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Addressing Regulatory Challenges to Tribal Solar Deployment: Key Findings

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For the full report, visit https://www.nrel.gov/docs/fy23osti/85741.pdf.

Introduction

Tribal land in the United States represents approximately 2% of the country's total landmass and holds more than 5% of solar photovoltaic potential (Doris, Lopez, and Beckley 2013). This resource is largely untapped. Many Tribes note that regulatory challenges often are roadblocks to taking advantage of solar potential.

This report serves as a summary of a larger project, *Addressing Regulatory Challenges to Tribal Solar Deployment*. The project seeks to unlock some of this potential by bringing Tribal, regulatory, utility, and other stakeholders together to articulate key barriers to Tribal solar adoption and develop replicable solutions. By increasing institutional capacity and developing frameworks, trainings, and a technical document repository for regulatory bodies, utilities, and Tribes, this project can help expand an emerging market.

This project seeks to address policy challenges or barriers that affect solar projects differently *specifically or disproportionately because they are located on Tribal land*. These effects can be due to Tribal sovereignty and associated legal and jurisdictional differences between these projects and non-Tribal projects off Tribal land. They can be due to land management, permitting, or ownership differences between Tribal and non-Tribal land. These challenges can also be related to common Tribal circumstances that affect Tribes' abilities to pursue policy change.

This set of guidebooks is organized into three parts:

- Regulatory challenges to Tribal solar deployment and potential solutions
- Case studies of Tribal solar projects or examples of policy solutions
- "Issue Briefs" that introduce concepts related to Tribal solar deployment.

What Is a Regulatory Barrier?

The regulatory process, for the purpose of this project, is any decision-making process that involves making rules that govern where, when, and how a solar project can be developed. Regulatory barriers are policy barriers, and they can exist at various levels, including the incumbent utility, local government unit, Tribal, state, regional, or federal. Most solar projects will encounter regulatory barriers of some kind.

Regulatory barriers differ from other challenges such as project economics, internal staff capacity, Tribal leadership interest, and support from the Tribal community. Such barriers are important context for understanding regulatory barriers and often influence regulatory barriers. Though important, these non-regulatory barriers are outside the scope of this project.

Regulatory Dimensions

This document categorizes and discusses regulatory barriers from dimensions, including project scale and jurisdictional level.

Scale of Solar Project

The regulatory barriers that impact a solar project change based on the size of a project. Figure 1 illustrates the potential different scales of solar projects. Distributed solar may be rooftop, ground mounted, or facility-scale. These projects are typically behind-the-meter. The size ranges presented are estimates, and not every project will fall in the defined range.

Jurisdictional Level

The development of a solar project will likely be impacted by multiple jurisdictions at different levels, which are detailed in Table 1.

