in transmission grid expansion and upgrade projects may be effective. Developers and policymakers thus have an opportunity to educate the public about the costs of investing in transmission, as well as the costs of *forgoing* transmission investments – which are expected to be far higher in the long term.

Understanding of the Need for Transmission

Across all four focus groups, concern about power reliability was a central theme, especially as electricity demand rises and extreme weather events intensify. Focus group participants mentioned the growth of electric appliances and vehicles, remote work, energy-intensive data

centers, and dependence on the electrical grid to support all manner of everyday activities as key drivers of energy demand that could threaten power reliability. A few participants also identified that much of the nation's power grid infrastructure was aging, creating specific reliability challenges. When asked to describe his understanding of the transmission grid, one resident of the Great Plains said, "As a whole, it's vastly obsolete. A lot of old, old things that need to be upgraded and modernized."

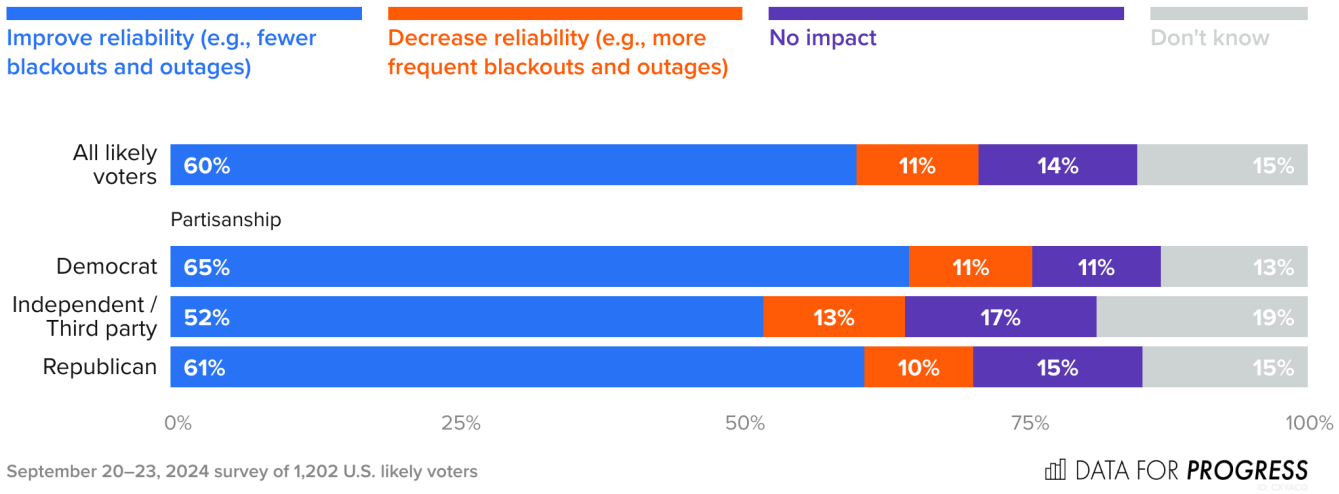
Participants consistently expressed anxiety about the potential for blackouts and power outages, particularly during the winter months and height of summer. Many participants shared their personal experiences with power failures and their impact on their daily lives. Notably, respondents from both the Great Plains and New England pointed to the 2021 Texas grid outage caused by Winter Storm Uri as an example of what could happen to the grid during severe weather events. Some participants even voiced that their support for transmission would be contingent upon whether local transmission investments protected them from experiencing severe outages like those endured in Texas. Expanding and upgrading the grid can benefit a variety of groups, including low-income households that face a high energy burden, elderly Americans and those with disabilities or other illnesses that make them medically dependent on electricity, and rural or remote households that may be at greater risk of blackouts.

Health and safety concerns about transmission were also prominent. For many participants, the thought of enduring long power outages in the winter raised fears about health risks, especially for vulnerable populations. In rural areas, the risk of prolonged outages due to heavy snowfall and ice storms was a particularly pressing concern. As one participant from New England noted, "We get a heavy snowfall or an ice storm and we're screwed for a week, maybe plus." Another participant from New England connected health and economic concerns to increasing energy demands: "There's so much having to do with medicine that is reliant upon electricity, and then so many people work from home and also, all the businesses. If we're having a lot of problems with electricity, how are we going to function? We've made ourselves totally dependent on electricity." The connection between transmission infrastructure and reliability was clear: Improving grid resilience was seen as essential to prevent disruptions from blackouts, particularly in low-income and rural areas where power restoration can take longer.

Supporting these focus group findings, 3 in 5 survey respondents said they believed the buildout of transmission projects would improve grid reliability on the whole.

A Majority of Voters Thought New Transmission Lines Would Improve the Reliability of the Electric Grid

How do you think building new transmission projects would impact the reliability of electricity, if at all?



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Notably, however, focus group participants did not view transmission infrastructure as intrinsically connected to climate change. Despite many participants expressing concern about the ability to connect renewable energy to the power grid and reap its potential benefits, transmission infrastructure was not seen as a solution to the climate crisis. Participants were more concerned about transmission's potential visual and environmental harm to their communities, as well as increases in utility bills from building more transmission.

From General Views to Considering Transmission in the Local Context

A crucial challenge for building energy infrastructure is that attitudes toward energy infrastructure *in general* are more positive than attitudes toward *specific* local projects. Ensuring that community members are well-informed about the critical role of transmission infrastructure for the electric grid may be insufficient to overcome this gap, which has been described as a "social gap" in the context of wind and other energy infrastructure development. Even when the grid-wide benefits of transmission may be understood, communities may not feel that they will accrue tangible, locally felt benefits from hosting a line, particularly if a line does not lead to local energy distribution or enable additional local power generation. Ultimately, this speaks to the importance of emphasizing which specific local benefits communities can expect from transmission projects. Developers and policymakers have an opportunity to cultivate local support for projects by adapting their communication strategies and educating people on the *local* value proposition of transmission, as opposed to its larger *societal* benefits.

Overall, the insights from surveys and focus groups point to a central conflict facing transmission advocates: Though individuals with little direct experience with transmission can recognize the importance of grid reliability and perceive transmission infrastructure neutrally (or even positively) upon first introduction, they also have significant concerns and questions about practical impacts of transmission. These practical impacts range from concerns about how birds are affected by transmission lines and how their utility bills may increase, to fears that

transmission lines will harm farmers' way of living and disrupt the visual character of rural communities.

To this end, the grassroots focus group discussion probed potential concerns that respondents would have about transmission infrastructure being sited in their local area *or* on their own property. In response, participants emphasized the importance of gaining a nuanced understanding of the local context and specific concerns of the impacted community, with participants suggesting that surveys and interviews at the individual or community level could be a tool to gather local perspectives. Participants most frequently cited the potential impacts of transmission on the environment and species, human health, the visual landscape, land utilization, the use of eminent domain, and utility costs.

1. **Environmental and species impacts:** Participants worried about the potential impacts of new transmission lines on nearby ecosystems and species. Concerns varied between geographies, with rural New Englanders worried about how forests and rivers would be impacted by transmission. New England participants pointed out that these concerns were a factor in the defeat of Maine's recent ballot referendum on transmission, with one respondent saying "a lot" of opposition was driven by antagonism toward "the fact that we're reducing our overall natural forest cover." Another participant from Maine described local opposition to a transmission line traversing the Kennebec River, whose opponents cited concerns over environmental degradation and deforestation, while other participants had similar concerns about transmission infrastructure being sited on existing forested or agricultural land. On the other hand, damage to resident and migratory birds, their natural habitats, and their potential food sources were major concerns raised by respondents in the Great Plains. These concerns extended beyond just impacts during project construction, but also during its operation. Participants likened transmission impacts to their understanding of wind turbine impacts, expressing worries about how energy infrastructure in general may affect the health and habitats of birds and bees in particular, in addition to humans.

