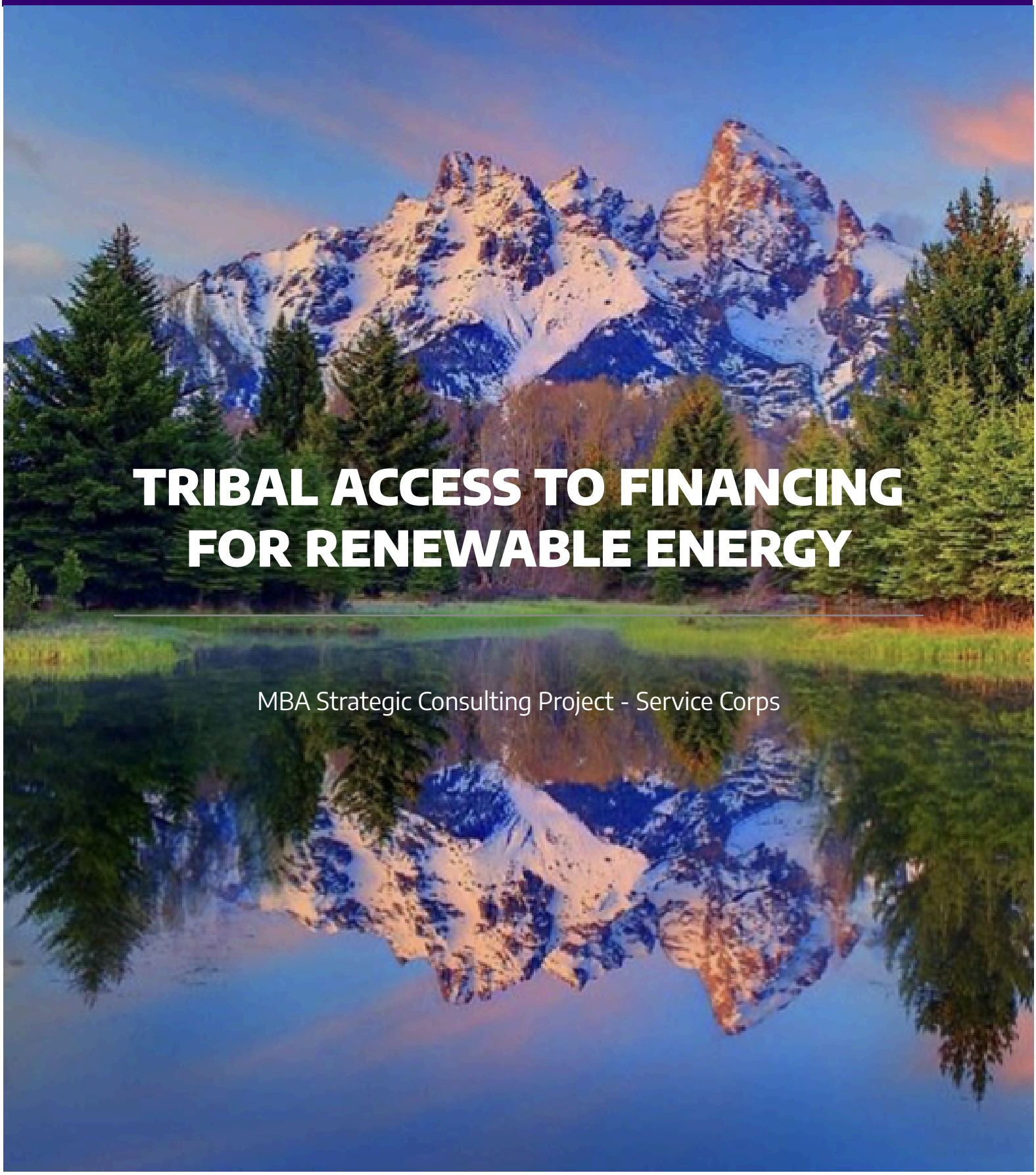
Climate Risk Lab

UNIVERSITY of WASHINGTON



TRIBAL ACCESS TO FINANCING FOR RENEWABLE ENERGY

MBA Strategic Consulting Project - Service Corps

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EXECUTIVE SUMMARY

Access to financial resources for tribal renewable energy projects is crucial for advancing economic development and environmental stewardship in tribal communities. Despite recent legislative changes, such as the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA), significant challenges and barriers remain. The development of tribal renewable energy projects is complex, involving multiple stakeholders and impacted by historical and systemic issues. Major barriers include federal bureaucracy, internal administrative challenges, difficulties in securing financing, and historical disinvestment and marginalization. To ensure equitable access to renewable energy opportunities for tribes, this report emphasizes the need for a cohesive process between federal agencies and tribal nations, targeted outreach and support programs, and market-based solutions throughout all phases of project development.

1. INTRODUCTION

Access to financial resources is a critical determinant of success for tribal energy projects, which play a pivotal role in advancing renewable energy adoption and fostering economic development in tribal communities. However, despite the increasing recognition of renewable energy as a pathway towards economic empowerment and environmental stewardship, many tribes continue to face significant challenges in accessing the necessary capital. Understanding the financial access for tribal energy initiatives is essential for addressing systemic challenges and unlocking opportunities for sustainable energy development in tribal lands. In this report, we analyze the current renewable funding systems to tribes and identify barriers and frameworks of success based on our findings.

1.1 Objectives

The primary objective of this report is to delve into the renewable energy development process within tribal areas, shedding light on the existing financing options and barriers to ownership. By examining historical, policy, and financial factors, we aim to provide insights into the challenges faced by US-based tribes in securing development finance for renewable energy projects. Through a comprehensive analysis, we seek to identify key areas of intervention and opportunities for improvement to facilitate greater financial access and empowerment within tribal communities.

1.2 Scope

The scope of this report focuses on the financial access for tribal energy projects, including but not limited to:

- Assessment of existing financial barriers and challenges faced by tribal communities in accessing capital for renewable energy initiatives.
- Analysis of federal policies, programs, and funding mechanisms aimed at supporting tribal energy development and promoting financial inclusion.
- Examination of successful case studies and best practices in tribal energy finance, highlighting innovative approaches and strategies for overcoming financial obstacles.
- Exploration of stakeholder perspectives, including tribal leaders, government agencies, financial institutions, and community organizations, to gain insights into the complexities of tribal energy finance and the diverse needs of tribal communities.

1.3 Research Methodology

This report employs a mixed-methods research approach, combining qualitative interviews, literature review, and case studies to provide a comprehensive understanding of financial access issues in tribal energy development. Primary data collection methods include interviews with key stakeholders (eg. *Projects Manager from tribe community, community bank analyst from private sector, Solar technique support for tribe projects, etc)* and in-depth discussions with tribal leaders and energy experts. Secondary research involves the review of academic publications, government reports, policy documents, and industry studies to contextualize findings and draw evidence-based conclusions.

1.4 Research Limitations

This research provides an overview but lacks detailed case studies on individual tribes, which could offer deeper insights into specific challenges and successful practices. Additionally, the report does not fully capture the wide-ranging socioeconomic conditions among tribes, which are crucial for tailoring renewable energy solutions to each tribe's unique needs. The complexities of navigating federal, state, and tribal regulatory frameworks are mentioned but not explored in depth. Furthermore, while various renewable energy technologies are discussed, there is a need for more detailed analysis of their suitability for different tribal regions.

2. OVERVIEW OF TRIBAL RENEWABLE ENERGY LANDSCAPE

Tribal lands across the United States hold significant potential for renewable energy development, presenting both opportunities and challenges for tribal communities. This section provides an analysis of the tribal renewable energy landscape, focusing on key aspects such as the distribution of tribes and American Indian/Alaska Native (AIAN) populations, renewable energy resource potential on tribal lands, and the implications for tribal energy development and economic opportunities.

2.1 Distribution of tribes and AIAN populations in the US

Federally recognized tribes in the United States maintain a unique government-to-government relationship with the federal government, affording them specific rights, responsibilities, and access to resources. Presently, there are 574 recognized American Indian tribes and Alaska Native entities in the US[1]. The geographic distribution of these tribes varies significantly, with notable concentrations in states such as Alaska and Oklahoma, which host the largest AIAN populations. Understanding this distribution is crucial for recognizing the diverse needs and challenges faced by indigenous communities nationwide.

Exhibit: US Indigenous Populations 2020

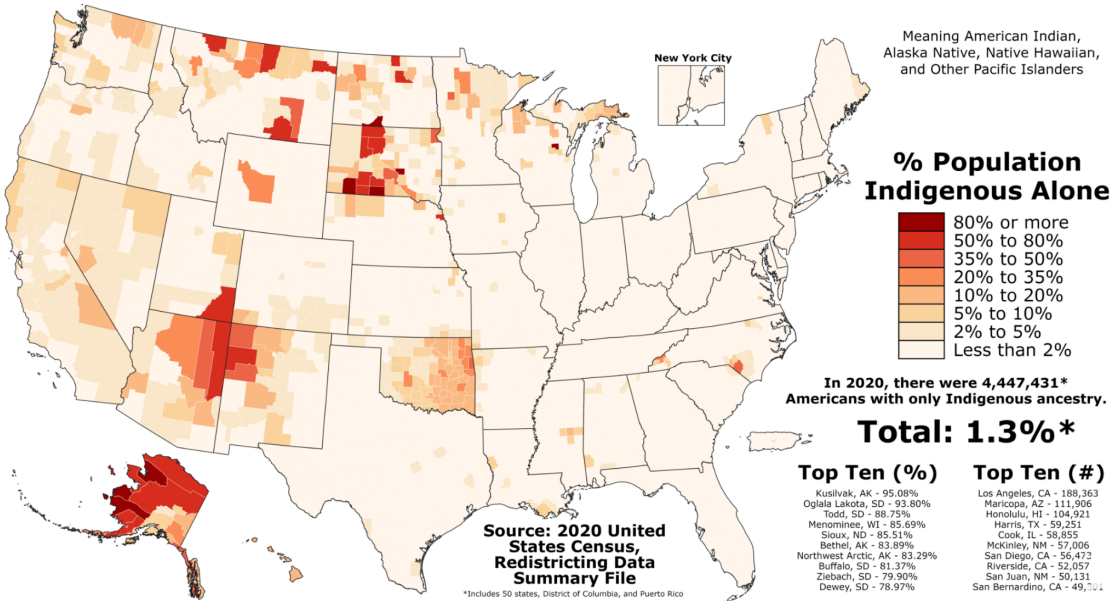

Exhibit Source : 2020 US Census, Redistricting Data Summary File

[1] USAGOV: https://www.usa.gov/tribes#:~:text=The%20federal%20government%20recognizes%20574,and%20learn%20how%20to%20enroll.