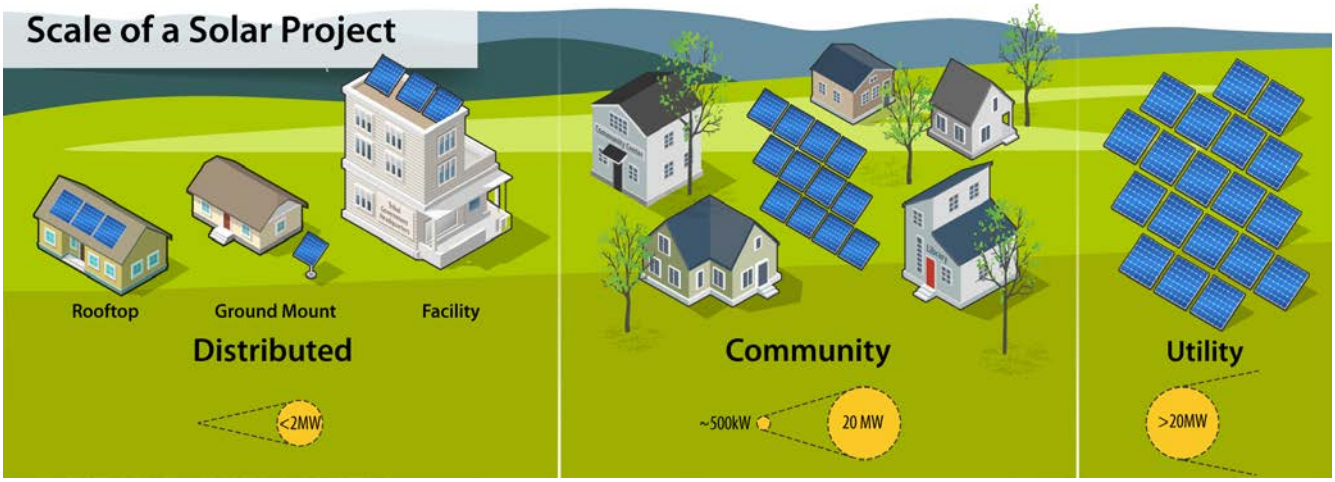

Figure 1. *Illustration by Alfred Hicks, NREL*

Table 1. Jurisdictional Level

Jurisdictional Level	Organization	Regulatory Jurisdiction
Tribal	Tribal government	Develops and enforces all Tribal codes, regulations, and policies on Tribal Reservations and Trust land. Note that Tribal utilities have different governing structures and may or may not be regulated by the Tribe, a separate governing board, or a Tribal Utility Commission.
Local utility	Cooperative local utility (or similar) governing board	Some electric cooperatives are not regulated by the state utility commission; for these, the board of directors or similar body is the jurisdictional authority. *NOTE: State-regulated utilities develop and implement processes such as interconnection procedures in response to a state regulator or governing board.*
Local	County	Develops and enforces building codes, including electrical codes, that local electric utilities may default to for interconnection.
State	State public utility commission[1]	Regulates the programs, rates, rules, policies, and services of certain electric utilities (often investor-owned utilities; sometimes cooperatives or other).
Regional	Independent system operator/ regional transmission operator	Has governing structures and jurisdiction over processes for interconnection or with participating utilities; ultimately regulated by the Federal Energy Regulatory Commission (FERC).
Federal	FERC	Regulates the transmission and wholesale of electricity and natural gas in interstate commerce; regulates the interconnection process for connections to the bulk (interstate) power system.

A Note About Language

This guidebook capitalizes the words "Tribe" and "Tribal" as per the preference of Tribal representatives. The word "co-op" here refers to electric cooperative utilities. Investor-owned utilities are abbreviated as IOU, and municipal utilities are referred to as "munis."

[1] Also referred to as utilities commission, utility regulatory commission, or public service commission

Regulatory Challenges and Solutions for Tribal Solar Deployment

This section discusses the different regulatory challenges to Tribal solar deployment and potential short-term and long-term solutions. The barriers that follow are organized by the relative frequency in which the barrier was noted by stakeholders as a challenge.

Table 2. Summary of the Barriers and Solutions Presented in the Guidebook

Barrier	Relevant Project Scale(s)	Relevant Jurisdiction(s)	Short-Term/ Workaround Solution(s)	Long-Term Solution(s)
1. Lack of Tribal representation in utility, state, or federal energy policy decision-making processes	All	All	• Outreach from Tribal staff or leadership to elected and appointed officials with information about Tribal perspectives or priorities • Tribal liaison positions	• Tribal members run for or get appointed to office • Generic dockets
2. Tribal government or enterprise leadership and staff energy-related technical capacity	All	Tribal government or enterprise	• Support from Tribal leadership (resolutions) for solar work	• Long-term planning initiatives • Prioritize energy by fully or partially funding an energy-related Tribal position
3. Tribes served by multiple utilities	Distributed Facility Behind-the-meter	Local utility	• Early engagement with utilities during project development • Design projects to only work with one utility	• Form a Tribal utility • Develop Tribal utility codes
4. Net-metering limits or lack of a net-metering policy	Distributed Facility Behind-the Meter ("rooftop" solar)	Local utility	• Split projects into smaller sizes to meet size caps	• Work with utility or state rulemaking proceedings to modify or establish net-metering rules • Negotiate net-metering into rights-of-way access

