

# Addressing Regulatory Challenges to Tribal Solar Deployment

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**Suggested Citation:** Beshilas, Laura, Scott Belding, Karin Wadsack, Elizabeth Weber, M.J. Anderson, Kelsey Dillon, Sara Drescher, Jake Glavin, and Reuben Martinez. 2023. *Addressing Regulatory Challenges to Tribal Solar Deployment*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-7A40-85741. <https://www.nrel.gov/docs/fy23osti/85741.pdf>.



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## Acknowledgements

The authors would like to thank the many people who contributed to this guidebook. For their contributions, support, and review, we thank Kevin Blaser (MTERA), Carri Chapman (MTERA), Elizabeth Doris (NREL), David Hurlbut (NREL), Michael Ingram (NREL), Rebecca Kauffman (Sun Raven LLC), Gary Lewis (MTERA), Charlie Lippert (MTERA), David Parker (Mohave Elders, Colorado River Indian Tribes), Jennifer Rouda (7Skyline), Margie Schaff (Kanim Associates LLC), Sarah Smith (MTERA), Sherry Stout (NREL), Brandy Toft (MTERA), Michael Troge (MTERA), and Daniel Wiggins (MTERA).

The authors would also like to thank the following individuals for participating in case study interviews: Clyde Abrahamson (Spokane Tribe), Pete Atcitty (Public Service Company of New Mexico), Bob Blake (Red Lake Band of Chippewa), Brian Cole (Arizona Public Service Company), Tom Fallgren (Public Service Company of New Mexico), Lenny Gold (Gila River Indian Community Utility

Authority), Jeff Heit (Guzman Energy), Jon Hawkins (Public Service Company of New Mexico), Todd Hooks (Agua Caliente Band of Cahuilla Indians), Dawn Houle (Seminole Tribe of Florida), Corrina Ikakoula (Bonneville Power Authority), Ken Johnston (Bonneville Power Authority), Kaitlyn Libby (Salt River Project), Kris Mayes (Arizona State University), Amy Mignella (Hopi Tribe), Christopher Miller (Guzman Energy), Cathy Newby (Public Service Company of New Mexico), Joey Owle (Eastern Band of Cherokee Indians), Jana Ganion (Blue Lake Rancheria), Harvey Rambarath (Seminole Tribe of Florida), Luis Reyes (Kit Carson Electric Coop), Glenn Steiger (Navajo Tribal Utility Authority), Travis Suazo (Public Service Company of New Mexico), and Stephen Tsoodle (Spokane Tribe).

The authors would also like to thank all the individuals who participated in this project's listening sessions, one-on-one interviews, questionnaires, and project meetings for their insights and contributions.

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## List of Acronyms and Abbreviations

**APS:** Arizona Public Service Company

**BIA:** Bureau of Indian Affairs

**BPA:** Bonneville Power Administration

**DOE:** U.S. Department of Energy

**DOI:** U.S. Department of the Interior

**EBCI:** Eastern Band of Cherokee Indians

**EPA:** U.S. Environmental Protection Agency

**ETA:** Energy Transitions Act (New Mexico)

**FERC:** Federal Energy Regulatory Commission

**GRICUA:** Gila River Indian Community Utility Authority

**HEARTH:** Helping Expedite and Advance Responsible Tribal Home Ownership

**IOU:** investor-owned utility

**IPS:** Impact Power Solutions

**IRA:** Inflation Reduction Act of 2022

**IRS:** Internal Revenue Service

**ITC:** investment tax credit

**ITEDSA:** Indian Tribal Energy Development and Self-Determination Act

**KCEC:** Kit Carson Electric Cooperative

**MISO:** Midcontinent Independent System Operator

**MOU:** memorandum of understanding

**MTERA:** Midwest Tribal Energy Resources Association

**NRECA:** National Rural Electric Cooperative Association

**NREL:** National Renewable Energy Laboratory

**NTUA:** Navajo Tribal Utility Authority

**PNM:** Public Service Company of New Mexico

**PV:** photovoltaics

**RFP:** request for proposal

**ROI:** return on investment

**RREAL:** Rural Renewable Energy Alliance

**SCE:** Southern California Edison

**SETO:** Solar Energy Technologies Office

**SRP:** Salt River Project

**TERA:** Tribal Energy Resource Agreement

**THPO:** Tribal Historic Preservation Office

**WSR:** wind and solar resource

# Table of Contents

Introduction.....	1
<b>Addressing Regulatory Challenges to Tribal Solar Development:</b> <b>Book One—Regulatory Challenges and Solutions for Tribal Solar</b> <b>Development.....</b>	<b>4</b>
Introduction.....	4
Summary Table.....	6
<b>Barrier 1:</b> Lack of Tribal Representation in Utility, State, or Federal Energy Policy Decision-Making Processes..	9
<b>Barrier 2:</b> Tribal Government or Enterprise Leadership and Staff Energy-Related Technical Capacity.....	11
<b>Barrier 3:</b> Tribes Served by Multiple Utilities.....	13
<b>Barrier 4:</b> Net-Metering Limits or Lack of a Net-Metering Policy.....	15
<b>Barrier 5:</b> Limits of Third-Party Ownerships.....	18
<b>Barrier 6:</b> Distributed Generation Interconnection and Compensation Policy.....	20
<b>Barrier 7:</b> Tribal Utility Formation Desire Conflicts With Existing Net-Metering Agreements.....	21
<b>Barrier 8:</b> Tribes Served by Cooperative Utilities That Are Not State-Regulated.....	23
<b>Barrier 9:</b> Distributed Solar Program Incompatibility With Tribal Facility Circumstances.....	25
<b>Resolved Barrier 10:</b> The IRA Solves the Issues With the Non-Taxability of Tribes and Previous Investment Tax Credit Rules.....	27
<b>Barrier 11:</b> Additional Required Development Steps Can Impact Economics of Tribally Sited Utility-Scale Solar Projects.....	31
<b>Barrier 12:</b> Property Taxation Jurisdiction Questions Cause Double Taxation.....	33
<b>Barrier 13:</b> Lack of Tribal Land-Use Planning or Land Entitlement Procedures.....	35
References.....	37
<b>Addressing Regulatory Challenges to Tribal Solar Development:</b> <b>Book Two—Case Studies.....</b>	<b>38</b>
Introduction.....	38
Summary Table.....	38
<b>Agua Caliente Band of Cahuilla Indians:</b> Navigates Geographic Constraints and Builds Relationships to Advance Solar.....	42

Eastern Band of Cherokee Indians: Demonstrates Success of Long-Term Stepwise Strategy..... 44

Kit Carson Electric Cooperative (KCEC): Building the Model for Cooperative Solar Projects ..... 46

Leech Lake Band of Ojibwe: Project Adaptability and Tribal-Utility Relations..... 48

Navajo Tribal Utility Authority (NTUA): 55 MW of Solar for Revenue and Reliability..... 50

Red Lake Band of Chippewa Indians: Crowdfunding Supports Development of Rooftop Solar and Storage..... 52

Saginaw Chippewa Indian Tribe of Michigan: Tribal Utility to Drive Economic Development..... 54

Seminole Tribe of Florida: Proves New Procurement Models in Pursuit of Energy Sovereignty Goals..... 56

Bonneville Power Administration (BPA) and the Public Service Company of New Mexico (PNM): Tribal Liaison Offices Support Strong Relationships Working Toward Tribal Energy Goals ..... 58

Gila River Indian Community Utility Authority (GRICUA) and Navajo Tribal Utility Authority (NTUA): Allocating Part of Utility-Scale Project for Internal Load..... 60

Public Service Company of New Mexico (PNM), Arizona Public Service Company (APS), and Salt River Project (SRP): Utilities With Tribal Requests for Proposals..... 62

**Addressing Regulatory Challenges to Tribal Solar Development:  
Book Three—Issue Briefs**..... **64**

Introduction..... 64

Summary Table ..... 64

Issue Brief #1: Tribal Sovereignty..... 66

Issue Brief #2: Land Jurisdiction Considerations..... 69

Issue Brief #3: Relevant Federal Legislation for Utility-Scale Solar Projects..... 72

Issue Brief #4: Tribal Business Structures..... 74

Issue Brief #5: Utility-Tribal Engagement..... 76

Issue Brief #6: Existence of a Tribal Electric Utility..... 78

References..... 79

Appendix A: Glossary..... 80

Appendix B: Non-Regulatory Barriers..... 82

# Figures

Figure 1. Scale of a solar project.....	2
Figure 2. Examples of a 1-MW Tribal solar project before (top) and after (bottom) IRA provisions .....	29
Figure 3. Agua Caliente land.....	44

# Tables

Table 1. Jurisdictional Level.....	3
Table 2. Options for Tribal Engagement in the Policy Process.....	4
Table 3. Summary of the Barriers and Solutions Presented in this Guidebook.....	6
Table 4. Summary of ITC Value Over Time .....	28
Table 5. Summary of the Case Studies Presented in this Guidebook.....	39
Table 6. Summary of the Issue Briefs Discussed in this Guidebook.....	65
Table 7. Overview of Tribal Business Structures and Legal and Tax Implications.....	75

# Introduction

## Project Overview

Tribal land in the United States represents approximately 2% of the country's total landmass and holds more than 5% of solar photovoltaic (PV) potential (Doris, Lopez, and Beckley 2013). This resource is largely untapped. Many Tribes are actively seeking to engage in solar development; a review of 35 Tribal strategic energy plans in 2019 revealed that 32 of 35 Tribes were exploring solar options for their communities. Many Tribes also cited regulatory hurdles to achieving these goals.

This project, *Addressing Regulatory Challenges to Tribal Solar Deployment*, 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 targeted technical document repository for regulatory bodies, utilities, and Tribes, this project can help expand an emerging market.

This project is a partnership of the Midwest Tribal Energy Resources Association (MTERA) and the National Renewable Energy Laboratory (NREL). It was funded by the U.S. Department of Energy Solar Energy Technologies Office from 2020 to 2023. The project heavily depends on input from stakeholders, including Tribes, utilities, and regulators. The project team released a draft version of this guidebook in March 2022 and solicited feedback that informs this final guidebook. More information about listening sessions, conference presentations and workshops, interviews, and other activities conducted under this project is available on the working group platform on the MTERA website.<sup>1</sup>

**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.

Tribal sovereignty refers to the legal right of Tribes to govern themselves and to regulate their internal affairs. Some Tribes or Tribal members may define Tribal sovereignty to include energy independence or the ability of a Tribe to control all aspects of their energy use and supply. For a detailed discussion on Tribal sovereignty and its role within Tribal energy, see [Issue Brief 1: Tribal Sovereignty](#).

## Goal of This Guidebook

The *Addressing Regulatory Challenges to Tribal Solar Deployment* guidebook is organized into three books:



**Book 1** presents each significant regulatory challenge and associated solutions identified during the course of this project.



**Book 2** includes a set of case studies of Tribal solar deployment projects or examples of policy solutions.



**Book 3** contains a set of "issue briefs" presenting details on issues that are uniquely/specifically relevant to solar deployment on Tribal land.

The three books strive to provide accessible information about solutions to common challenges, to improve stakeholders' understanding of unique aspects of developing solar on Tribal land, and to help stakeholders to work together on future policy solutions.

## 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 level. Most solar projects will encounter regulatory barriers of some kind.

Tribal projects are impacted by historical, social, and economic contexts that may make regulatory barriers harder to overcome. The establishment of Tribal reservations was coupled with U.S. government attempts to control or remove Tribes from their ancestral lands, including the Indian Civilization Act of 1819, the Indian Removal Act of 1830, and the Homestead Act of 1862. Such past actions impact Tribal decision-making and capacity today.

<sup>1</sup> For more information, visit [MTERA.org](https://www.mtera.org).

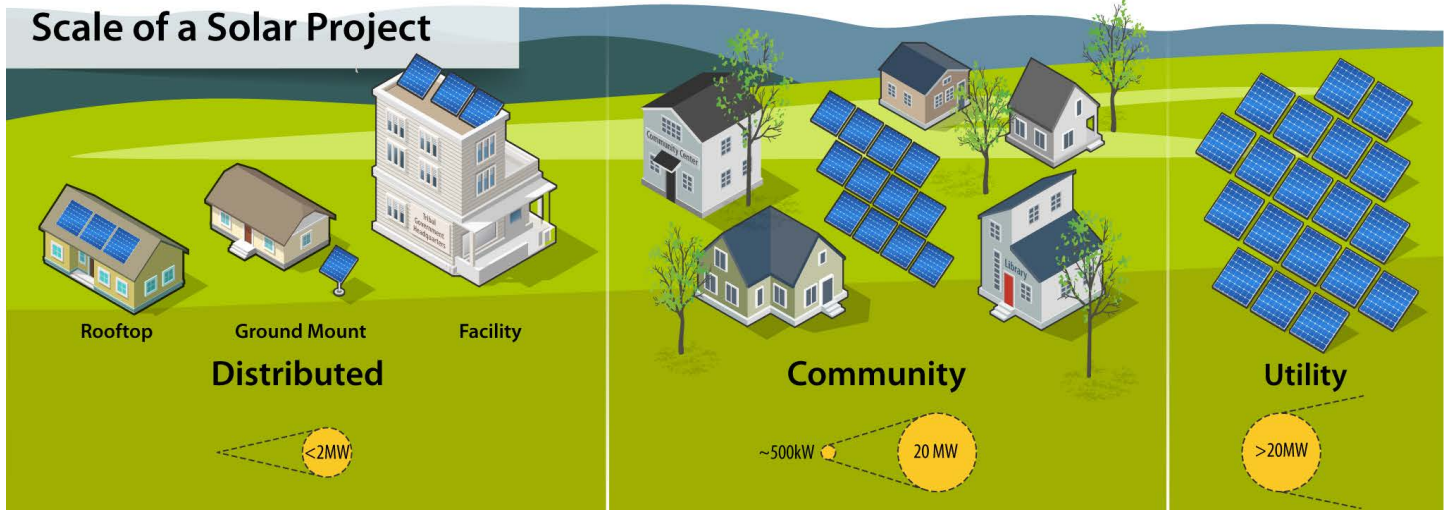


Figure 1. Scale of a solar project

Illustration by Alfred Hicks, NREL

Regulatory barriers differ from other challenges such as project economics, internal staff capacity, Tribal leadership interest, and support from the Tribal community. Though such barriers provide important context for understanding regulatory barriers and often influence regulatory barriers, these non-regulatory barriers are outside the scope of this project. Any non-regulatory barriers discussed during this project are detailed in [Appendix B: Non-Regulatory Barriers](#).

## Regulatory Dimensions

This guidebook categorizes and discusses regulatory barriers from different 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, detailed by Table 1.

Table 1. Jurisdictional Level

 <b>Jurisdictional Level</b>	 <b>Organization</b>	 <b>Regulatory Jurisdiction</b>
Tribal	Tribal government	Develops and enforces all Tribal codes, regulations, and policies on Tribal 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. <i>NOTE: State-regulated utilities develop and implement processes such as interconnection procedures in response to a state regulator or governing board.</i>
Local	County, city	Develops and enforces building codes, including electrical codes, that local electric utilities may default to for interconnection.
State	State public utility commission <sup>2</sup>	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.

<sup>2</sup> Also referred to as utilities commission, utility regulatory commission, or public service commission.





# Addressing Regulatory Challenges to Tribal Solar Development:

## Book One—Regulatory Challenges and Solutions for Tribal Solar Development

### Introduction

This section of the guidebook discusses the different regulatory challenges and potential short-term and long-term solutions. Each regulatory barrier is categorized by the project scale(s) it impacts and the applicable jurisdictional level(s). Information about project scale and jurisdictional level is available in the Introduction of the guidebook.

The barriers that follow are organized by the relative frequency that each barrier was noted by stakeholders as a challenge to Tribal solar development.

### Options for Engaging in Policy Process

Policy challenges are largely relevant in the beginning of the solar project process, and these challenges can be addressed early to avoid additional unforeseen obstacles. There are many options for Tribes to engage in the policy process, as illustrated in Table 2. Each barrier discussed in this section details how engaging with the policy process may help address the regulatory challenge.

**Table 2. Options for Tribal Engagement in the Policy Process**

Participate in utility or regulatory workshops or planning processes, submit comments into processes, or serve on an advisory group or board.

Meet one on one with representatives of the regulatory body or utility to discuss policy and Tribal priorities.

Codify intentions, Tribal authority, and clear development parameters and processes in Tribal policy. Examples may include a Strategic Energy Plan (with a Council resolution of approval) or inclusion in other comprehensive planning, or the development of Tribal codes regulating electricity standards, rights-of-way, etc. (applies to incumbent utility if there is not a Tribal utility).

Work with a national association or other organization to develop model policy language; work with relevant governing body to implement.

Intervene in a regulatory proceeding.






Petition the state to open a new matter for hearing.

In addition to the engagement approaches summarized above, Tribes can form electric utilities to establish an entity that has a long-term mission to participate in the regional electric market and associated policy discussions that affect the Tribe. There are also different types of solutions: short-term options or workarounds and options that require more time, resources, and commitment. These are presented separately under each barrier discussion.

## Stakeholder Engagement

As with any solar project, stakeholder engagement will likely be a critical ingredient in the success of a Tribal solar project. While strategies for stakeholder engagement are not the focus of this report, we have emphasized the importance of working among and across stakeholder groups to successfully navigate regulatory barriers. See *Solar Power in Your Community* (Fekete et al. 2022) for more detailed stakeholder engagement strategies for solar deployment.

Table 3. Summary of the Barriers and Solutions Presented in this Guidebook

 <b>Barrier</b>	 <b>Relevant Project Scale(s)</b>	 <b>Relevant Jurisdiction(s)</b>	 <b>Short-Term/ Workaround Solution(s)</b>	 <b>Long-Term Solution(s)</b>
<p>1. Lack of Tribal representation in utility, state, or federal energy policy decision-making processes</p>	<p>All</p>	<p>All</p>	<ul style="list-style-type: none"> <li>• Outreach from Tribal staff or leadership to elected and appointed officials with information about Tribal perspectives or priorities</li> <li>• Tribal liaison positions</li> </ul>	<ul style="list-style-type: none"> <li>• Tribal members run for or get appointed to office</li> <li>• Generic dockets</li> </ul>
<p>2. Tribal government or enterprise leadership and staff energy-related technical capacity</p>	<p>All</p>	<p>Tribal government or enterprise</p>	<ul style="list-style-type: none"> <li>• Support from Tribal leadership (resolutions) for solar work</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term planning initiatives</li> <li>• Prioritize energy by fully or partially funding an energy-related Tribal position</li> </ul>
<p>3. Tribes served by multiple utilities</p>	<p>Distributed Facility Behind-the-meter</p>	<p>Local utility</p>	<ul style="list-style-type: none"> <li>• Early engagement with utilities during project development</li> <li>• Design projects to only work with one utility</li> </ul>	<ul style="list-style-type: none"> <li>• Form a Tribal utility</li> <li>• Develop Tribal utility codes</li> </ul>
<p>4. Net-metering limits or lack of a net-metering policy</p>	<p>Distributed Facility Behind-the Meter (“rooftop” solar)</p>	<p>Local utility</p>	<ul style="list-style-type: none"> <li>• Split projects into smaller sizes to meet size caps</li> </ul>	<ul style="list-style-type: none"> <li>• Work with utility or state rulemaking proceedings to modify or establish net-metering rules</li> <li>• Negotiate net-metering into rights-of-way access</li> </ul>

5. Limit of third-party ownership	Distributed Facility Behind the-Meter	State regulator	<ul style="list-style-type: none"> <li>• Early engagement with utility during project development</li> <li>• Cooperative group of investors</li> <li>• Work with the state and utility early in the project to determine allowable business models</li> </ul>	<ul style="list-style-type: none"> <li>• State legislature creates policy ownership</li> <li>• Judicial ruling</li> <li>• Regulatory change</li> <li>• Change Tribal law code to permit third-party ownership</li> </ul>
6. Distributed Generation Interconnection Requirements	Distributed	Local utility regulatory board or state regulator	<ul style="list-style-type: none"> <li>• Work with utility to determine project-specific solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Tribal laws and regulations for interconnection rules and procedures</li> </ul>
7. Tribal utility formation desire conflicts with existing net-metering arrangements	Distributed	Utility and Tribal	<ul style="list-style-type: none"> <li>• Honor arrangements for specific installations</li> <li>• Evaluate project economics based on timing of system takeover</li> </ul>	<ul style="list-style-type: none"> <li>• Tribal utility take over electrical system exclusive of customers with net-metering with incumbent utility</li> </ul>
8. Tribes served by cooperative utilities that are not state-regulated	All	Cooperative utility	<ul style="list-style-type: none"> <li>• Connect with experts at the National Rural Electric Cooperative Association</li> <li>• Work with cooperatives to form mutually beneficial arrangements</li> </ul>	<ul style="list-style-type: none"> <li>• Tribal members stand for election to co-op board</li> </ul>
9. Distributed solar program incompatibility with Tribal facility circumstances	Distributed Facility Behind-the-Meter	Local utility	<ul style="list-style-type: none"> <li>• Submit comments on rulemaking to FERC</li> <li>• Submit comments to regional organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Create Tribal building codes so buildings are “solar-ready”</li> </ul>

10. Nontaxability of Tribes and Investment Tax Credit Rules (Pre-Inflation Reduction Act [IRA]) <sup>3</sup>	All	Federal tax law	<ul style="list-style-type: none"> <li>• Develop taxable entities</li> <li>• Form partnerships with entities able to monetize credits</li> </ul>	<ul style="list-style-type: none"> <li>• Federal legislation</li> </ul>
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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	<ul style="list-style-type: none"> <li>• Utility</li> <li>• State</li> <li>• Federal</li> </ul>	<ul style="list-style-type: none"> <li>• Work with state regulators or utility for near- or mid-term opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Participate in utility resource planning and advocate for Tribally sited projects</li> <li>• Change in federal legislation</li> </ul>
12. Property taxation jurisdiction questions cause “double taxation”	Utility	<ul style="list-style-type: none"> <li>• State</li> <li>• Tribal</li> </ul>	<ul style="list-style-type: none"> <li>• Negotiate a tax-sharing agreement</li> </ul>	<ul style="list-style-type: none"> <li>• Take the jurisdiction to court</li> </ul>
13. Lack of Tribal land-use planning or land entitlement procedures	Utility Distributed	<ul style="list-style-type: none"> <li>• Tribal</li> <li>• Local</li> </ul>	<ul style="list-style-type: none"> <li>• Ad-hoc decisions about land use</li> <li>• Work with Tribal Historic Preservation Offices</li> <li>• Account for NEPA in project planning process</li> <li>• Understand neighboring land-use management and form partnerships</li> </ul>	<ul style="list-style-type: none"> <li>• Establish land policy to make land-use planning more streamlined</li> </ul>

<sup>3</sup> 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.