2.2 Analysis of renewable energy resource potential on tribal lands

Renewable energy technologies offer significant opportunities for Native American tribes, Alaska Native villages, and Alaska Native Corporations by promoting energy diversification, independence, environmental sustainability, and new revenue streams.

Tribal lands encompass a significant portion of renewable energy potential resources in the United States, including solar, wind, hydroelectric, geothermal, and biomass. Tribal lands hold approximately 6.5% of the country's total technical potential for utility-scale renewable energy. In practice, Solar photovoltaics emerge as the predominant renewable resource on tribal lands, followed by concentrating solar power and wind, offering substantial opportunities for renewable energy development[2] (Exhibit 1).

A techno-economic potential analysis[3] reveals that solar photovoltaics (PV) emerge as the dominant renewable resource on these lands, followed by concentrating solar power (CSP) and wind, although other technologies also contribute but to a lesser extent[4] (Exhibit 2).

According to the U.S. Department of Energy Office of Indian Energy's database on energy-related projects on tribal lands, tribes, and Alaska Native villages have built the institutional capacity to manage their energy needs, assessed the feasibility of energy efficiency and renewable energy installations, and demonstrated the viability of installing renewable energy systems on tribal lands. In 2023, the total amount of the project is 211. Out of a total of 211 grants (Exhibits 2) for renewable energy projects on tribal lands, solar energy grants comprise the largest share at approximately 36.5% (77 grants). Energy efficiency projects follow closely with 34.1% (72 grants). Renewable energy initiatives account for 13.3% (28 grants), while wind energy projects make up 9.0% (19 grants).

Renewable energy development on tribal lands has significantly lagged behind non-tribal areas, underscoring a need for increased support and investment. Tribal renewable energy projects are diverse, varying widely in size, purpose, and location,

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[2] Techno-Economic Renewable Energy Potential on Tribal Lands

https://www.nrel.gov/docs/fy18osti/70807.pdf

[3] Geospatial Analysis of Renewable Energy Technical Potential

https://www.nrel.gov/docs/fy13osti/56641.pdf

[4] NREL-Developed Tribal Energy Atlas Puts Resource Data in Tribes' Hands,

https://www.nrel.gov/news/program/2018/nrel-developed-tribal-energy-atlas-puts-resource-data-in-tribes-hands.html

which reflects the unique needs and resources of different communities. Solar energy dominates these projects due to its technological maturity, favorable policy incentives, and successful initiatives, highlighting its potential as a key driver for sustainable energy development on tribal lands.

2.3 Tribal Renewable Energy Development Process

The development of energy projects for tribe nations entails a complex and lengthy process involving various stakeholders and substantial financial investment over several years, typically segmented into distinct phases tailored to fit the specific needs and circumstances of each project and tribe.

Exhibit: Tribal Renewable Energy Development Process

	Description	**Stage**
Phase 1	Initial Assessment	Pre-construction development (Closing of any debt or equity arrangements made for financing project construction)
Phase 2	Feasibility & Scope	
Phase 3	Studies & Initial Development	
Phase 4	Secure all capital, contracts, and permits needed for construction	
Phase 5	Project Construction and Commissioning	Construction
Phase 6	Project Operations and Maintenance	Operation

Exhibit Source: Renewable Energy Development in Indians[5]

In the planning phase, the tribe nations need to define the project scale, decide its role (ownership and control) and other key factors including the sources of capital, cost of capital, regulatory and legal compliance, market and economic conditions, public and environment benefits and internal capabilities and constraints.

Exhibit: Tribal Renewable Energy Development Deciding Factors

Factors	**Description**

[5] Renewable Energy Development in Indian, https://www.nrel.gov/docs/fy10osti/48078.pdf

Ownership and Control	Tribes often prefer financing options that allow them to maintain control over their energy projects. This consideration influences the choice between debt (such as bank loans and bonds) and equity financing, where selling shares might dilute control.
Cost of Capital	The interest rates or returns required by different financing sources can significantly impact the overall cost of the project. Tax-exempt bonds and government-backed incentives like CREBs can reduce this cost, making large-scale projects more viable.
Regulatory and Legal Compliance	Tribal projects must navigate a complex landscape of federal, state, and tribal regulations, including those related to securities and environmental impact. Ensuring compliance is essential for securing financing and avoiding legal challenges.
Market and Economic Conditions	The broader economic environment, including interest rates, availability of funding, and the state of the energy market, can affect the feasibility and cost of financing. Tribes need to time their entry into the market strategically.
Project-specific Factors	The size, type, and location of the renewable energy project will influence which financing options are feasible and cost-effective. Larger projects might be more suitable for bond issuance, while smaller projects could be better served by bank loans or lines of credit.
Public and Environmental Benefits	Projects that clearly contribute to environmental sustainability and provide public benefits are more likely to attract favorable government incentives and community support.
Internal capabilities and constraints	The tribe's own capacity to manage and execute large projects is critical. This includes administrative capabilities, technical expertise in renewable energy, and the infrastructure to support such initiatives.

Tribal Ownership offers direct control and potential revenue but demands full responsibility and significant resources. Partnerships share risks and resources but require clear agreements to avoid conflicts. Third-Party Ownership reduces tribal risk and provides expertise but may result in loss of control and necessitates regulatory approvals (Exhibits 3 for details).

2.4 Implications for Tribal Renewable Energy Development and Opportunities

2.4.1 RECOGNIZED VS. UNRECOGNIZED TRIBES BY THE FEDERAL GOVERNMENT IS CRUCIAL

Federal recognition is pivotal for Native American tribes, significantly influencing their capacity to develop renewable energy projects. As of now, 574 tribes are recognized by the Bureau of Indian Affairs (BIA), granting them access to federal resources, funding, and the ability to establish sovereign governmental status, which includes tax collection and law administration. This recognition facilitates infrastructure development and investment in renewable energy technologies.

Conversely, The U.S. Government Accountability Office has identified approximately 400 non-federally recognized tribal entities in the U.S[6]. These tribes fall into a funding void, unable to access federal or state resources intended for tribal or non-tribal entities.

2.4.2 NATIVE AMERICAN LAND OWNERSHIP IS HIGHLY COMPLEX

Native American land ownership involves a mix of trust lands and fee lands, each with specific legal and regulatory frameworks. Most Native American lands are trust lands, meaning the federal government holds the title, but the beneficial interest remains with the tribes or individuals. This arrangement encompasses approximately 56 million acres[7]. Trust lands present both opportunities and challenges for renewable energy development.

On the one hand, the unique legal status of these lands can provide tribes with more control and the potential for federal support in developing renewable energy projects. On the other hand, the necessity for federal approval for many actions on these lands can slow down project implementation. For example, small-scale projects on trust land typically involve straightforward ownership structures, requiring fewer approvals due to the singular land status[8]. However, larger projects encounter jurisdictional challenges, as multiple regulatory bodies and land ownership statuses come into play. Historical records and land boundary descriptions are crucial for Tribes to determine land ownership accurately. Interactions with various regulatory bodies, leases, taxes, and

[6] GUIDE TO WORKING WITH NON-FEDERALLY RECOGNIZED TRIBES,

https://www.achp.gov/sites/default/files/whitepapers/2018-06/GuidetoWorkingwithNon-FederallyRecognizedTribesintheSection106Process.pdf

[7] Native American Ownership and Governance of Natural Resources,

https://revenuedata.doi.gov/how-revenue-works/native-american-ownership-governance/

[8] Tribal Guide to Solar Energy,https://www.energy.gov/eere/solar/tribal-guide-solar-energy

agreements become necessary, highlighting the importance of strong relationships and effective communication between Tribes and solar developers.

Natural resources on Native American lands are similarly managed, often held in trust, and subject to federal regulations. This can impact the tribes' ability to independently manage and develop renewable energy resources. However, new legal frameworks, such as the Indian Tribal Energy Development and Self-Determination Act of 2005 and its amendments, have begun to provide tribes with greater autonomy in energy resource management. These laws allow tribes to enter into agreements and leases for energy development, which can include renewable energy projects, without extensive federal oversight.

2.4.3 EDUCATION AND LABOR CONDITIONS FOR TRIBE NATIONS ARE CHALLENGING

Native Americans and Alaska Natives face significant socioeconomic disparities. According to the US Department of Health and Human Services Office of Minority Health, in 2019, about 26.7 percent speak a language other than English at home, showcasing their linguistic diversity. Educational attainment levels are lower, with only 84.4 percent having at least a high school diploma, and just 20.8 percent holding a bachelor's degree versus 36.9 percent nation wide. Moreover, only 32.0 percent work in management and professional occupations, compared to 44.8 percent of whites, and 20.3 percent live at the poverty level, more than double the rate for whites.

These disparities underscore the need for targeted interventions in education and employment to improve the economic conditions of Native American and Alaska Native communities. Such socioeconomic challenges can hinder the development and implementation of renewable energy projects on tribal lands by limiting access to the necessary educational resources, skilled labor, and financial capital needed to initiate and sustain these projects.