2. **Human health concerns:** Despite repeated medical studies failing to identify a link between exposure to high-voltage transmission lines and negative health outcomes, health concerns were often mentioned in focus groups. Notably, participants often raised such concerns as questions, wondering about the potential impacts of transmission infrastructure, rather than as definitively asserting such impacts as fact. Respondents didn't point to specific sources where they had learned about health impacts of transmission, but instead questioned whether children or residents near transmission lines could face increased rates of cancer or other conditions as a result of proximity to high-voltage electricity over time. These concerns were particularly prevalent in the Great Plains, though health concerns also came up — to a lesser extent – in the New England groups. One New England parent expressed anxiety about transmission lines after coming into close proximity to one with her family: "They're very scary. I went to a soccer game for my son and I went underneath them and you could hear them humming." Local groups engaging communities on transmission projects and the survey of grasstops stakeholders have exposed similar challenges, with grasstops survey respondents saying

that belief in misinformation or disinformation is one of the top two challenges they have observed during the community engagement process (followed by lack of trust between communities and developers).

3. **Impacts to the visual landscape:** Participants had concerns about the potential viewshed impacts of transmission. Rural and small town residents mentioned their worries about transmission lines clashing with the character of their community, with one participant saying: “If you have a little quaint, picturesque, New England town and, all of a sudden, you have these huge towers running through it, it changes. Even though it might not directly impact you because you live, say, a mile away, it still impacts your town. You live in that town because it looks a specific way and, all of a sudden, now it's a place that you don't want to potentially live in.” Across both New England and the Great Plains, participants framed viewshed concerns both in terms of personal preference (e.g., “I wouldn’t want to live where I had to see one”) and with respect to potential economic impacts, such as reduced rural tourism.

4. **Concerns about land utilization and the use of eminent domain:** In focus groups, concerns about land utilization often paralleled concerns about environmental impacts. For example, a farmer in the Great Plains shared that she’d need reassurance that hosting transmission infrastructure would not result in farmland becoming fallow, expressing that, “if you're trying to run a business, you need your land to turn your profit for you.” Another Great Plains resident shared their worry that, “as they build more and more properties out in farmland and whatnot, it’s taking that productive farmland away that’s feeding the world.” Participants in all four focus groups raised the issue of eminent domain, and wondered if transmission developers would resort to taking land directly from private landowners in order to route transmission lines, even if landowners strongly voiced opposition to the projects.

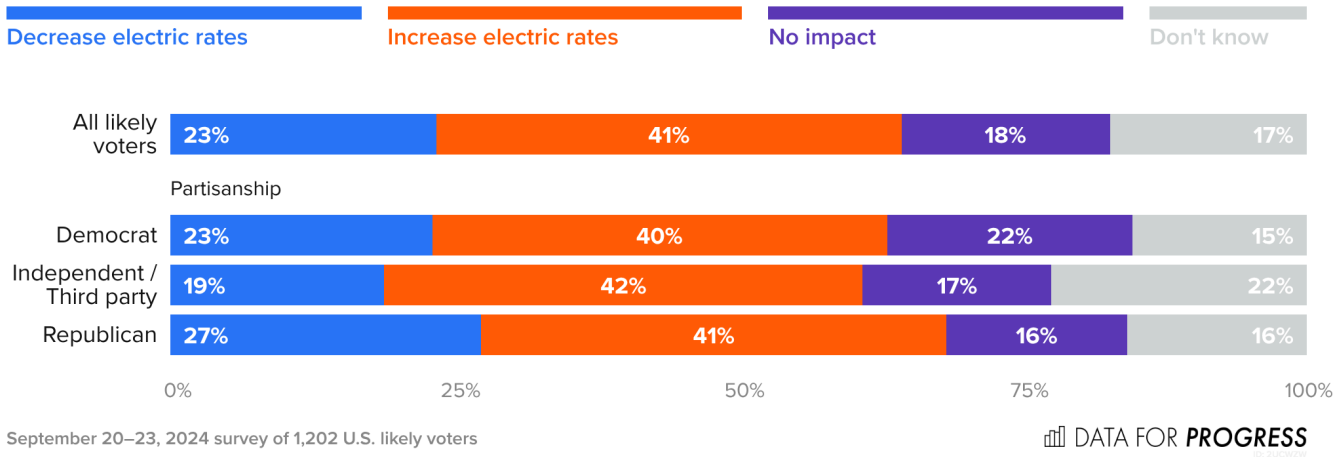
5. **Burden of utility costs in general and transmission investment costs:** Participants broadly acknowledged the current burden of high utility costs and bills, particularly in New England, and feared that expensive new transmission project investments would ultimately be passed along to them as ratepayers. Although participants accepted the long-term potential for transmission upgrades to stabilize energy prices and reduce congestion costs, many remained skeptical that these savings would outweigh the immediate financial burdens, believing that consumers would face rate hikes in the interim. One Great Plains respondent asserted, “When it's all said and done, we're going to pay higher bills.” In areas facing increased demand from large-scale energy consumers, such as data centers and manufacturing facilities, some respondents hoped that these businesses would bear a larger share of the costs of new infrastructure and help offset rising costs for household consumers of electricity.

   In this vein, survey respondents were somewhat split in their assessments of the impacts of transmission projects on their electricity rates. A plurality of voters (41%) believed that a new transmission project would increase their electricity bill, followed by 23% who

thought their bill would decrease. Just under 1 in 5 voters (18%) thought their bill would not be impacted at all, and 17% were unsure.

A Plurality of Voters Thought Transmission Would Increase Electricity Rates

How do you think building new transmission projects would affect your electricity bill, if at all?



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Awareness of transmission and its implications may be poised to increase as grid demand continues to rise. Significant transmission upgrade and expansion must happen over the coming decades to address the myriad challenges that the grid faces. To aid in these efforts, the authors analyzed findings from key case studies and specific tactics deployed in the community engagement and benefits processes for transmission lines.

Community Engagement and Benefits Best Practices for Transmission

Transmission advocates and other members of the community benefits movement have previously explored best practices for community engagement in the transmission sector, such as those included in the Americans for a Clean Energy Grid PACE of Trust report. The PACE of Trust report convened a novel roundtable of transmission and community stakeholders to develop consensus-based best practices for transmission development. Recommendations outlined in the following section of this report build upon these important efforts, and are derived from the authors' merchant transmission development case studies, focus groups, and survey research.

These recommendations and guidance are general, and thus can support transmission stakeholders embracing a variety of CBF strategies, ranging from direct negotiation of a benefits sharing agreement like a CBA, to the development of transmission community engagement principles like in the case of the Colorado Electric Transmission Authority's efforts. These recommendations also offer effective strategies for community engagement and delivering local benefits that may never result in a formal written agreement or plan, though written agreements offer their own strengths by detailing specific engagement and benefits commitments, and by including provisions for the enforceability of such an agreement. This guidance is designed to apply to a wide audience of transmission stakeholders, including developers, policymakers, organizations representing communities, and other transmission advocates.

Best Practices for Community Engagement and Benefits in Transmission

Community engagement	
Direct consultation with communities	Consult a wide set of community stakeholders through easily accessible direct outreach, surveys, interviews, and other tools for sharing feedback to understand potential local concerns around a transmission project.
Trusted third-party intermediaries	Invite trusted third-party experts (who should come from the impacted community, if possible) to lead public education about why transmission lines are needed, their potential community impacts both positive and negative, and the reliability benefits of transmission projects.
Informed assessment of transmission needs	Provide clear, data-backed information about the consequences and costs that the area around a project may face if there is a failure to invest in transmission grid expansion and upgrade projects.

Landowner engagement	
Prioritize landowner siting engagement	Solicit siting requests from landowners at the same time as or before notifying county officials, to avoid locals feeling excluded from the process, and invest upfront in socially optimal, rather than cost-optimal, routing to avoid legal costs, delays, and perception problems.
Easements over eminent domain	Delay permitting and CPCN applications until as much land as possible has been voluntarily secured through easements, rather than eminent domain.
Collective negotiations	Encourage collective negotiations, which benefit landowners and developers by the pooling of resources by landowners to secure expert representation, while the developer saves time and money by only negotiating with one party.

Monetary benefits	
Benefits must be unconditional	Deliver agreed upon monetary benefits, like small grants for local non-profits, regardless of whether a project is successfully built. These funds are best distributed by local or state NGOs that can build community trust and more effectively assess local needs.
Community engagement as an ongoing priority	Engage local stakeholders with regular opportunities for direct, two-way communication, allowing the community to ask questions and receive information about a proposed transmission project and associated benefits. Developers must have a physical presence on the ground and direct relationships with community members and landowners to earn trust.
Tailor landowner compensation	Compensate landowners hosting transmission infrastructure in ways that are optimized for the local context, including both one-time and recurring payments based on state and local tax policy and other considerations.