## Barrier 1:

### Lack of Tribal Representation in Utility, State, or Federal Energy Policy Decision-Making Processes

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
All	All	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>• Tribes are often left out of the process, or do not have staff time or expertise, or financial resources, to engage with the process.</li> <li>• When Tribes do engage, they feel that their concerns are not considered.</li> </ul> <p><b>Regulator perspective</b></p> <ul style="list-style-type: none"> <li>• Regulators must engage Tribes in the same way they engage with all other parties.</li> <li>• Regulators must engage all parties in a narrowly prescribed manner inside the confines of specific regulatory proceedings.</li> <li>• Tribes may not be interested in participating in the process for a number of reasons.</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>• Tribes may not be interested in participating in the utility planning processes.</li> <li>• Tribal and utility goals are different.</li> </ul>

### Barrier

Tribes are often not represented in decision processes that impact their ability to develop energy projects, whether at the utility or the local, state, or federal regulatory level.

The lack of representation may be because Tribal members do not have the available time or financial resources necessary for travel required to serve on a decision-making board. Tribes often do not have dedicated staff to work solely on energy. Sometimes those with the technical expertise to participate do not have the authority to make comments or represent the Tribe without specific approval.

Tribal staff or members may also choose to not serve on a board or participate in a proceeding due to concerns that participation on such a board could lead to reductions in Tribal sovereignty. As Tribes become more involved in

decision-making processes, they will require more resources (staff and funding) to defend their sovereign interests.

Election procedures may also be prohibitive. Where there are voting districts, these may not enable a Tribal candidate to attain a voting majority. The nomination or voting procedures may be majority-self-perpetuating, meaning that those in decision-making positions are likely to remain. For example, members of the Rosebud Sioux Tribe ran for seats on their electric cooperative's board. They found that voters received ballots based on number of electrical meters. This benefited non-Tribal members, who had multiple meters, while Tribal households each only had one. The Tribal members lost the election (Lim 2018).

## Solutions

### Short-Term/Workaround

Tribal staff or leaders can provide short summaries of Tribal goals and perspectives periodically to those who lead energy decision-making processes at utilities and in regulatory proceedings. Tribal representatives can also attend workshops or public meetings related to planning processes of their utility or state regulatory agency or reach out to schedule one-on-one meetings with representatives. Ensuring that the decision makers are informed can help ensure that Tribal priorities are considered. Regular communication between Tribes and decision makers over long periods of time can serve as a foundation for successful relationships.

Regulators and utilities can establish a Tribal liaison position. Regulatory commissions and utilities are often large and opaque, so a specific point of contact can make it easier for Tribes to navigate these organizations. A point of contact for Tribes can help build long-term relationships and help better represent Tribal interests in the decision-making processes. In the cases where regulatory bodies have a state-mandated or self-imposed consultation process, or a Tribal liaison, Tribal participation in regulatory matters is more likely. When participating in proceedings, Tribes can explicitly state that they are not waiving Tribal sovereignty.

### Long-Term

Managers of the decision-making processes can enable meaningful participation in decision-making that has a low time commitment (and therefore is low cost). This may include methods like requests for information, hearings, webinars, etc. They may also choose to compensate participation that has greater time requirements, such as a Tribal Advisory Board.




Many state regulatory agencies have a mechanism, sometimes referred to as a “generic docket” or “generic investigation topic,” enabling parties to approach the commission with a substantive policy matter and open a new topic to be dealt with in the law. Getting the regulatory agency to open a new docket can be difficult because the Tribe needs to prove that the topic is different from matters previously heard, that it needs to be heard, and the Tribe would also need resources to engage and stay engaged.

Tribal governments or organizations can also work toward Tribal members holding elected or appointed positions on a utility or regulatory governing board, or on advisory boards. For example, since the electric cooperative election in which all Tribal members lost, members of the Rosebud Sioux Tribe have taken over half of the cooperative board seats. This is in part due to coordinated organizing, campaigning, and funding (Lim 2018). Opportunities sometimes arise to participate in advisory boards that specifically aim to be a forum for underrepresented voices. As an example, the Blue Lake Rancheria in California has a staff member sitting on an advisory board to the California Public Utilities Commission (CPUC), helping Tribal perspectives to be included in CPUC matters. In Michigan, the Chairman of a Tribe was appointed to the Upper Peninsula Task Force specifically to represent their Tribal interests in the consideration of Enbridge Line 5, a petroleum pipeline.

In some regards, Tribes may be able to develop relationships around common goals with municipalities. These entities may share similar goals, such as community solar, and face barriers, such as the unavailability of tax incentives for projects. While municipalities do not possess the level of sovereignty associated with Tribal nations, they may be positioned similarly with respect to their state regulators and their interests in promoting policy change for a defined geographic area. Assessing mutual interests and determining where there is overlap is one potential area for Tribes to identify partners. Changing the dynamic of these relationships may help both Tribes and municipalities feel more represented in decision processes that impact their ability to develop energy projects. For example, the Natural Resources Department of the Keweenaw Bay Indian Community in Michigan has assigned staff members to regularly attend local meetings to make sure that the Tribe is up to date on any planning or actions that could affect the Tribal lands and ceded territory.

## Barrier 2:

### Tribal Government or Enterprise Leadership and Staff Energy-Related Technical Capacity

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
All	Tribal government or enterprise	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>• Tribes are often understaffed and under-resourced, and may not have relevant prior technical experience, making it difficult to engage in solar project development.</li> </ul> <p><b>Regulatory perspective</b></p> <ul style="list-style-type: none"> <li>• Regulatory bodies may believe that it would be helpful if Tribes had energy experts with time and resources to devote to energy projects and decision-making process engagement.</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>• Utility staff may believe that it would be helpful if Tribes had energy experts with time and resources to devote to energy projects and decision-making process engagement.</li> </ul>

## Barrier

Tribal staff and leadership often do not have the availability or experience to deeply and effectively engage in solar project development. This capacity strain can be caused by scarce Tribal resources, collateral effects of grant funding, or turnover in relevant Tribal positions.

### Tribal Resources

While some Tribes have dedicated energy offices, many more do not have the resources to maintain an office solely focused on energy issues or have competing priorities that prevent resources from being devoted to establishing a stand-alone office. In these cases, solar energy projects fall under the larger purview of Tribal staff leading economic development offices, divisions of natural resources, or similar organizations. Because energy policy environments are complex, especially for Tribes served by multiple utilities (see [Barrier 3: Tribes Served by Multiple Utilities](#)), fully understanding the necessary procedures for solar projects often requires a dedicated, full-time staff position. A Tribe may not have enough resources to support such a role. For example, the Eastern Band of Cherokee Indians and

the Saginaw Chippewa have identified staffing continuity and Tribal resources as challenges to achieving Tribal energy goals. In addition, there may be a gap between Tribal members who have the authority to participate in proceedings, make comments, or make comments, and Tribal members who have the technical experience to participate. More frequent communication between energy staff and Tribal leadership may be necessary.

In addition, the timing of project deadlines, grant funding requirements, and utility processes can be challenging to manage. Many parties that want to develop solar projects face this barrier, but this barrier was greatly emphasized by Tribal participants in this project and is especially challenging for projects using grant funding.

### Grant Funding Impacts

A high percentage of Tribal project development funding (for many types of projects) comes from grants, leading to several potential unintended effects that result in constrained Tribal capacity for energy projects.



Grant funds often cover a range of project activities and are contingent upon a prescribed distribution of time and staff departments, or restrictions on what topics staff time may be used to pursue. These conditions of grant funds, and lack of other Tribal funds to supplement energy work, may result in an insufficient amount of grant-funded staff time to work on energy projects.

Tribal staff positions themselves may only have funding support through grants. Once the grant period is over, therefore, the staff position can no longer be maintained by the Tribe, or the focus of the position may turn to the subject matter funded by different grants. This lack of continuity can impact implementation of strategic energy plans and reduces institutional energy project knowledge within the Tribe. As a result, Tribes often find that they must contract with external consultants for energy-related support, which drains Tribal resources even more acutely and does not build internal Tribal capacity.

## Turnover

Energy initiatives, whether policy or projects, frequently require the support of Tribal leadership (even if the initiatives are initiated by a Tribal enterprise or company and not the Tribal government itself). When there is leadership turnover, new elected officials may need to start from square one in terms of their technical expertise on energy or the priorities they represent. This support requirement can result in disrupted project momentum from either the time required to bring new leaders up to speed and obtain buy-in, or shifting priorities leading to projects being put on hold indefinitely.

## Solutions

### Short-Term/Workaround

Many Tribes perform energy-focused work only when grant funding enables it. Council resolutions in support of specific solar projects can help maintain project momentum and governmental awareness of the projects throughout periods of leadership change. If energy project proponents have strong, regular communication with Council and other leaders, obtaining resolutions and other types of support can be easier.

## Long-Term




Long-term planning initiatives, such as strategic energy plans, comprehensive economic development plans, and land-use plans can deliver manifold benefits to Tribes. These are all methods for ensuring that broad stakeholder input is solicited (improving Tribal buy-in and knowledge) and identifying actions to achieve the desired goals (providing structure that supports long-term continuity). The energy projects these strategies often contemplate can provide energy cost savings or revenue, which in turn can be used to fund energy-focused staff positions, STEM/energy education programs, or future energy projects. Some Tribes set out to use project revenues for these purposes or have a project payback requirement to ensure that projects are, at a minimum, revenue-neutral.

Prioritizing energy-focused staff time by at least partially funding a position with energy-related priorities establishes some measure of continuity and institutional knowledge.

Outside the Tribe, engaging intertribal organizations or advocacy groups can help share knowledge of best practices and current events. This knowledge-sharing reduces capacity barriers to solar project development by unraveling the complexity of the energy policy landscape.

## Barrier 3:

### Tribes Served by Multiple Utilities

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Distributed, facility, behind-the-meter	Local utility	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>• It is challenging to manage government budgets and logistics for implementing projects when a Tribe is served by more than one utility with different sets of rules.</li> <li>• Tribes served by multiple utilities may require substantially more staff time to develop and manage relationships to execute projects on Tribal lands</li> </ul> <p><b>Regulator perspective</b></p> <ul style="list-style-type: none"> <li>• Regulators or states manage the charters for utilities, as well as any additions or changes to a utility’s service territory. The regulator does not direct changes in the territory.</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>• The utility’s service territory is typically dictated by the state or is historical. Serving just part of a Tribal territory is likely not an issue that concerns the utility.</li> </ul>

### Barrier

When Tribal reservations or multiple territories are served by more than one electric utility, energy project decisions are more complicated. Local governments may also be served by more than one utility and therefore face similar barriers.

It is more challenging to coordinate on anything that requires negotiation between the Tribe and the utility because multiple negotiations may be necessary if there are multiple utilities. This requires additional time (and money) as well as relationship building. For example, the Confederated Tribes of the Colville Reservation is currently served by six utilities, which complicates all Tribal energy planning.

In addition, evaluating project economics is made more complicated if a project falls in more than one utility territory. The project may be subject to different rate

structures, net-metering rules, or interconnection policies and procedures.

### Solutions

#### Short-Term/Workaround

In the short term, Tribes typically must perform preproject engagement and work within the constraints of multiple utilities when designing projects. Tribes could also approach utilities, whether co-ops or investor-owned utilities (IOUs), and discuss policy changes to make rules more consistent across the multiple utilities serving the Tribes. There are a number of tools and resources to help evaluate projects for technical and economic feasibility, including the circumstances of multiple sets of rules, to ensure the project is implementable.<sup>4</sup>

Tribes may also design projects in a way that allows them to only work with one utility. This may include limiting the project size, customer base, and location.

<sup>4</sup> Visit the U.S. Department of Energy Office of Indian Energy Policy and Programs technical assistance page to learn about technical assistance opportunities: <https://www.energy.gov/indianenergy/technical-assistance>.

## Long-Term

Tribes could form a Tribally owned utility. Forming a Tribal utility is difficult, has many risks, and may not be the best option for every Tribe.




Tribes can also develop their own utility codes. This creates some uniformity across the Tribal territory, regardless of the serving utility. For example, the Rosebud Sioux Tribe formed the Tribal Utility Commission in 1992 (Rosebud Sioux Tribe 2019), which claimed jurisdiction over all utilities, including telecommunications, water, gas, and electric. The mission of the Tribal Utility Commission is to “protect and represent ratepayers in the provision of safe and reliable utility service, at the lowest possible cost, and to ensure that utility customers have access to the best possible information about their options and choices.” This method has risks, including utility service abandonment and high costs.

## Additional Resources

Crow Creek Sioux Tribe Utilities Code: <https://puc.sd.gov/commission/dockets/telecom/2011/TC11-087/exhibits/nat/29.pdf>.

## Barrier 4:

### Net-Metering Limits or Lack of a Net-Metering Policy

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
<p>Distributed, facility, behind-the-meter, often referred to as “rooftop” solar</p>	<p>Local utility, governed by the state or the utility’s board of directors (if a cooperative or muni)</p>	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>• Net-metering rules that provide a time-guaranteed high dollar value per kWh produced provide strong economic support for developing behind-the-meter solar.</li> <li>• Weak net-metering rules (low dollar value, “avoided cost,” or no time guarantee) make the projects harder to make sense economically</li> <li>• Lack of net-metering rules, net-metering project size caps, or lack of virtual net-metering mean that a solar array must be sized so that all of the generation is used on-site to capture its value.</li> </ul> <p><b>Regulator perspective</b></p> <ul style="list-style-type: none"> <li>• Net-metering rules need to be in place so utilities, consumers, and the companies installing behind-the-meter solar have a structure in which to operate and a stable set of fiscal conditions to use in calculating the project’s economic impacts</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>• Net metering has historically been an incentive for consumers to build solar. The effective price utilities compensate net-metered consumers is higher compared to the price of utility-scale generating facilities (or utility-owned facilities). As more consumers take advantage of a net-metering program, the incumbent utility’s revenue decreases, making it harder for the utility to pay for the fixed costs of building and maintaining electric infrastructure. The solution to this problem is to restructure rates so that infrastructure costs are borne in flat monthly fees or demand charges, or to develop specific fees for solar customers so that they pay their share of these costs.</li> </ul>

## Background

Net-metering is a billing mechanism that credits utility customers who have distributed generation on-site for electricity they export to the grid. Customers are only billed by the utility for their net energy use. Compensation levels vary by location and may pose a barrier to Tribal solar projects. System size can also be a factor: some jurisdictions allow net-metering only up to a certain cap. For example, the Leech Lake Band of Ojibwe had to alter its solar project development plans based on the State of Minnesota’s net-

metering cap of 40-kW systems (see [Leech Lake Band of Ojibwe: Project Adaptability and Tribal-Utility Relations case study](#)).

Historically, most utilities included many of the costs of maintaining the electrical distribution system in the per-kWh rate, to allocate these costs proportionately among users (those who use more electricity pay higher maintenance costs for their use of the system). When consumers install solar and reduce their grid kWh usage, they no longer pay the portion of infrastructure costs that

are included in the per-kWh rates, even though the system still needs to be maintained at the same rate for them to have reliable and affordable power. Consumers in some jurisdictions may still pay fees, including a service fee, interconnection fee, or other monthly fee similar to the previous bill. Generally, net-metering refers to a system of one-for-one credits, while net-billing refers to a system in which the utility provides a different level of compensation for kWh delivered from the customer to the grid.

## Barrier

### Compensation Rate

In some cases, the net-metering or net-billing compensation rate is not financially beneficial to the customer. The state of Wisconsin has net metering rules that do not provide a strong financial benefit for overproducing energy from solar panels. A producer is credited for overproduction at the avoided energy cost, which is below retail rate (“Net Metering Program Overview Wisconsin” 2018). Additionally, net-metering caps, which limit the amount of energy attributable to, for example, non-daytime use, even with overproduction, do not provide incentive to size projects greater than the average peak use. The Forest County Potawatomi Community is located in Wisconsin, and therefore needs to consider these net-metering rules in solar project planning and understanding the potential of a project. The Tribe previously installed 2 MW of solar and is currently installing a third MW. When planning these projects, the Tribe sized individual distributed energy resource (DER) systems in accordance with net-metering rules to get the most value out of the project possible. However, in many instances, the Tribe could have installed larger systems if the net-metering dynamics supported the projects’ goals.

Arizona Public Service Company (APS) has a net-billing rate for kWh delivered into their system that is based on a rolling average of the company’s other solar costs, and which can decrease as much as 10% every year. Customers who install solar and sign up for net-billing may only lock in this rate for 10 years when they install a system. Many utilities have or are exploring adding a fixed charge to all customers who have solar arrays, whether net-metering or otherwise, to recover the costs associated with maintaining the distribution grid, which are not being paid at the same

rate when the customer reduces their overall per-kWh bill by installing solar.

### No Net-Metering Rate or Policy Available

There may be no net-metering rate. This is true of many rural electric cooperatives that are unaccustomed to customer-sited generation and receive all of their electricity through contracts with other generators. It is also the case for the Gila River Indian Community Utility Authority (GRICUA), which does not have a net-metering rate in place as a matter of policy. When net-metered kWh would cost GRICUA more than the electricity that it obtains from generation that it owns or generation contracts, this increases the overall cost of operating the system, which ultimately increases costs for all users. GRICUA does not wish to transfer any increases in costs due to net-metering to the remainder of its customers.

Net-metering rates may exist but are not set up for specific customer classes. This was the case when the Agua Caliente Band of Cahuilla Indians installed solar on government-owned rooftops; arranging for net-metering required the Band’s utility, Southern California Edison, to develop a new tariff enabling net-metering for the Tribe’s government buildings. See the [Agua Caliente Band of Cahuilla Indians: Navigates Geographic Constraints and Builds Relationships to Advance Solar case study](#) for more information.

### Project or State/Utility-Wide Size Caps

There are sometimes project-level size caps or statewide total net-metered capacity caps to limit the individual or collective size of net-metered projects. These limits are in place for a number of reasons: to facilitate the distribution utility’s management of the local grid; to limit the overall electrical effect of net-metered projects; and to limit the overall economic effect of net-metered projects.

The State of Minnesota’s net-metering rules cap project size at 40 kW (“Net Metering Program Overview Minnesota” 2018). The Leech Lake Band of Ojibwe planned a 200-kW solar project, and partway through project planning realized that this statewide limit would restrict project size. While developing the project, Leech Lake negotiated with its local utilities to explore workarounds such as utility ownership or other business structures, but the financials were unfavorable. Consequently, the Tribe built five projects

that were each slightly under the 40-kW cap, resulting in having arrays in the territories of four different utilities, which complicated project development. See the [Leech Lake Band of Ojibwe: Project Adaptability and Tribal-Utility Relations case study](#) for more details. Similarly to Minnesota, Consumers Energy in Michigan has a 150-kW cap on net-metering project size. In other places, for example Nevada, there is a cap on the aggregated capacity of net-metered solar, or there is a shift in the net-metering compensation rate as the total capacity of net-metered rates passes certain thresholds (“Net Metering in Nevada” n.d.).

## Solutions

### Short-Term/Workaround

Tribes pursuing facility-scale projects that are larger than the utility’s net-metering size cap can split up the solar project into smaller individual projects. For example, the Forest County Potawatomi Community implemented 2 MW of solar projects across different buildings, with arrays ranging in size from 5 kW to 880 kW. This kept the production of the array at or below what the building demands. As discussed above, the Leech Lake Band of Ojibwe Indians similarly decided to develop five 40-kW solar arrays in place of one 200-kW array, working with four different utilities. Each array net-metered at 12–14 cents/kWh, which was more favorable to the project’s economic outcomes than the 2–4 cents/kWh that the other business models proposed would have yielded.

### Long-Term

Tribes can sometimes work with their incumbent utility or state rulemaking proceedings to pursue the modification or establishment of net-metering rules. In the case of the Agua Caliente Tribe, the Tribe’s utility was able to develop a new rate tariff for the customer class to enable net-metering. See the [Agua Caliente Band of Cahuilla Indians: Navigates Geographic Constraints and Builds Relationships to Advance Solar case study](#) for more details. There are many co-ops across the country that are considering rule changes that may be beneficial to Tribes, exploring creative solutions that would help the Tribe meet its energy goals while not causing economic harm to the co-op and its members. In the case of Tribes served by investor-owned utilities, net-metering is typically regulated




by the state utilities commission, in which case the Tribe would need to engage in relevant proceedings at the commission when they take place, petition the commission to open a proceeding, or intervene in the utility’s rate case with the hope of discussing net-metering as a topic of the case or of settlement negotiations.

Tribes can grant right of way access across their lands to various utilities for transmission lines. Negotiation of these right of ways could include net-metering allowances.

## Additional Resources

**Net Energy Metering:** this introduction to net-metering from NREL highlights the benefits and challenges of net-metering.

## Barrier 5: Limits of Third-Party Ownerships

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Distributed, facility, behind-the-meter	State regulator	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>• Because Tribes cannot take advantage of tax credits, a third-party ownership arrangement can help make projects more cost-effective. Therefore, Tribes may want to use a third-party arrangement.</li> <li>• Tribes could be considered a third party.</li> </ul> <p><b>Regulator perspective</b></p> <ul style="list-style-type: none"> <li>• The state regulator may consider a third-party owner a “utility.”</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>• When the definition of third party is unclear, the utility can choose to prevent third-party ownership.</li> </ul>

### Background

Third-party financing and ownership of solar primarily occur through a lease or a power purchase agreement (PPA). For both, a solar company installs a solar system with low upfront costs for the building owner and electricity off-taker. The company also manages system upkeep. For a lease, the solar provider installs and owns the system. The customer makes monthly payments and receives electricity from the system. Under PPAs, the customer pays a set rate for the electricity generated by the system. Third-party financing and ownership of solar helps customers overcome the upfront cost of installing solar, making solar more accessible to customers who do not have, or do not want to borrow, the amount of money needed upfront for solar.

### Barrier

In some states, like Alabama, third-party ownership of systems is prohibited because the owner would fall under the state’s definition of a “utility” but does not have a granted utility territory. This means that companies wishing to own and lease a system to a Tribal entity are unable to participate in this geographic area. In the past, this would prevent Tribes from working with these companies as a potential solution to their problem of nontaxability (Before the Inflation Reduction Act of 2022, Tribes could not take advantage of tax incentives; see [Resolved Barrier 10: The IRA Solves the Issues With the Non-Taxability of Tribes and Previous Investment Tax Credit Rules](#) for more details).

There may also be uncertainty around the rules that govern third-party ownership and around how those rules are enforced. For example, different utilities in the same state may choose to interpret regulations in different ways. This uncertainty serves as a barrier to Tribes because the Tribes may not have the workforce to navigate the quasi-legal standards or to investigate potential options.

## Solutions

### Short-Term/Workaround

In some states, the rules that govern third-party ownership are unclear. The utility is left to make the final decision of whether to allow an interconnection. This suggests that in some cases, the Tribe could discuss the project with the utility, and the utility could choose to allow the interconnection.

A cooperative group of investors may also be able to overcome barriers to third-party ownership. For example, Oneida Nation Solar LLC is a partnership between Oneida Nation in Wisconsin and Sunvest, a solar developer. The Oneida Nation entered into the LLC at 1% ownership while Sunvest owned 99%, with the plan to flip ownership in the future after Sunvest recovered its investment. This partnership allowed Oneida to install solar arrays on six buildings across the Tribal territory. Both Oneida and Sunvest invested in the project. By having the Oneida Nation as one of the ownership partners, WPS, the local IOU, agreed that the project was not third-party-owned, thereby creating a “utility” under state law.