2.4.4 TRIBAL NATIVES'S CULTURE, BELIEF SYSTEMS, AND STORYTELLING PLAY KEY ROLES

Native American traditions view humans as part of the natural system, emphasizing respect for all forms of life and the environment. As highlighted in various research papers discussing the concept of the Seventh Generation, it emphasizes the importance of considering the long-term impacts of today's decisions on future generations. This principle, rooted in the wisdom of the Iroquois Confederacy, advocates for sustainable and responsible decision-making to ensure the well-being of those yet to come[9]. This

[9] WHAT IS THE SEVENTH GENERATION PRINCIPLE,

perspective encourages a deeper connection to nature and a more sustainable approach to renewable energy development. Besides, tribal storytelling deeply rooted in cultural heritage and environmental stewardship, offers invaluable insights into sustainable land use practices and community engagement strategies[10]. By integrating storytelling into renewable energy projects, developers can foster greater respect for nature, honor indigenous traditions, and build meaningful partnerships with Native American communities. This approach not only enhances the cultural sensitivity and social sustainability of renewable energy initiatives but also contributes to a more holistic and inclusive energy transition that respects the interconnectedness of all living beings.

2.4.5 RECOGNIZING UNIQUENESS IN INDIGENOUS RENEWABLE SOLUTIONS

Each indigenous tribe possesses a distinct history, culture, and relationship with its natural resources, making it challenging to generalize patterns when considering renewable energy solutions. From the Navajo Nation's vast solar potential to the Inuit communities' reliance on wind power in Arctic regions, indigenous groups across the globe demonstrate diverse approaches to harnessing renewable energy. Factors such as geographical location, traditional practices, and community priorities significantly influence the adoption and implementation of renewable technologies within tribal territories. Thus, it is essential to recognize and respect the unique context of each tribe when designing and implementing renewable energy projects, ensuring that solutions are tailored to meet their specific needs and aspirations while honoring their cultural heritage and environmental values.

https://www.ictinc.ca/blog/seventh-generation-principle#:~:text=The%20Seventh%20Generation%20Principle%20is,seven%20generations%20into%20the%20future.

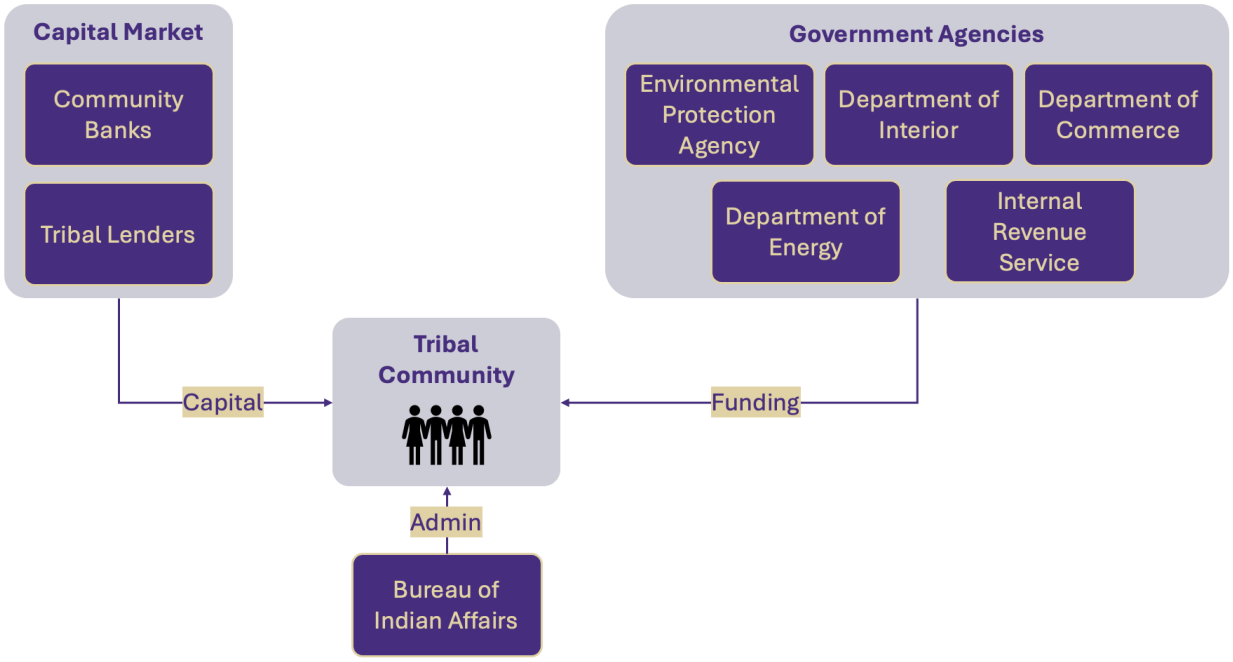
[10] Native American storytelling toward symbiosis and sustainable design,

https://www.sciencedirect.com/science/article/pii/S2214629617301494?casa_token=maZTJRH4bXgAAAAA:jaLRl0G83gMbOhhAkEMbbh_8dMFByK_Zhh-c2_0UBTk9FtMtaiTgTZQKhm2DY3CJIQz5Iyi2YFk

3. REGULATORY AND FINANCING LANDSCAPE

3.1 Overview of existing regulatory and financial stakeholders

Renewable energy development in tribal areas involves a complex network of regulatory and financial stakeholders. Each stakeholder group plays a crucial role in facilitating or influencing the development of renewable energy projects. The graph below summarizes the key players in the regulatory and financing space.



Overview of existing regulatory and financial stakeholders, developed by authors of this report

3.1.1 TRIBAL COMMUNITY

The tribal governments are often the primary decision-makers for projects on tribal lands. They identify opportunities, negotiate agreements, establish policies and ensure that the projects align with tribal goals and values. In addition, the community members' support and involvement are essential for the success of any renewable energy projects. The community members could potentially benefit from job creation, economic development and improved energy independence but they also bear the impacts of the projects.

3.1.2 GOVERNMENT AGENCIES

The Department of Interior (through its Office of Indian Economic Development), the Department of Commerce (through Economic Development Administration), the Department of Energy (through the office of Indian Energy Policy and Programs) and the Environmental Protection Agency offer access to capital through grant opportunities, loan guarantees and technical assistance. In addition, the IRS administers tax incentives such as the Investment Tax Credit and Production Tax Credit, making renewable energy projects more financially viable.

3.1.3 CAPITAL MARKET

Tribes often face difficulties accessing traditional financing due to legal and economic barriers. Certain community banks and tribal lenders can collaborate with tribes to structure financing and loans that are tailored to the unique needs of tribal projects.

3.1.4 BUREAU OF INDIAN AFFAIRS

The Bureau of Indian Affairs offers support to tribes in navigating the regulatory landscape.

3.2 Analysis of financial policies and initiatives supporting tribal energy development

3.2.1 PUBLIC SUBSIDY

There are several public subsidy programs available to tribes to develop renewable energy projects, offering financial assistance and technical support. Such programs are available both on the federal level and on the state & local level.

The Department of Energy, for example, offers three key ways for tribal nations to access funding opportunities, including non-competitive awards programs based on a predetermined formula, competitive funding programs which are awarded through a competitive application progress, and loan programs which provides financing for clean energy projects that is repaid.[11] A detailed summary of these programs can be found in Exhibit 6.

Another example would be the solutions provided by the Department of Interior, such as the Energy and Mineral Development Program (EMDP) grant that offers tribes the

[11] U.S. Department of Energy's Tribal Nation and Native Communities Resource Guide

financial assistance to evaluate the energy and mineral resource potentials of their lands.[12]

In addition, many states have programs that provide grants, rebates and technical assistance for renewable energy projects. For example, Washington State Department of Commerce announced in February 2024 that it offers $16M to support the planning, design and construction of clean energy projects.[13] It also offers technical assistance opportunities to tribal nations that includes energy resilience planning assistance and feasibility studies.[14]

3.2.2 TAX INCENTIVES

Historically, Tribes, as non-taxable entities, have not been able to take advantage of the tax credits designated to incentivize clean energy deployment. Absent any pathways for direct access to the tax credits, Tribes had to enter into complex business deals with third-party sponsors to develop projects available for tax credits. The IRA contains a new “elective pay” or “direct pay” provision that allows tax-exempt and governmental entities, like Tribes and nonprofits, to utilize tax credits when building clean energy projects. This IRA provision removes significant barriers for tribes to access the tax credits that incentivizes them to invest in small-scale solar and wind projects.

The tax credits now available to tribes are presented in a tiered credit structure: a 30% base tax credit, 10% additional credit (if the facility is in low-income community or on Native American Land) and 10% bonus tax credit. Details of the tax incentives can be found in Appendix 3.

3.2.3 PUBLIC-PRIVATE PARTNERSHIP

The Greenhouse Gas Reduction Fund[15] is a $27B investment to mobilize financing and private capital to address the climate crisis. Under this initiative, three programs are available to support the tribes’ deployment of capital on clean technologies: the National Clean Investment Fund (NCIF), the Clean Communities Investment Accelerator (CCIA), and Solar for All.

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[12] https://www.bia.gov/service/grants/emdp

[13] https://www.commerce.wa.gov/contracting-with-commerce/tribal-clean-energy-grants-applications-now-open-for-tribes-and-tribes-contracted-service-providers-for-clean-energy-projects/

[14] https://www.commerce.wa.gov/growing-the-economy/energy/solar-plus-storage/

[15] https://www.epa.gov/greenhouse-gas-reduction-fund/about-greenhouse-gas-reduction-fund

The NCIF leverages federal funds to attract private investment to catalyze investment in clean energy projects and technologies. It selects three non-profit organizations that will establish national clean financing institutions that deliver accessible, affordable financing for clean technology projects nationwide. NCIF provides funding through grants, loan guarantees and other financial instruments and partners with private-sector investors, developers and community organizations.