Non-monetary benefits	
Adapt benefits to meet community needs	Empower communities to lead the benefits negotiation process and secure benefits tailored to their needs, where possible. Some examples of adapting non-monetary benefits to the local context can include co-located fiber-optic or broadband, or even undergrounding lines when feasible.
Engage the public as partners in development	Embed community members in the development process. Lessons from municipal and rural electric co-ops reflect that communities want opportunities to participate in electric infrastructure planning. Build opportunities for the public to be partners in the development process, rather than be relegated to the sidelines.

Landowner Engagement

To secure a project right of way and build a new transmission line, developers engage landowners individually and collectively over the course of a project. At a minimum, developers engage landowners to negotiate the right to site a project on their land, which can result in an easement or the invocation of eminent domain in cases where voluntary agreement cannot be reached and the developer does not want to reroute its line. These siting negotiations can span years, and often also involve the use of land agents – contractors hired to negotiate easements – in addition to employees of the developer. Developers also engage landowners collectively, in some cases through collective bargaining (such as in the case of NPC) and, more commonly, through public meetings. This study demonstrates how individual and collective engagement interact to affect public perception of transmission lines, revealing that prioritizing local government engagement over individual landowners can have negative consequences.

1. Early and Often Means Everyone

An often repeated phrase in development is "early and often," meaning landowner engagement should happen *early* in the transmission development process and continue *often* throughout. While all four developers[11] in the case studies engaged communities early and often – in each case going above and beyond legal requirements[12] – their engagement resulted in very different outcomes for each line. NPC and SOO Green have faced little local opposition, while GBX has elicited more than 12 years of grassroots resistance, several lawsuits, and still does not have a certificate of public convenience and necessity (CPCN)[13] in Illinois at the time of this writing. While the three lines are different enough that these differing outcomes cannot be attributed solely to landowner engagement decisions and strategies, the developers of GBX made a consequential early strategic engagement choice that may have had disproportionately negative effects on the project.

Clean Line, the original developer of GBX, chose to engage county commissioners in Kansas and Missouri in closed-door meetings before engaging landowners. This decision was strategic: Clean Line reasoned that early support from county commissioners would create general community goodwill toward the project. The company was also, at the time, required to receive county approval for the line in Missouri. However, Clean Line's decision to first engage commissioners backfired in a few notable ways.[14]

For example, one landowner found out about GBX from their farm bureau president. When the landowner called their neighbors and county and state legislative offices, they found that none

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[11] GBX has had two developers, Clean Line (2010-2018) and Invenergy (2018-present).

[12] Certificates of public convenience and necessity (CPCNs) are essential state siting approvals that developers are in most cases required to obtain to build and operate a transmission line in a given state. CPCNs generally require public meetings and landowner engagement.

[13] It should also be noted that environmental permits and state approvals for a line can be binary risks for projects (i.e., projects that fail to secure them may effectively die). Undertaking the expense of land control without the assurance that a project will ultimately get built because a CPCN is not yet in hand is not just costly but also risky for developers.

[14] Much of the Clean Line leadership, including its CEO Michael Skelly, now heads Grid United, the developer of NPC. Perhaps as a result of this blowback, Grid United now does "landowner-first development," where landowner negotiations are undertaken before permit and CPCN applications and government engagement.

of their neighbors knew about the project, but county commissioners and state legislators had heard about it, and, in some cases, had already agreed to the project. The landowner's perception that they were excluded from the early decision-making process ultimately led them to oppose the line. When this landowner later got elected to a county commission themselves, they mobilized opponents against GBX for the next decade.

In interviews, landowners contrasted Clean Line's efforts with oil pipeline developers, who would approach landowners individually, in person at the beginning of a project to start easement negotiations. Instead, Clean Line notified landowners that GBX would cross their property via the mail. Former employees of Clean Line acknowledged the shortcomings of this initial approach, sharing that they now first solicit siting requests from landowners, not county officials, to avoid the grassroots opposition they encountered with GBX.

The absence of trust between impacted landowners and a transmission developer can damage efforts to understand and respond to potential project opposition. To this point, a participant in the Great Plains focus groups listed, among the most important questions she would have about a developer seeking to cross her property, "Is this a company that has been known for just being … bullies to the farmers and the people that own the land, or are these people that have … a good reputation of treating people right and being honorable? That makes a big difference." Even if developers individually engage landowners, there was a strong consensus among focus group participants that a developer would have to be trusted within a community, and earn and sustain that trust.

2. Broader Community Engagement Requires Transparency and Trusted Partners

While echoing the importance of transmission developers engaging early and often with everyone, focus group participants from New England and the Great Plains also consistently expressed that landowners themselves were the most important group for a developer to inform and solicit input from as soon as a project is being considered. As such, transmission's impacts on the broader community were seen as secondary to impacts facing landowners who would be transmission's direct hosts. This also was reflected in terms of preferred benefits approaches, with participants saying that any benefits provided by a developer should prioritize landowners directly impacted by or in closest proximity to projects.

Given that many Americans have limited direct knowledge of transmission, focus group participants referenced other types of large-scale infrastructure projects with which they had greater familiarity and experience when asked who should weigh in on a proposed transmission line and where they've seen past opposition to infrastructure projects. Opposition to clean energy projects, like solar and wind power projects, was frequently mentioned, but the Keystone XL pipeline was the key example that came up in the Great Plains focus groups. In thinking about potential sources of conflict over a transmission line, a few participants expressed that Tribal nations would need to be involved in discussions about proposed transmission projects that could impact sovereign land, natural resources like water, or cultural artifacts. Other participants, including farmers and landowners, shared that it was imperative to have strong representation of agricultural interests, including farmers and farm bureaus.

Beyond direct landowner engagement and discussions with the aforementioned groups, focus group participants expressed that it was important for a developer to regularly inform the broader public about its plans and listen to community questions and concerns during public comment periods. Participants also stressed the importance of impacted communities receiving regular updates and having the ability to voice their concerns or feelings about a project via a webpage or other accessible forum. If a developer did not make itself available through multiple mediums to answer questions about a project — including being able to confidently respond to concerns that community members raised about the project's potential environmental, economic, health, and other impacts with credible evidence — many participants indicated they would struggle to trust a developer's intentions.

Participants indicated throughout the focus groups that engagement of impacted residents through glossy mailers alone would fail to convince communities and landowners that a project should go forward. What's more, participants voiced that distant investors with no physical presence in the communities would have a challenging time convincing locals that they should support a project. A Nebraska resident who experienced living near wind turbines reflected that, "I would not want to trust someone who was only an investor. If their only involvement or their primary involvement is to make money, or they themselves aren't even remotely close to where these transmission lines are going to be, then don't tell me it's OK for my babies." In this respect, one transmission industry professional interviewed shared that utility transmission developers held an advantage, as utilities have better on-the-ground relationships with communities than merchant transmission developers, since utilities are familiar to consumers who already rely on them for power, whereas merchant developers are often not. Furthermore, this interviewee pointed to the considerable resources spent by utility companies for decades to build their reputations as trusted community partners through contributions to local businesses or community sports teams, among other strategies.

There was strong consensus across the focus groups and interviews with grasstops stakeholders that developers need to be directly involved in community engagement efforts and make themselves available to the wider public to answer questions about and discuss plans for proposed projects. However, participants and respondents also recognized that developers may not be best suited or trusted by communities to address some of the specific project questions and concerns.

Participants felt that utility companies and/or transmission developers could not be trusted on their own to provide impartial information about proposed transmission lines and their local impacts, given their interest in getting the project built. Some individuals felt that even third-party expert speakers brought in by transmission developers would lack credibility and present a conflict of interest. One participant shared, "They're the ones that hold ... the public meetings if they want to bring something into your town. And that's where you get a lot of your information, unless residents rally together, sometimes bringing in their own scientists, their own independent researchers to provide that information." A few interviewees thought that utility companies would still be an important information source, with one participant saying, "The average person isn't going to understand all the complexity of [a project], so [the utility company would] have to be involved in one way, shape, or form. They'd have to pick good

spokespeople." These findings indicate that communities and developers alike could benefit from hearing the input and expertise of additional trusted parties on proposed transmission lines, including scientists and engineers, but potentially also other trusted individuals and institutions, like county commissioners or farm bureaus.