However, subsequently, when faced with a similar situation wherein a municipality intended to form an LLC, lease its roof space, receiving the energy through a PPA, a Wisconsin IOU took the position that this type of LLC arrangement essentially created a utility that would have to be approved by PSC, and the IOU would not approve the interconnection. As of time of writing, there is a contested case at the Wisconsin PSC to better define these relationships, but the IOU’s position has had a chilling effect on third-party tax incentive solar development. This highlights the importance of Tribal project leaders clarifying with the utility and the state early in the project which business models will be allowed under state regulation and utility implementation of the regulation.

### Long-Term

Tribal law code could be changed to permit third-party ownership within the reservation. A state legislature could create policy that explicitly allows for third-party ownership.

A judicial ruling may also enable third-party ownership. For example, in 2014, the Iowa Supreme Court affirmed a lower court decision that allowed the use of PPAs (O’Day 2014).

Finally, regulatory change may enable third-party ownership. For example, third-party ownership is allowed in Arizona for certain sectors, including education, government, and nonprofit organizations (“Arizona Corporation Commission Decision 71795” 2010).




## Additional Resources

Third-Party Solar PV PPA: [This map of the United States](#) shows which states and territories authorize the third-party PPAs for solar photovoltaics. The map does not constitute legal advice.



## Barrier 6:

### Distributed Generation Interconnection and Compensation Policy

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Distributed	Local utility regulatory board or state	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>Unclear or nonexistent interconnection and compensation policies and processes can prevent or delay projects.</li> </ul> <p><b>Regulator perspective</b></p> <ul style="list-style-type: none"> <li>Utilities need to deliver affordable electricity to all customers, and any policies developed are typically meant to be equally applied across all customers in a particular customer class.</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>Policies that have not been needed in the past may be time-consuming to develop or may disadvantage the utility and transfer costs to other customers, which the utility may be legally prohibited from doing.</li> </ul>

## Barrier

Utilities with transmission facilities for interstate transfer of electricity are federally required<sup>5</sup> to have interconnection policies. No such requirement exists for distribution utilities. Local utilities and regulators may make interconnection more difficult, as the policies may not exist, and if they do, they may not be clear or streamlined. The lack of clarity creates schedule risk, as well as uncertainty around the economics of the potential solar project.

Additionally, local distributed generation interconnection and compensation policies may or may not allow for virtual net-metering, distributed generation PPAs, or distributed generation wheeling (sending power from a generation facility through the distribution system to another purchaser). All of these options could enable more options for Tribal solar development. These options may not exist, as many states and utilities prohibit these constructs for operational or cost reasons; in some cases, however, these options can be negotiated.

## Solutions




### Short-Term/Workaround

Tribes can work with their serving utility to explore broad policy change or project-specific solutions to interconnection issues. For example, The Picuris Pueblo of New Mexico worked with the Kit Carson Electric Cooperative to enable the Picuris Pueblo to interconnect a 1-MW solar array off-site under a PPA that offset costs for the Pueblo and all of its residential customers. See the [Kit Carson Electric Cooperative \(KCEC\): Building the Model for Cooperative Solar Projects case study](#) for more information about how the Pueblo of Picuris worked with the Kit Carson Electric Cooperative.

<sup>5</sup> FERC Small Generator Interconnection Process (SGIP) (2005): "require public utilities that own, control, or operate facilities for transmitting electric energy in interstate commerce to amend their open access transmission tariffs to include standard generator interconnection procedures and an agreement that the Commission is adopting in this order and to provide interconnection service to devices used for the production of electricity having a capacity of no more than 20 megawatts. A non-public utility that seeks voluntary compliance with the reciprocity condition of an open access transmission tariff may satisfy this condition by adopting these procedures and agreement." (FERC 2018)

## Barrier 7:

# Tribal Utility Formation Desire Conflicts With Existing Net-Metering Agreements

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Distributed	Utility and Tribe	<p><b>Tribal consumer perspective</b></p> <ul style="list-style-type: none"> <li>• If an existing Tribal solar energy project has negotiated favorable net-metering arrangements, the Tribe may seek to keep the arrangement if the Tribe takes over the electric utility to continue generating as much revenue from the project as possible.</li> <li>• Planned or potential future Tribal solar energy projects may seek net-metering rules that provide a time-guaranteed high dollar value per kWh produced to justify upfront investment in the system and pay for maintenance.</li> </ul> <p><b>Tribal consumer perspective</b></p> <ul style="list-style-type: none"> <li>• Strong net-metering rules carried over from the incumbent utility or negotiated with new Tribal solar projects could present a liability to the Tribal enterprise that is managing the new electric utility, as they erode utility revenue and may force the Tribal utility to restructure rates or develop specific fees for solar customers to pay for necessary grid infrastructure upgrades and maintenance.</li> </ul> <p><b>Regulator perspective</b></p> <ul style="list-style-type: none"> <li>• The Tribal enterprise would be governed by a Tribal Utility Board or Tribal Council, outside the jurisdiction of state and/or federal regulators.</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>• Utilities would typically resist customer departure. However, in the case of a Tribe with several robust net-metering arrangements, the utility may be willing to negotiate a streamlined exit.</li> </ul>

## Barrier

Net-metering policies<sup>6</sup> allow utility customers with distributed on-site generation, such as rooftop solar panels, to offset the electricity they draw from the grid by selling excess power from their generation system back to the grid. Utilities have historically included many of the costs of maintaining electrical transmission and distribution infrastructure in the per-kWh rate charged to their customers, to allocate these costs proportionally among customers based on overall usage rates. Customers with

distributed on-site generation systems consume less power from the utility and therefore avoid paying their share of these system maintenance costs, despite the benefits they receive from access to reliable and affordable grid power when their solar panels are not generating electricity.

Strong net-metering arrangements with time-guaranteed high dollar values per kWh produced are more financially beneficial to utility customers and can help facilitate Tribal solar energy projects by providing a strong economic justification for upfront investments. However, strong

<sup>6</sup> For more on net-metering policy, see [Barrier 5: Limits of Third-Party Ownerships](#).

net-metering rules can reduce utility revenues, reducing the utility's ability to pay for maintenance and upgrades to existing infrastructure. This can create a conflict between utilities, which need a way to cover these ongoing expenses, and private solar installation owners, who want to recover the highest price possible for any excess electricity they produce.

If a Tribe with existing net-metering arrangements takes over the electric utility in their service area, the Tribal enterprise will need to decide whether to honor preexisting net-metering arrangements from the incumbent utility. The Seminole Tribe of Florida, on its Big Cypress Reservation, for instance, worked to install several facility-scale net-metered arrays serving large loads such as government centers. The Tribe is also considering taking over electrical service for the reservation. Part of the evaluation of the value proposition of taking over service is a determination regarding how to handle prior net-metering agreements, and what financial effect they might have on a future Tribal utility (See the [Seminole Tribe of Florida: Proves New Procurement Models in Pursuit of Energy Sovereignty Goals](#)). Tribes pursuing net-metering arrangements with non-Tribal utilities and anticipating future development of a Tribal utility may consider these potential solutions.

## Solutions

### Short-Term/Workaround

One option for a Tribe pursuing net-metering arrangements with a non-Tribal utility is to seek favorable arrangements for Tribal projects, and plan to honor these arrangements for the specific installations of the Tribe and its members. This allows the Tribal enterprise to negotiate strong net-metering arrangements based on a customer class that would enable more solar projects for Tribal members, while providing the future Tribal utility with the option to pursue separate net-metering arrangements with non-Tribal customers that would not financially disadvantage the Tribe as the utility manager.

As a second option, Tribes facing this dilemma can evaluate project economics based on the expected or likely timing of the utility system takeover. This would involve evaluating cost recovery potential of the solar project under the stronger net-metering rules up until the year in which the Tribal utility is expected to be formed, then applying the anticipated new net-metering rates and assessing




continued revenue-generating potential for the remainder of the project lifetime under these new rates. Depending on project specifics, this can allow the Tribe to assess whether future changes to net-metering arrangements would alter project economics enough that it would pose a barrier to new solar installations.

### Long-Term

Tribes can plan to have the new Tribal utility take over the electrical system, exclusive of those customers with net-metering with the incumbent utility. For example, GRICUA does not have a net-metering policy. The Navajo Tribal Utility Authority (NTUA) performs net-billing, which allows the utility to set different compensation rates for power delivered from the customer to the grid, at avoided cost. See the [GRICUA and NTUA: Allocating Part of Utility-Scale Project for Internal Load case study](#) for more information.

## Barrier 8:

### Tribes Served by Cooperative Utilities That Are Not State-Regulated

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
<p>All, more relevant at the distributed scale</p>	<p>Incumbent cooperative utility</p>	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>When a co-op utility is not state-regulated, the Tribe may have little ability to participate in or influence decision processes and co-op planning without going to FERC.</li> </ul> <p><b>Regulatory perspective</b></p> <ul style="list-style-type: none"> <li>The co-op regulatory board is responsible for rulemaking to self-regulate the co-op.</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>The co-op utility is regulated by a board, and decisions are made at that level.</li> <li>Many co-ops have very limited staff and financial resources and face financial constraints to enabling noncooperative electricity generation projects.</li> </ul>

## Barrier

As of 2015, only 12 U.S. states (Alaska, Hawaii, Arizona, New Mexico, Oklahoma, Arkansas, Louisiana, Kentucky, Virginia, West Virginia, Maryland, and Vermont) provided regulatory oversight of cooperative electric utilities in their state (Farrell 2016). In the remaining states, rural electric co-ops are largely unregulated, instead governed by member-elected boards. While this model is intended to give customers, or member-owners, more democratic control of utility decisions, it also means that state rules regarding electricity rates, renewable energy project development, and incentives do not apply to co-op customers. To advance policies that enable Tribal solar development, Tribes served by co-op utilities often must negotiate directly with the co-op governing board. This can be extremely challenging due to several barriers to participation faced by Tribal members. Tribes often don't have staff time and resources to devote to being involved in decision processes.<sup>7</sup> Furthermore, a 2018 investigation of rural electric co-ops in South Carolina found that 80% of the state's co-op utilities held their monthly board meetings during normal business hours when most working customers cannot attend (Wilks 2018).

Rural electric co-ops are typically small organizations with limited experience in customer-sited generation and infrequent turnover in board leadership. Many electric co-ops that built their own large fossil-fired power plants decades ago may have little incentive for innovation in policies to enable more customer-sited renewable power. This is due to the threat that cheaper wind and solar power could leave co-ops and their members with “stranded assets,” assets that are subject to unanticipated devaluation, when Tribes are forced to retire uneconomical coal plants before they are paid off.

**A cooperative utility, referred to as a co-op in this report, is an independent utility owned by its customers. Electric rates are set to cover costs only, if revenues exceed costs, then co-op members receive a credit. A co-op may be a “distribution” co-op that does not own any generation assets but instead buy power from other “generation and transmission” cooperatives or federal power agencies to then sell to customers.**

<sup>7</sup> See Barrier 4: Net-Metering Limits or Lack of a Net-Metering Policy

Furthermore, electric cooperative boards of directors rarely represent the diversity of their members, and Tribes may feel their voices and interests are not represented in co-op leadership. Mississippi Choctaw, for instance, is served by an electric co-op that does not have a single Tribal member on the board (as of writing, March 2022). Many Tribal members do not feel that the at-large minority representative on the board is a strong voice for Tribal interests or priorities.

## Solutions

### Short-Term/Workaround




Tribes may seek creative, mutually beneficial arrangements with their local co-op. The priorities and constraints guiding decisions in each co-op will be unique, and Tribes may find opportunities to advance solar projects that meet the goals of both the Tribe and the utility. Collaborative generation projects may provide avenues for both the Tribe and the utility to meet individual goals. Tribes should engage directly with their utility service provider as much as possible to understand the co-op's needs and find opportunities to reduce costs and potentially deliver other electrical system benefits to the co-op while achieving Tribal energy goals.

### Long Term Solutions

The National Rural Electric Cooperative Association (NRECA) is a national service organization representing over 900 co-op utilities across the United States and offering a number of services to members, including advice on tax, legal, environmental, and engineering topics. In addition to negotiating directly with the co-op board, Tribes can connect with experts at NRECA to determine if there are model policies to help enable the solutions they seek. Tribes served by unregulated co-op utilities may also pursue state legislation mandating policy solutions for co-ops as a longer-term strategy. In Michigan, major legislation passed in 2016 enables on-bill financing for electric co-op members (Gilleo 2019). While rural electric co-ops may not be subject to state regulation, they are under the jurisdiction of the FERC, and Tribes can appeal to FERC on issues relevant to Tribal solar deployment. Tribes can also negotiate using their rights of way for access to their lands.

## Barrier 9:

### Distributed Solar Program Incompatibility With Tribal Facility Circumstances

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Distributed, facility, behind-the-meter	Local utility	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>• Grid-delivered electricity can be expensive for Tribes in both absolute and relative terms, as many Tribal residents are remotely located and experience economic insecurity. Residential rooftop solar can therefore be desirable from a personal standpoint, in addition to the technology’s alignment with common Tribal goals of energy independence and environmental protection. However, some of the realities of Tribal building circumstances create disproportionate barriers to distributed solar deployment.</li> </ul> <p><b>Regulatory perspective</b></p> <ul style="list-style-type: none"> <li>• Regulatory commissions are not usually involved in regulating building structure or ownership that may affect the physical or economic feasibility of rooftop solar deployment rules, but local regulations do matter. Regulatory commissions do play a role in approving the design of regulated utilities’ distributed solar programs.</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>• For utilities, Tribal rooftop solar is another manifestation of a larger trend: increased distributed generation that disrupts the traditional model of the utility itself determining the deployment of additional generation sources on the grid. As the entity responsible for maintaining the stability and integrity of the grid, utilities are primarily concerned with the ripple effects of rooftop solar on electrical infrastructure, especially the distribution system.</li> </ul>

## Barrier

Some barriers that limit or prevent distributed generation solar deployment are unique to, or more prevalent in, the circumstances of Tribal building ownership or building condition. Many of these factors exist outside of Tribal land. This report highlights these factors due to their prevalence and because stakeholders during engagement often stressed the importance of these barriers to Tribal solar deployment.

While the rooftops of individual buildings are in many ways the most modular and accessible sites for solar development, several common factors may impede Tribal rooftop solar development:

- Not every rooftop’s structure and orientation are suited for the addition of solar panels, and in some cases putting solar on the roof is not desired for maintenance reasons. Tribal property may not contain enough viable rooftop square footage to allow for rooftop solar systems alone to meet a Tribe’s energy goals. There may be many Tribal buildings (government, commercial, residential) that are not built to a local code required by the utility to install rooftop solar.
- There may be barriers related to mixed ownership or jurisdictions. Regulations may prohibit solar panel installation on U.S. government-issued homes, which often comprise a substantial percentage of reservation homes. In some instances, federal funding for Tribal energy projects may not be applied to homes outside

of trust land, even if the homes themselves are Tribally owned. Federal funds may also require that the Tribe own the homes, not individual members. This adds additional complications, including insurance and utility service agreements. See [Issue Brief 2: Land Jurisdiction Considerations](#).

- As is the case beyond Tribal lands, multifamily rental housing can present obstacles to rooftop solar deployment due to the split incentive between the building's owner, who would traditionally pay the investment costs of a rooftop PV system, and the tenants, who would receive the benefits of electricity bill reduction.

## Solutions

### Short-Term/Workaround

There are multiple factors that impact a Tribal facility's ability to deploy solar. Each requires a different solution. To help overcome the unsuitability of rooftop structure and orientation for solar, the Tribe can require that new buildings be built "solar-ready." If federal funding places limits on grant use, the Tribe can reach out to the relevant agency to ask for relaxed requirements.

### Long-Term

Tribes can exercise control of their own codes or practices and mandate that all new buildings using Tribal funds or federal funds on Tribal lands be designed "solar-ready" or with solar panels included in the price of the structure, just as all new buildings are designed with insulation, heaters, and water systems. In addition, Tribes control the leasing documents associated with leasing Tribal lands for residential, recreational, and commercial use. Codes could be written so that these buildings are also designed to be solar-ready.

The Tribe's need for rooftop solar to meet its energy goals may be lessened by enabling cooperative or other ownership pathways for residents to acquire a stake in community- or utility-scale solar projects. For example, GRICUA is including a 10-MW carve-out in its 50-MW utility-scale solar array (See [GRICUA and NTUA: Allocating Part of Utility-Scale Project for Internal Load case study](#) for more information) to provide renewable electricity to Tribal members directly as part of their generation mix. In the future, GRICUA may offer residents who wish to go 100% solar an ownership stake or similar interest in the project.

To smooth installation in rental housing (avoiding the landlord-tenant split incentive) as well as assuage utility concerns about distributed generation, utilities can implement residential solar programs in which the utility owns the PV systems and produced energy, and gives residential customers bill credits in exchange for hosting the distributed asset. An Arizona Public Service residential solar program followed this method and even enabled ground-mount and parking canopy structures, in addition to traditional roof-mounted systems, specifically changing their program parameters to accommodate Tribal customers whose homes would not support rooftop solar.

## Resolved Barrier 10:

### The IRA Solves the Issues With the Non-Taxability of Tribes and Previous Investment Tax Credit Rules

On August 16, 2022, H.R. 5372, better known as the Inflation Reduction Act (IRA), was signed into law. The IRA is a paradigm shift for Tribally owned solar projects. It breaks down the longstanding policy barrier that discouraged Tribes from owning solar projects because they could not take advantage of tax credits. This section describes the new legislation, as well as the previous regulatory barrier associated with the non-taxability of Tribes and pre-IRA investment tax credit (ITC) rules.

Before the IRA, Tribally owned solar projects were functionally more expensive than solar projects owned by non-Tribal entities that could tax advantage of the federal ITC. The ITC is a federal tax credit that historically has been monetized through a reduction in income taxes that the taxable entity investing in a solar project would pay to the federal government. Because Tribes do not pay federal income taxes, this financial incentive historically could not be accessed by Tribes before the IRA. The value of the ITC before the IRA was approximately 30% of the amount invested in the solar project (it was reduced to 26% in 2020, and was scheduled to phase out prior to the IRA). Because of this pre-IRA regulatory barrier, Tribes that desired to own the solar project missed out on the ITC financial incentive and paid a higher cost for a similarly sized project. The hypothetical example below shows that without the ITC, this could represent a \$600,000 premium on a 1-MW solar project, assuming a \$2 per-watt installation cost and a 30% ITC.

The IRA legislation spans many clean energy funding incentives and specifically addresses the regulatory barrier caused by the non-taxability of Tribes. Specifically, Section 13801 of the IRA contains two new mechanisms for Tribes, as non-taxable entities, to capture the value of the ITC:

- Section 6417 creates a “direct pay” option. This option allows Tribal governments, upon completion of an eligible clean energy project, to receive an elective payment (commonly referred to as a “direct payment”) from the IRS for tax credits on projects placed in service after 2022. This addresses the historic issue that

prevented Tribes, along with other non-taxable entities like cities, towns, and villages, to directly benefit from the value of the credits. If a Tribal entity overestimates the eligible construction cost, a penalty may apply where excess payments are requested and made by the IRS.

- Section 6418 allows certain credits to be transferable, which significantly increases the options for entities like Tribes to monetize the tax credits. While the direct pay option described above provides a direct mechanism for Tribes to receive the value of the credits from the IRS, there may be scenarios where the direct pay option is not available. In these scenarios, credits can be sold to other unrelated taxable entities. While this option will likely be more complex and reduce the value per credit, it provides a mechanism for tax credits to be monetized when direct payment is not an option.

The IRA also increases the potential value of the ITC for Tribal solar projects by providing bonuses if certain criteria are met. For example, an additional 10% credit is available for projects on Tribal land. With these bonuses, the credit value of the ITC could increase to up to 70% of the project cost.

The IRA language is complex regarding how much of a credit a specific Tribal solar project will receive. In addition, the details for how Tribes apply for the direct pay option are still being defined as of February 2023. Table 4 illustrates both the complexity but also the potential for significant credits, if a project meets multiple criteria.

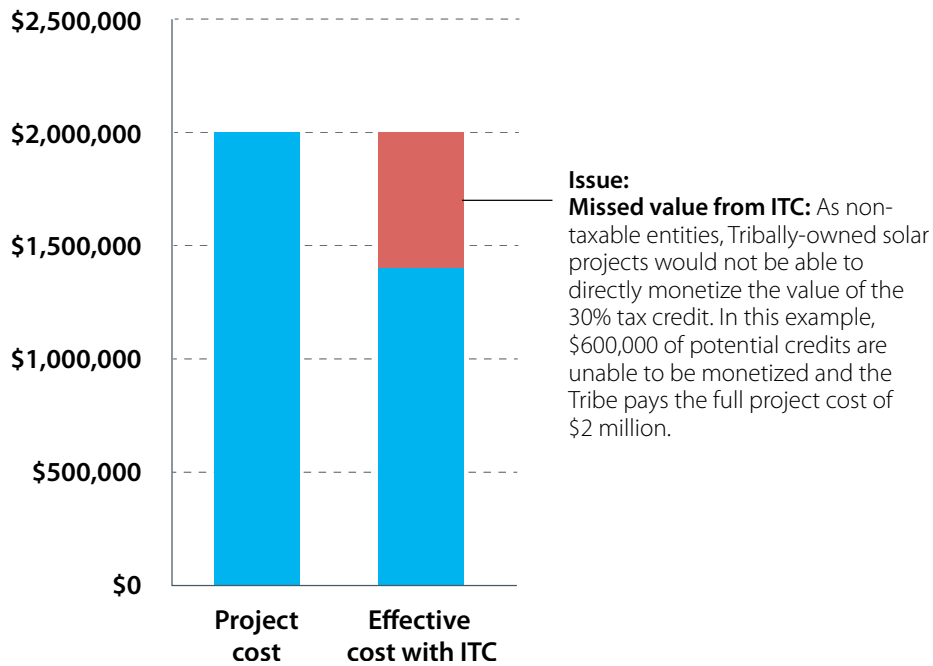


Table 4. Summary of ITC Value Over Time

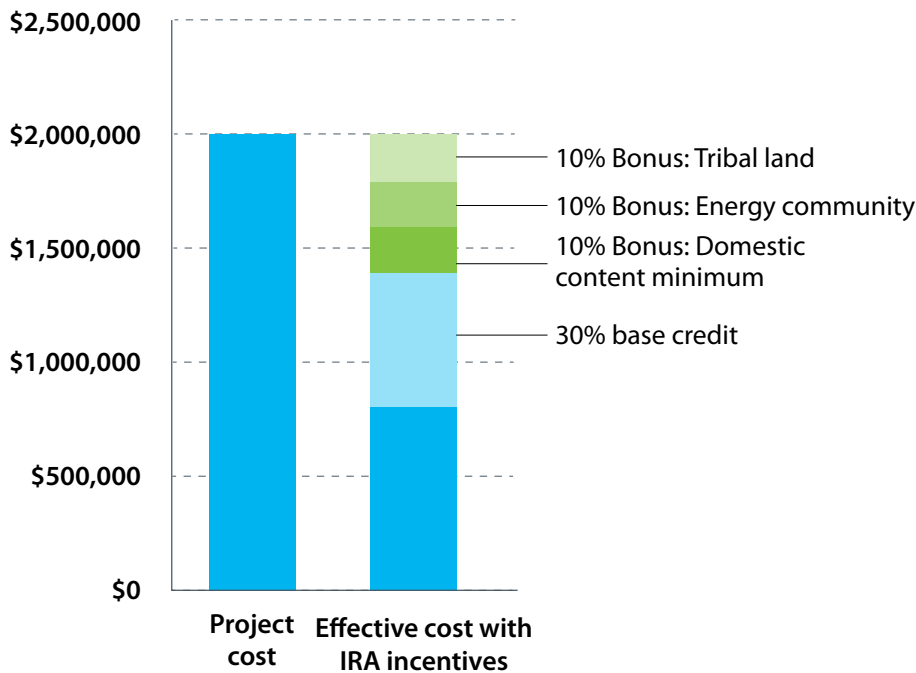
		Start of Construction							
		2006 to 2019	2020 to 2021	2022	2023 to 2033	The later of 2034 (or two years after applicable year <sup>a</sup> )	The later of 2035 (or three years after applicable year <sup>a</sup> )	The later of 2036 (or four years after applicable year <sup>a</sup> )	
ITC	Full rate (if project meets labor requirements <sup>b</sup> )	Base Credit	30%	26%	30%	30%	22.5%	15%	0%
		Domestic Content Bonus				10%	7.5%	5%	0%
		Energy Community Bonus				10%	7.5%	5%	0%
	Base rate (if project does not meet labor requirements <sup>b</sup> )	Base Credit	30%	26%	6%	6%	4.5%	3%	0%
		Domestic Content Bonus				2%	1.5%	1%	0%
		Energy Community Bonus				2%	1.5%	1%	0%
	Low-income bonus (1.8 GW/yr cap)	<5 MW projects in LMI communities or Indian land				10%	10%	10%	10%
		Qualified low-income residential building project / Qualified low-income economic benefit project				20%	20%	20%	20%

<https://www.energy.gov/eere/solar/federal-solar-tax-credits-businesses>

Example: 1-MW Tribal Solar Project **Before IRA Provisions**



Example: 1-MW Tribal Solar Project **After IRA Provisions**



**IRA benefits:**





**New mechanisms for Tribes to receive the value of the ITC:** The IRA allows Tribes to monetize the value of the ITC through the direct pay option and transferability of credits. In this example, the combined value of the ITC is \$1.2 million, which reduces the effective cost of the project to \$800,000.