The CCIA selected five non-profit organizations, each of whom will provide capitalization funding (typically up to $10 million per community lender), technical assistance subawards (typically up to $1 million per community lender), and technical assistance services so that community lenders can provide financial assistance to deploy distributed energy, net-zero buildings, and zero-emissions transportation projects where they are needed most. 100% of the capital under CCIA is deployed to low-income and disadvantaged communities.

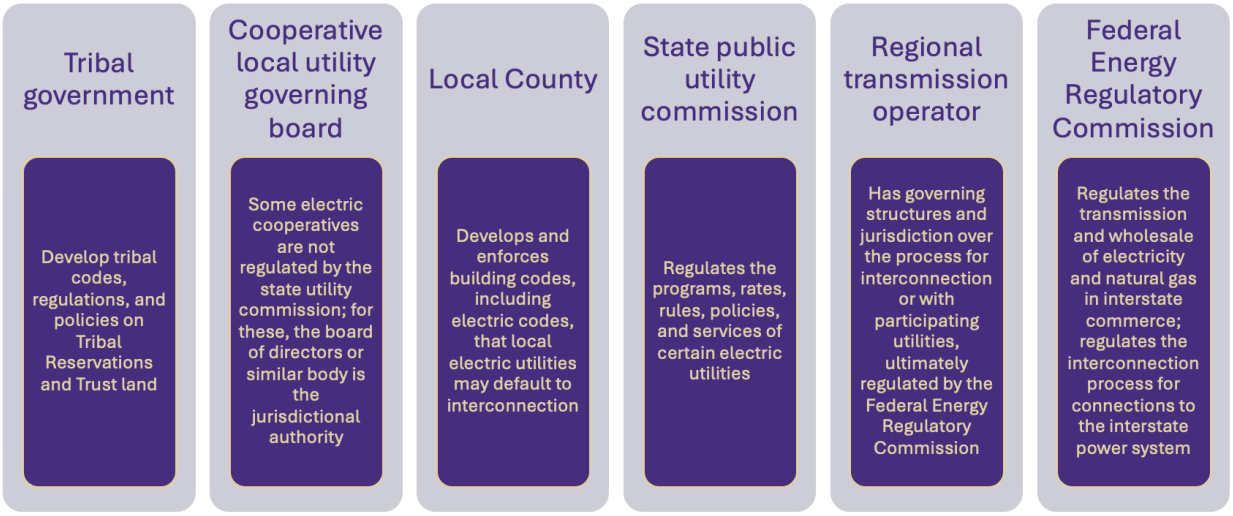
3.3 Comparison on the impact of different financial access for tribal projects

While the public subsidies provide direct financial assistance and technical support to tribal nations, which significantly reduces the financial barrier on tribes for initial project costs, the grants application process tends to be extremely detailed and can be time-consuming. In addition, the funding availability can be subject to government budget allocations and political changes.

The direct pay provision provides a new pathway for tribes to monetize the clean energy credits and further enhance the financial viability of the renewable energy projects. However, the tax credits are generally not refunded until after the project costs are spent, which creates a barrier of entry for the tribes lacking other capital resources. In addition, similar to grant applications, filing the paperworks for the tax refund requires specific knowledge and can be resource-intensive.

The public-private partnership through the Greenhouse Gas Reduction fund can amplify the impact of federal funds by attracting significant private investment. It can create a broad impact by deploying resources focused on the low-income and disadvantaged communities and offering diverse financing options. However, there currently seems to be a lack of incentives for the private sectors to be engaged, as the interests of private investors may not align perfectly with the community goals.

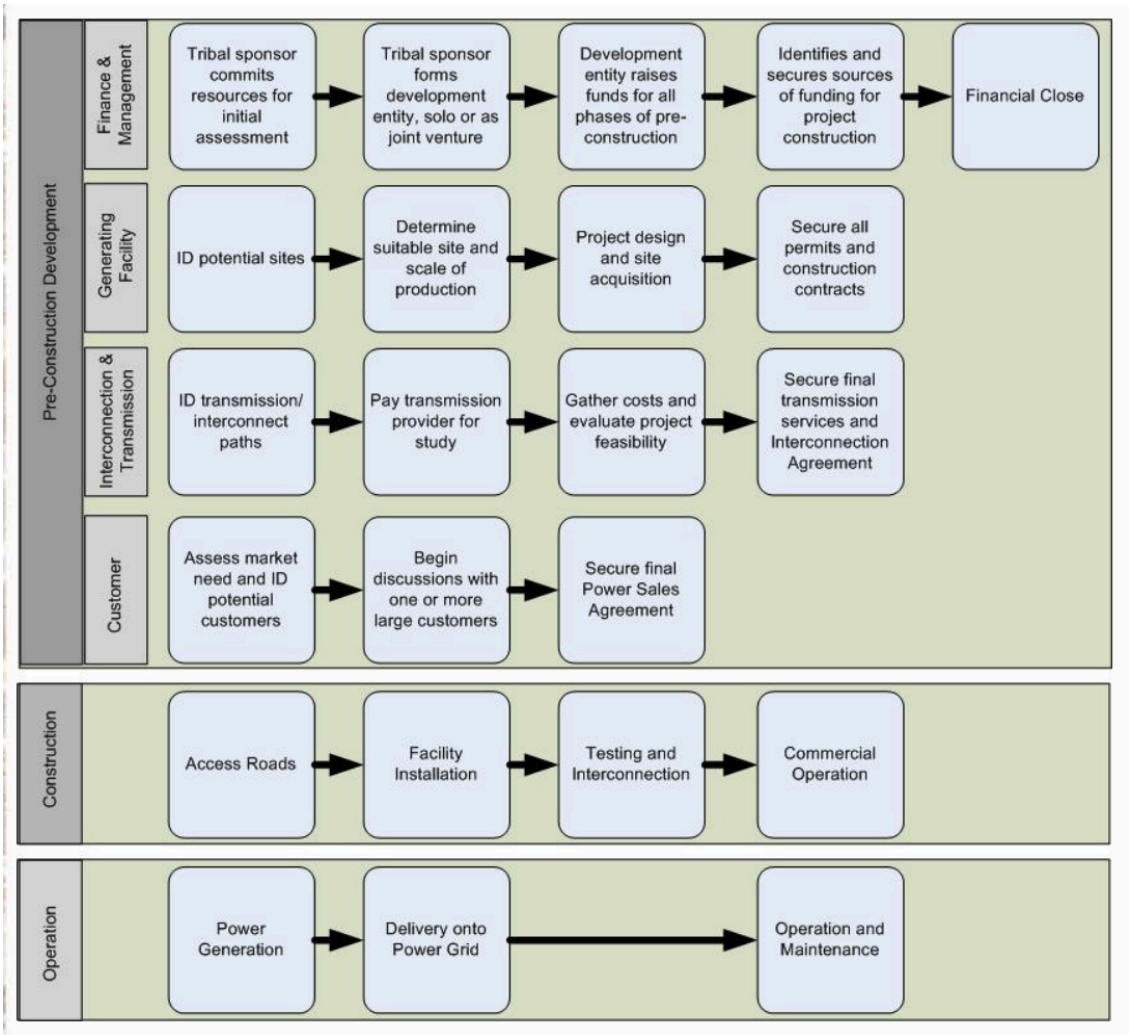
4. STAKEHOLDER ANALYSIS



Information in this chart was derived from National Renewable Energy Laboratory (NREL)[16]

The exhibit above clearly lays out the high-level role description of each stakeholder in the transaction system among renewable energy development. Approving renewable energy development can be complex, particularly as stakeholders with different perspectives and cultures of ownership are working together to come to a common agreement. As an example of the steps involved in the approval process, refer to the flowchart below. In each of these steps, whether it's providing funding, coming to land use agreements agreement regarding grid access, financial management or other there are complex steps to follow and varied agencies to work with as defined later on in this document.

[16] National Renewable Energy Laboratory (NREL). (2023). *Addressing Regulatory Challenges to Tribal Solar Deployment*. NREL | National Renewable Energy Laboratory (NREL). https://www.nrel.gov/docs/fy23osti/85741.pdf



4.1 Government Institutions

The United States Government has announced funding allocation to improve renewable energy access. The government regulates transmission and wholesale of vital resources such as energy, natural gas, and other resources and provides necessary approval for any renewable energy project, including ones being developed on tribal land. To discuss the dynamics at play, we must first understand what are processes required and how do the stakeholders consider these milestones? *These important factors of involvement are where tribal nations and the government must work closely together.*

The four most important legal and political factors involved in the enormous project of Utility-Scale Renewable Generation are defined below: Site Acquisition & Approval, NEPA

and Species Protection Laws, and Political Disruptions (2017, Gerard)[17] In the sections below, we will be evaluating each of these factors with the perspective of how they collaborate with tribal governments.

4.1.1 SITE ACQUISITION AND APPROVAL

Renewable Energy Development projects need an immense amount of land, particularly for Utility Scale projects that power larger resource demands.[18] Oftentimes there are ideal locations for renewable energy capture that are located on the border of federally owned and tribal land. When tribal land is requested for use, lease, or other, the Bureau of Indian Affairs (BIA) reviews and approves leases, permits, and other documents required for development. Federal agencies—such as the Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (FWS), and the Environmental Protection Agency (EPA)—also have regulatory roles and involvement with energy development. Each has complex regulatory requirements and required documentation, of which tribes may or may not have the ability to provide. For a visual of the various agencies involved in approval refer to Federal Agency Mapping in Development of Renewable Energy Resources provided by the GAO analysis in the Appendix.[19]

In 2016, the GAO conducted a study to assess the federal government's management of its real property portfolio, identify inefficiencies, and provide recommendations for improving cost savings, efficiency, and interagency collaboration[20]. Coming out of this report, the interior government recognized the need for collaboration in the regulatory process and described the “Service Center”as a central point of collaboration for permitting that will break down barriers between federal agencies. However, deprioritization, underfunding and delays have caused this implementation to hit hurdles along the way.