3. Landowner-First Development and the Micrositing Approach

Intuitively, developers favor transmission routes that are optimized for length and costs, and often value projects that are as direct as possible and sited to affect the fewest landowners and towns. Generally, developers have an incentive to limit siting costs by avoiding costly landowner negotiations and using eminent domain aggressively.

However, the developers of the three lines studied here used a different approach to engagement, what has been termed "landowner-first" development. These developers were willing to invest upfront in socially optimal routing to avoid legal costs, delays, and perception problems on the back end. For example, NPC was originally planned as a 370-mile line. However, the developer never expected this initial route to be its final route. The developer of NPC met with each landowner to find the optimal corridor for transmission development, in some cases avoiding the land of owners who did not want the line altogether. This customization of a route on specific parcels is known as "micrositing" in the industry. The result of this "landowner-first"[15] approach is — as one local advocate put it — a "zigzagging" line that is less efficient but socially optimal. Today, NPC has added 50 miles to its proposed route because of negotiations with landowners. This has been no small investment for the developer, as each mile of line can cost $1 million or more to develop and build.

Another aspect of the "landowner-first" approach is a developer delaying permitting and CPCN applications until as much land as possible has been voluntarily secured through easements. Again, this approach can have serious implications for a project's timeline. Easement negotiations and permitting processes can each take years, so developers have a strong incentive to tackle both processes simultaneously. However, pursuing state approvals or environmental permits before landowners have been adequately compensated through easements can stoke resentment in landowners who may fear being "steamrolled" and having their "land taken" as a result. Such landowner sentiments can be powerful barriers to project development, as observed with GBX, where landowner resistance has effectively delayed project development for the past 15 years.

For these reasons, the developers of NPC have wagered that upfront investments in landowner relations will ultimately save money by avoiding legal costs and delays. NPC has nearly secured a right of way along the entire line for the project two years after beginning engagement and has not yet had to use eminent domain. Two years is a relatively short amount of time for such a long line, indicating that NPC's "landowner-first" strategy may ultimately pay off.

[15] Grid United, the developers of NPC, have coined "landowner-first development" to describe this approach. While Clean Line (the first developer of GBX) consulted landowners and communities on many potential routes (one aspect of this approach), they also applied for CPCNs and sought local government approvals as they did so. Prioritizing landowner engagement over other development processes is another feature of the "landowner-first" approach implemented partially on GBX and fully on NPC.

4. Collective Negotiation Benefits Landowners and Developers

Developers may also consider improving landowner relations by encouraging collective negotiations. On the NPC, a group of landowners representing between 40% to 50% of the proposed right of way, known as "The Pro North Plains Connector Landowner Group," coalesced to negotiate easement leases and unite around specific landowner demands.[16] In this case, collective negotiations ultimately benefited both landowners and developers. By pooling their resources, the landowners were able to secure expert representation from a lawyer specializing in transmission easements, while the developer saved time and money by only having to negotiate with one counterparty. According to one landowner who was a member of the negotiating group, the group helped to allay landowner concerns and facilitated general education on transmission, in addition to winning generous easement payments and strong liability protections for landowners.

Monetary Benefits

Transmission lines result in large economic benefits for broad swaths of society. Lines similar to those studied here create thousands of jobs, generate millions in tax revenue, and save customers billions in energy costs. While these monetary benefits redound to society's benefit, it is common practice to further compensate the parties that host the line with local monetary benefits.

For example, local monetary benefits can help assuage concerns — like those voiced by landowners in focus groups — about the potential economic impacts of hosting transmission infrastructure. Some participants worried a line could impact their property value, and specifically worried that they wouldn't be able to sell land with transmission infrastructure. One landowner expressed this view, saying, "If a power line is going to be built by my house, the chances of me being able to sell it would probably be zero." He proposed that developers should offer property buyouts to landowners whose land was crossed by a transmission project. Similarly, throughout the focus groups, participants offered various proposals on landowner compensation for hosting transmission infrastructure, including both one-time and recurring payments. A participant in the Great Plains shared that rural landowners, and particularly farmers, hosting transmission lines "should be continually compensated as if they were able to grow on that land." Another participant in the group thought a universal lump sum payment to landowners for fair market value of their property would be more appropriate. This proposal mirrors other past approaches, like Minnesota's "buy the farm" law and landowner responses to the state's highly contentious CapX2020 transmission project.[17]

In a survey question asking which strategy voters think should be used to compensate private landowners, voters expressed no clear preference. A third of voters (33%) thought recurring payments for land leasing should be used, while just over 1 in 4 voters (27%) preferred recurring royalty payments based on revenue generated from transmission. Recurring payments,

[16] The developers of NPC gave landowners early payments for the opportunity to survey their land. Many in the group then used these payments to join the bargaining group.

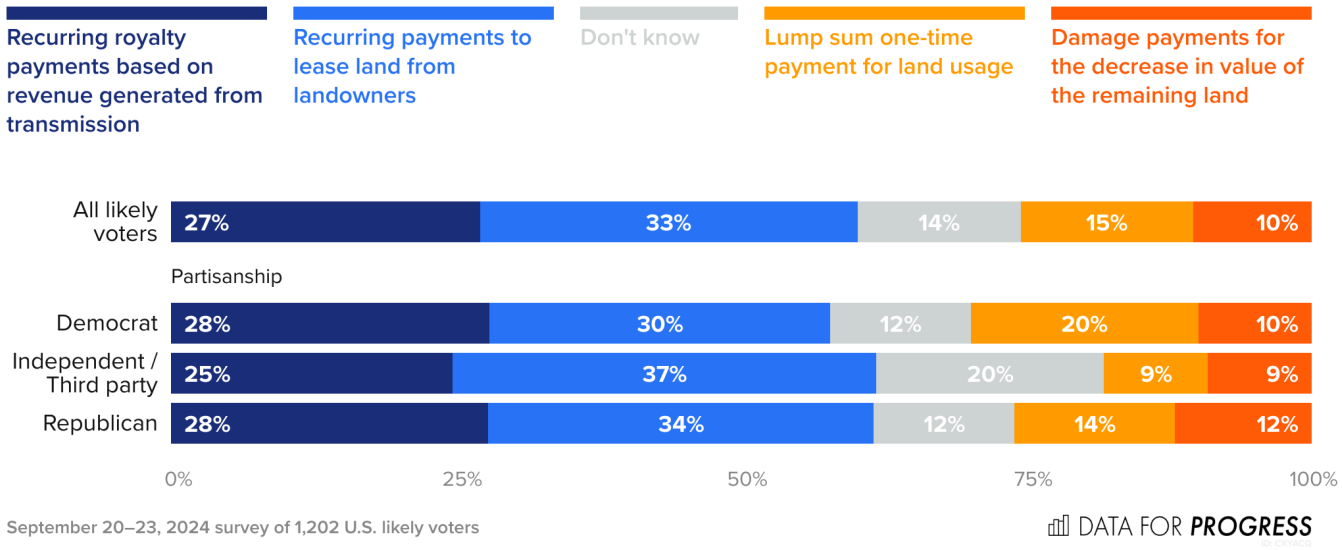
[17] CapX2020 Utilities are now known as Grid North Partners. The Legalectric website describes the project in detail, covering key issues causing local and landowner opposition to escalate during CapX2020's siting and development.

however, were generally preferred when compared with a lump sum, one-time payment for land usage (15%) or damage payments for any decrease in the landowner's land value (10%). This finding echoes sentiments expressed during the focus groups, in which participants felt that one-time payments may not be optimal for landowners from a financial perspective or provide adequate compensation to landowners relative to the benefits received by the developer of the line over its lifetime.

Voters Leaned Toward Recurring Payments Over One-Time Payments to Compensate Landowners Who Host Transmission Projects

New transmission projects will be built not only on government-owned land, but also on land owned by private individuals and corporations.

Thinking about this information, how do you think private landowners should be compensated for transmission lines being built on their land?