**Potentially larger ITC credits:** Tribally owned solar projects that meet certain criteria have the potential to receive larger credits than in the past. This example shows that the new IRA incentives could double the ITC credit to 60% for a project that received the base ITC rate combined with the domestic content bonus, energy community bonus, and Tribal Land bonus.

Figure 2. Examples of a 1-MW Tribal solar project before (top) and after (bottom) IRA provisions

# Pre-IRA Barrier and Potential Solutions

The content in this section describes the policy issues associated with the ITC prior to the signing of the IRA at the end of 2022.




 <b>Previous (Pre-IRA) Barrier</b>	 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Non-Taxability of Tribes and Previous Investment Tax Credit Rules	All	Federal tax law	<p><b>Tribal perspective:</b></p> <ul style="list-style-type: none"> <li>• Tribal governments do not pay federal taxes. This means that Tribes were not able to take advantage of the federal ITC. Without the ITC, solar installations that were owned by Tribes were functionally more expensive than projects owned by entities that could take advantage of the ITC.</li> <li>• A cash grant in lieu of a tax credit would enable Tribal governments to take advantage of federal solar incentives.</li> </ul> <p><b>Regulatory perspective:</b></p> <ul style="list-style-type: none"> <li>• Not applicable</li> </ul> <p><b>Utility perspective:</b></p> <ul style="list-style-type: none"> <li>• Not applicable</li> </ul>

## Historic Barrier

Prior to the IRA, Tribes were not eligible to take advantage of the federal solar ITC because Tribal governments do not pay state or federal taxes. The ITC is a federal tax credit, a reduction in income taxes that the taxable entity investing in a solar project would pay to the federal government. The ITC is based on the amount invested in the solar project. This allows the taxable entity to use this credit to pay for the project, rather than taxes. Because Tribal government-owned solar projects were not eligible to receive the ITC, the first-year costs of a solar project were higher than those of a taxable entity. This is also true of other non-taxed Tribal entities, like housing authorities and many types of Tribal enterprises or corporations. Additionally, even a taxable Tribal entity might not have enough tax liability to capture the full value of the tax credit.

## Barrier 11:

### Additional Required Development Steps Can Impact Economics of Tribally Sited Utility-Scale Solar Projects

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Utility	Utility, State, Federal	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"><li>• It can be challenging for projects on Tribal land to compete with projects off Tribal land due to additional permitting, the National Environmental Policy Act (NEPA) process, and other steps.</li></ul> <p><b>Regulatory perspective</b></p> <ul style="list-style-type: none"><li>• The regulatory role is to support utility buildout of resources that will provide the greatest reliability at the least cost. Other factors and values can also be considered, but their influence on the decision process must go through a customary regulatory proceeding.</li></ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"><li>• Projects typically have to be proven to the state regulator or utility board to be cost-competitive and the best value for customers. This does not typically consider values like local economic development or advantaging historically disadvantaged communities. Utilities may have an interest in supporting Tribal solar projects for Tribes whose land they cross with rights-of-way or whose infrastructure or other resources (e.g., hydroelectric dams) they otherwise have a legal and material interest in</li></ul>

#### Barrier

Because Tribal project development can be more complicated than developing projects on non-Tribal land, these projects' cost of energy may be higher and therefore face difficulties competing in utility solicitations. Competition on the basis of cost may not fully consider values such as local economic development or support for struggling economies. Renewable energy standards have often advantaged urban families through rooftop solar carveouts but have not often provided similar advantages for utility-scale development in rural communities.

Additionally, coal powerplant shutdowns due to national and state policies are having a negative economic impact on some Tribal communities. The utilities that are shutting down plants will need to procure additional generation.

Utilities may have financial and other instruments available to them through the proceedings related to their coal plant shutdowns.

#### Solutions

##### Short-Term/Workaround

Tribes interested in developing utility-scale projects can discuss their project options with a range of interested stakeholders. State regulators or the utility that serves the Tribe may have ideas about near- or mid-term opportunities in the market. Utilities may have an interest in supporting Tribal solar projects, particularly for Tribes whose land they cross with rights-of-way or whose infrastructure or other resources (e.g., hydroelectric dams) they otherwise have a legal and material interest in. There are also other procurement avenues for selling power to utilities, such

as Public Utility Regulatory Policies Act.<sup>8</sup> If the Tribe is partnering on a project with a utility-scale developer, the developer should have a strong grasp of regional market opportunities.

### Long-Term

Tribes can intervene in a utility's rate case or other state regulatory proceeding, or participate in utility resource planning to advocate for procurement exclusively from Tribally sited projects or for prioritization of projects on Tribal land or with other criteria that would favor a Tribally-sited project. For example, the Hopi Tribe and Navajo Nation intervened in the Arizona Public Service Company and Tucson Electric Power rate cases and in related dockets before the Arizona Corporation Commission. The Arizona Corporation Commission opened a special docket on "Just Transition" to debate programmatic changes that would enable communities affected negatively by coal plant closures to reap positive benefits through activities, such as hosting renewable energy projects.

There are also potential changes in federal policy that might create additional opportunities for federal procurement of electricity from Tribally sited renewable energy projects. Proposals include:

- Allowing federal agencies more flexibility from Federal Acquisition Regulation in purchasing preference for electricity generated by Tribally owned projects or projects located on Indian lands.
- Changes to the rules governing power marketing authorities to require any federal power marketing administration to purchase nonfederally generated power from projects owned by Indian Tribes and Tribal energy develop organizations to meet firming and reserves requirements, or to increase the power available to preference customers when Indian Tribes or Tribal energy development organizations offer power from their project when such power does not exceed the market price of power in a region.

- Amending the Federal Power Act as it relates to the Public Utility Regulatory Policies Act to state that a federally recognized Tribe or a company that is at least 51% owned by a federally recognized Tribe shall not be deemed a public utility and thus is not subject to FERC oversight.




Any of these changes in federal policy would promote Tribes' abilities to develop solar projects under Tribal enterprises or in partnership with commercial developers.

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<sup>8</sup> The Public Utilities Regulatory Policy Act requires utilities to purchase power from renewable projects of certain sizes at the utility's avoided cost. Some utilities can offer support in understanding and pursuing this option.

## Barrier 12:

### Property Taxation Jurisdiction Questions Cause Double Taxation

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Utility	State and Tribal	<p><b>Tribal perspective</b></p> <ul style="list-style-type: none"> <li>Tribes need to be able to recover tax revenue in the same way that counties and states do to fund services like public safety, road maintenance, and fire prevention, all of which benefit utility-scale renewable energy project owners. Allowing the county/state to tax the project as well results in double taxation.</li> </ul> <p><b>Regulatory perspective</b></p> <ul style="list-style-type: none"> <li>Federal (Bureau of Indian Affairs [BIA]): in 2013, the BIA issued a federal regulation (25 CFR § 162.017) prohibiting local jurisdictions or states from imposing property taxes on projects on Tribal land and Tribal member-owned land on a reservation.<sup>9</sup></li> <li>State Department of Revenue/County Assessor: Some states assert that their counties can impose property taxes on Tribal land because they have in the past, the 2013 BIA rule change notwithstanding.</li> </ul> <p><b>Utility perspective</b></p> <ul style="list-style-type: none"> <li>If a solar project is taxed by both the Tribe and the state/county, the cost of energy may be prohibitively high or uncompetitive with a project on non-Tribal land that is not double-taxed.</li> </ul>

## Barrier

When developers lease land for utility-scale projects, they expect to pay property tax to a jurisdiction. The property tax is paid either to the Tribe if the project is on Tribal land, or to a local jurisdiction such as a county if the project is on private property. If Tribal property taxes are lower than county property taxes, or nonexistent, Tribes may be able to recover additional payments, or the project may be more competitive in the renewable energy market, assuming the county or state does not try to impose taxes as well.

When states or counties attempt to impose property taxes on solar projects built on Tribal land, and the Tribe also has a property tax structure, this results in double taxation. Projects subjected to double taxation will be too

expensive to be competitive in the utility-scale renewable energy market.

25 U.S.C. § 5108 provides that Tribal lands and rights held in trust by the U.S. government shall be exempt from state and local taxation. Further, in 2013, the BIA issued a rule change in 2013 that prohibits local or state taxation on permanent improvements, leasehold, possessory interests, or activities under a lease that has been established with BIA approval. This was not a new regulation but intended to clarify existing regulations 25 U.S.C. § 465 (LTLR) and case law. The BIA regulation has subsequently been the subject of additional litigation, and as of mid-2021 the issue has not been definitively resolved.

<sup>9</sup> Judgment issued June 26, 2006, *Keweenaw Bay Indian Community v Robert Naftaly, Baraga Township, L'Anse Township, et al.* U.S. Court of Appeals for the Sixth Circuit, No. 05-1952, in which the Order issued May 27, 2005, *Keweenaw Bay Indian Community v Robert Naftaly, Baraga, Township, L'Anse Township, et al.*, U.S. Western District Court of Michigan 2:03 CV-0170. [https://sct.narf.org/documents/naftalyvkeweenaw/brief\\_in\\_opposition.pdf](https://sct.narf.org/documents/naftalyvkeweenaw/brief_in_opposition.pdf)

This matter is in court. For example, in Arizona, a power plant on land leased from the Fort Mojave Indian Tribe sued the Arizona Department of Revenue to recover several years' worth of previously paid property taxes. The case was appealed and remanded and decided in April 2021 in favor of the power plant, determining that the state and county do not have the power to tax property on Tribal land. This case, however, does not definitively establish a precedent for all potential developments in Arizona or in other states.

## Solutions

### Short-Term/Workaround




If a local jurisdiction insists that it has taxing authority, a Tribe can work with the jurisdiction to negotiate a tax sharing agreement so that the project is not financially harmed and there is a compromise on the part of the jurisdiction that enables the Tribe to recover some tax revenue.

### Long-Term

The Tribe can take the jurisdiction to court to prevent it from imposing taxes, or can work with its development partner (the party being taxed) to take the jurisdiction to court. This may take some time to resolve, and it may not be resolved in the Tribe's favor.

## Barrier 13:

### Lack of Tribal Land-Use Planning or Land Entitlement Procedures

 <b>Scale</b>	 <b>Jurisdiction</b>	 <b>Perspectives</b>
Utility, distributed	Local	<p><b>Tribal perspective:</b></p> <ul style="list-style-type: none"> <li>• It is challenging for a Tribe to complete a solar project if land-use planning is difficult or unclear.</li> </ul> <p><b>Regulator perspective:</b></p> <ul style="list-style-type: none"> <li>• No relevant perspective from state regulatory authority.</li> </ul> <p><b>Utility perspective:</b></p> <ul style="list-style-type: none"> <li>• A utility may be impacted by this barrier if the utility is working with a Tribe on a solar project.</li> <li>• Projects built on Tribal land may be more expensive if land use is difficult to navigate, making them less cost-competitive in utility requests for proposals.</li> </ul>

## Background

Just as projects on private land typically go through leasing processes with the private landowner and permitting processes with the relevant jurisdiction (often a county), projects on Tribal land must obtain permission from the Tribe and any Tribal land users to set land aside for long-term solar use. This is referred to generally as a “land entitlement” process and includes all steps leading up to the execution of a formal lease or other long-term land-use agreement. Projects often must also obtain a development permit of some kind from the Tribe. Projects built by non-Tribal entities on Tribal Trust land also must obtain BIA approval for long-term leases, except in the case where the Tribe has regulatory authority for leasing, and this BIA process can add time and cost.

## Barrier

Tribes may lack appropriate land-use planning or land entitlement procedures that can enable solar project development. Unclear regulations cause confusion and can extend project timelines.

In addition, land-use conflicts may be a barrier to solar project development on Tribal land. Land may be zoned or reserved for other uses, or the process for obtaining

permission from current land users to designate land for a solar project may be unclear or cumbersome.

Projects may also need a full NEPA review (including cultural and other sensitive components for any parcel or series of parcels) for any project that is being developed on Tribal land held in a trust by the federal government that is funded in any part by the federal government, or that plans to cross or use other federal land or connect to a federally owned transmission line. A NEPA review will also increase the costs and timeline of a project.

## Solutions

### Short-Term/Workaround

Ad hoc decisions about land use can be made. Tribal project teams or developers can work directly with Tribal land management departments and Tribal Councils to obtain one-off permissions. They can also work with their Tribal Historic Preservation Offices to ensure they are not disturbing culturally sensitive areas.

If there is not enough land available for a large-scale solar project, the project can potentially be scaled down to a solar-plus-storage project.

When required by law, a full NEPA review cannot be avoided,



but project planning can account for the process to avoid unexpected additional costs and time.

### **Long-Term**

Tribes can establish land policy through approved Tribal mechanisms to make land-use planning more streamlined. For example, the Navajo Nation updated the Land Withdrawal Formal Process in 2015 and amended it to clarify the land withdrawal legislation and expedite the process. A land withdrawal designation is the first step in the land-use planning process in the Navajo Nation; it designates an area of land for future development and ensures the rights of livestock grazing permittees are properly addressed. Grazing is given priority in land use and management (Sage, Parrish, and Lister 2018). The land withdrawal process prevents claims to the land later. The updated land withdrawal regulation empowered a central office, the Navajo Nation General Land Development Department, to approve land withdrawals. The General Land Development Department website has relevant forms and information in one location for clear procedural information.

Tribes can also develop geospatial data to designate areas for solar development. Local colleges and universities could be involved. These are usually free resources that can help plan and optimize locations.

In addition, Tribes adjacent to Bureau of Land Management (BLM) lands or other federal lands can collaborate with federal land managers early on in solar development planning. Federal lands have land-use plans, and understanding how that land is managed can help Tribes sync up efforts to their neighbors and take advantage of all opportunities. Tribes may also be able to explore co-development agreements with BLM.

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# Addressing Regulatory Challenges to Tribal Solar Development:







## Book Two—Case Studies

### Introduction

This section of the *Addressing Regulatory Challenges to Tribal Solar Development* guidebook provides 11 case studies of Tribal solar deployment projects or examples of regulatory solutions. Each case study highlights a challenge that a Tribe or utility may face when pursuing solar development and how the highlighted project overcame that barrier. These

case studies strive to provide examples of how stakeholders can work together to develop Tribal solar projects. Table 5 provides an overview of the case studies and the relevant barriers and issue briefs.

Table 5. Summary of the Case Studies Presented in this Guidebook

 <b>Case Study</b>	 <b>Case Study Overview</b>	 <b>Relevant Project Scales</b>	 <b>Relevant Jurisdictions</b>	 <b>Relevant Barriers</b>	 <b>Relevant Issue Briefs</b>
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	<ol style="list-style-type: none"> <li>Lack of Tribal representation in utility, state, or federal energy policy decision-making processes</li> <li>Net-metering limits or lack of a net-metering policy</li> </ol>	<ol style="list-style-type: none"> <li>Land Jurisdiction Considerations</li> <li>Utility-Tribal Engagement</li> </ol>

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	2. 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 <sup>10</sup>	4. Tribal Business Structures 5. Utility-Tribal Engagement

<sup>10</sup> 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.

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 <sup>11</sup>	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 addition 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
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

<sup>11</sup> 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.

<p>Gila River Indian Community Utility Authority and Navajo Tribal Utility Authority: Allocating Part of Utility-Scale Project for Internal Load</p>	<p>GRICUA is the off-taker for 20% of a 50-MW array for grid stability and affordable rates.</p> <p>NTUA has earmarked 4 MW of a 70-MW project to support grid stability.</p>	<p>Utility</p>	<p>Tribal</p>	<p>4. Net-metering limits or lack of a net-metering policy</p>	<p>6. Existence of a Tribal Electric Utility</p>
<p>Public Service Company of New Mexico, Arizona Public Service Company, and Salt River Project: Utilities with Tribal Request for Proposals</p>	<p>PNW, APS, and SRP have found that way to support Tribally sited renewable energy project development is to include Tribal preference in competitive solicitations.</p>	<p>N/A</p>	<p>Utility</p>	<p>1. Lack of Tribal representation in utility, state, or federal energy policy decision-making processes</p>	<p>5. Utility-Tribal Engagement</p>

# Agua Caliente Band of Cahuilla Indians: Navigates Geographic Constraints and Builds Relationships to Advance Solar

“Tribal liaisons can bring credibility to relationships between utilities and Tribes. They attend local meetings and events, you see them at the supermarket, and when someone’s power goes out, so does theirs. Liaisons can go further than account executives or government relationship managers—they need less exposition for energy conversations, can speak more freely, and can translate between Tribal and utility cultures in how each speaks about project development.”

– Todd Hooks, Agua Caliente Band of Cahuilla Indians

## Quick Facts

### Project Details

- 8.25-kW solar PV array installed at Indian Canyons near Palm Springs, California, in 2009
- 6.9-kW solar PV array installed in Palm Springs, California, in 2017.

### Project Benefits

- Energy cost savings
- Strong relationships with utility representatives
- Resilience
- Air quality improvement.

### Challenges and Solutions

**Geographic constraints:** Relatively small and disconnected parcels of Tribal land present impediments to larger-scale solar development. The Agua Caliente Band focused on facility-scale solar projects, exploring utility-scale development when larger contiguous parcels of land become available.

**Utility communication:** Utilities and Tribes often have different contexts that can lead to procedural obstacles and miscommunications. By using a Tribal liaison, the utility and the Tribe were able to better communicate.

**Rate negotiation:** The project did not fit into existing rate structures. The Tribe and the utility, using the Tribal liaison, worked together to create a new custom rate structure for a facility-scale solar installation.

**Intra-Tribal communication:** Tribal leadership may be unfamiliar with solar projects and their value. Tribal energy specialists made efforts to describe the solar project’s economic benefits and co-benefits that align with Tribal goals.

### Partners

- U.S. Department of Energy
- U.S. Department of the Interior
- Southern California Edison (SCE)

### Narrative

The Agua Caliente Band of Cahuilla Indians in Southern California consists of about 400 members and has a large land base of over 30,000 acres. However, energy project development on this land is not often straightforward. Agua Caliente land is “checkerboarded” across the greater Palm Springs area, with few contiguous Tribal areas larger than one square mile (Figure 3). See [Issue Brief 2: Land Jurisdiction Considerations](#) for more information about checkerboarding. Despite these geographic constraints, the Tribe has found ways to follow its energy strategy by maximizing opportunities for facility-scale solar deployment.

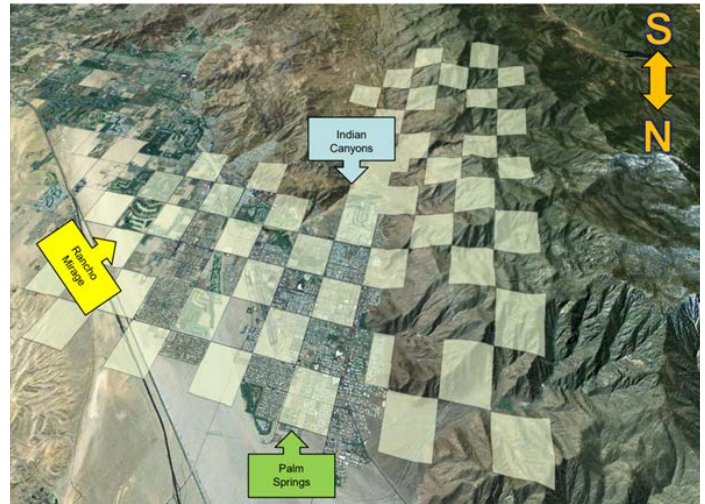
First, the Tribe upgraded its trading post in the Indian Canyons area. This building, which continues to be off the grid, was formerly powered by an aging propane generator. The propane generator had drawbacks related to capacity, noise, and local air quality. A new solar photovoltaic (PV) system, accessed through grants from the U.S. Departments of the Interior and Energy, upgraded systems and resilience at the trading post while lowering costs, noise, and emissions. The 8.25-kW system was completed in 2009.

Agua Caliente has also succeeded in deploying solar projects at grid-connected facilities. A Tribal office building in Palm Springs has 99% of its load offset by a nearly 80-kW parking canopy solar system, which reduces annual electricity costs from roughly \$22,000 to \$200. However, the Tribe did have to overcome barriers related to compensation structure and building use for solar development to proceed. The utility (SCE) did not have the accounting structure in place to immediately accommodate this nonresidential, noncommercial project. Creating a rate schedule is a lengthy and involved process for any utility, but through consistent effort and communication (aided by SCE's Tribal liaison) the Tribe and SCE were able to develop a mutually agreeable net-metering rate structure in accordance with utility requirements. Two other buildings in the same complex had non-Tribal tenants with less flexibility to alter their bill structure, so the one Tribal office building also needed to be electrically isolated in relation to the PV system's generation. The 76.9-kW system was completed in 2017.