4.1.2 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) & ENVIRONMENTAL SPECIES ACT

For any major development project that occurs on federal land or offshore an environmental impact statement (EIS) is required for any major federal action

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[17] 47 Envtl. L. Rep. News & Analysis 10591 (2017) *Legal Pathways for a Massive Increase in Utility-Scale Renewable Generating Capacity*, Gerrard, Michael B. [24 pages, 10591 to 10614]

[18] SEAN ONG ET AL., NATIONAL RENEWABLE ENERGY LABORATORY, LAND-USE REQUIREMENTS FOR SOLAR POWER PLANTS IN THE UNITED STATES (2013) (NREL/TP6A20-56290); Vasilis Fthenakis & Hyung Chui Kim, Land Use and Electricity Generation:A Life-Cycle Analysis, 13 RENEWABLE & SUSTAINABLE ENERGY REVS. 1465 (2009); Nathan F.Jones & Liba Pejchar, Comparingthe Ecological Impacts of Wind and Oil & Gas Development: A Landscape Scale Assessment, 8 PLoS ONE 1 (2013).

[19] *Indian Energy Development: Additional actions by federal agencies are needed to overcome factors hindering development*. (n.d.). U.S. GAO. https://www.gao.gov/products/gao-17-43

[20] *Indian Energy Development: Additional actions by federal agencies are needed to overcome factors hindering development*. (n.d.). U.S. GAO. https://www.gao.gov/products/gao-17-43

significantly affecting the quality of the human environment. The requirement for an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) generally applies to federal actions that significantly affect the quality of the human environment. The NEPA process can extend over several years and incur costs in the millions, often resulting in litigation that can prolong the timeline even further.

When it comes to projects on lands owned or managed by Native American tribes, the application of NEPA can be nuanced. Tribal sovereignty grants tribes a level of self-governance and autonomy, impacting how federal environmental regulations are applied to tribal lands. Federal actions on tribal lands, including those involving agencies like the Bureau of Indian Affairs, are subject to National Environmental Policy Act (NEPA) requirements such as preparing an Environmental Impact Statement (EIS) and approval from the Endangered Species Act (ESA). Some tribes have established their own environmental review processes similar to NEPA, with varying regulations between tribes. Cooperative agreements between federal agencies and tribes aim to conduct environmental reviews in a manner that respects tribal sovereignty and aligns with federal standards, particularly important for renewable energy projects on tribal lands requiring EIS or other reviews. In some cases, the ESA's tight regulations around species habitation on tribal lands bars tribes from getting project approval.[21]

4.1.3 POLITICAL SHIFTS DISRUPT CONTINUITY OF RENEWABLE ENERGY PROJECTS

Priority initiatives set by the government are guided by political agendas (i.e. republican or democratic agendas that represent polarizing viewpoints on funding and social development). It is precisely this funding that tribes rely on for support and subsidy of renewable energy development projects. When the president's term ends and new government officers take office, it can change the entire trajectory of the social initiatives. For example, in Gerrard's analysis he notes "the Donald Trump Administration is moving to rescind a large number of environmental regulations and guidance documents, especially those adopted during the Barack Obama Administration. The Trump Administration is clearly very favorable toward fossil fuel development; its attitudes toward renewable energy development remain to be seen." While the Biden Administration did reinstate the agenda item in 2020, it is precarious and unclear how the next party in office will prioritize renewable energy development. This can affect what resources tribes have access to and in some cases, due to the average timelines, projects expect funding part way through development when the funding plan changes due to political shifts.

[21] Gerrard, M. (2017). Legal pathways for a massive increase in Utility-Scale renewable Generation capacity. *Social Science Research Network*.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2996643

4.2 Financial institutions

Financial institutions involved in renewable energy development for tribal projects have several key objectives and initiatives. They aim to provide tailored financing solutions to address the unique needs of tribal communities, offering loans, bridge financing, and other financial products to support project development. Additionally, these institutions work to address funding gaps by offering bridge loans to tribes, helping mitigate timing mismatches between capital deployment and tax credit receipt, crucial for sustaining project momentum. They also collaborate with tribes to structure financing arrangements, streamlining the process and providing support in navigating complex financial requirements. Moreover, financial institutions may participate in public-private partnerships aimed at mobilizing private investment for renewable energy projects, leveraging private capital to complement public funding and support project development in tribal communities. They may also advocate for policy changes that promote renewable energy development and address barriers to financing for tribal projects, supporting legislative initiatives to enhance access to tax incentives and other financial support mechanisms.

Tribes encounter several challenges when working with financial institutions for renewable energy projects:

- **Limited Access to Traditional Financing:** Tribes often face difficulties accessing traditional financing due to legal and economic barriers. Financial institutions may be unfamiliar with tribal governance structures and land ownership, leading to hesitancy in providing loans or other financial products.

- **Complex Regulatory Environment:** Tribal renewable energy projects must navigate a complex regulatory environment, which can vary depending on tribal sovereignty, federal regulations, and state laws. These processes can be indefinite and expensive at times. Financial institutions may struggle to understand and navigate these regulatory requirements, leading to delays or complications in securing financing.

- **Timing Mismatches:** Tax credit timing mismatches pose a significant challenge for tribes, as it may take several years before tax credits can be monetized. This timing misalignment can hinder project financing and create uncertainty for financial institutions.

- **Lack of Tribal Lenders:** There is a shortage of community banks and tribal lenders that can collaborate with tribes to structure financing tailored to their needs. This lack of local financial institutions familiar with tribal communities can hinder access to capital for renewable energy projects.

- **Risk Perception:** Financial institutions recognize that tribal renewable energy projects can be high-risk investments due to factors such as land tenure issues, regulatory uncertainties, and limited experience with tribal projects. This

perception of risk can make it challenging for tribes to secure favorable financing terms and attract investment.

4.3 Tribal Sovereign

In addition to federal, state, and foreign governments, Native American Tribes hold a distinct status as sovereign entities recognized within the U.S. Constitution. The U.S. Supreme Court has affirmed that Tribal governments, considered the oldest sovereigns on the continent, precede the establishment of sovereignty by the United States of America.

As sovereign entities, Tribes bear similar responsibilities to state governments. These include ensuring the socioeconomic welfare of their citizens, achieved through various means such as:

- Building and maintaining infrastructure
- Developing and enforcing rules of personal and business conduct (civil and criminal lawmaking)
- Licensing and monitoring individuals and businesses for compliance with their laws (regulation & law enforcement)
- Engaging citizens in decision making (elections)
- Providing for the needs of their people (education, nutrition, medical care, mental health)
- Creating enough revenue to provide for the above

The objectives of the tribes may differ from government agendas as many tribes represent underserved populations. Their priorities might entail focusing on housing development, economic development, basic living resources, and cost of living crisis mitigation whereas the government may have a separate agenda that may be more forward thinking rather than crisis response. Furthermore, there's an additional layer of negotiation with tribes in the surrounding area. In some cases, renewable energy development (such as hydroelectricity) affects more than just the acting tribe. In some cases, renewable energy development affects the tribes around them. In order to reach an agreement, the government of those tribes will meet and discuss the project and any possible implications. This further adds another layer of approval that may delay timelines.

Example of Barriers in Action: The Standing Rock Sioux reservation in North and South Dakota possesses strong winds ideal for wind energy production. In 2020, the tribe initiated plans for a tribal-owned utility-scale wind farm, aiming to boost jobs, income,

and electricityThe Standing Rock Sioux reservation in North and South Dakota has abundant wind resources suitable for wind energy production. Despite plans for a tribal-owned utility-scale wind farm, called Anpetu Wi, aiming to enhance jobs, income, and electricity supply, the project faces challenges accessing grid connections and navigating regulatory hurdles. Many tribal clean energy initiatives are stalled, potentially missing out on significant economic and environmental benefits, as they struggle with upfront capital requirements and bureaucratic barriers. The project symbolizes the tribe's broader economic strategy to replace revenue from its casino with wind power sales. Collaborative efforts between tribal leaders and government agencies are ongoing to address these challenges, but more action is needed to ensure equitable access to renewable energy opportunities for Native American communities.[22]

[22] Volcovici, V. (2023, September 8). *Why Native American tribes struggle to tap billions in clean energy incentives | Reuters*. https://www.reuters.com/. https://www.reuters.com/sustainability/climate-energy/why-us-tribes-struggle-tap-billions-clean-energy-incentives-2023-09-08/

5. BARRIER IDENTIFICATION

5.1 Federal Bureaucracy: Lack of Federal Recognition/Omission as a Constraint

According to the World Bank energy accessibility collection data in 1990, the United States has maintained its achievement of providing accessible energy to 100% of its citizens[23]. However, because Native American tribes are not considered under the people of the United States, these energy statistics omit some Native American communities, a population of almost seven million. Many Native American communities are still attempting to access any form of electricity; 37.5% of Navajo Nation and 40% of the Pine Ridge Reservation population households live without access to electricity (2023)[24]. It is precisely these facts, as they are acknowledged, that guide the federal agenda. As a simplified example, if EIA presents 100% success in providing United States citizens with power but Native American communities are omitted, how will government aid be proposed to help those most vulnerable? Furthermore, how can policy makers be made aware of chronic problems if statistics don't measure the impact of these communities.

For tribes that are not federally recognized there is no access to Federal funding or resourcing, omitting them from eligibility.

1. Limited Sovereignty and no government to government connections.
2. Limited Access to Federal Programs: Non-recognized tribes are generally ineligible for the federal programs and funding available to recognized tribes.
3. Economic Limitations: They cannot engage in gaming operations under the Indian Gaming Regulatory Act and have fewer opportunities for economic development.
4. No Trust Lands: Non-recognized tribes do not have land held in trust by the federal government, limiting their control over land and resources.
5. Limited Resource Rights: They lack the same rights to natural resources and often struggle with land claims and usage rights.
6. Fewer Resources for Cultural Activities and challenges in protecting sacred sites.