5. Limit of third-party ownership	Distributed Facility Behind the-Meter	State regulator	• Early engagement with utility during project development • Cooperative group of investors • Work with the state and utility early in the project to determine allowable business models	• State legislature creates policy ownership • Judicial ruling • Regulatory change • Change Tribal law code to permit third-party ownership
6. Distributed Generation Interconnection Requirements	Distributed	Local utility regulatory board or state regulator	• Work with utility to determine project-specific solutions	• Tribal laws and regulations for interconnection rules and procedures
7. Tribal utility formation desire conflicts with existing net-metering arrangements	Distributed	Utility and Tribal	• Honor arrangements for specific installations • Evaluate project economics based on timing of system takeover	• Tribal utility take over electrical system exclusive of customers with net-metering with incumbent utility
8. Tribes served by cooperative utilities that are not state-regulated	All	Cooperative utility	• Connect with experts at the National Rural Electric Cooperative Association • Work with cooperatives to form mutually beneficial arrangements	• Tribal members stand for election to co-op board
9. Distributed solar program incompatibility with Tribal facility circumstances	Distributed Facility Behind-the-Meter	Local utility	• Submit comments on rulemaking to FERC • Submit comments to regional organizations	• Create Tribal building codes so buildings are "solar-ready"

10. Nontaxability of Tribes and Investment Tax Credit Rules (Pre-Inflation Reduction Act [IRA])[2]	All	Federal tax law	• Develop taxable entities • Form partnerships with entities able to monetize credits	• Federal legislation

The IRA addressed Barrier 10 by providing two pathways for Tribes and other non-taxable entities to capture the value of the investment tax credit. First, the "direct pay" option described in Section 6417 of the IRA provides a pathway for Tribes to receive direct funds equivalent to the credit. Second, Section 6418 of the IRA allows for the transferability of credits. This enables Tribes to transfer the value of the credits to other entities in exchange for cash in situations where the "direct pay" option is not available. Tribes can also benefit from bonus credits including an additional 10% credit for Tribal land and 10% for a project in an energy community.

11. Additional required development steps can impact economics of Tribally sited utility-scale solar projects	Utility	• Utility • State • Federal	• Work with state regulators or utility for near- or mid-term opportunities	• Participate in utility resource planning and advocate for Tribally sited projects • Change in federal legislation
12. Property taxation jurisdiction questions cause "double taxation"	Utility	• State • Tribal	• Negotiate a tax-sharing agreement	• Take the jurisdiction to court
13. Lack of Tribal land-use planning or land entitlement procedures	Utility Distributed	• Tribal • Local	• Ad-hoc decisions about land use • Work with Tribal Historic Preservation Offices • Account for NEPA in project planning process • Understand neighboring land-use management and form partnerships	• Establish land policy to make land-use planning more streamlined

[2] The IRA was passed August 2022. Prior to the IRA, the non-taxability of Tribes and Investment Tax Credit rules limited Tribal solar deployment. Much of the content discussed in this Guidebook was written before August 2022, but has been adjusted to reflect the new legislation.

Case Studies

This section provides an overview of the 11 case studies that the Addressing Regulatory Challenges to Tribal Solar Deployment guidebook discusses in detail. The case studies are examples of how Tribal solar projects can creatively overcome regulatory barriers as well as regulatory solutions.

