Rural Electrification with Indigenous Nations in the North Country

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All errors are our own.

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Executive Summary

The Energy and Conservation and Optimization (ECO) Act of Minnesota, enabling utility electrification programs, is an important, recently-enacted policy for the state as it moves to a decarbonized future. But it is distant thought for many Indigenous leaders, who meanwhile engage with and create many different innovative programs on clean energy, heating electrification, and transportation electrification.

Through more than 10 semi-structured and background interviews, and background research into technology deployment, our report generalizes perspectives from Ojibwe officials, employees, and members across Northern Minnesota. It's important to note each of the seven federally-recognized Ojibwe tribal governments will have views unique to its governmental priorities that do not necessarily align with the views of the other Ojibwe tribal governments. We find that while Tribal clean energy capacity is growing, and electrification of heating and transportation is emerging, all three efforts are uneven and require further support to become more equitable for Indigenous people in the state.

Electrification as a policy is different from electrification in practice. For electrification to be equitable to Indigenous peoples in practice, it must consider more than cost-benefit tests. It must consider specific peoples, cultures, and contexts, and act on desired outcomes such as sovereignty, energy independence, enhanced health and environmental benefits, land conservation, and improving socioeconomic statuses of Indigenous peoples. Our report offers suggestions for how to move ahead with Tribes and Native people (table below), but it is meant as only a start that we must consider if electrification is to be truly beneficial for Indigenous nations.

Potential Research, State, Utility, and Tribal Government Actions for Rural Electrification with Indigenous Nations. Suggestions explained more in Conclusion and Recommendations.

Areas for Action	Potential Actions
Research	• Look at cross-sectoral effects and potential of Indigenous energy transitions. • Find common Tribal pathways for energy transition. • Determine equitable plans for and evaluations of the benefits of an Indigenous-led energy transition.
State Government	• Support Tribal efforts to capacity-build. • Provide adequate Tribal funding for electrification, efficiency, and renewables. • Provide Indigenous-focused data and rule-making.
Utility and Energy Vendor	• Recognize Indigenous and traditional knowledge, as well as Tribal co-management of energy systems. • Support coordination and implementation of Indigenous-led projects.
Tribal Government	• Expand Tribal governments toward electrification of heating and transportation, emphasizing economic development, health, and environmental impacts. • Expand energy efforts beyond trust lands, expand partnerships, and work across boundaries.

Introduction

The Energy and Conservation and Optimization (ECO) Act of Minnesota, recently enabling utility electrification programs, is an important recently-adopted policy for the state. But it is distant thought for many Indigenous leaders.

While engaging in many, diverse energy efforts, many Indigenous leaders don't interface with the Conservation Improvement Program (CIP), the primary framework for Minnesotan utility efficiency and electrification spending programs. This means that while electrification as a policy refers to changing out fossil-fueled infrastructure like stoves and cars to electric energy, the practice of electrification is a much more nuanced, wide-ranging, and locally-defined activity for Ojibwe peoples across the state. It's more than a cost-benefit test. Electrification, from our interviews and the research summarized in this report, is about topics like:

> Mitigating climate change. Health. Building contractors. Disconnections. Off-grid power. Affordable housing. Tribal enterprises. Brownouts. Tribal councils. Co-ops. Home comfort. Solar energy and solar heating. Staff capacity. EnvironmElders. Efficiency. Microgrids. Education. Forest management. Grants. Tribal-state and tribal-local government relations. Delivered fuel providers. Pipelines. Infrastructure access. Justice.

Unfortunately, these Indigenous perspectives and implementers are often excluded from conversations, plans, and policies about clean energy and electrification. This paper is meant to give some voice to those perspectives, giving ideas on the present barriers of Native nations to equitable grid access, the needs and opportunities for rural electrification, and what projects could use support in their development. Specifically, this report aims to achieve:

- An assessment of Indigenous renewable energy projects pending in northern Minnesota and planned by Tribal governments
- An assessment of rural electrification, understanding and summary of equity issues of rural cooperatives in relationship to Tribal governments and communities in northern Minnesota
- The identification of potential for new collaborations in northern Minnesota to develop Tribal electrification capacity, with a focus on electrification of home heating and vehicles
- The determination of considerations that policymakers and regulators should make to ensure outcomes and participation are more equitable

In the following sections, we first provide Background on Tribal governments and Indigenous peoples in Minnesota. Then we describe our Methodology for our report and the Current State of clean energy and electrification for Indigenous nations in northern Minnesota. Finally, we present our Conclusion and Recommendations moving forward.