For the solar project to be developed as intended, a customized rate structure to be created, and the Tribe-utility relationship highlights the importance of effective communication between Tribes and utilities. According to Todd Hooks, Economic Development Director for the Agua Caliente, liaison positions that understand both utility and Tribal contexts at deep levels and can translate between the two "languages" of corporate and Tribal project development are crucial for solar deployment and maintaining relationships. The Agua Caliente's completed solar projects may lead to further success at the facility scale as the Tribe continues to look for development opportunities in the Palm Springs area.

The Agua Caliente Band's ambitions for larger, utility-scale solar and renewable energy development are also impacted by geography. Whitewater Ranch was identified as a site for hybrid solar and wind generation, featuring excellent levels of both renewable resources on more than 200 acres of land. However, because there is no local load at the site to match the projected energy supply, the generated electricity would need to be exported to regional population centers. This export requires a new substation to step up the voltage of the project's electricity for high-voltage transmission, and the costs of such substations are prohibitive for the relatively small scale of the project. Possible paths forward for this project could

include the development of other facilities or communities near the Whitewater Ranch site that can provide local load and share the cost burden of substation investment.



**Figure 3. Agua Caliente land is highlighted in the Palm Springs, California area, displaying the checkerboard pattern, creating unique challenges for solar deployment.** *Figure by Todd Hooks, Agua Caliente Band of Cahuilla Indians*

The primary revenue streams for many Tribes include hospitality, tourism, and gaming, which have much different return on investment profiles than solar projects. Solar installations typically have high upfront costs that get recouped over a long operational lifetime, while hospitality, tourism, and gaming revenues can be more immediate, lower risk, and higher return. Intra-Tribal communication is therefore a common barrier to solar deployment because Tribal energy staff might have to sell investment in a project to leadership who are used to a different investment paradigm, said Todd Hooks. While solar projects may present robust returns on investment, Hooks noted that their other attributes such as energy self-sufficiency or resilience, environmental contributions, and the pure value of economic diversification all deliver tangible benefits to a Tribe. Effective communication on multiple fronts, external and internal, is demonstrated by the Agua Caliente Band to be a key consideration among the many factors that produce successful solar project development.



## Eastern Band of Cherokee Indians: Demonstrates Success of Long-Term Stepwise Strategy

“When we use this mechanism, if we get the project, it’s good for everyone, as it allows us to pursue targeted projects with limited staffing capacity.”

– Joey Owle, Eastern Band of Cherokee Indians

### Quick Facts

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#### Project Details

705-kW solar PV array installed at Cherokee Valley River Casino near Murphy, North Carolina.

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#### Project Benefits

- Energy cost savings
  - Environmental benefits of renewable energy contribute to the casino’s Go Green Initiative
  - Increased staff technical capacity.
- 

#### Challenges and Solutions:

- Limited internal resources: innovative procurement strategies brought partnerships and more resources to help address this issue.
- 

#### Partners

- Avant Energy, Inc.
- Cherokee Tribal Gaming Commission
- Eastern Band of Cherokee Indians (EBCI) Division of Finance
- EBCI Natural Resources Department
- EBCI Project Management Office
- Hannah Solar Government Services
- Harra’s Cherokee Valley River Casino & Hotel
- Siemens Government Technologies, Inc.
- Tribal Historic Preservation Office
- U.S. Department of Energy, Office of Indian Energy.



A 705-kW solar array installed near the EBCI-owned casino in Murphy, North Carolina. Photo by Joey Owle, Eastern Band of Cherokee Indians

### Narrative

The keys to solar project development success for EBCI were making a long-term commitment to environmental sustainability, investing in internal capacity, and executing increasingly complicated energy projects. EBCI’s Tribal Council passed a resolution in 2006 promoting a healthy, sustainable natural environment, setting a long-term energy vision, and enabling a project team to apply for a U.S. Department of Energy grant to move forward with strategic energy planning. In 2007, EBCI established an Energy Committee, and in 2009 it completed a Strategic Energy Plan. EBCI also invested in an energy coordinator position in Tribal government between 2009 and 2018, enabling ongoing effort and providing project and policy continuity. EBCI completed an energy efficiency retrofit of nine buildings, reducing consumption by more than 30%, and then began developing plans for solar generation. This stepwise, deliberate process, with engagement of key decision makers across Tribal government and economic operations, was critical to the smooth execution of a 705-kW solar array at EBCI’s Cherokee Valley River Casino, which offsets nearly 10% of electricity usage across the casino, hotel, and two administrative buildings.

“The commissioning and dedication of the Tribe’s 705-kW solar PV system was a monumental achievement for the Tribe, as it was the first utility-scale system deployed on EBCI lands,” said Joey Owle, Secretary of Agriculture and Natural Resources. “We demonstrated our ability to partner, plan, design, construct, and manage a solar PV system that is achieving the Tribe’s previously targeted goals.”

When the Tribe started exploring options for solar development, the Council and other stakeholders identified the Cherokee Valley River Casino and adjacent land as the best option for the location of the solar array and for a large energy demand to use the electricity it would generate and benefit from the offset costs. The Tribe decided to invest in the solar project and seek partial funding through the U.S. Department of Energy’s Office of Indian Energy infrastructure grant program. Rather than apply for the grant and then begin the process of seeking engineering and construction partners for the project, EBCI pursued the innovative strategy of performing a competitive solicitation for a project partner who would write the grant in addition to designing and building the solar project if awarded.

“When we use this mechanism, if we get the project, it’s good for everyone, as it allows us to pursue targeted projects with limited staffing capacity,” said Owle, who managed the project for EBCI. This innovation coupled with Tribal and federal government procurement policies while saving time and serving as an efficient way to find the best business partner.

# Kit Carson Electric Cooperative (KCEC): Building the Model for Cooperative Solar Projects

“We want to create a model that works for rural, economically stressed, cooperatives.”

– Luis Reyes, KCEC

## Quick Facts

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### Partners

- Camus Energy
- DG Squared
- Guzman Energy
- National Renewable Energy Laboratory (NREL)
- Renewable Taos.

### Narrative

KCEC in northern New Mexico is testing—and proving—models for solar deployment to accelerate the utility’s achievement of 100% daytime solar by 2021 while delivering affordable electricity to all of its users.

KCEC is working with the National Rural Electric Cooperative Association (NRECA) and other partners to develop models that can be used by other cooperatives around the country to increase their use of renewables while reducing costs, maintaining reliability, and offering all products and services equitably to all members.

KCEC partnered with NREL, Guzman Energy, Renewable Taos, DG Squared, and others to develop the *Resilient Renewable Energy Roadmap for Rural Electric Cooperatives* as part of a Solar Energy Innovation Network award in 2018–2019. The initiative planned the deployment of 41 MW of additional solar PV, energy storage, and electric vehicle charging facilities, while also developing a tool that KCEC and other co-ops can use for modeling scenarios and evaluating infrastructure decisions. This tool enables the user to identify the benefits and impacts of deployment choices, and to conduct complex scenario analysis across an entire distribution system, identifying opportunities for infrastructure and operational cost savings and improved resilience.

Achieving the utility’s renewable energy goals is not without challenges, both technical and policy. The utility has a nighttime winter peak load, which is challenging for integrating large amounts of solar PV. By focusing on rate design as a solution, Reyes said, the utility can capitalize on the low costs of daytime solar and use customer load as a tool for working around technical challenges. This is still a work in progress, as KCEC purchases the balance of its power from Guzman Energy, and must develop long-term contracts, predict its load, and allocate costs in a fair way.

Guzman Energy contracts to provide KCEC with the electricity that it needs to serve its internal load beyond what is generated by the solar arrays. To accomplish this, Guzman contracts with various investor-owned utilities (IOU), public power agencies, and asset developers for energy and capacity with contracts varying in tenure from 5 to 20 years. As part of the business arrangement with KCEC, said Guzman principal Chris Miller, they know that the amount of electricity they sell may shrink as KCEC adds more solar. Through the relationship they have developed, Guzman hopes to be able to continue to support KCEC with other electrical services, keeping the grid balanced as the system gets more complex, or providing technical assistance as KCEC deploys new systems like energy storage or vehicle charging. “KCEC is pushing the envelope, trying to change the grid and the system to the benefit of its ratepayers and communities,” Miller said. “For us, part of doing business with KCEC was always that we would need to be able to pivot from past models and allow flexibility, work in partnership, and enable KCEC to provide Tribes and other users with the latitude to deploy more solar.”

One key to meeting the utility’s and its member Tribes’ renewable energy goals, said Reyes, is KCEC’s relationships with the communities it serves. The utility has standing meetings with Pueblo/Tribal governments, regularly visiting with Tribal government agencies or Councils. These

meetings help the Tribes and the utility better understand one another's goals decision processes, enabling them to work together on achieving these goals or on resolving differences. KCEC works to understand and respect internal Tribal decision processes in addition to overarching energy goals, to incorporate them appropriately into the utility's planning, for example when they might affect the time frame for moving infrastructure projects forward. These strong relationships and the trust they are built on are critical, Reyes said, because it enables the utility and Tribal governments to work through differences in good faith.

KCEC worked with the Pueblo of Picuris (Picuris) to support the construction of a 1-MW PV array. KCEC signed a power purchase agreement with Picuris, enabling the Picuris to build the project on Tribally owned land away from the residential Pueblo and away from culturally significant areas and to deliver power to the system and financially support its community. KCEC is proud of this project, Reyes said, because it returns money to the Picuris and its citizens, and provides renewable energy to a population that often cannot access it. KCEC is working with the Picuris on another phase of this project to expand the solar capacity and add battery storage to resolve reliability issues and provide additional grid-balancing support services.

# Leech Lake Band of Ojibwe: Project Adaptability and Tribal-Utility Relations

“Start understanding what your sovereignty as a Tribal government means for your Tribe. You’re going to need smart people to help you. Projects like this are not going to be instantaneous; however, it’s something that you can build upon and grow with perseverance. Educate those that you’re going to be partnering and negotiating with. Bring that education forward and in turn educate others.”

– Brandy Toft, Leech Lake Band of Ojibwe

## Quick Facts

### Project Details

Five 39.9-kW solar arrays on the Leech Lake Band Reservation in north-central Minnesota.

### Project Benefits

Energy savings for low-income families.

### Challenges and Solutions

Net-metering rules: originally, the project planned to build a single 200-kW solar array. The project had to be modified to fit electricity utility policies and Minnesota’s net-metering regulations. The Leech Lake team determined this solution through independent research.

### Partners

- Beltrami Electric Cooperative Inc.
- Lake County Power Cooperative
- Leech Lake Band Environmental Department
- Minnesota Power
- North Itasca Electric Cooperative Inc.
- Otter Tail Utility
- Rural Renewable Energy Alliance



Leech Lake Tribal College students gain hands-on workforce experience installing a solar PV array. Photo by Eugene Strowbridge, Leech Lake Band of Ojibwe

**Net metering:** A practice in which utilities credit a system owner for the excess electricity generated by their solar panels. The owner can then draw upon these credits when the panels do not produce enough electricity to match their use, most commonly in the night when the sun is down.

## Narrative

Motivated by the goal of enhancing energy sovereignty, decreasing reliance on fossil fuels, and moving forward as a leader in sustainability, the Leech Lake Band of Ojibwe (Leech Lake) pursued this project as a component of the Tribe’s overarching plan of sustainability and stewardship. Leech Lake, which spans 864,158 acres in north-central Minnesota, is served by five separate utilities: Beltrami Electric Co-op Inc., Lake Country Power Co-op., Minnesota Power, North Itasca Co-op Inc., and Otter Tail Utility. Having five separate utilities serving the Reservation adds several layers of complexity to any energy project, from basic economic evaluation to the interpretation or change of policy.

At the outset of the project, the Leech Lake implementation team received state and foundation funds to implement a 200-kW solar array. Leech Lake partnered with the Rural Renewable Energy Alliance (RREAL) for support throughout the project. The project concept evolved primarily because Leech Lake made the critical decision to maximize the solar projects economic returns within the existing regulatory framework, driven by the State of Minnesota's net-metering policy that allows solar systems 40 kW or less to be compensated at the retail rate. Driven by the net-metering policy, the original 200-kW project concept was modified into five separate kW solar projects (39.9-kW each) across four of the five utilities servicing Leech Lake. Two of the arrays are with Beltrami Electric Co-op Inc., one with North Itasca Electric Co-op Inc., one with Lake Country Power Co-op., and the last is with Minnesota Power (investor-owned), located off the Tribe's reservation at RREAL's headquarters.

Project implementation was complex because Leech Lake is served by five different electric utilities. The Tribe had to evaluate different utility policies, determine the economic benefits and interconnection procedures for each array, and ultimately negotiate contracts with four separate utilities. Each array was completed by the RREAL installation team using each of the utilities' different forms with a "virtual" net-metering agreement. In this case, virtual net-metering is a bill crediting system for the five community solar arrays, where all the kilowatt-hours generated over the year via solar are counted and compensated by that utility's net-metering rate. The corresponding funds are transferred to Leech Lake's Low Income Energy Assistance Program.

The project was completed in 2018 in conjunction with RREAL, who turned over the system to the Leech Lake Band. Altogether, the five solar arrays generate an average of \$22,000 annually to assist up to 100 families in need.

# Navajo Tribal Utility Authority (NTUA): 55 MW of Solar for Revenue and Reliability

“It was critical to this project’s success that NTUA work closely with the Navajo central government, the local chapter and other stakeholders, along with the families involved in order to arrive at a project that would meet our mutual goals.”

– Glenn Steiger, NTUA

## Quick Facts

### Project Details

55 MW utility-scale solar, completed in two phases (2017 and 2019) on Navajo Nation Reservation land in Kayenta, Arizona.

### Project Benefits

- Job training and creation
- Local spending and tax revenue
- New revenue sources for NTUA
- Increased power system reliability.

### Challenges and Solutions

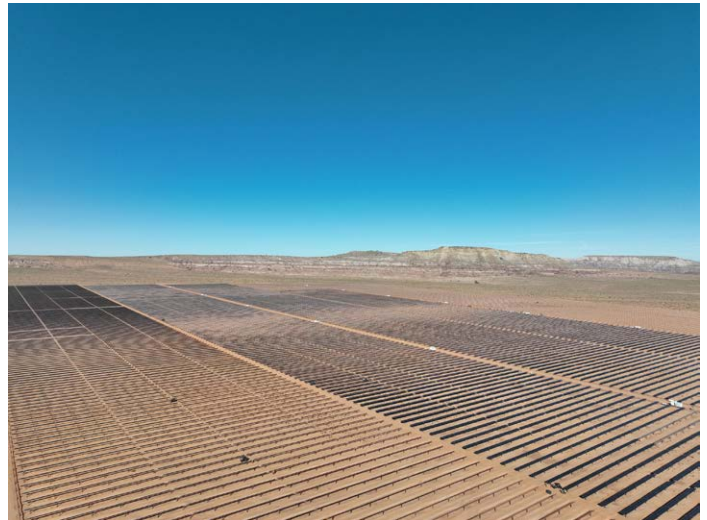
NTUA is a nonprofit and therefore, at the time of this project, could not capture the value of the ITC.

### Partners

- ATN International
- DE Shaw
- First Solar
- Salt River Project
- Swinerton Renewable Energy

## Narrative

Between 2016 and 2019, the NTUA managed the development, construction, and commissioning of two utility-scale solar projects in Kayenta, Arizona, with a combined output capacity of more than 55 MW (enough to power 36,000 homes). The first phase, the 27.3-MW Kayenta I project, began generating electricity in June 2017. Development activities for the second phase started shortly



Red Mesa is a 70-MW solar farm developed by NTUA. This photo shows the array under construction. Photo by Glenn Steiger, NTUA

thereafter, and the 28-MW Kayenta II project came online in August 2019. Because of its phased approach, NTUA was able to apply several lessons from the first project to the second and in 2021–2022 is applying its experience to the development of another utility-scale 70-MW project at Red Mesa, Utah.

The projects generate revenue for NTUA through the sale of electricity and renewable energy credits to SRP, under contracts varying in length. SRP is a not-for-profit public utility that serves more than 1 million customers in the greater Phoenix metropolitan area. The utility was the operating agent of the Navajo Generating Station, a coal-fired power plant that provided revenue and jobs to the Navajo people and closed in late 2019. SRP has committed to supporting renewable energy development with Navajo partners to create economic development for the Navajo Nation and to supply renewable energy to help meet SRP’s carbon-reduction goals.

NTUA has a highly flexible power system due to the large proportion of hydroelectric power it utilizes. A unique aspect of this project is that because of this, NTUA is able to “firm,” or balance, the solar power plant’s output within the rest of its system and deliver electricity to SRP in fixed blocks of energy at specified times when SRP needs it. This firmed energy offers more peak capacity value to SRP than pure generation from a solar plant, and so NTUA is able to capture that additional value through the contract price it receives. The additional revenue that NTUA gains from these projects supports NTUA’s mission of extending power to those who are currently unserved through ongoing initiatives such as Light Up Navajo, said Glenn Steiger, an executive consultant to NTUA who was project manager for both phases of the solar plant development. As part of the land lease arrangement for the project to use the first 300 acres of the project site, NTUA agreed to extend electricity service to the five families who held grazing rights associated with the acreage.

The firmed energy and associated environmental attributes are more valuable than electricity delivered exactly when the solar array is generating power, according to SRP’s Kaitlyn Libby. In addition, she said, this arrangement overcame an electrical challenge because the project is sited near a transmission line that does not connect to SRP’s system, so the power flows into the NTUA electrical system, and then SRP takes power from another interconnection point.

In addition to providing revenue, Kayenta I and II also meet NTUA’s goals of providing local, Tribally generated energy, increasing the use of renewables, and enhancing job opportunities for local Navajo communities, Steiger said. Because of the project’s location, its solar output provides needed reliability to the NTUA electrical system, which the Red Mesa solar project also will, he added.

Because NTUA is a nonprofit, the projects are owned by NTUA through a for-profit limited-purpose company, which partnered with other for-profit (taxable) entities on each project to be able to capture the value of the ITC. This credit returns a percentage of the capital cost of a solar project back to the tax-paying entity that owns and builds it. This can create complications when nontaxable entities, like NTUA, wish to develop a solar project and take advantage of the credit. While NTUA’s for-profit side, NTUA Generation Inc., might be able to acquire tax credits, it does not have a

tremendous tax appetite, so NTUA identified partners who could share the value of the credit to drive down the overall project cost and make the solar project’s electricity more competitively priced. NTUA has an ownership agreement with another party under which full ownership of the project will revert to NTUA Generation Inc. after the other party has been able to recover the tax credit value.

Because NTUA is an enterprise of the Navajo Nation, throughout the development and execution of both projects, it was critical to coordinate closely with central Tribal government offices, community stakeholders, and SRP as the purchaser of the project’s electricity and renewable energy credits. Both Steiger and Libby emphasized that maintaining regular communication and working together was imperative to navigate all of the steps in the project and to ensure that the project agreements worked for all interested parties and that deadlines were met.



# Red Lake Band of Chippewa Indians: Crowdfunding Supports Development of Rooftop Solar and Storage

“Tribal utilities can utilize emerging technologies and decarbonize faster than bigger utilities, and we can do all of that while investing revenue back into our communities.”

– Robert Blake, *Native Sun*

## Quick Facts

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### Project Details

- 70-kW solar array and energy storage system at the Tribal government center.

### Project Benefits

- Energy cost savings for the Tribal government office
- Job training and employment
- Potential path toward larger and more complex projects.

### Challenges and Solutions

**Financing:** Financing is difficult to obtain for Tribes because land ownership structures are unfamiliar to most financial institutions. To pursue their project, the Band needed a funding mechanism that would enable their solar project to raise funds and capture the ITC. Further, the ITC passive investment rules have a minimum investment of \$3,000. This prohibited most Red Lake Band members, most of whose annual income is below \$12,000, from investing in the solar project themselves. The Band worked with MnVest, a crowd-sourcing investment platform, and tapped allies in a regional interfaith community to fund the project as an investment.

### Partners

- Impact Power Solutions
- Interfaith Power & Light
- MnVest
- Red Lake Solar LLC.



A 70-kW solar array at the Red Lake Band of Chippewa Indian Tribal government center. *Photo by Robert Blake, Native Sun*

## Narrative

When the Red Lake Band of Chippewa Indians decided to pursue solar development atop a series of government buildings to offset costs and generate more electricity locally, it had to get creative to find a source of capital for the project. Red Lake developed a crowdfunding model that had never been used in Minnesota.

Initially, Red Lake planned to develop a utility-scale solar project, funded by a pipeline company in exchange for a right of way across Tribal land. That project fell through, and the Tribe turned to facility-scale solar projects, but faced financing challenges. Because Tribal lands are often held in trust, banks may be hesitant to lend to Tribes because there is no state jurisdiction and the project property cannot be secured as collateral. Additionally, at the time of this project, a Tribally owned project could not take advantage of the ITC.

The project managers developed a taxable Red Lake Solar LLC and worked with collaborators at Impact Power Solutions (IPS) to pursue crowdfunding using the MnVest

project portal. MnVest is a mechanism in Minnesota that enables individuals to make investments in projects and business ventures. Interested parties can fund the project as passive investors and gain a return on their investment. The project itself could capture the value of the ITC, significantly lowering upfront capital costs. However, passive investors must make a minimum contribution of \$3,000 per ITC rules. The average Red Lake citizen has an annual income of less than \$12,000, and therefore was unlikely to be able to participate in crowdfunding efforts. The project team turned to Interfaith Power & Light, a northern Minnesota-based religious group dedicated to combatting climate change. Through project collaborators at IPS, the project successfully reached about 70 interested investors, each investing between \$3,000–\$20,000. With this crowdfunding, the project was able to advance.

An important element of the project was the diversification of opportunities for education and job training, said Bob Blake, project manager, owner of Solar Bear and Executive Director of Native Sun. Blake would like to see renewable energy and energy efficiency integrated into K-12 education and job training programs so that Red Lake citizens can fully participate in the clean energy economy as they develop it. He is also supporting the Tribe in working toward developing its own electric utility and establishing a microgrid structure (renewables plus energy storage) to meet all of the Tribe's needs and make it fully carbon-neutral and electrically independent.

"This is the future," Blake said. "Tribal utilities can utilize emerging technologies and decarbonize faster than bigger utilities, and we can do all of that while investing revenue back into our communities."

The Tribe is also coming back to its original utility-scale goals, said Blake. Red Lake is working with the State of Minnesota on granting high-voltage power lines a right of way on Tribal land. This could enable the Tribe to participate in the bulk power system and establish itself as a renewable energy zone, so that it can achieve its environmental, cultural, social, and economic goals while contributing to regional and national decarbonization and transformation of the power system.

# Saginaw Chippewa Indian Tribe of Michigan: Tribal Utility to Drive Economic Development

“Unlike gaming, Tribal nations can all participate in energy.”