Table 3. Summary of the Case Studies Presented in the Guidebook

Case Study	Case Study Overview	Relevant Project Scales	Relevant Jurisdictions	Relevant Barriers	Relevant Issue Briefs
Agua Caliente Band of Cahuilla Indians: Navigates Constraints and Builds Relationships to Advance Solar	The Tribe deployed two facility-scale solar projects as a solution to checkerboarding preventing large-scale projects and worked with the utility to build the correct rate structure.	Facility	Utility, Tribal	14. Lack of Tribal representation in utility, state, or federal energy policy decision-making processes 2. Net-metering limits or lack of a net-metering policy	2. Land Jurisdiction Considerations 5. Utility-Tribal Engagement
Eastern Band of Cherokee Indians (EBCI): Demonstrates Success of Long-Term Stepwise Strategy	EBCI used a long-term stepwise strategy to pursue a 705-kW solar array at the Cherokee Valley River Casino. It offsets approximately 10% of electricity usage across the casino, hotel, and two administrative buildings.	Facility	Utility, Tribal	2. Tribal government or enterprise leadership and staff energy-related technical capacity	4. Tribal Business Structures
Kit Carson Electric Cooperative (KCEC): Building the Model for Cooperative Solar Projects	KCEC works to build strong relationships with its member Tribes through standing meetings, visits, and the understanding and respect for internal decision-making processes and energy goals.	Utility	Cooperative	15. Lack of Tribal representation in utility, state, or federal energy policy decision-making processes	5. Utility-Tribal Engagement

Leech Lake Band of Ojibwe: Project Adaptability and Tribal-Utility Relations	The Tribe divided a large project into smaller systems to meet the state's net-metering rules. The Tribe had to negotiate net-metering contracts with four different utilities.	Distributed	Utility, Tribal	3. Tribes served by multiple utilities 4. Net-metering limits or lack of net-metering policy	5. Utility-Tribal Engagement
Navajo Tribal Utility Authority (NTUA): 55 MW of Solar for Revenue and Reliability	NTUA managed the development, construction, and commissioning of the Kayenta I and II projects with a focus on Tribal benefits, including job training, additional revenue, and system reliability.	Utility	Utility, Tribal	10. Nontaxability of Tribes and investment tax credit rules[3]	4. Tribal Business Structures 5. Utility-Tribal Engagement
Red Lake Band of Chippewa Indians: Crowdfunding Supports Development of Rooftop Solar and Storage	The Red Lake Band of Chippewa Indians pursued solar financing for a 70-kW array and energy storage system at the Tribal government center through a Minnesota-based crowdfunding platform.	Distributed	Utility, Tribal	10. Nontaxability of Tribes and investment tax credit rules[4]	4. Tribal Business Structures
Saginaw Chippewa Indian Tribe of Michigan: Tribal Utility to Drive Economic Development	The Tribe joined the MISO wholesale market and built its own substation, in additional to forming the Saginaw Chippewa Indian Tribe of Michigan Tribal Electric Authority.	Utility	Tribal	11. Additional required development steps can impact economics of Tribally sited utility-scale solar projects	6. Existence of a Tribal Electric Utility

[3] This project was built prior to the 2022 Inflation Reduction Act, which addresses tax-related barriers. See Resolved Barrier 10 in the full Guidebook for more information.

[4] This project was built prior to the 2022 Inflation Reduction Act, which addresses tax-related barriers. See Resolved Barrier 10 in the full Guidebook for more information.