Additionally, bureaucratic inefficiencies and complexities within federal agencies can lead to delays, confusion, and obstacles in navigating regulatory processes and accessing services. Moreover, disparities in access to information, resources, and support further exacerbate barriers for marginalized communities and hinder their ability to engage with and benefit from federal programs and initiatives. Overall,

[23] The World Bank. (2019). Access to electricity (% of population) - United States. Retrieved from https://sustainabledevelopment.un.org/sdg7.

[24] Slanger, D., & Stone, L. (2023, March 29). *Native Energy: rural electrification on tribal lands*. RMI. https://rmi.org/blog_2014_06_24_native_energy_rural_electrification_on_tribal_lands/

addressing these bureaucratic barriers requires efforts to improve recognition, streamline processes, enhance transparency, and promote equity and inclusion in federal governance and decision-making.

5.2 Challenges in Reaching Internal Administration

The difficulty in reaching internal administration within Native American tribes present several barriers to renewable energy development. With complex agency mapping and strict governmental processes that do not align with tribal objectives or priorities lead to inaccessibility of internal administration as defined by the following themes:

- **Complex Decision-Making Structures:** Tribal governments often have complex decision-making structures, which can lead to delays or impasses in project approval and implementation. Navigating these structures requires fostering inclusive dialogue and building capacity for decision-making.
- **Uncertainty and Funding Setbacks:** Without unified support and clear processes for decision-making, renewable energy initiatives may face uncertainty, funding setbacks, and prolonged timelines. This can hinder the timely implementation of projects and limit their overall success.
- **Lack of Clarity in Governance Frameworks:** Establishing transparent governance frameworks that align with tribal goals and values is essential for overcoming internal administrative hurdles. However, the lack of clarity in these frameworks can impede progress and create challenges in project alignment and execution.

5.3 Challenges in Securing Financing

The Biden-Harris Administration funding available through programs specific for Tribal communities and Native people under President Biden's "Investing In America" Agenda, including: $13 billion in the Bipartisan Infrastructure Law (BIL) and $700 million in the Inflation Reduction Act (IRA). Furthermore, the IRA allows tribes and other tax-exempt entities access funding as a direct payment rather than a typical tax-break. Please see Exhibit 5 for a Statement Release from the White House on Tribal Promises.

Access to funding for tribal renewable energy projects remains challenging despite recent initiatives from the Biden-Harris Administration, such as the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA). Financial institutions often hesitate to invest in tribal projects due to perceived risks, lack of collateral, or unfamiliarity with tribal sovereignty and legal frameworks. Despite efforts to increase capital availability, many tribes still struggle to secure sufficient funding for their renewable energy initiatives, hindering their ability to address energy needs and pursue sustainable development goals.

Cost of Delays[25] It's evident through the system dynamics described earlier in this document that delays are common and expected as tribes look to approve massive renewable energy projects that increase renewable energy sources as well as boost economic development. Approval delays are costly in several ways. Construction costs may escalate during the time that agreements are in negotiation or until technical experts are available. New technologies or requirements may need revision in designs, leading to further delays. Tribal nations may become so discouraged by the delays that they give up, or their financing may vanish. Lenders who require speedy returns may be deterred from engaging at all by the increased timelines that differ from the expectations presented at no fault of any stakeholder.

5.4 Historic Disinvestment and Marginalization

Historic disinvestment and marginalization have deeply entrenched barriers for Native American tribes, perpetuating cycles of poverty, inequality, and cultural loss. For generations, these communities have faced limited access to essential resources like healthcare, education, and infrastructure due to a lack of investment by governmental bodies. This systemic neglect has hindered their socio-economic development and perpetuated disparities between Indigenous and non-Indigenous populations.

Moreover, Native American have endured centuries of land dispossession and resource extraction without proper compensation or recognition of their rights. This dispossession not only deprives them of economic opportunities but also undermines their cultural heritage and connection to their ancestral lands. Discriminatory policies and practices further exacerbate these challenges, resulting in systemic discrimination in areas such as employment, housing, and the justice system.

As a consequence of disinvestment and marginalization, Native American communities also face limited political representation and influence, hindering their ability to advocate effectively for their rights and interests. This lack of representation perpetuates the cycle of marginalization and prevents meaningful progress toward addressing the underlying issues faced by these communities.

To address these entrenched barriers, comprehensive efforts are needed to promote equity, empower Native American communities, and uphold Indigenous rights and sovereignty. This includes increasing investment in essential services, addressing systemic discrimination, honoring treaties and land rights, and fostering meaningful partnerships between Indigenous and non-Indigenous stakeholders. By acknowledging the historical injustices and actively working to address them, society can begin to dismantle the barriers created by historic disinvestment and marginalization, paving the way for a more equitable and just future for Native American tribes.

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[25] 47 Envtl. L. Rep. News & Analysis 10591 (2017) *Legal Pathways for a Massive Increase in Utility-Scale Renewable Generating Capacity*, Gerrard, Michael B. [24 pages, 10591 to 10614]

6. STRATEGIES AND RECOMMENDATIONS

Due to the limitations of this project and complexity of the multiple layers of barriers, it's difficult to present recommendations that are not already being advocated. In this section, we pull forward the top recommendations we came across during our research to highlight the pivotal change these recommendations could make based on the barrier themes identified. We present 3 recommendations in this section to address barriers with policy makers, governmental efforts, and tribal inclusion.

6.1 Policy-Makers Should Collaborate With Tribes to Develop A Principle Guide **(Reference Example Included)**

The approval process for renewable energy development is inherently complex, involving stakeholders with diverse perspectives and ownership cultures. This process requires intricate steps for funding, land use agreements, grid access, financial management, and other procedures, involving multiple agencies. Government institutions, such as the Bureau of Indian Affairs (BIA) and several federal agencies, play pivotal roles in regulating and approving renewable energy projects on tribal lands, necessitating close collaboration between tribal nations and government entities to navigate legal, environmental, and political factors effectively. Overcoming these barriers demands dedicated efforts to improve regulatory frameworks, streamline processes, and foster transparent and inclusive dialogue among all parties. Awareness initiatives, training programs, and advocacy efforts are crucial in informing tribal communities, equipping them with necessary skills, and ensuring their voices are heard in policy discussions. These efforts can help overcome systemic barriers, leading to more equitable and sustainable outcomes for Native American communities. Despite existing training and guidebooks for tribal members, a lack of cohesion between federal agency institutions and tribal nations remains a significant challenge.

In 2017, the GAO completed an analysis of a federal collaborative system between federal agencies and tribal nations. Coming out of this analysis, they recommended various changes.[26] In 2019, the Indian Energy Service Center entered into formal agreements with the U.S. Fish and Wildlife Service, Environmental Protection Agency, and U.S. Army Corps of Engineers to share knowledge and facilitate mineral/energy development on tribal trust lands. In 2020, the Service Center updated charters for existing regional federal partner groups and established new groups in regions with energy/mineral activity. These groups include representatives from Bureau of Indian Affairs, Bureau of Land Management, and other federal agencies.

[26] *Indian Energy Development: Additional actions by federal agencies are needed to overcome factors hindering development*. (n.d.). U.S. GAO. https://www.gao.gov/products/gao-17-43

The intent is for these regional groups to serve as forums where federal officials can identify and resolve energy issues, coordinate the regulatory process, and meet at least annually. Representatives from FWS, EPA, and the Corps were identified and included in 2020 meetings. The Service Center plans to continue including these agencies in future federal partner meetings as a mechanism for inter-agency coordination on tribal energy/mineral development initiatives. These actions meet the intent of improving coordination as recommended. However, this recommendation was identified in 2017, over 7 years ago. To aid in the expedition of this initiative implementation, we are recommending the Federal Government and tribes collaborate together to develop an inclusion training program as well as a dedicated team or agency to develop a guide designed to inform all federal agencies of the importance of Tribal Involvement in Renewable Energy and the process to bridge tribes and internal administration.

In our research, we came across a guide used to educate federal agencies in Australia about Indigenous Culture and principles specifically regarding Clean Energy Development.[27]

"This is the first comprehensive national Guide on First Nations engagement, participation and benefit-sharing, for renewable energy projects, co-designed by First Nations peoples. It has been developed at a pivotal point in Australia's transition to clean energy, building on significant consultation with First Nations peoples from impacted communities, the First Nations Clean Energy Network, and community leaders." (Leading Practice Principles First Nations and Renewable Energy Projects (1) - Clean Energy Finance Corporation)

Included in this guide is education on cultural inclusion, principles to follow, frameworks identified to lead to collaborative success and how government agencies can work with each other to bridge the gaps we've identified. The United States government or future research teams could (and should) mimic a similar guide to address the barriers identified in this report.

LINK TO THE GUIDE:
https://www.cefc.com.au/document?file=/media/mlsiwx5g/leading-practice-principles-first-nations-and-renewable-energy-projects.pdf

6.2 Tribal Communities Need More Targeted Outreach Programs

The importance of outreach programs designed to assist tribal communities in overcoming barriers to renewable energy development cannot be overstated. Despite ongoing efforts between tribal leaders and government agencies, more robust action is

[27] *Leading Practice Principles First Nations and Renewable Energy Projects (1) - Clean Energy Finance Corporation*. (n.d.). https://www.cefc.com.au/document?file=/media/mlsiwx5g/leading-practice-principles-first-nations-and-renewable-energy-projects.pdf

essential to ensure that Native American communities have equitable access to renewable energy opportunities. The omission of tribal communities from national energy statistics and the lack of federal recognition for many tribes further complicate these efforts, as these factors limit access to federal funding and resources, hinder economic development, and restrict rights to natural resources. Therefore, targeted outreach and support programs are crucial to address these systemic barriers, streamline processes, and enhance transparency and equity in renewable energy initiatives for tribal communities.