—Kevin Blaser, Migizi Economic Development Company

## Quick Facts

### Project Details

The Saginaw Chippewa Indian Tribe of Michigan owns a 7-MW substation that connects a 136-kV Tribally owned transmission line to the Tribe’s 13.8-kV distribution grid.

### Partners

- Michigan Electric Transmission Company
- Midcontinent Independent System Operator (MISO).

### Narrative

When the Saginaw Chippewa Indian Tribe of Michigan started planning the Saganing Eagles Landing Casino and Hotel expansion in 2012, it discovered that the increased electricity usage would require a network upgrade to the electrical distribution facilities owned by its local utility company. The Tribe’s land is adjacent to the MISO bulk power transmission network, so the Tribe explored the possibility of building its own substation and becoming a participant in the MISO wholesale market.

**MISO manages the electricity market in the central part of the United States. Market participants are officially designated entities that can buy and sell wholesale electricity on this system.**

**MISO has energy and capacity markets. A power plant that can demonstrate that it will be available as a generator in future times of need is a valuable asset and gets compensated through capacity auctions. Capacity in the area designated as MISO’s “Zone 7” is, at the time of writing, very valuable, and the Tribe can deliver in this zone due to its location.**



Saginaw Chippewa Indian Tribe of Michigan’s substation supporting Tribal utility operations. Photo by Brian Smith, Saginaw Chippewa Indian Tribe of Michigan

In 2013, the Tribal Council decided to join MISO as a market participant and build their own substation. The Tribal Council also approved Tribal Ordinance 35, which created the Saginaw Chippewa Indian Tribe of Michigan Tribal Electric Authority. The Authority purchases wholesale electricity in the MISO footprint. Through Ordinance 35, the Tribal Council authorized the Authority to sell power to non-Tribal retail customers and the Tribal hotel and casino operations. The incumbent utility initially raised concerns about this plan. However, because the Saginaw Chippewa Indian Tribe of Michigan is a federally recognized Tribe and a sovereign entity, the Michigan Public Service Commission had no jurisdiction over the Tribe’s actions. The Federal Energy Regulatory Commission approved the Tribe’s interconnection request, thereby paving the way for the Tribe to connect to the bulk power system as a market participant. By building its own substation, the Tribe was able to invest in its own infrastructure, exercise its right as a sovereign nation, and can now deliver safe, reliable electricity to Tribal and non-Tribal businesses within the Saganing Community’s Tribal Trust Land near Standish, Michigan.

The Migizi Economic Development Company is the economic development arm of the Saginaw Chippewa Indian Tribe of Michigan. It is tasked with diversifying and managing the nongaming revenue sources to the Tribe.

Migizi is exploring ways to attract private companies that can benefit financially from locating their operations on Tribal trust land. For example, data storage centers could be a customer for the Tribal Electric Authority. Because more than 70% of data center costs are energy, converting inexpensive energy into cloud services is a value proposition the Tribe can offer, according to Kevin Blaser, Energy Specialist for the Migizi Economic Development Company. Migizi can deliver pricing transparency, allowing the data center to adjust operations according to pricing, taking advantage of the lowest energy prices. A data center could potentially even serve as a grid demand-response facility, making money for being responsive to the changing electrical needs of the power system without sacrificing the quality of cloud services it delivers. The Tribe is also considering purchasing battery energy storage devices and using these to perform energy arbitrage (buying electricity at low prices and selling it back at high prices), offer storage-as-a-service to renewable generation, and sell other valuable electrical services into the MISO market.

If the Tribe elects to sell power to non-Tribal businesses within Tribal Trust Land, it will develop its own electricity rates, also known as tariffs. Because the Tribe is not regulated by the state, it can build its own rate structure and offer more transparency and hedging options in electric service pricing. Large load customers that site their operations within Tribal Trust Land could buy their power at a nonfixed price, indexed at the locational marginal price. Their power could potentially be cheaper than incumbent utility pricing, but they would be exposed to real-time power price volatility. As a market participant of MISO, the Tribe has access to virtual power trading that can be used to help large customers hedge the costs of their electric service. This level of transparency is typically only available to corporations with the largest electric usage. Due to the efficiency of the Tribal Electric Authority, these potential cost savings are available to any business interested in establishing its operations within the Tribe's borders.

Other Tribes could learn from Saginaw Chippewa's experience and replicate the Tribe's model for their own financial gain, Blaser said. There will be a lot of demand in the MISO region for renewable energy projects, energy services that can be provided by energy storage, and other

market products related to energy. "Unlike gaming, Tribal Nations can all participate in energy," Blaser said, pointing out that while there is a limited market for gaming patrons across any given state, there is a lot of demand for energy services. Many Tribes can simultaneously tap into this as a new revenue stream, especially as the electric grid becomes more distributed.

# Seminole Tribe of Florida:

## Proves New Procurement Models in Pursuit of Energy Sovereignty Goals

“We spent a year developing the processes for contracting a design-build project and we’d be happy to have other Tribes use what we learned for their own benefit.”

– Harvey Rambarath, Seminole Tribe of Florida

### Quick Facts

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#### Project Details

445-kW multifacility solar PV projects.

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#### Project Benefits

- Technical training for Tribal members
  - Reduced energy costs
  - Reduced environmental impacts
  - Increased resilience for community and government facilities.
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#### Challenges and Solutions

Streamlined mechanisms: The Tribe needed a set of streamlined mechanisms for soliciting bids and contracting construction, operation, maintenance, and technician training. The Tribe used innovative solicitation and contracting mechanisms for the design-build, as well as for separate operations and maintenance training in order to streamline the processes.

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#### Partners

- U.S Department of Energy Office of Indian Energy
- Indian Country Energy and Infrastructure Working Group
- Sandia National Laboratory.



Seminole Tribe of Florida’s ground-mounted solar array. Photo by Harvey Rambarath, Seminole Tribe of Florida

### Narrative

The Seminole Tribe of Florida used a multifacility, 445-kW solar project to establish new Tribal solicitation and contracting processes for design-build projects that will benefit procurement for infrastructure growth across Tribal operations. The competitive solicitation structure could be used by other Tribes to advance their own projects more efficiently by using lessons learned by the Seminole Tribe, according to Harvey Rambarath, Assistant Director of Planning and Development for the Tribe. Additionally, the Tribe established a separate contracting mechanism for operation and maintenance and training of Tribal technicians, so that the Tribe could organize project management and financials, streamlining procurement and accounting for the Tribe.

The Tribe established the Seminole Tribe of Florida Energy Working Group in 2018. It has representation from across the Tribal government, including the Chairman’s office. The Working Group was established in response to past power outages, particularly after Hurricane Irma in 2017, which jeopardized government or hospital operations and required costly generator backup. The Tribe also began exploring a number of facility-scale solar-plus-storage

projects for government buildings. The project has multiple goals: offer operational resilience through batteries with 3 hours of capacity to run the building critical loads; reduce peak load and associated utility-bill demand charges by smoothing out the building load using the batteries; and reduce overall energy costs and environmental impacts by generating some of their own electricity using the PV arrays.

The buildings are located on the Big Cypress Reservation, which is served by Glades Electric Cooperative. The Cooperative has a net-metering policy in place, which compensates surplus kWh at each customer's corresponding retail rate. The buildings are currently on a variety of rates, and so the value of the kWh net-metered rate will be an important consideration in project economics and the configuration of the battery system controls, Rambarath said. There are limits (100-kW maximum system size) to the size of a net-metered system, Rambarath noted. The Tribe hopes to negotiate an exception with the Cooperative or to develop multiple smaller systems to ensure the limit is not exceeded.

Another important consideration for the project's net-metering arrangement is the fact that the Tribe is also exploring the feasibility of establishing its own electric utility and taking over electrical service for the government and other buildings on the Big Cypress Reservation. This would mean the Tribal government (through the facilities with the solar arrays) would be an electric customer of the Tribal utility authority as the service provider. Therefore, any arrangement that benefited the PV project economics because of a generous net-metering rate could reduce the economic benefit of pursuing a Tribal utility, because the higher rate for the kWh credits would reduce the utility's net income. The Tribe is considering the best strategy for pursuing the solar arrays, which are needed for electrical and facility resilience, and for also pursuing a viable electric utility for the reservation.

There are many Tribes that are simultaneously exploring the establishment of a Tribal utility authority to deliver electricity and building significant solar capacity with net-metering agreements, so the experience of the Seminole Tribe of Florida will offer valuable lessons.

# Bonneville Power Administration (BPA) and the Public Service Company of New Mexico (PNM): Tribal Liaison Offices Support Strong Relationships Working Toward Tribal Energy Goals

“We approach our business as indigenous first. Our indigenous perspective is ingrained in the work we do. Our work is ultimately for our people, all Native people, and we must remain humble, be transparent, and advocate in the best interest of the people and communities we serve.”

– Cathy Newby, Public Service Company of New Mexico

## Quick Facts

### Project Benefits

- Tribal liaison offices provide a voice for Tribal issues across divisions of their companies and at the executive level.
- Tribal liaison offices ensure better coordination between Tribal and utility interests, activities, and planning.
- Strong, ongoing relationships support understanding of common ground and productive discussions during negotiation of issues that need resolution when disputes do arise.

## Narrative

Tribal liaison offices can maintain strong business relationships between companies and Tribes and perform the multiple important functions of bringing Tribal perspectives to company processes and educating employees about Tribal law, history, and culture. The offices support their companies in outreach to Tribes and in negotiating agreements between the company and Tribes. Such agreements may include rights-of-way and other infrastructure and projects that impact Tribal land or resources. Larger regional utilities, like federal power marketing agencies, and utilities that serve a large number of Tribes may have a Tribal liaison position or office.

### Bonneville Power Administration

The BPA is a federal power marketing administration that owns and operates the federal high-voltage electrical system in the Pacific Northwest. BPA sells the electricity

generated by federally owned and operated hydroelectric dams in the region. BPA's Tribal Affairs office coordinates closely with offices across the company's power and transmission divisions. The office serves as a portal into BPA for any Tribal person who needs to interface with the large agency.

The office consists of several Tribal account executives focused on specific technical subject matter expertise (transmission, power marketing, cultural resource management, and fish and wildlife management) and geographic regions. The office tracks initiatives that may be important to Tribes across the agency's infrastructure projects each year, assisting project managers with both technical and cultural considerations. The office also handles all consultation when projects require formal government-to-government discussions.

The office also conducts internal training, including inviting external experts and local Tribal representatives to raise awareness among employees of important cultural and legal considerations. Company internal organizations frequently request training, said Corrina Ikakoula, a Tribal account executive specializing in transmission projects, and these trainings are self-building; organizations want additional training and they spread the word about the importance of what they are learning to other internal groups.

BPA highlighted how critical it is for their organization to have a fully staffed office focused on the nexus of Tribal issues and their company's work. They emphasized that to be effective, a utility with an interest in coordinating with Tribes should have adequate, trained staffing and must

provide the resources (e.g., to enable travel) to allow the staff to do the job well, because it involves so much direct interaction. Tribal liaison positions must be filled with people who are deeply experienced working with Tribes and have energy expertise. It is also important that these positions or offices report to the organization's executive leadership to truly have a voice and to be able to provide education on Tribal perspectives and issues across the organization.

### **Public Service Company of New Mexico**

PNM serves eight Tribes and has infrastructure rights of way on the lands of 16 of New Mexico's 23 Tribes. PNM has a Tribal Government & Customer Engagement Office with three staff. This office reports to the company's Senior Vice-President of Public Policy. PNM is pursuing coal plant shutdown to comply with New Mexico state legislation mandating a shift to clean energy by 2045. Many of the coal plants and associated mines are located on the Navajo Nation, and many employees of the operations are Navajo members.

"At one time coal was the viable fuel source for power generation. Now coal's time is coming to an end, but the change (shift) in utility markets, public policy, and utility regulation will continue to impact natural resources owned by Tribes. The Navajo Nation is one Tribal nation where a timely energy transition plan is needed to minimize the impact decreasing financial revenues and royalties and related jobs," said Cathy Newby, Director of Tribal Government & Customer Engagement at PNM.

Newby, who is Navajo and of the Bitter Water and Water's Edge Clan, also emphasized the role her office plays in building and maintaining relationships with Tribes that are electrical customers or have company infrastructure on their land. "We approach our business as indigenous first," said Newby, whose entire staff is made up of Native American professionals from the Indigenous communities in New Mexico. "Our Indigenous perspective is ingrained in the work we do. Our work is ultimately for our people, all Native people, and we must remain humble, be transparent, and advocate in the best interest of the people and communities we serve."

Newby explained the office plays a critical role, not only in maintaining strong relationships with Tribal communities, but also in educating internal PNM staff about the unique aspects of Tribal communities. The office reports to PNM leadership to ensure leadership understands the unique circumstances and perspectives involved. The office's access to top leadership means that they can advance a business culture that advocates for a greater understanding and respect for Tribal perspectives.

The office can perform advocacy that incorporates important Tribal values and goals in company businesses processes like resource planning. The office also has the opportunity to guide and engage internally about topics like Tribal sovereignty, cultural norms/protocols, Tribal history, and Tribal laws. Increased knowledge and understanding can provide opportunities for the company to support important Tribal initiatives. "Our core values including early engagement, constructive negotiation, and an understanding that Nations are sovereign, are the foundations of shaping our energy policy," Newby said.



# Gila River Indian Community Utility Authority (GRICUA) and Navajo Tribal Utility Authority (NTUA):

## Allocating Part of Utility-Scale Project for Internal Load

“This project will enable NTUA to serve some of its own load, improve electric reliability issues and also taking advantage of the economies of scale of a larger utility-scale project. It will provide the benefit of delivering lower-cost power to NTUA users and providing additional revenue toward connecting unserved Navajo residents to grid power.”

– Glenn Steiger, NTUA

### Quick Facts

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#### Project Details

- 50-MW solar array on Gila River Indian Community land, connected to GRICUA substation. GRICUA will take 10 MW of generation.
- 70-MW solar array at Red Mesa on Navajo Nation, connected to the NTUA system. NTUA will take 4 MW of generation.

#### Project Benefits

- Job training and employment
- Affordable off-site solar for utility’s residential or business customers
- Local grid resilience and stability improvements
- Revenue from utility-scale project land lease or electricity sales
- Economy of scale enables affordable long-term power contract for utility to hedge variable costs.

#### Challenge and Solution

Tribal utilities want to meet future energy needs affordably and offer renewable energy to customers without establishing full-retail-rate net-metering policies. GRICUA elected to be an off-taker for 20% of a utility-scale project’s generation for internal use and future customer demand. NTUA kept 4 MW of a 70-MW utility-scale project’s capacity for internal generation, serving their load.

### Narrative

There are a number of Tribes that have their own electric utility and have set aside or identified land that could be utilized for utility-scale solar project development. Some are exploring ownership of projects that can simultaneously generate revenue through sale of electricity to outside parties and meet some of their electric utility’s internal load, environmental goals, or consumer demand for renewable energy. Others are exploring collaboration with developer owners, purchasing a portion of the output as an off-taker and generating land-lease revenue for the Tribe.

#### Gila River Indian Community Utility Authority

GRICUA has a number of customers that have expressed interest in supporting renewable energy or having solar arrays. GRICUA offers a buy/sell solar policy for its commercial and residential customers. GRICUA’s policy avoids any form a subsidization of costs by customers who choose not to install solar, said General Manager Lenny Gold. GRICUA’s policy allows the utility to fully recover the cost to serve each customer, including the fixed system costs, while providing the solar customer with the value of GRICUA’s avoided energy cost. In 2020 and 2021, GRICUA collaborated with a developer on the construction of a utility-scale renewable energy project and forged an off-taker arrangement with the developer. Under this arrangement, GRICUA is an off-taker for the electricity generated by 10 MW of the 50-MW array, for future GRICUA use and possible customer subscriptions. In addition, GRICUA will provide the operations and maintenance of the project for the developer, creating jobs for Tribal members.

The electricity from this part of the solar array will be metered separately and allocated to GRICUA. The electricity will flow into GRICUA's system, rather than being delivered to the purchaser of the rest of the electricity. In addition, GRICUA hopes to develop a community solar program for customers. GRICUA anticipates the initial residential customer participation will be a small percentage of the 10 MW of capacity. In addition to meeting consumer demand, the solar array will supply electricity that GRICUA needs to create stable and affordable rates to its consumers. The electricity will become part of GRICUA's overall portfolio, at a long-term, low-cost price. This can help reduce the risk of potentially variable and increasing energy costs in the market.

GRICUA led the effort for the utility-scale solar project development. The utility worked with the Community to identify land, it managed the entire competitive request for proposal procurement process and worked with the Office of General Council and the Pima Leasing and Finance Corporation to address the legal and leasing issues. The developer filed the interconnection request for the project with GRICUA. The developer will pay for the interconnection upgrade, which will take place at a 69-kV substation bus. GRICUA will perform operations and maintenance on the project and will purchase the electricity from 10 MW (20%) of the project's capacity under a power purchase agreement with Clenera, the project developer. GRICUA has developed a technical training for GRICUA employees to become solar technicians.

This arrangement is not typical from the utility-scale project developer's perspective and therefore took more time than it might for a developer to simply build a solar project on non-Tribal land elsewhere. Additionally, even though there are precedents at other Tribes for processes like land leases with renewable energy developers, there is not a simple template or cookie-cutter approach that can be passed from Tribe to Tribe, and so the first project of any kind will always take more time, Gold said. This project will, however, pave the way for projects and provide lessons learned to other Tribes.

### **Navajo Tribal Utility Authority**

NTUA decided to develop a new utility-scale solar project near Red Mesa. The 70-MW project will primarily serve as a revenue generator, with electricity already contracted to be sold under a power purchase agreement. However, the

local area lacks electrical reliability, said NTUA executive consultant Glenn Steiger, and so the utility can contract for a small part of the generation at cost from the project for its own supply, earmarking 4 MW of the project for itself. The electricity from the project will flow into the NTUA system within the Red Mesa region and support grid stability.

These projects demonstrate a creative solution for Tribal utilities that want to develop revenue projects and serve their own needs. These large projects enable the utilities to take advantage of economies of scale, hedging costs for their own consumers, while also providing a revenue stream for the utility and other economic development sources, like taxes and jobs, for the community and the Tribe as a whole.

## Public Service Company of New Mexico (PNM), Arizona Public Service Company (APS), and Salt River Project (SRP): Utilities With Tribal Requests for Proposals

“We worked with the Navajo Nation to develop the RFP evaluation matrix for the Navajo-sited projects to ensure it captured Navajo values and priorities.”

– Kaitlyn Libby, SRP

### Narrative

Utility-scale renewable energy generation projects can be a source of reliable, long-term revenue for the landholder and create significant construction-phase employment. There are many Tribes that are interested in pursuing these revenue projects, either as a lease-holder or with a Tribal enterprise as an owner or business partner.

Decarbonization policies are driving the shutdown of coal plants nationwide. There are several utilities that have been part-owners of coal plants that serve Tribes. As part of their coal exit strategy, some utilities are working to coordinate with affected Tribes on opportunities for developing renewable energy projects on Tribal land that could financially benefit Tribal governments or enterprises and create renewable energy construction jobs.

One way to support Tribally sited renewable energy project development is for a utility to include Tribal preference in competitive solicitations. This enables competition to arrive at the best project value for the utility, while also providing a clear signal for the desire to support Tribal entities and Tribal projects.

### Salt River Project

The SRP utility worked with the Navajo Nation to develop a competitive solicitation for 200 MW of solar capacity to be built on Navajo land.

Throughout the request for proposal development process, SRP worked directly with different offices of Navajo government to ensure the solicitation and resulting project would meet Navajo needs. For example, the request for proposal requires the selected developer to extend needed infrastructure (water or energy) to local homes.

“It’s important to work directly and frequently with Tribal offices in order to ensure consistency at all levels and key

alignments for the project,” said Kaitlyn Libby, Resource Analyst at SRP. By working with Navajo offices directly to develop the evaluation matrix, SRP was able to ensure that it captured Navajo values and priorities, she emphasized.

The coordination also enabled the project to better meet SRP needs. The parties studied whether and how the bidding projects could utilize a portion of the transmission rights that the Nation negotiated with the U.S. Bureau of Reclamation as an element of the Navajo Generating Station closure agreements. By working through technical details together on the front end, Libby said, the company and the Nation were able to arrive at a solicitation that would have a higher chance of success.

### Public Service Company of New Mexico

The New Mexico state legislature passed the Energy Transition Act in 2019. It requires the state to achieve a zero-carbon electrical grid by 2045 and makes specific provisions for investment in the regions affected by coal plant closures to reduce the negative economic impacts of the energy transition. The Energy Transition Act provides low-interest bonds for financing economic support of affected communities, includes requirements for severance and job training for affected workers, and directs replacement renewable energy projects to be built in the affected communities.

PNM issued a request for proposals that included a separate “best-in-class” bid evaluation and shortlist selection for renewable projects on the Navajo Nation. The request for proposals further prioritized projects that maximize the use of the New Mexico workforce and employ apprentices during project construction.

PNM has a Tribal Relations and Customer Engagement office, which has a longstanding relationship with Navajo Nation leadership and government offices. PNM has

a number of rights of way on Navajo Nation land and works with Navajo offices to manage these. In addition, the Tribal Relations and Customer Engagement Office works to address the Nation's concerns and interests while learning more about Navajo Nation plans, policies, or goals that may be relevant to the utility's own planning. PNM developed long-term relationships with a variety of Navajo Nation leadership and staff and close coordination with the Hayoółkaal (Sunrise) Work Group developed by Navajo Nation President Jonathan Nez. According to PNM Director of Tribal Government and Customer Engagement Cathy Newby, PNM is able to ensure that the Navajo Nation is aware of, and can provide input on, PNM's activities in impacted chapter communities and its overall strategies for meeting its own goals that might affect Navajo Chapter communities and Navajo Nation employment while preserving revenue to the Nation.

While PNM did not work with Navajo offices on the crafting of its recent request for proposals, Navajo officials were made aware of it through regular interactions with the utility. PNM Vice President of Generation Tom Fallgren emphasized that the company paid close attention to the Navajo Nation's public statements and recommendations regarding the energy transition.

Another way that Tribes and utilities can collaborate for economic benefit is on the negotiation of rights of way for existing or future transmission projects, said Fallgren. Transmission will be key to decarbonization, and so Tribal areas that are appropriate for the construction of new transmission can be used for economic gain through rights of way payments and because they enable additional renewable energy development. It's important for Tribes to work strategically with utilities on rights of way negotiations, Fallgren noted, so that transmission buildout can be an economic driver and support future collaborations between the utility and Tribe on renewables buildout.

### **Arizona Public Service Company**

APS in late 2020 announced a memorandum of understanding with the Navajo Nation and submitted a proposal to the Arizona Corporation Commission (the Arizona regulatory body that governs IOUs) to implement a "Just Transition" plan for coal-affected communities as part of its ongoing rate case.

In addition to offering support to communities in the form of cash, power line extensions where applicable, and other technical support, APS plans to issue two requests for proposals to competitively solicit bids for the development of a total of 600 MW of renewable energy on or near Navajo land. The intent is to provide economic development benefits, such as revenue payments, job training, and employment, to the Navajo Nation, as part of a package related to the utility's exit from coal-fired power plants that have long been economic drivers for the Nation.