Seminole Tribe of Florida: Proves New Procurement Models in Pursuit of Energy Sovereignty Goals	The Seminole Tribe of Florida built a 445-kW multifacility solar project using streamlined procurement mechanisms for operations and maintenance and design-build.	Facility	Tribal	4. Net-metering limits or lack of a net-metering policy	N/A
Bonneville Power Administration (BPA) and the Public Service Company of New Mexico: Tribal Liaison Offices Support Strong Relationships Working Toward Tribal Energy Goals	BPA and PNM actively engage with Tribes in their service territories through Tribal Liaison offices for better relationships, coordination, and understanding.	N/A	Utility, Tribal	1. Lack of Tribal representation in utility, state, or federal energy policy decision-making processes	5. Utility-Tribal Engagement
Gila River Indian Community Utility Authority and Navajo Tribal Utility Authority: Allocating Part of Utility-Scale Project for Internal Load	GRICUA is the off-taker for 20% of a 50-MW array for grid stability and affordable rates. NTUA has earmarked 4 MW of a 70-MW project to support grid stability.	Utility	Tribal	4. Net-metering limits or lack of a net-metering policy	6. Existence of a Tribal Electric Utility
Public Service Company of New Mexico, Arizona Public Service Company, and Salt River Project: Utilities with Tribal Request for Proposals	PNW, APS, and SRP have found that way to support Tribally sited renewable energy project development is to include Tribal preference in competitive solicitations.	N/A	Utility	1. Lack of Tribal representation in utility, state, or federal energy policy decision-making processes	5. Utility-Tribal Engagement

Issue Briefs

This section summarizes the Issue Briefs detailed in the Guidebook. The Issue Briefs provide insight into certain topics and introduce stakeholders to important concepts related to Tribal solar deployment. These topics are complex, and the information provided is not exhaustive. It is important to note that the generalizations below cannot be applied to every situation, Tribe, or jurisdiction. The goal of this section is to provide some understanding of issues that are important to Tribes so that all stakeholders can create meaningful relationships and pursue projects together.

Table 3. Summary of the Issue Briefs Discussed in the Guidebook

Issue Brief	Overview	Relevance to Solar Deployment
Tribal Sovereignty	Tribal sovereignty refers to the inherent and legal right of Tribes to govern themselves and their borders, lands, and people. It is directly tied to cultural beliefs, lands, and historical traditions.	Understanding the nature of Tribal sovereignty is crucial for successful relationship building and subsequent solar development.
Land Jurisdiction Considerations	Land ownership and designation can be complicated on Tribal lands. In general, there are four common Tribal land holdings: trust lands, restricted fee lands, fee lands, and allotted lands.	Land ownership and associated jurisdictions can require extra work for solar projects on Tribal lands (including oversight, agreements, and approvals). This is applicable for both distributed-scale and utility-scale projects.
Relevant Federal Legislation for Utility-Scale Solar Projects	Tribal projects are often governed by federal law, and federal regulatory programs may influence tribal solar projects, including the Indian Tribal Energy and Self Determination Act, Wind and Solar Resource Leases, The HEARTH Act, and NEPA.	Successful solar projects will require coordination between Tribes, utilities, contractors, and multiple levels of government.
Tribal Business Structures	Tribes can use a variety of business structures to own and operate business enterprises depending on the type of business, risk tolerance, economic goals, the existence of non-Tribal partners, business location, Tribal sovereignty, and asset protection.	Tribal business structures can impact the financing, taxes, and jurisdiction of Tribal solar projects.
Utility-Tribal Engagement	A number of strategies can help build cooperative relationships between Tribes, regulators, utilities, and other stakeholders.	Stakeholders interested or involved in solar projects with Tribes can reach out to the Tribe, respect Tribal sovereignty, and understand that each tribe is different.
Existence of a Tribal Electric Utility	Some Tribes have electric utilities that provide service to some or all customers on their lands.	Parties interested in developing solar projects will benefit from understanding a Tribal utility's current and planned policies.

Conclusion

Regulatory barriers to Tribal solar deployment are not insurmountable, but successful Tribal solar projects require thoughtful engagement with Tribes, regulators, and utilities. This summary document outlines some of the key barriers that stakeholders can understand to reduce barriers to Tribal solar deployment and unlock the significant benefits of solar resources on Tribal lands. Visit https://www.nrel.gov/docs/fy23osti/85741.pdf for the full *Addressing Regulatory Challenges to Tribal Solar Deployment* guidebook to learn more about the topics discussed in this summary report.

References

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