Government outreach networks need to work directly with tribes to address barriers around access and networking in these communities. As an example, the Washington State Department of Commerce's February 2024 announcement of 14 grant awards dedicated to renewable energy development highlights this effort. Notably, three of the 14 projects, totaling $5.753 million, were granted to tribal communities for microgrid installations: $1.753 million to the Swinomish Indian Tribal Community, $2 million to support the Tulalip Tribes, and $2 million to the business arm of the Shoalwater Bay Tribe (Lamb, 2024). These grants represent 71% of the total funding awarded through the 2024 Clean Energy Fund (CEF). Established in 2013, the CEF aims to incentivize the development of renewable energy technologies. In 2024, the CEF prioritized grants for Washington's most vulnerable communities, with tribes being a key focus due to their complex federal relationships. Many tribes lack federal recognition, historically barring them from federal aid. By working to increase tribal involvement, the CEF has awarded 10 of the 14 grants to new applicants this year, illustrating the effectiveness and expanding reach of these outreach programs. For detailed examples of how these programs work with tribes, see the exhibit in the Appendix, EXHIBIT 6 [Source: email from Washington State Department of Commerce].

When developing outreach programs for tribal communities, it is essential to consider providing expertise training to build local capacity for managing renewable energy projects. Establishing a dedicated government branch to liaise and streamline access to complex capital markets can help address financial barriers. Additionally, it is crucial to navigate and simplify the regulatory framework, which often involves multiple agencies. Historical challenges, such as BIA staff limitations and tribes' restricted access to capital and energy markets, underscore the need for comprehensive support structures that can effectively address these multifaceted obstacles.[28]

6.3 Third-parties (financial institutions, NGOs, consultants)

- **Third parties engaging with tribes on renewable energy projects should clarify their goals, maintain authenticity, and prioritize the tribes' needs and perspectives throughout the process.** With numerous public grants available,

[28] *Indian Energy Development: Additional actions by federal agencies are needed to overcome factors hindering development*. (n.d.). U.S. GAO. https://www.gao.gov/products/gao-17-43

tribes are often solicited by third-parties for renewable energy projects. Therefore, it is important for these third-parties to clarify their goals, remain authentic, and center the tribes in the process.This involves transparent communication about project objectives, funding sources, and potential impacts, ensuring that tribal communities are not merely participants but active leaders in the project development. By centering the tribes, third parties can foster trust and long-term partnerships, addressing historical concerns of green colonization and multiple solicitations.

- **The public and the private sectors should collaborate to develop a market-based solutions that drive incentives for developing these projects and address the community needs.** This can include developing financing mechanisms like a dedicated green bank to offer low-interest loans and grants, thus overcoming capital barriers for low-income and vulnerable communities. Additionally, creating transparent and fair rate designs, and incentivizing resilience programs can drive investment and participation in renewable projects. Such collaboration can help streamline regulatory processes, enhance transparency, and ensure that economic and environmental benefits are equitably distributed, ultimately fostering more resilient and sustainable communities.
- **Implement transparent and equitable frameworks for technical assistance to ensure fair access and successful project implementation.** This includes clear criteria for project prioritization, open communication channels, and unbiased support from independent technical advisors. By ensuring that all communities have equal access to the expertise and resources necessary for project development, these frameworks can help mitigate fears of green colonization and predatory practices. Additionally, consistent and authentic engagement with community members from the early stages of project planning can ensure that the projects align with local needs and values, ultimately leading to more successful and sustainable outcomes.

- **Establish a dedicated green bank in Washington State to finance community-based renewable energy projects.** This institution could offer low-interest loans, grants, and other financial products designed to overcome the significant capital barriers that often hinder the initiation and completion of such projects. By providing consistent and accessible funding, the green bank would empower communities to take ownership of their renewable energy solutions, fostering long-term economic and environmental benefits.

- **Consider private philanthropy that can both help fill funding gaps to bring projects to fruition and catalyze new opportunities for tribes to innovate around their energy needs.** Some non-profit organizations, such as GRID Alternative, work with tribes to identify funding opportunities from available sources. The opportunities include incorporating solar into existing funding opportunities for related programs, including workforce development and energy efficiency.

6.4 Lessons Learned - Informing the Future Research Teams

- **Cultural story-telling** plays a tremendous role in engaging with the tribal communities and gain support for the renewable energy development process. A prime example of this is the Spokane Tribe's renewable energy project, where storytelling help integrate new technologies and practices into the culture fabric, ensuring that these advancements respect and reflect their traditional values and beliefs. See Exhibit 10 for details.
- **Long-term and authentic engagement** with the tribes is critical for the success of any research projects or development projects with the tribal community. One theme that we came across in our interviews with the practitioners is the recent trend of "green colonialism" - some tribes are overwhelmed with solicitors of renewable projects for their own agenda. Long-term engagements build trust and buy-in from the community, ensuring that projects align with their goals and values rather than imposing external agendas.

EXHIBITS

Exhibit 1: Techno-Economic Renewable Energy Potential

Technology	Tribal Capacity Potential (GW)	National Capacity Potential (GW)	National Capacity (%)	Tribal Generation Potential (TWh)	National Generation Potential (TWh)	National Generation (%)
Utility-scale PV	6,035	118,918	5%	10,689	197,087	5.4%
CSP	2,114	26,318	8%	7,701	92,994	8.3%
Wind	891	10,119	8.8%	2,394	30,781	7.8%
Geothermal (hydrothermal)	0.033	5.7	0.6%	0.228	39	0.6%
Biomass (wood)	0.542	34	1.6%	2	156	1.6%
Hydropower	21	62	34.4%	124	342	36.4%
Total[a]	9,063	155,457	5.8%	20,912	321,401	6.5%

Exhibit Source: Techno-Economic Renewable Energy Potential on Tribal Lands, Utility-Scale Technical Potential on Tribal Lands in Contiguous 48 States

Exhibit 2: Techno-Economic Renewable Energy Potential by Type

Technology	Utility-Scale(TWh)	Percentage of Generation
Solar PV	10,689	51.1%
Concentrating Solar Power	7,701	36.8%
Wind	2,394	11.4%
Hydropower	124	0.6%
Biomass（Wood Residues)	2	0.1%
Geothermal(Hydrothermal)	0.228	0.001%

Exhibit Source：Percentage of Total Tribal Generation Potential Represented by Utility-Scale Renewable Technologies

Exhibit 3: Current Tribal Energy Projects (2023)

Technology	Amount
Solar	77
Energy Efficiency	72
Renewable Energy (Combination for different technology)	28
Wind	19
Biomass	7
Hydropower	4
Geothermal	2
Microgrid	1
Tidal Power	1

Total	211

Source: Tribal Energy Projects Database[29]

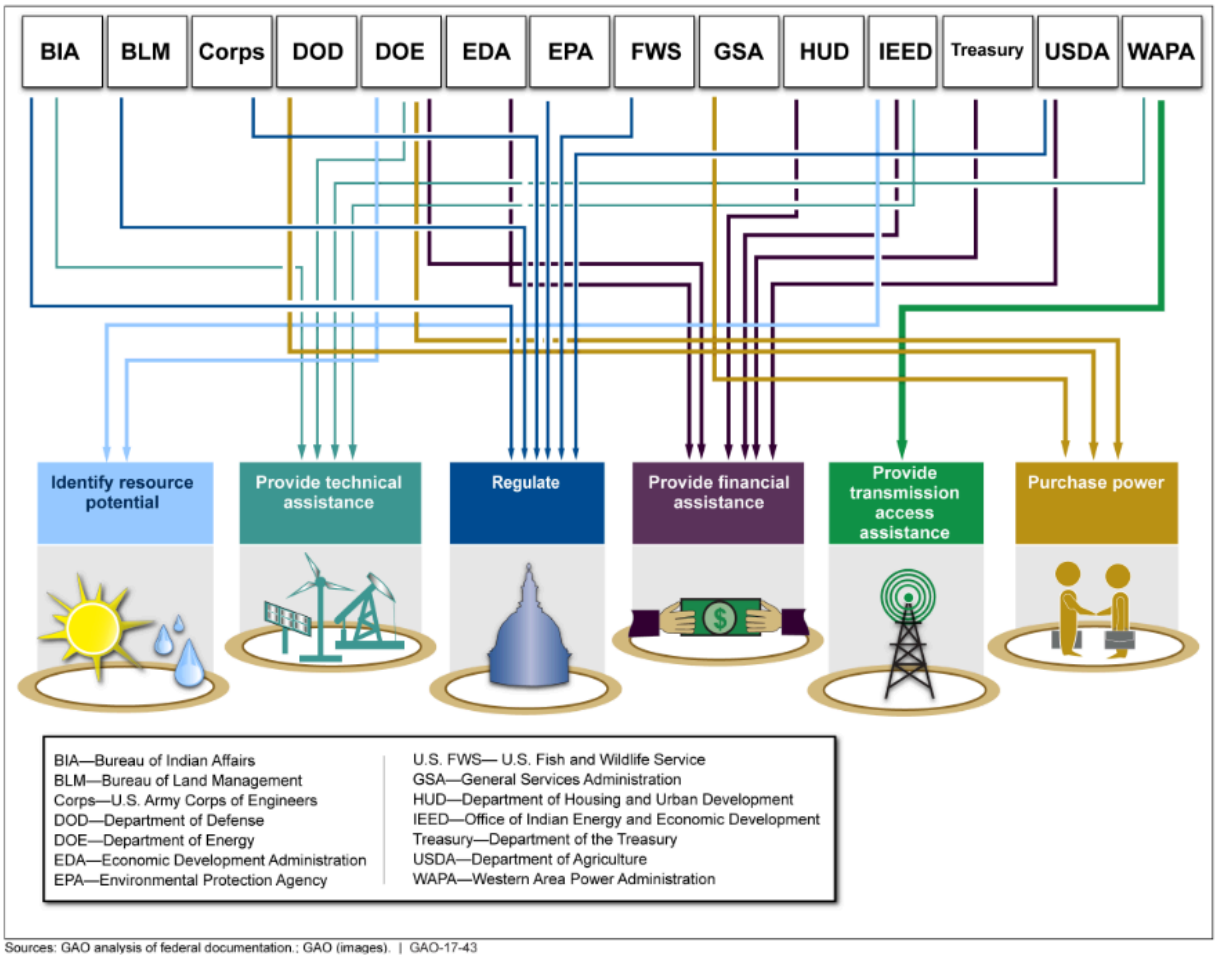
Exhibit 4: Tribal Renewable Energy Development Ownership