September 20–23, 2024 survey of 1,202 U.S. likely voters

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In terms of monetary benefits, all three transmission projects analyzed granted money to local institutions as part of their community benefits efforts. However, each project's grants varied in terms of their amount, approach, and transparency. For example, NPC has publicly distributed $3.9 million in community grants over the past three years. In contrast, SOO Green and GBX have not publicly disclosed how much they have granted or plan to grant, and both have given out grants on a more ad hoc basis. While both approaches can build community buy-in, the following three criteria may enable grants and other monetary benefits to be particularly effective.

1. Early, Frequent, and Unconditional Benefits

Local investments through grants should occur early in the process and continue for an extended period of time. Early investments have greater power to bolster project approval before project perceptions have crystallized within a community. Further, continued investments over an extended period of time can signal a developer's long-term commitment to a community and boost project perceptions.

In addition, local investments should not be tied to the success of the project. In other words, funds should be given regardless of whether the project is ultimately built. Adhering to this principle may help avoid a common perception that developers merely try to "buy support" for projects by giving out money. For example, NPC has already given out nearly $4 million in community funds, even though it does not expect to be operational before 2030. Thus, its grants will benefit communities even if the project never gets built. GBX has also already distributed funds that are not contingent on the project's completion, providing $500 community grants to local organizations.

Focus group participants emphasized the importance of compensating communities that would host transmission infrastructure, face disruptions during its construction, and experience other potential impacts. Many concerns were grounded in disruptive experiences that respondents had when various other kinds of development projects were built in the past, especially regarding traffic and road closures, which they anticipated would also come with building transmission infrastructure. Local tax revenues paid by transmission developers were seen as one means to recoup these impacts. Grasstops survey respondents also identified local tax revenues generated from a project as one of the main benefits they've observed communities seeking from proposed transmission projects, followed by economic development opportunities and job creation.

2. Trusted Third-Party Facilitators

Developers must also consult with communities to determine how to effectively distribute grants, as successful strategies may differ depending on the types of communities impacted by a project and the resources at their disposal. For example, in the case of the NPC project, some communities receiving funds lacked the infrastructure to effectively process and utilize larger grants, which occasionally ranged upward of $100,000. Grasstops interviewees reiterated this point by acknowledging that a lack of capacity for community partners to engage in negotiations over community benefits was a considerable challenge for CBFs in the transmission context. Trusted local or state NGOs can be helpful in increasing the size, efficacy, and perception of grants given to rural communities. Across the three lines studied, grants disproportionately went to small, rural communities.

To overcome these challenges, NPC engaged the North Dakota Community Foundation (NDCF) and the Montana Community Foundation (MCF). Both nonprofits have long-standing ties to rural communities in western North Dakota and eastern Montana, respectively. They helped disburse NPC's grants by organizing local committees in communities along the line, which then chose grantees without input from NPC.

Using these types of third-party facilitators can help avoid perceptions that developers are only disbursing funds to "buy support" for the line, or that developers are favoring certain communities over others. These facilitators also allow developers to leverage their existing relationships with host communities. One NDCF employee estimated that they had existing relationships with over 50% of the people they interacted with to set up their community sub-granting committees. While it is impossible to know if NPC's philanthropy would have been

as well received had the company granted funds without this third party, several stakeholders interviewed emphasized that the local philanthropic partners improved community perception of the grants.

The focus groups reflected similar considerations. In addition to direct compensation to landowners, grassroots focus group participants thought that local investments made by developers to trusted community organizations or independent community development funds could be an effective means to build trust and bolster public acceptance of a project. Trusted local institutions receiving funds could then directly allocate funding to address important community priorities. However, as in the case of NPC's engagement, this idea faced some opposition during focus group discussions. One participant specifically shared worries that a donation might come with strings attached: "I think it's hard to trust corporations these days, and [a payment to a community benefits fund] would feel like just a payout to coerce whatever they wanted." While some other participants shared this wariness of direct payments and described them as "bribes," there was clear support for the notion that communities should receive some tangible benefits from hosting transmission projects.

3. Community-Led Design of Benefits

Local stakeholders know where to best direct local spending, and developers should lean on their expertise. NPC's granting structure, where community committees sub-granted developer awards, was the most robust community-led effort across the lines studied. SOO Green didn't go as far, but practiced community-led granting by negotiating benefits with each town the line crossed. The benefits codified in these agreements therefore reflected the priorities of community leaders. Finally, GBX set up a system where community organizations could apply for grants and thus determine the scope and subject of the grants for which they applied.

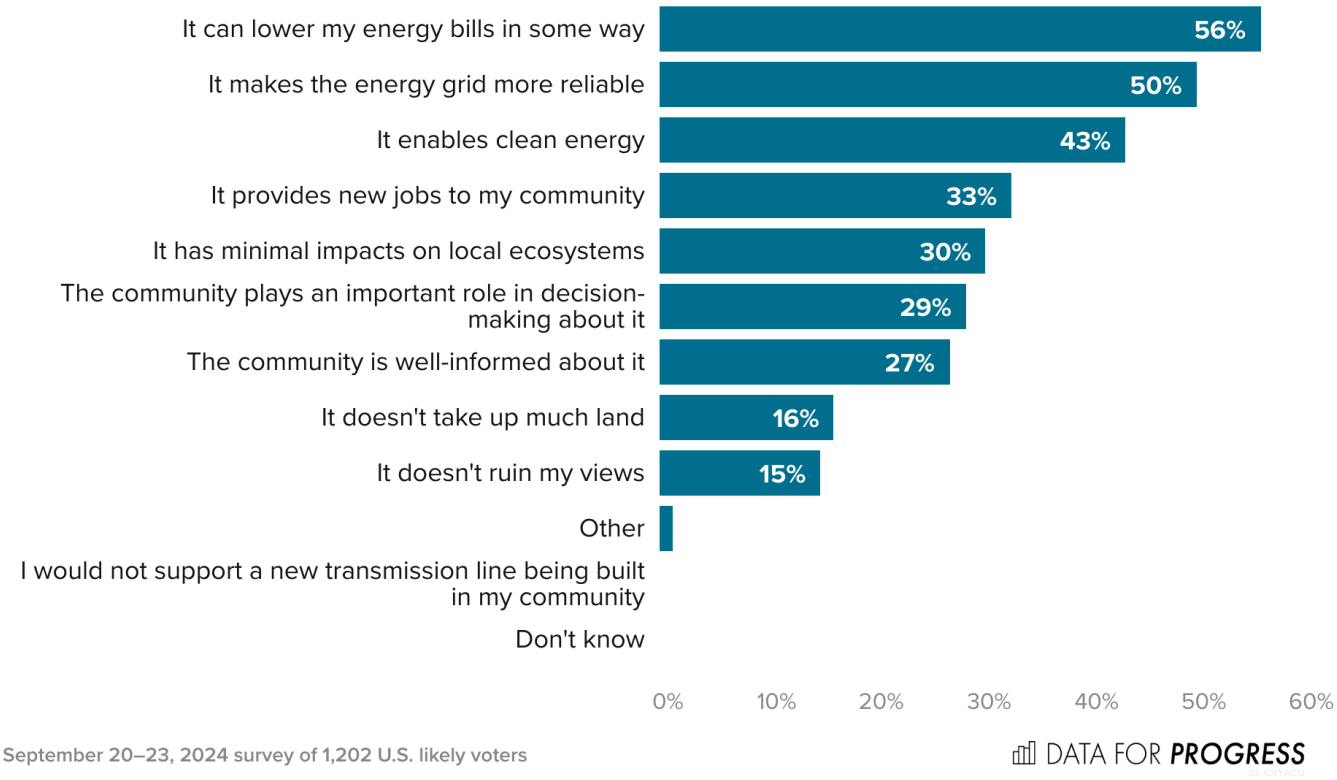
Developers may also consider creative community-led proposals to effectively deliver monetary community benefits. Some focus group participants voiced interest in utilities providing residents with monthly electricity discounts in exchange for living in communities hosting transmission infrastructure, with one participant describing this as "some kind of reduced rate or financial incentive for the town that that thing is running through, in addition to paying the property owner for the devaluation." Potential electricity rate reductions were a key benefit that both survey respondents and focus group participants expressed a desire to see from transmission projects. As modeled by the focus group discussions, developers should consult with communities to understand what types of benefits they identify as meaningful and allow communities themselves to voice and shape the types of benefits associated with a project.