Background

As this report will show, electrification with Indigenous nations depends heavily on a history of rules and actions relating to Tribal sovereignty. By treaty, executive order, statute, and regulation, the United States seized millions and millions of acres of land from Native communities across the country. On Reservations today, Indigenous nations remain sovereign in their abilities to determine their form of government, citizenship, make and enforce laws, collect taxes, regulate the domestic affairs of their members, and regulate property use. [1] Off-Reservation, Tribal members still retain some rights such as hunting, depending on the treaty, and are eligible to receive services from their Tribal governments.

But on the Reservation, different federal, state, county, and local governments often challenge Tribal sovereignty. This is because many Reservations are "checkerboarded" by different kinds of property ownership. Checkerboarding arose from the Dawes Act of 1887, and specifically the Nelson Act of 1889 in Minnesota. These acts required Tribally-held land to be divided among individual Native members, with remaining lands opened to white settlement, as a means of assimilating American Indian people into white culture and exploiting natural resources on Native lands.

As a result of these and other laws and historical processes, today there are three basic types of land tenure on Reservations, each with resulting issues:

- **Tribal trust land**, where the federal government holds the legal title, but the beneficial interest lies with the Tribe. Approval by the United States Secretary of the Interior, of the U.S. Department of the Interior, is required for nearly all land-use decisions. Though the U.S. government is responsible for Native property, it has in the past mismanaged different land leases.
- **Allotted individual trust land**, where the federal government holds the legal title, but the beneficial interest remains with an individual Native. Often, allotted land is divided among all descendants of deceased property ownership, leaving land with fractionated ownership. One extreme example occurred in 2007, when one 80-acre tract on the Lac Courte Oreilles Reservation in Wisconsin had 2,285 undivided interest owners.
- **Fee-simple land**, where land is owned just like any other private land off the Reservation. Private ownership within Reservation boundaries creates serious challenges for the sovereignty of Tribal nations.

As an example of the divided jurisdictions of land tenure, one need only look at maps of different Reservations, such as Leech Lake, in Minnesota (Figure 1).

[1] Indian Land Tenure Foundation. (2021.) Issues. Retrieved from https://iltf.org/land-issues/issues/

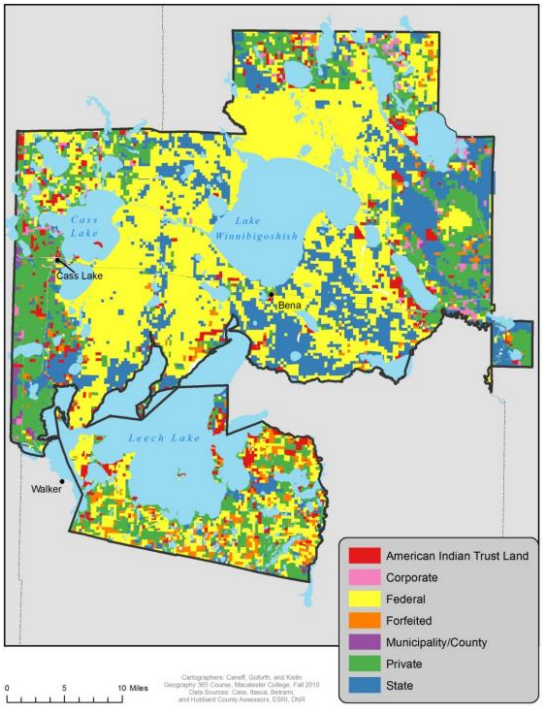

Figure 1: Land Tenure of Leech Lake Reservation, 2010. In Minnesota, only the Red Lake Nation avoided allotment, leaving Reservations like Leech Lake's checkerboarded with Native and non-Native ownership across trust, governmental, and fee simple land. Map from Macalester College and the Indian Land Tenure Foundation.[2]