By making the requests for proposals specific to projects that benefit the Nation, the utility can prioritize Tribally sited projects that might not be as cost-competitive in all-source requests for proposals, said Brian Cole, General Manager, Resource Management at APS. The bids will be evaluated in the same competitive review process used in any other energy procurement solicitation. The utility will still seek Arizona Corporation Commission approval of the selected projects, Cole said, but is confident that these solicitations will enable an increase in Navajo-sited projects. Concrete demand from a utility can be a strong driver for project development because it removes one risk factor—being able to sell project output—for companies exploring projects on Tribal land.

The utility will work with Navajo governmental leadership and any party directed by leadership in the development of the request for proposals, Cole said, to ensure that the solicitation meets both the utility's and Navajo goals. Cole highlighted the importance of establishing a partnership for any Tribe or utility seeking to develop a similar initiative. He suggested that Tribes can sometimes work with their local utility to request support in navigating pitfalls and developing resources either on main Tribal lands or lands owned elsewhere. He also mentioned that by determining the desired business and other partnership structures in advance of seeking partners, the Tribe or Tribal enterprise can better ensure that it ends up with the kind of arrangement it truly wants.

While APS already has both formal and informal agreements with many Tribes, the company would like to find ways to offer additional technical support to help Tribes be even more successful with renewable energy revenue projects, Cole said, "We see Tribes in our service area as partners anyway—finding ways to further that partnership, whether through technical support or otherwise, makes sense for everybody."



# Addressing Regulatory Challenges to Tribal Solar Development:

## Book Three—Issue Briefs

### Introduction

These issue briefs provide insight into certain topics and introduce stakeholders to important concepts related to Tribal solar development. However, these issues are complex and varied. The information provided is not exhaustive but is intended to familiarize stakeholders with factors that are relevant to Tribal solar development and also provide additional materials that may be helpful. It is important to

note that the generalizations below cannot be applied to every situation, Tribe, or jurisdiction. The goal of this section of the guidebook is to provide some understanding of issues that are important to Tribes so that all stakeholders can create meaningful relationships and pursue workable projects. Table 6 provides an overview of each Issue Brief and how each is relevant to solar deployment.

Table 6. Summary of the Issue Briefs Discussed in this Guidebook

 <b>Issue Brief</b>	 <b>Overview</b>	 <b>Relevance to Solar Deployment</b>
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.

## Issue Brief #1: Tribal Sovereignty

### Tribal Perspective

"Tribal sovereignty is important to Tribal communities as it allows for self-determination of the Tribe and its people. Many have established paths for their own Tribal governments to protect their lands, sustain their ability to practice their cultures, and maintain their ways of life."

—David Harper, *Traditional Spokesman for the Mohave Elders, Colorado River Indian Tribes, Parker, Arizona*

### Background Information

Sovereignty is a term used to identify that a Tribe, state, government, or political entity is independent and entitled to govern without interference from external bodies. Sovereignty allows a government to make and enforce its own laws. There are qualifications and hierarchies that determine the relationships between sovereigns within the United States. Supremacy—the notion of one sovereign having authority over others for a collective common good or nation—provides the federal government with authority that, in some instances, supersedes state and Tribal authority.

The United States derives its authority from its citizens as identified in founding documents such as the United States Constitution. The federal government, as supreme authority, dictates matters in which the states can govern themselves. Thus, state sovereignty is specifically given, or granted, by the federal government to the states.

Unlike states, Tribes were identified as preexisting sovereigns with inherent authority when the United States was formed. Tribes had created relationships, signed treaties, and interacted with the federal government as independent nations, not subject to federal government control. The creation of numerous treaties developed the concept of government-to-government relationships between the individual Tribes and the federal government. This led to the concept of Tribes as “domestic dependent nations,” or entities with distinct independent authority that remained subject to certain powers of the United States, including the application of certain federal laws. The United States’s recognition of the inherent sovereignty of Tribes is echoed in the Commerce Clause of the United States Constitution. That recognition was the basis for future

laws and case law further solidifying Tribal sovereignty but also making Tribes subject to certain federal laws. In essence, Tribes are sovereign, but the United States laws are applicable to Tribes unless there is specific recognition by Congress that exempts Tribes from applicability of statutes.

Thus, Tribal sovereignty refers to the inherent right of Tribes to govern themselves and their borders, lands, and people. In addition, Tribal sovereignty is unique in that it is directly tied to cultural beliefs, lands, and historical traditions. While sovereignty establishes the rights of Tribes to establish their own government, determine membership requirements, enact legislation, and establish law enforcement and court systems (similar to the federal and state governments), those rights are based on a distinct culture and history that protects an important way of life for each of the 574 federally recognized Tribes. Sovereignty is not solely a political concept providing Tribes with power but a mechanism to protect important cultural and historical aspects of a Tribe, which can have a powerful effect on government-to-government interactions.

It has long been recognized that Tribes are not subject to individual states’ laws and are entitled to regulate and operate completely independent of states. In *Worcester v. Georgia*, 31 U.S. 515 (1832) the Supreme Court held that the “laws of Georgia could have no force” in Cherokee territory. The Court defined Indian nations as “distinct political communities, having territorial boundaries within which their authority is exclusive.” However, the relationships between Tribes and states are often complicated by jurisdictional issues, shared resources, the exercise of legitimate powers, and other factors.

Over the years, case law has refined definitions around the concept of Indian country. Indian country includes:

“(a) all land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation,

(b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and

(c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same (Indian Country Defined, 1948).”

More recently, case law has stated that “generally speaking, primary jurisdiction over land that is Indian country rests with the Federal Government and the Indian Tribe inhabiting it, not with the states (Alaska v. Native Village of Venetie 1998).” Thus, the general parameters are that states do not regulate within Tribal reservations or on Tribal trust lands. While this has been qualified in recent years by various courts and in specific contexts, courts have continued to promote Tribal sovereignty. Specifically, “[w]hen on-reservation conduct involving only Indians is at issue, state law is generally inapplicable, for the state’s regulatory interest is likely to be minimal and the federal interest in encouraging Tribal self-government is at its strongest (White Mountain Apache Tribe v. Bracker, 1980).”

However, when regulatory matters involve non-Indians or entities, there is often a balancing test, as described in Montana v. United States (1981). The Montana decision held that in the absence of prescribed federal authority, there are two instances that a Tribe may exercise regulatory authority over non-Indians:

1. “A Tribe may regulate, through taxation, licensing, or other means, the activities of non-members who enter consensual relationships with the Tribe or its members, through commercial dealing, contracts, leases, or other arrangements.”
2. “A Tribe may also retain inherent power to exercise civil authority over the conduct of non-Indians on fee land within its reservation when that conduct threatens or has some direct effect on the political integrity, the economic security, or the health or welfare of the Tribe.”

In addition to jurisdictional concerns related to government regulation and sovereignty, the matter is further

complicated by jurisdiction of Indian country land bases. Jurisdictional issues related to Indian country are further discussed in [Issue Brief #2: Land Jurisdiction Issues](#).

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### **Tribes Exercising Sovereignty**

**Tribal interest in renewable energy may provide insight into why Tribes are beginning to form utilities, question state-run utility authority, and push for more control over utility activities on reservations. Tribal interest may take several forms, from as discrete as revising interconnection or related agreements to eliminate choice of law provisions, to more complex interests, such as pushing for improved infrastructure or solutions that are not part of the statewide system such as community net-metering. Tribal sovereignty provides several tools that Tribes can wield to better support their communities’ energy goals**

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### **Solar Context**

Federal energy regulation is primarily related to transmission and larger-scale issues. Therefore, it is rare that federal law is the primary controlling factor in energy development on Tribal lands. Specifically, there is not a federal law creating a Tribally applicable system of governance for energy, such as would be provided by a state public service commission or similar body. Energy regulation has traditionally been a local matter governed by states. However, this system, developed out of the understanding of the interconnected nature of energy as a public service, does not readily work with jurisdictional complexities related to sovereignty.

Nationwide, there is significant interest in renewable energy production. As of 2022, 26 states and the District of Columbia have renewable portfolio standards or renewable energy goals, requiring a percentage of their energy portfolio to include renewable energy (EIA 2022). However, none of the state regulatory codes recognize the sovereignty of Tribes or provide flexibility under their rules for investor-owned utilities (IOU) to work directly with Tribes in ways that may better incorporate sovereign prerogatives. While Tribes have legal and jurisdictional control, IOUs are subject to state regulation. The interjurisdictional nature complicates projects. Essentially, it seems that states are effectively regulating Tribal lands and activities, not directly, but by regulating an industry that serves Tribes. Although



this is not likely the intention of states, utilities may feel their hands are tied.

Stakeholders should not assume that state law applies to Tribal solar projects. As a component of sovereignty, Tribes have the right to regulate entities doing business on Tribal lands and with Tribal customers, whether government or individual Tribal members. While many Tribes have not created codes specific to utility regulation, Tribes use taxation as a means of authority over utilities transacting business on Tribal lands. Tribes may also create rules specific to easements, rights of way, solar siting and interconnection, or related project elements.

Stakeholders working in a state-regulated system with Tribal nations must consider the legal jurisdiction over services and facilities—where activities take place, who is involved, and the types of interests at stake. The most typical scenario within a reservation is that Tribes maintain sovereignty and jurisdictional control but work cooperatively with a state-regulated entity to provide services to members. State control over projects may be more pronounced on off-reservation fee land, in which case Tribes may have limits to application of their own regulatory standards.

In summary, Tribes have significant interest in renewable energy development on Tribal lands. By understanding the nature of Tribal sovereignty, stakeholders may identify opportunities not only for increased business but for creative projects and ventures that could benefit both the utilities and Tribes. Ultimately, Tribes have significant discretion in regulating projects within their reservations which may include solar energy, rights of way, tax structures, and other elements specific to solar. For this reason, parties interested in Tribal solar development should prioritize relationship-building with the Tribe to develop trust and understand the unique regulatory considerations specific to the Tribe (see [Issue Brief #5: Utility Tribal Engagement](#)).

## Definitions

- **Trust lands:** The federal government acquires the property and holds it for the benefit of the Tribe. The use of trust land is governed by Tribes. The land is usually not subject to state laws, but is subject to certain federal and Tribal laws.

- **Allotment land:** Land owned by the United States in trust for one or more individual Tribal members. Allotments may not be within a Reservation's boundaries and may not be affiliated with a Tribe. This can make determining jurisdiction difficult.

## Relevant Legislation and Court Cases

- ***Oklahoma Tax Comm'n v. Citizen Band Potawatomi Tribe of Okla.*, 498 U.S. 505, 509, 111 S.Ct. 905, 112 L.Ed.2d 1112 (1991):** Held that the state cannot tax the sale of goods to Tribal members on Tribal land.
- ***Merrion v. Jicarilla Apache Tribe*, 455 US 130, (1982):** The Supreme Court held that an inherent power under Tribal sovereignty is that a Tribe has the authority to impose taxes on non-Indians conducting business on a Reservation.
- ***Devils Lake Sioux Indian Tribe v. North Dakota Public Service Commission* (1993):** Ruling found that Tribal sovereignty is present where its exercise mainly impacts Tribal members. The Court ruled that the Devils Lake Sioux Tribe had the right to contract for electrical services on Tribal land without regard to the North Dakota Public Service Commission regulations.
- **Federal Energy Regulatory Commission (FERC) *Sovereign Power Inc.* (1998):** FERC determined that Tribal electrical businesses are not subject to FERC jurisdiction (FERC 1998).

## Resources

- [Regulation of Electric Utilities on Indian Reservations: Tribal Governments' Oversight of Renewable Energy Development and Utility Providers and Authority to Create Tribal Utilities](#): This report from Margaret Schaff in the Energy Bar Association describes the division of regulatory responsibility between state public utility commissions and Tribal authorities.
- [Tribal Jurisdiction Over Non-Members: A Legal Overview](#): This report from the Congressional Research Service discusses criminal and civil jurisdictional powers that Tribes have over non-members.

## Issue Brief #2: Land Jurisdiction Considerations

### Background Information

Land ownership and designation can be complicated on Tribal lands. In general, there are four common Tribal land holdings:

1. Trust lands
2. Restricted fee lands
3. Fee or “fee simple” lands
4. Allotted lands.

As described below, each of these land types has varying jurisdictional approaches. Understanding the variations is important to working with Tribes.

**Trust land** makes up the majority of land within reservations. There are over 56 million acres of trust land within Indian country. Trust land is land that the federal government holds title to for the beneficial use of an individual Tribe. Tribes govern the land as sovereigns and use the land at their discretion, but the United States exercises some level of control. For example, a Tribe cannot sell trust land or otherwise encumber it without approval. On trust land, Tribes have the jurisdiction to lease land, enforce regulations, and require permits or other mechanisms to control development. Each Tribe has their own regulatory, leasing, and permitting processes. State law is generally not applicable on trust lands.

**Restricted fee lands** are lands to which the Tribe or individual Tribal member holds legal title, but the title is subject to restrictions by the United States against alienation or encumbrance. Restricted fee lands can be either within a reservation or as a distinct parcel. Fee lands within reservations are under federal and Tribal jurisdiction. Tribes may buy land separate from the reservation and are often required to pay real estate taxes and are subject to varying levels of state regulatory authority depending on underlying agreements that may exist.

**Fee or fee simple lands** are lands previously conveyed out of Tribal ownership that are freely alienable or can be encumbered without federal approval. Fee lands may be owned by non-Indians or may be repurchased and owned by a Tribe or individual Tribal members. The

federal government typically does not have a role in land management activities that include fee interests.

**Allotted lands** are discrete parcels traditionally within reservations but granted to individual Tribal members. These lands stem from the treaties and allotment statutes that divided land communally held by Tribes and allotted parcels of it to individual Tribal members. Allotted lands can be held in trust or restricted fee status. Allotted lands present unique challenges because after initial ownership, lands are often inherited by several heirs over several generations, creating fractionated ownership. Allotted lands are managed by the federal government in many lease scenarios, with the income of the land distributed to all of the relevant ownership interests. However, decision-making is complicated with allotted parcels with fractionated interests because those interests may not always align with the Tribal government’s interest or with other interest holders. Allotted lands are governed by Tribes similar to trust land and state law is generally not applicable.

In addition to navigating the nuances of various types of ownership, some reservations may be interspersed with other non-Indian lands between Tribally owned parcels. This type of reservation is often the result of lands being identified as a reservation not by treaty, which often provided contained barriers around one portion of set aside land, but by later congressional acknowledgement with lands that were pieced together from available parcels. The various land ownership types and noncontiguous ownership are frequently referred to as “checkerboarded.”

Many policies have led to the “checkerboarding” of Indian Country (these policies are outside the scope of this brief). The concept helps to understand how projects should be designed and if there are multiple legal authorities. Project development in checkerboarded parcels often requires creativity in planning. Checkerboarded parcels of land fall under various Tribal, federal, or state jurisdictions, causing challenges because the jurisdictions may have different regulatory standards, tax, and land use policies.

### Solar Context

Whether a utility-scale or distributed generation project, land ownership and associated jurisdiction can require an

extra level of scrutiny and additional oversight, agreements, or approvals for projects on Tribal land. It is common during the planning stage for Tribal solar projects that historical records, land boundary descriptions, and other information are lacking for certain properties. The various ownership statuses, fractionated interests, land buyback programs, and consolidation programs have made it challenging for Tribes to have the detailed recordkeeping necessary to streamline solar project planning.

Smaller-scale projects on trust land are relatively straightforward because only one type of land status is involved, along with fewer associated approvals. Larger-scale projects, however, are more likely to face land jurisdiction challenges. Land ownership issues, interaction with multiple regulatory bodies, leases, taxes, and other associated agreements may be necessary and highlight the need for the stakeholders involved to develop strong relationships and effective communication with the Tribe to understand the unique land jurisdiction considerations for a specific project.

Many Tribes own vast resources, are incentivized to consider solar to provide a clean energy source for protection of their natural resources, are rapidly expanding their economic portfolios and need increased infrastructure and energy, and are willing to create situations that are economically beneficial to all parties. To help stakeholders explore the issue, certain scenarios are briefly highlighted below.

### **Distributed Generation**

Various land ownership types, along with the goals of an individual Tribe need to be considered when developing solar distributed generation projects. Many Tribes have installed distributed generation on government buildings where there is adjacent land or rooftop space. Projects can be complicated if there are issues of fractionated ownership, if infrastructure traverses non-trust property, or other scenarios occur. For example, some Tribes cluster their government buildings or services in a confined area, leaving relatively little space for significant solar. Assuming a Tribe is in an area without community solar net-metering arrangements, one solution may be to find a nearby Tribally owned open area and wire the energy to the individual buildings. However, if the land is checkerboarded, the project needs to cross a nontrust parcel or go through a utility easement or under a state or federal highway.

Thus, projects can quickly get complicated due to land jurisdiction concerns.

80 acres of allotted land on the Lac Courte Oreilles Reservation in Wisconsin had 2,285 undivided interest owners. While the Tribe and many of the interest holders may see the value in a solar project, it may prove difficult for the owners to reach consensus on use, fees, terms, and other elements of a solar project. Understanding the issue of ownership at the outset may help stakeholders create solutions to encourage project viability.

### **Utility-Scale Projects**

Utility-scale projects, due to the larger land requirements, are more likely to encounter land ownership issues than distributed generation projects. Such projects may require utilization of several land types and varying contractual/lease arrangements, depending on ownership status. Projects may cross parcels, requiring additional approvals. Utility-scale projects may be further complicated if the project involves nontrust fee land that is outside of a reservation. In that scenario, state law will apply to nontrust land, which may overlap with a project that is otherwise wholly within a reservation. Careful consideration of state law is essential to these types of mixed-jurisdiction projects.

While multiple land jurisdictions can make utility-scale projects more complicated, these projects can offer benefits not only to Tribes but to utilities and developers (see previous discussion of sovereignty).

### **Key Players**

- Tribal Historic Preservation Officer: officially designated by a Tribe to direct a program that has been approved by the National Park Service. The Tribal Historic Preservation Officer assumes some or all of the functions of a state historic preservation officer on Tribal Lands. The Tribal Historic Preservation Officer is involved in planning and compliance needed for project development and determines if there are cultural resources on or near a proposed project site (“What Is a THPO?” n.d.).
- Tribal Natural Resources agency (and often subagencies such as the Land or Realty division).

## Definitions

- **Allotted lands:** Land owned by the United States in trust for one or more individual Tribal members. Allotments may not be within a reservation's boundaries and may not be affiliated with a Tribe.
- **Assignment:** A contract or agreement that transfers any rights for the use of Tribal lands to Tribal members of wholly owned Tribal corporations, assigned by a Tribe according to Tribal laws or customs.
- **Checkerboarding:** A situation in which land ownership is intermingled between two or more owners or statuses that fall under various state, federal, or state jurisdictions, resulting in a checkerboard pattern.
- **Restricted fee lands:** Land to which a Tribe or individual Tribal member holds legal title, but the title is subject to restrictions by the United States against alienation or encumbrance.
- **Fee or fee simple lands:** Lands previously conveyed out of Tribal ownership that are freely alienable or can be encumbered without federal approval. Fee lands may be owned by non-Indians or may be repurchased and owned by a Tribe or individual Tribal members. Tribally owned fee lands do not have the same restrictions that trust lands have. Fee lands may be within or outside of the reservation. Fee lands within the reservation may be owned by non-Indians. State and local laws typically apply on fee land outside of reservations and may apply on fee land within reservations.
- **Trust land:** The federal government holds title to the land. The use of trust land is governed by Tribes. The land is not subject to state laws but is subject to certain federal laws.

## Relevant Legislation and Court Cases

- **American Indian Probate Reform Act, 25 USC 2201 et seq. (2004):** Created approval standards for land transactions based on the number of owners of undivided interests of allotted land. If there are five or fewer owners, 90% approval is required. For 20+ owners, a majority approval (50+%) is required.

- **General Allotment Act (1887), 25 USC 9:** Also known as the Dawes Act. Regulated land rights on Tribal territories, allowed the President to subdivide Tribal communal land into allotments for individual Tribal members and their families.
- **HEARTH Act (2012), 25 USC 415:** allows Tribes to lease Tribal land for up to 75 years without approval from Bureau of Indian Affairs (BIA), once the BIA approves Tribal leasing regulations. See [Issue Brief #3: Relevant Federal Legislation for Utility-Scale Solar Projects](#) for more information about the HEARTH Act.

## Resources

- [“An Issue of Sovereignty”](#): This overview from the National Conference of State Legislatures gives background information on Tribal sovereignty.
- [“Tribal Land Issues”](#): This page from the Indian Land Tenure Foundation provides information on land tenure issues including checkerboarding, fractionated ownership, and more.
- [The Law of Solar: A Guide to Business and Legal Issues](#): This document from Stoel Rives LLP offers legal insights into the federal and Tribal laws that impact solar development.
- [“Solar Energy Leases on Tribal Land: Project Regulatory Considerations”](#): This presentation from BIA discusses the HEARTH Act and other land lease considerations.
- [“Navigating Land Issues”](#): This page from the Federal Reserve Bank of Minneapolis discusses land ownership in Indian Country.
- [Tribal Land and Ownership Status: Overview and Selected Issues for Congress](#): This report from the Congressional Research Service discusses land designations and related issues and considerations.

## Issue Brief #3: Relevant Federal Legislation for Utility-Scale Solar Projects

### Background

Utility-scale solar projects on Tribal lands are major land-use projects (see [Issue Brief #2: Land Jurisdiction Considerations](#)), with implications for energy infrastructure and utility resource planning that may extend beyond Tribal borders. Similar to projects not involving Tribal lands or jurisdiction considerations, they will be subject to regulatory oversight and scrutiny. However, while many energy project stakeholders are used to the state regulatory system (as discussed in [Issue Brief 1: Tribal Sovereignty](#)), Tribal projects are typically governed by federal law, especially on trust land based on scale and location.

In addition to the general applicability of federal law to projects on Tribal trust land, there are several federal regulatory programs that may influence the direction of Tribal projects. For example, under the Indian Tribal Energy Development and Self-Determination Act (ITEDSA), an individual Tribe can create a Tribal Energy Resource Agreement (TERA). A TERA, once approved by the federal government, is intended to streamline certain energy projects within Indian country by providing a Tribe with increased authority over, for example, leasing. However, to date, TERAs have not been used extensively by Tribes. ITEDSA and the TERAs it regulates do not enable or expedite all elements of solar project development. It is to the benefit of utilities and regulators to understand how ITEDSA and TERAs may help a project on Tribal land, as well as what issues will remain outstanding whether a Tribe has a TERA in place.

Federal oversight of Tribal projects is also implicated through funding mechanisms. Tribal projects using certain types of federal funds are typically locked into compliance with specific federal standards related to employment law, American-made requirements, reporting requirements, and other aspects that may result in different project approaches.