In a direct question raised on the national survey of likely voters, respondents were asked what, if any, specific benefits would make them more likely to support a new transmission project. The survey showed that energy bill reductions were the most important attribute voters identified that a potential transmission line could offer, though it is important to couch this finding in the earlier result demonstrating voter uncertainty about whether transmission actually would yield lower electricity costs. Amid an economic environment where Americans have reported experiencing higher prices for essential goods ranging from groceries to electricity year over year, reducing costs continues to be an important priority for the average voter, even if their

understanding of a transmission project's impact on their bill is more limited. Following the importance of reduction of their energy bills (56%), voters also indicated they wanted to see greater energy grid reliability (50%), the enabling of clean energy (43%), the provision of new local jobs (33%) and minimal impacts to ecosystems (30%) from a new transmission project.

Voters Most Wanted a New Transmission Line to Lower Their Energy Bills, Make the Grid More Reliable, and Enable Clean Energy

Of the following, which are the **three most important** attributes that would make you more likely to **support** a new transmission project being built **in your community**?



September 20–23, 2024 survey of 1,202 U.S. likely voters

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While job creation was also seen as a potential benefit of hosting new transmission infrastructure by several focus group participants, others felt that jobs from transmission would follow a familiar pattern: that more jobs would be promised than would actually be delivered, that the majority would be temporary construction jobs, and that few area residents would actually benefit, between skill requirements and company hiring practices. One participant expressed this skepticism: "And the whole job creation, that's a fallacy in and of itself there because it might be jobs to build them, but then the jobs go away or the jobs are only for management and up, and the regular people, the talent just don't get any benefits from that aspect."

Non-Monetary Benefits

In addition to granting money to host communities, projects can offer non-monetary benefits to increase local acceptance of high-voltage transmission. Among non-monetary benefits, undergrounding — simply burying a line underground — was the most substantial action taken by any of the lines studied. While past studies have shown that the upfront material and labor costs of an underground transmission line exceed those of an overhead line, other more recent studies find the costs of underground HVDC lines to be comparable to the costs of overhead high-voltage alternating current (HVAC) lines. Moreover, the cost advantages of co-locating underground lines with existing infrastructure — as in the case of SOO Green — in the form of avoided easement payments, transaction costs, and legal fees have yet to be systematically studied. This section will add to the emerging discourse on co-located undergrounding by exploring the consequences of SOO Green's decision to underground along an existing right of way in Iowa and Illinois.

1. Undergrounding Can Mitigate Opposition, When It's Feasible

Undergrounding along existing transportation rights of way can substantially reduce the desire and ability of communities to oppose lines, while making site control and permitting easier. Case study interviewees highlighted that undergrounding could eliminate visual and noise pollution, providing a major benefit to communities. While some professed environmental and safety concerns about buried lines relative to overhead ones, every interviewee noted that they preferred an underground line along an existing right of way to an overhead greenfield[18] transmission line. Importantly, there are financial and environmental reasons why undergrounding may be infeasible for a given transmission project, and while interviewed grasstops stakeholders agreed that undergrounding could be a valuable benefit provided to host communities, they cautioned against viewing undergrounding as a one-size-fits-all recommendation for transmission projects.

In addition to increasing project support, undergrounding lines along existing rights of way can make them harder to oppose. As one developer noted in an interview, the Iowa Farm Bureau was planning to oppose SOO Green aggressively, echoing other efforts like the Illinois Farm Bureau's successful campaign against GBX. While the Iowa Farm Bureau did oppose SOO Green's franchise[19] application, it was unable to make arguments that the line would actually harm farmers. In GBX's case, the Illinois Farm Bureau invoked the harm GBX would do to its members in its briefs, arguing farmers would be "disproportionately and negatively affected" by the project. Instead, the Iowa Farm Bureau was only able to challenge the legality of developing a transmission line along a railroad right of way, and ultimately merely asked that eminent domain not be expanded beyond the six parcels for which it had already been granted. Additionally, in its approval of SOO Green, the Iowa Utilities Commission pointed to the line's burial to dismiss safety concerns.

[18] "Greenfield" here refers to lines that are sited in novel rights of way.
[19] "Franchise" is the Iowa-specific term for a CPCN.

Placing transmission infrastructure underground was also mentioned by focus group participants as a means to quell community opposition. Participants understood that some types of infrastructure could be placed underground and questioned whether the same principles applied for transmission infrastructure. At the same time, participants were at least somewhat aware that undergrounding would be costly. Some participants in New England pointed to specific proposals for underground transmission infrastructure, as illustrated by the following account:

> *"I just heard one of my neighboring towns, Stamford, they were talking about ... perhaps putting transmission lines underground. So that ... comes about every single time there's a major storm or blackout, about how Eversource should do it. But it ain't cheap. So then, when we figure out the cost of this and that, no one wants to pay for it, and we wait for the next storm."*

Despite grassroots focus group participants being worried that undergrounding transmission could drive up their energy bills, they still held positive views of developers placing transmission lines underground as a community benefit. Participants described hopes that undergrounding would reduce viewshed impacts and be less disruptive to the ecosystem than overhead energy infrastructure.

2. Co-Located Infrastructure Unlocks Local Benefits

Transmission lines can also accommodate co-location of other essential infrastructure, such as broadband internet cables, delivering additional high-value benefits. This is already a common practice among rural utilities, with nearly one-quarter of rural electric cooperatives (co-ops) providing retail broadband to their customers. For example, buried fiber-optic cables can easily pair with underground transmission line development, and SOO Green will lay fiber-optic cables in Dubuque and Mason City, Iowa, in the same trenches alongside its line. In other cities, SOO Green will carry out surface improvement projects for cities along the railroad right of way as it constructs the line. As SOO Green's developer explained, these co-located projects, like fiber-optic cables, can otherwise be hard to execute because of the time it takes for private and public entities to negotiate infrastructure projects co-located along rail rights of way.

In this case, co-location directly helped SOO Green secure a franchise in Iowa. The Iowa Utilities Commission cited the project's co-location in its justification for why the project satisfied its franchise criteria, noting the preference for co-location of transmission assets in Iowa state code (§478.18(2)). Second, co-location exempted SOO Green from negotiating easements with landowners and enabled it to largely avoid eminent domain, saving the project substantial time and legal costs. While undergrounding may very well be more expensive for most projects, SOO Green demonstrates that co-located undergrounding deserves developer consideration, as it can unlock substantial savings through avoided legal challenges, project delays, and land easements.

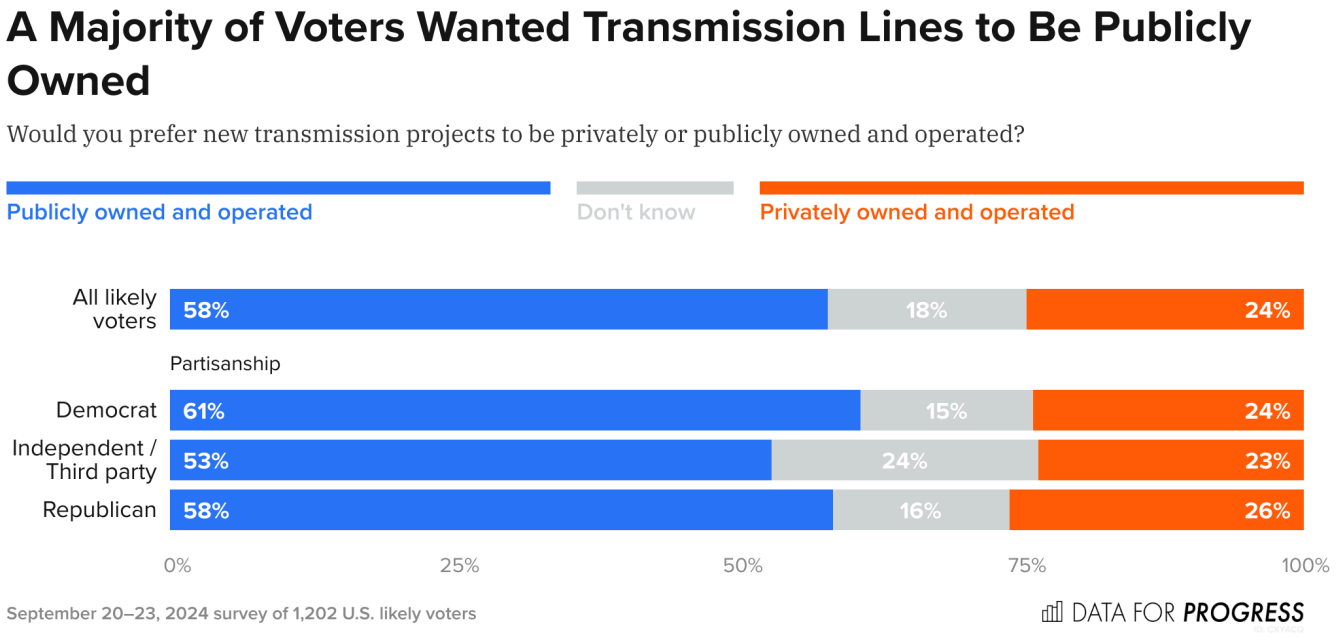
Alternatively, communities can also benefit from transmission siting practices that would co-locate transmission along existing infrastructure rights of way, such as along highways or railroads. Co-location with existing infrastructure is less disruptive to communities, minimizes