Ownership Option	Benefits	Disadvantages
Tribal Ownership	- Direct control over the project - Exemption from certain jurisdictional and regulatory obligations - Potential revenue generation or cost savings	- Full responsibility for project development, financing, construction, operation, and maintenance - Limited expertise and resources may pose challenges
Partnerships	- Risk and responsibility sharing with developers or investors - Potential for collaborative agreements to mitigate burdens	- Need for clear and detailed agreements to allocate risks and responsibilities effectively - Possibility of conflicts in decision-making or resource allocation
Third-Party Ownership	- Reduced risk and responsibility for the tribe - Access to external expertise, capital, and financing - Potential for streamlined development processes and operations	- Requirement for BIA approval and adherence to regulatory procedures - Potential loss of control over project decision-making and benefits

[29] Tribal Energy Projects Database, https://www.energy.gov/indianenergy/tribal-energy-projects-database

Exhibit 5: Federal Agency Mapping in Development of Renewable Energy Resources

Figure 2: Various Roles of Federal Agencies in the Development of Indian Energy Resources



Sources: GAO analysis of federal documentation.; GAO (images). | GAO-17-43

Exhibit 6: Department of Energy's Funding Opportunities

	Formula Funding Programs		**Competitive Funding Programs**	**Tribal Energy Loan Guarantee Program**[30]
	Energy Efficiency and Conservation Block Grant (EECBG) Program[31]	**Electric Grid Resilience Program**[32]		
Funding Amount	$550M	varied by tribe	Varies, funding opportunities are announced as they become available. Details at: https://www.energy.gov/indianenergy/current-funding-opportunities	$75M to carry out program appropriated under the Inflation Reduction Act (IRA); loan authority increased to $20B under IRA
Funding Mechanism	formula grants ($431.2M for 2,708 eligible entities) and competitive grants ($8.8M for formula ineligible entities)	non-competitive funding to states and Native American tribes		loan guarantees, including guarantees of Federal Financing Bank loans
Recipients	state/local governments and tribes	state governments and tribes		Eligible Indian Tribes or entities, including Alaska Native village or regional or village corporations, or other financial institutions or tribes meeting certain criteria established by DOE
Expiration	until expended	Eligible applicant should apply by the deadline (August 31, 2023 for tribes)		Loan Guarantee authority has no expiration
Eligible Uses	range from strategy development to clean	projects reducing the likelihood and		The development of energy

[30] https://www.energy.gov/lpo/tribal-energy-loan-guarantee-program

[31] https://www.energy.gov/scep/articles/eecbg-program-intro-tribal-governments-webinar-slides

[32] https://www.google.com/search?q=Grid+Resilience+State%2FTribal+Formula+Grants+Program&rlz=1C5CHFA_enDK1077DK1077&sourceid=chrome&ie=UTF-8#fpstate=ive&vld=cid:77a4a34c,vid:4uIHRa4D40E,st:0

	energy deployment. Examples include strategy development, technical consultant services, building energy audits, etc. The IIJA added programs for financing, purchasing, installing energy efficiency, renewable energy and zero-emission transportation (and associated infrastructure) measures to the list of eligible activities.	consequences of electrical outage due to extreme weather, wildfire or natural disaster. Examples include hardening grid facilities, undergrounding or relocation of distribution lines, etc; prohibits investment in new electric generating facilities, among others.		resources, products and services that utilize commercial technology. Examples include solar, wind farms, microgrids and virtual power plants
Limitations	Up to 10% or $75K, whichever is greater, of grant funds may be used for administrative expenses Up to 20% or $250K, whichever is greater, of the grant funds may be used for the establishment of revolving loan funds Up to 20% or $250K, whichever is greater, of the grant funds for the provision of subgrants to nongovernmental organizations for the purpose of assisting in the implementation of the energy efficiency and conservation strategy			

Exhibit 7: Clean Energy Tax Credits Available under IRA's Direct Pay Provision

	Base Tax Credit	**Additional Tax Credit**	**Bonus Tax Credit**
Amount	30% of construction cost	Additional 10%	Additional 10%
Requirements	• For projects that's > 1 megawatt output, needs to comply with the prevailing wage requirement • Projects < 1 megawatt output has no prevailing wage requirement	• Applicable if the facility is in a low income community or Native American land • Must be either qualified wind property, solar property, or small wind energy property • Max net output must be less than 5 megawatts • Capped at a total of 1.8 GW for all taxpayers; allocated on a first-come-first-serve basis	• Need to meet the domestic content requirement - materials used for the project must be produced in the US

Exhibit 8: Statement Release from the White House on Tribal Promises:

"The Administration continues to take bold steps and prioritize efforts to deliver environmental justice in communities across the United States, including throughout Indian Country. The Budget bolsters these efforts by supporting several key initiatives to accelerate energy equity and justice. This includes a new $25 million grant to develop Direct Implementation Tribal Cooperative Agreements to carry out crucial EPA programs in Indian Country with an emphasis on addressing the impacts of climate change. The Budget also includes funding for the Tribal Partnership Program at EPA which supports technical and planning assistance for Tribal communities who want to participate in these programs. Additionally, the Budget includes $95 million at the Department of Energy (DOE) to electrify Tribal homes and transition Tribal colleges and universities to renewable energy. It also advances the President's Justice40 Initiative goal that 40 percent of the overall benefits of certain federal investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution, including Tribal communities." (2024, The White House)[33]

Exhibit 9: Commerce Outreach Email: (2024)

"Commerce is seeking proposals from entities to provide services to help Washington communities access federal funding and other federal incentives for clean energy projects. The Legislature allocated funding for this work through the Climate Commitment Act in the 2023-2025 Supplemental Biennium Operating Budget.

Two appropriations in the budget are specifically to support community-based organizations, local governments, ports, tribes, and other entities located in Washington in the following ways:

1. *Supporting access to federal grant funds for clean energy by developing a program that provides federal grant writing and other federal grant management resources.*
2. *Supporting access to newly available federal tax incentives offered under the Inflation Reduction Act through the development of tax guidance resources, outreach materials, and use of office hours with tax attorneys to support entities eligible for these tax incentives."*

Reference Note: Also provided in this email are links to workshops on how to write grants for nonprofits and tax assistance. This addresses any educational barriers and improves the chances of proposal acceptance areas.

[33] House, W. (2024b, March 10). FACT SHEET: T*he president's budget delivers on his commitment to tribal nations and native communities.* The White House Official Staatement Release. https://www.whitehouse.gov/briefing-room/statements-releases/2024/03/11/fact-sheet-the-presidents-budget-delivers-on-his-commitment-to-tribal-nations-and-native-communities/

Exhibit 10: Interview Insights on Renewable Energy Projects with the Spokane Tribe

During this research project, the MBA team met virtually with a project manager of a WA tribe to discuss their experience with renewable energy development. They are a mid-sized Native American tribe with around 3,000 members, some living on tribal lands and others outside of it. The tribe has a close-knit culture where storytelling plays an important role in passing down history and traditions.

In recent years, the tribe has undertaken several renewable energy projects, largely funded by the Department of Energy (DOE). Their first project, called "Cozy 1 - Children of the Sun Solar Initiative 1," involved installing solar panels on high energy use buildings and low-income housing units as a test case.

The second, larger project had the tribal housing authority install solar on 120 rental units they managed, after getting consent from tenants who would pay the power bills. A key challenge was that the solar systems don't work when the grid goes down, so the tribe is considering adding battery storage.

The tribe is now working on a microgrid project, having completed an energy needs assessment study. They need to collaborate with the utility company Avista on this project. Navigating utility relationships can be difficult, though the government-to-government relationship is improving.

When it comes to new initiatives, cultural preservation is an important consideration for the tribe's energy projects. For example, they chose to pursue solar energy because they are the "Children of the Sun" in their traditions. Environmental conservation is also balanced with development through prioritizing renewable sources.

From our interview, we learned that funding and leadership agreement are critical enablers. Our interviewee noted that each tribe needs people willing and able to do the work of implementing projects, once grants are secured. Smaller tribes may collaborate by pooling resources. The tribe has looked to other successful examples like the Northern County Potawatomi Tribe's solar program in Wisconsin that used revenue sources like a casino. The Soaquagin Tribe in Wisconsin prioritized solar to sustain harvesting their staple crop of wild rice.

Overall, the WA tribe views their energy projects through a cultural lens of respecting the land and resources, passed down over generations. As they pursue renewable energy, they are balancing economic needs, environmental impacts, traditional practices, and community engagement in decision-making.

To hear the actual voices of tribal community members please visit the **Indian Energy Champions: Chief Henry Red Cloud and John Red Cloud**[34] (2023)

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[34] https://www.energy.gov/indianenergy/articles/indian-energy-champions-chief-henry-red-cloud-and-john-red-cloud
This link takes you to a showcase of voice recordings from a Tribal Chief - Founder of Renewable Energy Development on the Oglala Lakota Nation, Pine Ridge, South Dakota **Names**: Chief Henry Red Cloud, Executive Director; John Red Cloud, Managing Director; **Affiliation**: Oglala Lakota Nation, Pine Ridge, South Dakota; **Organization**: Red Cloud Renewable