### Solar Context

A high degree of coordination between Tribes, utilities, contractors, and multiple levels of government is required for successful completion of utility-scale solar projects. Understanding that Tribes may require certain federal

approvals, and be subject to federal oversight, is important to project success. Some of the key federal approvals and legislation specific to solar projects on Tribal lands include the following:

**TERAs:** A TERA is an agreement created by a Tribe and approved by the U.S. Department of the Interior. A TERA grants authority to the Tribe to review and approve specified projects and manage leases, business agreements, and rights of way for energy development on Tribal lands. TERAs may incorporate all or only portions of a Tribe's resources. Other federal standards such as National Environmental Policy Act and the National Historic Preservation Act are not waived and still require compliance.

**Wind and Solar Resource (WSR) Leases:** The BIA regulates the use of Tribal land for renewable energy projects through WSR leases, which are leases that authorize use of Tribal land by non-Tribal entities for the purpose of installing, operating, and maintaining wind and solar electricity generation infrastructure. Tribes conducting their own solar resource activities on their own land do not need a WSR; however, Tribes often partner with outside entities to develop solar projects, so WSRs may be a relevant concern. WSRs are relevant for any non-Tribal party developing a solar project on Tribal land.

The BIA must approve WSRs, requiring information from the Tribe and the lessee. Other elements covered under WSR regulations include monetary compensation, power purchase agreements, insurance and bonding security, amendments to lease terms, subleases, and compliance and enforcement of leases.

**The HEARTH Act (2012):** The HEARTH Act established a new land-leasing process for federally recognized Tribes. HEARTH amended the Indian Long-Term Leasing Act of 1955 to give Tribes the authority to administer their own leases on Indian Trust land for a variety of purposes, including solar energy project development. The Secretary of the Interior reviews and approves the Tribe's leasing regulations and environmental review process; following this approval, the Tribe may negotiate and enter into leases without further Secretarial approvals. These leases can include land for solar projects (for up to a 75-year term).

Utilizing this authority granted under the HEARTH Act, the Navajo Nation General Leasing Act (2013) (referred to as the Act) authorizes the Navajo Nation to issue leases without the approval of the Secretary of the Interior. One purpose of the Act is to “promote self-determination, encourage self-sufficiency, and improve efficiency of leasing of Navajo Nation Trust Lands” (BIA 2014). The Act puts energy development under the purview of the Navajo General Land Department.

Navajo Power, a public benefit corporation that develops utility-scale renewable energy projects, is working through the Navajo Nation General Leasing Act to build Painted Desert Power. The site of the proposed 750-MW solar-plus-storage project in Arizona was selected with local resident participation and feedback to prevent negative impacts on the community’s resources (Navajo Power 2013). Navajo Power notes that the Act requires greater local community engagement than the federal Wind and Solar Leasing regulations would have. Communities are more empowered to be involved in the land-leasing process and gain more from projects, rather than just provide written comments during the environmental review process (which was previously the case, according to Brett Isaac, Founder and Chairman of Navajo Power).

**ITEDSA (2005):** ITEDSA is a federal law that sets criteria for allowing Tribes to enter agreements and contracts for energy project development without having to go through the Secretary of Interior’s approval process, which would otherwise be required. These criteria include: the agreements being executed pursuant to a TERA, the term of the agreements being no more than 30 years, and the Tribe having already entered a TERA with the Secretary of the Interior. This Secretarial “pre-approval” also expedites energy project development by removing the “federal action” trigger for NEPA requirements, which typically entail lengthy environmental review.

“The HEARTH Act is being enabled so that negative outcomes of previous energy projects like uranium and coal are properly consented and agreed upon by communities and stakeholders. The demand from Tribal nations has been to have more than a voice in projects but to actually be able to see real benefit, not just watch everything be exported.”

- Brett Isaac, Founder and Chairman, Navajo Power

## Key Players

- BIA
- U.S. Department of the Interior
- U.S. Environmental Protection Agency
- Any federal funding agencies.

## Resources

- [Tribal Energy Resource Agreements \(TERAs\): Approval Process and Selected Issues for Congress](#): This report from the Congressional Research Service provides information about TERAs and the approval process.

## Issue Brief #4: Tribal Business Structures

### Background Information

Tribes use a variety of business structures to own and operate business enterprises. The chosen structure is based on a number of factors, including the type of business, a Tribe’s risk tolerance, economic goals, whether there are non-Tribal partners, location of business (i.e., reservation or nonreservation fee land), sovereignty, and asset protection. In most instances, Tribes can tailor business ventures through contracts, partnership agreements, or other mechanisms to retain sovereign immunity. In all cases, a project-by-project approach is necessary, and stakeholders should not assume that what worked for a similar project will work in another instance. Table 7 provides an overview of the different Tribal business structures discussed in this section.

Tribal businesses may be formed under federal, Tribal, or state law. A Section 17 corporation is a federally chartered business formed under Section 17 of the Indian Reorganization Act. This type of corporation provides an option for Tribes to create business entities with assets and liabilities separate from the Tribal government and the corporation is entitled to sovereign immunity.<sup>12</sup>

State law corporations are those created by a Tribal entity, or a Tribal entity and non-Tribal partner(s) under

a specific state’s regulatory authority. There are open issues depending on jurisdiction related to income tax on fee land, but a Tribe may avoid sales taxes, which may be attractive to partners. Tribes often use these entities when a project requires special financial arrangements, including income to offset nonrefundable tax credits. State law corporations will result in state regulatory oversight and there is no presumption of immunity. However, that oversight can be tempered through agreements. These arrangements are context- and project-specific.

Tribally chartered corporations are those developed in accordance with a specific Tribe’s code or laws. These businesses are operated independent of state taxation or legal oversight. If a Tribe has a business code allowing for the formation of corporations, the specific code will identify the method of formation, operational requirements, and bylaw requirements.

It should be noted that there are significant jurisdictional variations related to court review of Tribal business structures and entities. Additionally, each Tribe and state has its own standards and laws. While there are general statements of applicability related to each type of business structure, careful review of recent legal decisions, jurisdictional approaches and goals can reduce uncertainties and risks with the associated solar project.

Table 7. Overview of Tribal Business Structures and Legal and Tax Implications

Business Structure	Pay Federal Taxes?	Access Federal Tax Credits?	Pay State Taxes?	Shield Tribal Assets	Sovereign Immunity
Section 17 Corporation	No	No	No	Yes	Typically <sup>13</sup>
State Law Corporation	Yes	Yes	Maybe: courts have ruled in different ways	Yes	Limited
Tribal Law Corporation	Maybe: under Internal Revenue Service review (November 12, 2021)	Maybe	No	Yes	Yes

<sup>12,13</sup> Initially, the program developed model formation documents that included a “sue and be sued” clause, which was interpreted by some courts to waive sovereign immunity, other courts disagreed, stating that waiver had to be explicit (the more widely accepted standard). To clarify and alleviate these concerns, more recent advances and model forms state that Section 17 corporations are entitled to sovereign immunity.

## Solar Context

As described previously, there are unique Tribal business structures that can have impacts on the financing, taxes, and jurisdiction of Tribal solar projects. For many Tribes, decisions are made through a lens of sovereignty, protecting their right to self-governance and their lands from outside influence. Additionally, the type of business entity a Tribe considers may be dependent on non-Tribal partners and their fear of uncertainty or lack of understanding of Tribal business entities. Finally, Tribes, typically non-tax-paying entities, are faced with difficult decisions to take advantage of solar investment tax credit (ITC) or production tax credit. These business structure challenges were especially prohibitive prior to the passing of the Inflation Reduction Act because Tribes could not take advantage of the investment tax credit as non-taxable entities. Federal legislation in the IRA has enabled Tribally-owned solar projects to capture the value of the investment tax credit, either through the "direct pay" option or the transferability of credits. This gives Tribes greater business structure options when it comes to solar projects. See [Barrier 10](#) for more information.

## Definitions

- **Sovereign immunity:** A limitation against bringing suit against a sovereign government. Sovereign immunity, typically, must be explicitly waived.
- **Limited liability company:** Liabilities of the corporation do not automatically become liabilities of the corporation's owners.
- **Section 17 Corporation:** Federally chartered corporation wholly owned by the Tribe. Framework that allows the Tribe to separate Tribal business assets and liabilities from Tribal governmental assets. A Section 17 Corporation can waive sovereign immunity.
- **State-law corporation:** A legal entity partially or wholly owned by a Tribe, formed under state laws. State-chartered Tribal corporations may or may not pay state taxes; some courts have ruled that Tribal-owned state law corporations operating only on Tribal land do not pay federal taxes, but other courts have ruled that states may tax state-chartered corporations.

- **Tribal law corporation:** A limited liability corporation organized by a Tribal government in accordance with a Tribal code or resolution. Not subject to state regulation or taxation.

## Relevant Legislation and Court Cases

- **Indian Reorganization Act (1934):** Also known as the Wheeler-Howard Act, this federal legislation was meant to increase Indian self-governance and responsibility while decreasing federal control of Tribal affairs. It includes Section 17, which allows the Secretary of the Interior to approve a charter of incorporation for a Tribal business.

## Resources

- ["Choosing a Tribal Business Structure"](#): This page from the U.S. Department of the Interior discusses three types of corporations that Tribes can establish and gives details on advantages and disadvantages as well as how to form the corporation.
- [Tribal Business Structure Handbook](#): This document from the U.S. Department of the Interior discusses Tribal business structures in detail.



## Issue Brief #5: Utility-Tribal Engagement

### Background

Solar projects on Tribal lands are unique. Stakeholders that are familiar with solar policy and processes that fall under the state regulatory framework should be aware that the specific tasks and approvals necessary to plan, permit, construct, and commission a solar project on Tribal lands may be different than what they are used to under the state framework. Additionally, because each Tribe is different, there is not one set of actions that is universally applicable. For this reason, the relationship between Tribal solar stakeholders and the Tribe is critical to understanding the unique framework for a specific Tribal solar project.

Through interviews and workshops conducted for this project, Tribes indicated that the relationships and level of understanding between Tribes, utilities, and regulators could be improved (see [MTERA's website](#) for more details about the interview and workshops). Tribes indicated that this relationship and level of understanding could be improved between Tribes, utilities, and regulators. They feel that their input, concerns, cultural values, and beliefs are not fully understood or given appropriate weight during utility project planning and regulatory proceedings. The following “Solar Context” section provides some high-level recommendations to address this issue, but at the highest level, stakeholders interested or involved in solar projects on Tribal lands can reach out to the Tribe, respect Tribal sovereignty, and understand that each Tribe is different.

### Solar Context

Building a strong working and communicative relationship between Tribes, utilities, regulators, and other stakeholders allows for more effective projects and interactions. The following are strategies that can help build cooperative relationships:

**Prioritize Tribal hiring:** One tool available to the utility or project developer is the Tribal Employment Rights Ordinances (TERO). Indian preference in employment is a political distinction, meaning Tribes can require that utilities servicing them exercise Tribal member preference, assuring that job postings and training opportunities are first offered to the Tribe (Schaff 2020). This can allow Tribes and utilities

to forge strong working relationships when developing any projects on Tribal lands.

**Establish clear lines of communication:** All parties should clarify all aspects of the relationship before a project begins. This includes requirements for regular meetings, which allows for early problem identification and resolution. These steps also encourage a strong working relationship and builds trust between all parties involved. As an example, FERC has an Office of Public Participation. The public can contact the Office for assistance in navigating Commission proceedings of all types (“About OPP” 2022). This clear line of communication could be emulated at other organizations.

**Improve accessibility in the decision-making process:** Enable broader participation of less-well-resourced entities in decision-making processes. Strategies to improve accessibility include hosting public hearings and meetings in locations that are accessible for the community (somewhere the community feels comfortable, somewhere geographically accessible), hosting meetings at alternate or additional times to accommodate work schedules, and hosting meetings that are available both in person and virtually.

**Learn about the communities’ cultural values and beliefs:** This includes understanding the communities’ relationships to the land and any areas that are considered sacred. If possible, consider working with community-based organizations who understand the audience, the unique barriers to participation Tribal governments and/or members may face, and the perspectives and priorities of the Tribe. This can help foster common understanding. Community partners may also be able to help facilitate communication with Tribes.

**Formalize Tribal relationships:** Establish an Office of Tribal Relations or hire a Tribal liaison. This can help build trust and lead to better incorporation of Tribal input and values in decision-making processes. Some examples of utilities that have Tribal liaison office(r)s include Southern California Edison (Southern California Edison n.d.), the Public Service Company of New Mexico, and Bonneville Power Administration.

## Key Players

- Regulating entity
- Tribal government
- Tribal members
- Tribal utility
- Public utility or rural cooperative
- Project developers.

## Definitions

- **Tribal liaison:** The Tribal liaison at a utility focuses on government-to-government relations, communications, and education to help Tribes and the agency work effectively together.
- **Tribal sovereignty:** The right of Tribes to govern themselves. See [Issue Brief #1: Tribal Sovereignty](#) for more on Tribal sovereignty.
- **Tribal Employment Rights Ordinances:** Require that all employers who are engaged in operating a business on reservations give preference to qualified Indians in all aspects of employment, contracting, and other business activities.

## Resources

- [“The Basics of Tribal Employment Rights Ordinances \(TERO\)”](#): This article from the *Western Planner* by Lea Anne Burke gives an overview of Tribal Employment Rights Ordinances.
- [“Energy Development and Native Americans: Values and Beliefs About Energy from the Navajo Nation”](#): This article by Len Necefer, Gabrielle Wong-Parodi, Paulina Jaramillo, and Mitchell Small discusses the results of an effort to gather stakeholder views and concerns related to energy development in Navajo Nation.
- [“Planning for seven generations: energy planning of American Indian Tribes”](#): This article from *Energy Policy* studies the strategic energy planning efforts, energy resource development, and energy efficiency policies established by Tribes in the continental United States.

- [Regulation of Electric Utilities on Indian Reservations: Tribal Governments’ Oversight of Renewable Energy Development and Utility Providers and Authority to Create Tribal Utilities](#): This report from Margaret Schaff in the Energy Bar Association describes the division of regulatory responsibility between state public utility commissions and Tribal authorities.
- [Solar Power in your Community](#): This guidebook from DOE is designed to help local governments boost solar deployment and details stakeholder engagement strategies.

## Issue Brief #6: Existence of a Tribal Electric Utility

### Background Information

More than 20 Tribes have electric utilities that provide service to some or all customers on their respective Tribal lands (as of writing, March, 2023). There are a number of potential configurations of these utilities:

**Business entity structure:** As described in [Issue Brief #5: Utility Tribal Engagement](#), these enterprises may be structured under federal, state, or Tribal law. However, the majority of Tribal utilities that exist as of 2021 are established under Tribal law.

**Governance structure:** Tribal utilities formed under Tribal law that serve customers on Tribal lands are not regulated by state regulatory commissions because Tribes are sovereign nations (see [Issue Brief #1: Tribal Sovereignty](#)). Tribal utilities may be governed by an elected or appointed board or they may report to, and be regulated by, the Tribe's Council or main governing body.

**Service territory:** The utility may serve all electric customers on Tribal lands or a subset of customers. For example, the Pueblo of Acoma Tribal Utility Authority has a service territory that is aligned with its Tribal lands and generally serves all customers with its territory unless there is an agreed-upon exception with the neighboring utility. On the other hand, Tribal utilities like Yakama Power, the Gila River Indian Community Utility Authority, and the Saginaw Chippewa Indian Tribe of Michigan's Tribal utility authority all took an approach of starting with a subset of commercial customers and growing their service territories over time.

**Infrastructure ownership:** The Tribal utility may own the electric system where it delivers service or it may rely on electric infrastructure owned by another entity and pay an associated fee to transfer power over such infrastructure. In some cases, the Tribal utility may have a combination of infrastructure ownership statuses.

**Utility operations:** Tribes may decide to take an active approach to utility operations or take a more passive approach by partnering with the existing utility or third-party contractors in the region to perform certain services. At the highest level, Tribal utilities make operating decisions

about power supply, operations and maintenance of infrastructure, billing/accounting, customer service, and administrative activities.

### Solar Context

The existence of a Tribal utility is relevant in the context of solar development because solar projects that connect to the grid must follow utility interconnection policies. As described in [Issue Brief #1: Tribal Sovereignty](#), the state regulatory framework does not necessarily apply to solar projects on Tribal lands. In a scenario where the solar project is planned on Tribal lands in a Tribal utility's service territory, it becomes very clear that the state regulatory framework is not a major factor. The Tribal utility's policies and rules determine the ability of solar projects to net-meter, to wheel power to one or more customers at a community scale, or to wheel power at utility scale, whether to the utility itself or to another utility or industrial customer.

These rules vary among Tribal utilities. For example, the Gila River Indian Community Utility Authority does not have a net-metering arrangement, and the Navajo Tribal Utility Authority has net billing, wherein surplus kWh sent into the grid are compensated at the utility's avoided cost rate.

Parties interested in developing solar projects, whether behind the meter or at a community or utility scale, benefit from having a thorough understanding of the Tribal utility's current and planned policies. Developing a strong working relationship with the utility may support creative solutions that enable customers, project developers, and the utility to meet common goals.

### Resources

- [Tribal Authority Process Case Studies: The Conversion of On-reservation Electric Utilities to Tribal Ownership and Operations](#): This report from the U.S. Department of Energy provides information on Tribal utility ownership and operations, as well as presents case studies of different Tribal utilities.

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## Appendix A: Glossary

**Allotment land:** land owned by the United States in trust for one or more individual Tribal members. Allotments may not be within a reservation's boundaries and may not be affiliated with a Tribe.

**Assignment land:** A contract or agreement that transfers any rights for the use of Tribal lands to Tribal members of wholly owned Tribal corporations, assigned by a Tribe according to Tribal laws or customs.

**Checkerboarding:** a situation in which land ownership is intermingled between two or more owners or statuses that fall under various state, federal, or state jurisdictions, resulting in a checkerboard pattern.

**Community solar:** a model of distributed solar energy deployment that allows customers to buy or lease part of a larger, off-site shared photovoltaic system and receive benefits of their participation.

**Cooperative:** a utility cooperative delivers a public utility (such as electricity or water) to its members. Profits are reinvested or distributed to members.

**Distributed energy resource (DER):** small, modular, energy generation and storage technologies that provide electric capacity or energy when needed.

**Distributed generation:** a variety of technologies that generate electricity at or near where it will be used.

**Fee land:** also fee simple land. Lands previously conveyed out of Tribal ownership that are freely alienable or can be encumbered without federal approval. Fee lands may be owned by non-Indians or may be repurchased and owned by a Tribe or individual Tribal members. Tribally owned fee lands do not have the same restrictions that trust lands have. Fee lands may be within or outside of the reservation. Fee lands within the reservation may be owned by non-Indians. State and local laws typically apply on fee land outside of reservations and may apply on fee land within reservations.

**Indian Country:** includes:

“(a) all land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation,

(b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and

(c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same (Indian Country Defined, 1948).”

**Indian Reorganization Act (IRA) (1934):** Also known as the Wheeler-Howard Act, this federal legislation was meant to increase Indian self-governance and responsibility while decreasing federal control of Tribal affairs. It includes Section 17, which allows the Secretary of the Interior to approve a charter of incorporation for a Tribal business.

**The Indian Tribal Energy Development and Self-Determination Act (ITEDSA) (2005):** ITEDSA is a federal law that sets criteria for allowing Tribes to enter agreements and contracts for energy project development without having to go through the Secretary of Interior's approval process, which would otherwise be required.

**Investor-owned utility:** corporation owned by investors and is engaged in distributing either electric or natural gas (or both) to more than one retail customer.

**The Helping Expedite and Advance Responsible Tribal Home Ownership (HEARTH) Act (2012):** The HEARTH Act established a new land-leasing process for federally recognized Tribes and gives Tribes the authority to administer their own leases of Indian trust land for a variety of purposes, including solar energy project development. The Secretary of the Interior reviews and approves the Tribe's leasing regulations and environmental review process; following such approval, the Tribe may negotiate and enter into leases without further Secretarial approvals.

These leases can include land for solar projects (for up to a 25-year term).

**Midcontinent Independent System Operator (MISO):** an independent, nonprofit, member-based organization responsible for operating the power grid across 15 U.S. states and the Canadian province of Manitoba.

**Municipal utility:** Also “municipality” or “muni.” Municipal utilities are owned and operated by local communities.

**Net-metering:** allows utility customers with distributed generation to offset the electricity they draw from the grid throughout the billing cycle. The customer pays for the net energy consumed from the utility grid.

**Restricted fee land:** land to which a Tribe or individual Tribal member holds legal title, but the title is subject to restrictions by the United States against alienation or encumbrance.

**Section 17 Corporation:** a federally chartered business formed under Section 17 of the Indian Reorganization Act. Allows the Tribe to create business entities with assets and liabilities separate from the Tribal government. The corporation is entitled to sovereign immunity.

**Sovereign immunity:** a limitation against bringing suit against a sovereign government. Sovereign immunity, typically, must be explicitly waived.

**“Sue and Be Sued Clause”:** some Section 17 corporate charters contain a “sue and be sued clause,” which allows the corporation (not the Tribe) to be sued. Some courts have ruled that this clause waives sovereign immunity; others have ruled that the clause does not waive immunity unless that intent is explicit. More recent “form” charters created by the BIA remove the sue and be sued clause, making sovereign immunity.

**Tribal Energy Resource Agreements (TERA):** a TERA is an agreement created by a Tribe and approved by the US Department of the Interior. A TERA grants authority to the Tribe to review and approve specified projects, manage leases, business agreements, and rights of way for energy development on Tribal lands.

**Tribal sovereignty:** refers to the inherent right of Tribes to govern themselves, their borders, lands, and people.

**Tribal utility:** a Tribe owns and operates electric systems on Tribal lands.

**Trust land:** the federal government acquires the property and holds it for the benefit of the Tribe. The use of trust land is governed by Tribes. The land is usually not subject to state laws; however, it is subject to certain federal and Tribal laws.

**Virtual net-metering:** Virtual net-metering utilizes the same compensation and billing mechanisms as net-metering, but does not require that a customer’s distributed generation system be located directly on-site. Net-metering credits appear on a customer’s bill as if the system were located on their property.

**Wind and solar resource (WSR) Leases:** Leases that authorize use of Tribal land by non-Tribal entities for the purpose of installing, operating, and maintaining wind and solar electricity generation infrastructure.

## Appendix B: Non-Regulatory Barriers

Many nonregulatory barriers were discussed during this project. This section provides a general overview of these barriers. The barriers are listed alphabetically.

**Funding:** Tribes often cited adequate funding as a barrier to solar development. Grant applications can be difficult if the grant requires cash-on-hand or in-kind contributions. Projects are often grant-funded, but the activities covered by the grant may be limited. In addition, grant terms may be misaligned with utility rules, or deadlines are incompatible with utility requirements.

**Relationship building:** Identifying the “right people” within a Tribe can be difficult for utilities. In addition, Tribes noted that finding the “right people” within a utility can be difficult.

**Tribal technical capacity:** During discussions, many Tribes highlighted a lack of technical capacity within Tribal staff that is necessary to pursue solar projects. For example, many Tribes are served by multiple utilities, and the Tribe may not have the capacity to navigate the different utility rules and regulations.

**Tribal staff capacity:** Many Tribes noted that they are short-staffed. Therefore, they do not have the time to navigate the solar development process.

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