private landowner and environmental impacts, reduces wildfire risks, and can also mitigate other challenges in the siting and permitting process. This type of effort is being pioneered already by organizations like the NextGen Highways initiative, which recommends undertaking this strategy along with installing co-benefits like broadband.

3. Enhancing Community Involvement in Transmission, Such as Through Community Ownership

In the focus groups, participants discussed the potential opportunity for community ownership of transmission, or alternatively, enhanced opportunities for community members to be involved in decisions made about their local electric infrastructure. Many participants expressed trust in public or cooperative[20] ownership of power infrastructure, particularly those whose energy needs were served by rural electric co-ops or municipal electric co-ops. Positive experiences with these co-ops led some participants to identify co-ops as a trusted institution they would like to see involved in the development of transmission infrastructure. Participants viewed co-ops as local institutions they could influence, with one in the Great Plains sharing, "I like how our area is set up with a municipal power plant. Because it stays local, the decisions are held locally. You can attend meetings, committees to voice your opinion on stuff."

These sentiments were echoed by survey findings. Among national likely voters, 58% said they would prefer for new transmission projects to be publicly owned and operated, compared with 24% who said they would prefer for these to be privately owned and operated. Around 1 in 5 voters (18%) were unsure either way.



Focus group participants expressed hopes that community ownership could alleviate their concerns about safety, health risks, and the financial burden of infrastructure projects by

[20] As of 2024, 64 electric generation and transmission (G&T) cooperatives existed in the United States, and other examples of transmission being publicly owned include the Morongo Band of Mission Indians in California initiating a transmission project partnership where the Tribal nation will be a majority line owner.

offering greater transparency and accountability. A participant from the Great Plains noted a key benefit of community ownership: “Everybody has a stake in it.”

While there may be challenges to financing and carrying out transmission projects under cooperative ownership models, these discussions reflect that the participatory nature of electric co-ops has built trust among community members. In particular, participants felt they had opportunities to help shape decision making around energy infrastructure through their municipal and rural electric co-ops. Even if public ownership of transmission faces significant headwinds, these points suggest that electric co-ops may be important sources of information or even offer participatory models for transmission advocates and developers to consider when engaging with a community about a proposed transmission project.

Synthesis of Findings and Recommendations

Through effective, transparent engagement strategies, using trusted community partners and soliciting and acting on community concerns and feedback, developers may increase community acceptance of transmission lines. Recent projects, including the SOO Green HVDC and the North Plains Connector, show how robust community engagement and tangible community benefits for host communities can aid the siting and permitting of transmission lines. Rather than looking at host communities as potential transmission opponents, developers should consider communities as key partners in transmission expansion. When developers include communities in the siting and development process and enable direct, two-way communication, they can hear and attempt to mitigate concerns, build trust with community members, and ultimately earn a greater social license to operate.

While there was widespread recognition among survey respondents and focus group participants of the need for reliable energy systems and, thus, investments in transmission, especially in the face of extreme weather events, respondents and participants were also deeply worried about the possible health, environmental, and financial impacts of large-scale transmission projects. However, as reported by grasstops transmission stakeholders and evidenced by the number of transmission projects that have been held up or canceled as a result of local opposition, trust challenges between communities and developers still remain.

As a result, transmission developers must be able to address local concerns while making the broader case for the necessity of transmission deployment, including by bringing in trusted third-party experts or supporting communities with resources to allow them to contract their own independent experts who can address these concerns. Community benefits frameworks can be one vehicle for addressing concerns and delivering local benefits from transmission beyond broader grid reliability and decarbonization of the grid. In addition, such frameworks can be responsive to communities' needs, incorporate cooperative ownership models, facilitate transparent public engagement with community stakeholders, and mitigate environmental impacts.

Though just one tool, CBFs can help to foster public support for transmission infrastructure projects. Ultimately, however, the success of these projects will hinge on building trust and ensuring that communities feel they are not merely the hosts of infrastructure, but active participants in and beneficiaries of its development.

Conclusion

A participant from Vermont, who expressed initial opposition toward transmission lines, laid out the urgent challenge ahead for national energy needs, as well as the importance of involving trusted partners who can be credible information sources for communities:

> *I'm willing to compromise. I'm worried about this planet and what we're leaving for grandchildren. I see this in Vermont, so I know we have to do something. We have to increase our clean electric use and reduce our fossil fuel use. I just am suspicious of energy companies telling me what's good for me, but I'd like to think that my community would be smart enough to pull in independent people to have fair evaluations, but I know we're going to have to move on this. It's going to be in our backyards and I'm happy to know that Jon is living amongst [transmission lines] and the town hasn't skipped a beat. That's nice to know. I think we're all going to acclimate, but we have to do something because the state of our electric grid is concerning.*

Community opposition to transmission lines is not just a challenge that the grid and transmission developers face today, but, rather, one that will continue to make or break efforts to address electricity grid reliability, decarbonization, and resource generation for the coming decades.

Community opposition has led to the delay and cancellation of a number of proposed transmission projects, but community members can also be a source of strength in pushing forward development projects, if done right. If landowners and communities are involved early in the transmission planning process, they can become trusted partners in shaping transmission projects, minimizing costly siting and litigation delays while delivering tangible benefits to host communities. In order to achieve these outcomes, it is essential that community stakeholders play an active role in the design and implementation of transmission projects.

It is incredibly important that transmission developers get community engagement right. This report offers initial insights into how to do just that.

Methods

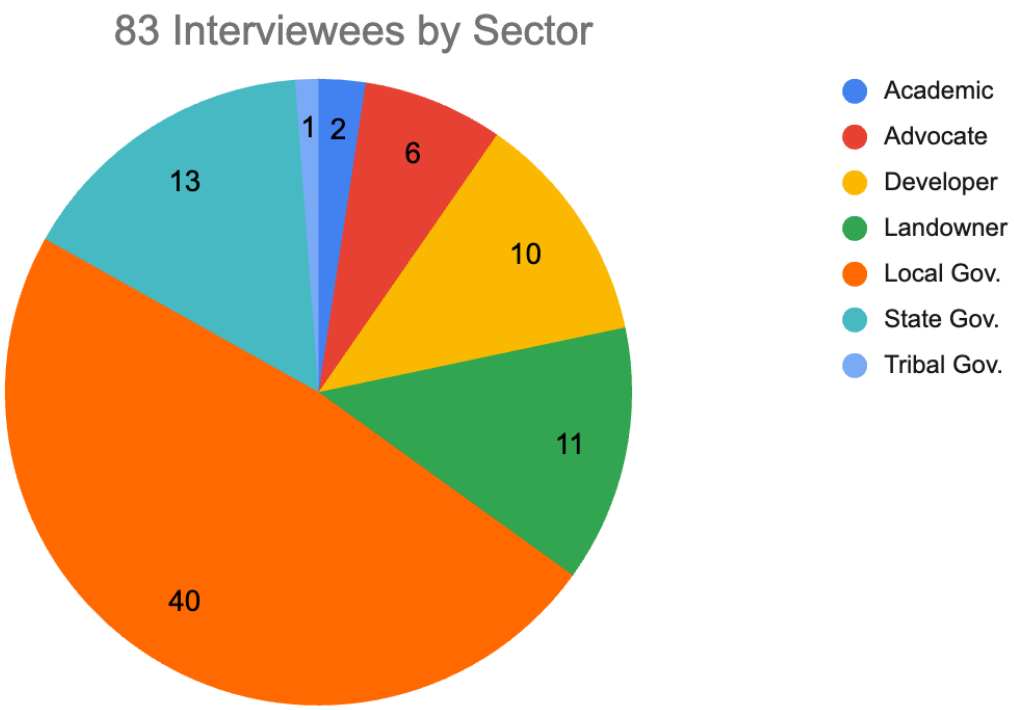
Snapshot Case Studies of Merchant-Owned Transmission Lines

Three high-voltage direct-current (HVDC) merchant projects – SOO Green, the Grain Belt Express (GBX), and the North Plains Connector (NPC) – were studied as part of this analysis to inform the development of long-form community benefits snapshot case studies, which were developed prior to the publication of this report and made public on the World Resources Institute website.

Study authors focused on the landowner engagement practices the developers of these lines used and the monetary and non-monetary benefits they offered to host communities. These lines were chosen as study subjects because their interregional nature, length, and capacity mean that they represent the kind of projects that American transmission owners have largely failed to build up to this point. Therefore, studying these projects may yield lessons to make high-value interregional lines easier to build.

Because these snapshots focused on the local value proposition of transmission, reaching out to local stakeholders was a priority. County commissioners and other county government staff from each host community were contacted by email, often publicly available on the county website. State regulators and legislators were similarly contacted depending on their involvement and knowledge of the project. Landowners and local project opponents were contacted through a combination of in-person public hearings, Facebook opposition forums, other interviewee connections, and limited in-person canvassing.

Interviews were conducted in a semi-structured manner, allowing for more explanation on topics of particular concern for the interviewee, and ranged between 30 minutes to 2.5 hours. The majority of interviews were conducted in person at a location of the interviewees' choosing, most often a county office or cafe. If consent was granted, the interview was recorded for future reference; otherwise handnotes were utilized. The qualitative data used in these case studies is derived from a study conducted by the Great Plains Institute that included 83 semi-structured interviews and dozens of public comments with local stakeholders, developers, and government officials, among others, across 12 states and 11 shovel-ready high-voltage transmission line projects.



In addition to interviews, additional research was conducted into the individual projects to corroborate, contradict, and contextualize the comments of local stakeholders. Authors referenced documents provided in regulatory hearings and legal challenges, in addition to local reporting, prior academic research reports, and connected studies on local, state, and national energy needs to contextualize the development environment projects were in.

Survey of National Likely Voters

From September 20 to 23, 2024, Data for Progress conducted a survey of 1,202 U.S. likely voters nationally using web panel respondents. The sample was weighted to be representative of likely voters by age, gender, education, race, geography, and 2020 recalled vote. The survey was conducted in English. The margin of error associated with the sample size is ±3 percentage points. Results for subgroups of the sample are subject to increased margins of error. Partisanship reflected in tabulations is based on self-identified party affiliation, not partisan registration. For more information, please visit dataforprogress.org/our-methodology.

Focus Group Selection Criteria and Methodology

Data for Progress worked with a qualified recruiter in New England and one in the Great Plains region to recruit grassroots focus group participants for four virtual focus groups. These groups lasted 90 minutes each over Zoom and were recorded and transcribed via the service Rev. A trained qualitative expert from DFP moderated the conversations, and other DFP staffer(s) at each group provided assistance with notetaking and technology. Participants were compensated $150 for their time and contributions to the discussion.

Researchers at Data for Progress and World Resources Institute developed a focus group discussion guide for the moderated conversation that was shared across all four groups. After assessing baseline awareness and views of transmission and the energy system and grid reliability as a whole, to ensure participants were aligned in their understanding of the topic and to facilitate a richer discussion, the participants were presented with a short series of slides that included a description of transmission lines and images of both transmission and distribution lines to clearly establish the topic of discussion. The description presented to participants is included below:

> ***A transmission line is a high-voltage power line that moves electricity over long distances from areas where power is produced (like a large solar farm or a natural gas power plant) to the areas where people use it.***

The discussion then proceeded to cover perceptions of transmission lines after reading this description and seeing images of transmission lines, potential opportunities or concerns that respondents identified related to transmission infrastructure, and questions that respondents had about how transmission infrastructure could negatively or positively impact themselves directly or their communities. After gauging these concerns, the moderator shared more facts about the energy grid and transmission infrastructure in additional slides, including information about expected energy demand and transmission system needs, as well as estimated costs, siting needs, potential negative impacts of projects, and timelines for transmission projects, among other information. These facts were shared before discussing the topic of community benefits agreements and community engagement in transmission development projects and assessing participant views of various community engagement practices and their views of potential community benefits approaches in the process of siting and developing transmission lines.

Twelve participants were recruited for each group, with the aim of seating at least eight participants per group. No focus group had fewer than 10 participants during the discussion. Participants were selected to ensure a diverse set of respondents in each group across demographics, including gender, race and ethnicity, age, vote choice, state of residence, urbanicity, and property ownership. Each group specifically overrecruited rural residents and landowners because these populations are more likely to live near proposed transmission line routes and may be particularly impacted by siting, including through transmission developers seeking easements.

The two groups hosted in New England included participants from Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The two groups hosted in the Great Plains included participants from Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. These states were selected to match the following U.S. Census divisions: New England – New England and Midwest – West North Central.

The findings of these focus groups are not statistically representative and should not be extrapolated to wider populations. These findings illuminate patterns of thought among Americans in New England and the Great Plains who received information about transmission

infrastructure and can provide additional context for interpreting regional responses to transmission development and transmission policies.

Focus Group Demographic Tables

	Count
Number of Participants	43
Number of Groups	4

		Count	Percentage*
Gender	Female	21	48%
	Male	21	48%
	Nonbinary	1	2%
Age	18–29	2	5%
	30–39	12	28%
	40–49	11	26%
	50–59	11	26%
	Older than 60	7	16%
Race/Ethnicity	White	32	74%
	Black/African American	2	5%
	Hispanic or Latino/a	2	5%
	Asian American	2	5%
	Native American/Indigenous	1	2%
	Biracial, multiracial, or other	4	9%

		Count	Percentage*
State Representation**	New England: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont	22	51%
	Great Plains: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota	21	49%
Urbanicity	Rural / remote area	12	28%
	A small town	7	16%
	A suburb	12	28%
	A midsize city	7	16%
	A big city or major urban area	5	12%
Land ownership	Landowner	26	60%
	Not a landowner	17	40%

* Percentages may not sum to 100 due to rounding.
** At least two individuals were recruited and participated from each state listed.

Survey of Grasstops Transmission Stakeholders

From March 5 to 25, 2025, Data for Progress conducted a survey of 27 grasstops transmission stakeholders nationally using email to reach out directly to potential respondents. Potential contacts were contacted repeatedly between the opening of the survey and the deadline to complete the survey, with reminder emails sent to respondents at least weekly. The sample was unweighted. The survey was conducted in English. Questions in the survey were not required, so the N size varies across questions. The results of this survey are meant to be informative, but may not be representative of the perspectives of the key stakeholder groups. For more information, please visit dataforprogress.org/our-methodology.

Interviews of Grasstops Transmissions Stakeholders

Researchers defined key grasstops stakeholders involved in transmission deployment and community engagement as transmission developers and trade groups, as well as independent advocates, policymakers, regulators, representatives of community organizations, and legal and academic experts involved in transmission projects. Interviewees were identified from a

combination of existing lists, LinkedIn and Google searches, and direct connections made by research partners. Interviews were conducted in a semi-structured manner, allowing for more exploration of topics of particular concern for the interviewee, and ranged between 30 minutes to two hours. All interviews were conducted virtually between March and April 2025. Interviews were recorded and transcribed for future reference. These interviews were meant to supplement interviews conducted for the case studies and to explore gaps in understanding that emerged throughout the duration of the research project. Takeaways from the semi-structured interviews were incorporated in the recommendations and findings of the report.

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