In Minnesota today, there are 11 federally-recognized Tribes. Seven are Ojibwe (Red Lake Nation, White Earth Nation, Leech Lake Band of Ojibwe, Mille Lacs Band of Ojibwe, Fond du Lac Band of Lake Superior Chippewa, Bois Forte Band of Chippewa, and Grand Portage Band of Lake Superior Chippewa), and four are Dakota (Prairie Island Indian Community, Shakopee Mdewakanton Sioux Community, Upper Sioux Community, and Lower Sioux Community). There are more than 100,000 individuals in Minnesota today identifying as "American Indian and Alaska Native persons," 1.9% of the state's population. [3]

This report focuses on Ojibwe Tribes, all of whom have Reservation land in central and northern Minnesota. Each Tribe has its own unique governing structures, with democratically-elected positions in its government. Each manages its own Tribal land base, and each has economic development ventures, gaming compacts, a court, Self-Governance compacts, clinics, schools, and programs and services independent of one another.

Except for Red Lake[4], the six federally-recognized Tribes of Bois Forte, Fond du Lac, Grand Portage, Leech Lake, Mille Lacs and White Earth came together in 1936 to organize under the shared constitution

[2] Macalester College and Indian Land Tenure Foundation. (2010). Mapping Indian Land Tenure in Minnesota. Retrieved from https://bit.ly/3Hrz6do

[3] Minnesota House Research Department. (2020.) American Indians, Indian Tribes, and State Government. Retrieved from https://www.house.leg.state.mn.us/hrd/pubs/indiangb.pdf

[4] Seeking to retain its Tribal governance of hereditary chiefs, Red Lake avoided joining the Minnesota Chippewa Tribe. Red Lake is also unique in avoiding allotment, controlling all lands within its Reservation under a system of common ownership.

of a confederation that became named the Minnesota Chippewa Tribe (MCT). The six Bands meet quarterly as the Tribal Executive Committee (TEC) of the Minnesota Chippewa Tribe. Generally, TEC business is limited to creating election ordinances, determining membership provisions, and managing some shared lands in the name of the MCT.[5] For all other purposes, each of the six Bands are independent, sovereign, federally-recognized Tribal governments unto themselves, independent of the MCT.

Today, with an increased emphasis on inclusion and equity, it's essential for those working on energy to recognize how Tribal nations seek and act on sovereignty, and that enrolled Native peoples have dual citizenship with their Tribal government and the United States. Reflecting that recognition, due to recent legislation, each Minnesota state agency is required to designate a liaison to work with Tribes, requiring also Tribal-state relations training for those liaisons and other leaders in the state's legislature and workforce.[6] Additional resources on Indigenous nations in Minnesota can be found through various websites.[7]

Nationally and in Minnesota, Indigenous nations lead on climate activism, adaptation, and mitigation.[8] The Ojibwe nations, whose members represent about half of the American Indian population in Minnesota (Table 1), and whose governments and member are the subject of this white paper, represent a large part of Minnesota's future with clean energy, electrification, and decarbonization.

Table 1: Summary Statistics of Ojibwe Tribes in 2020, Unless Otherwise Noted. Enrolled members include those living both on- and off-Reservation. In some cases, Reservations have the majority of members living within boundaries, or at the least in the county or surrounding counties. Data are from Minnesota House Research Department, wherein trust land totals is tallied from the Bureau of Indian Affair's data. Government land and fee land within Reservation boundaries are excluded from the numbers due to lack of data.

Tribe	Enrolled Members (as of 2019)	Tribal Trust Land (Acres)	Individual Trust Land (Acres)
Bois Forte	3,544	29,116	11,925
Fond du Lac	4,119	15,672	15,633
Grand Portage	1,090	39,926	6,268
Leech Lake	9,680	14,829	12,147
Mille Lacs	4,787	5,493	133
Red Lake	11,828	598,265	102
White Earth	17,995	65,272	2,846

[5] See MCT Constitution at https://bit.ly/32HxwFz

[6] Bierschbach, B. (Nov. 13, 2021). Minnesota officials work to mend historically fraught relationship with Tribes. Star Tribune. Retrieved from https://www.startribune.com/minnesota-officials-work-to-mend-historically-fraught-relationship-with-Tribes/600116424/

[7] For instance, see Minnesota Department of Transportation's Tribal-State: Government-to-Government Relationships: https://www.dot.state.mn.us/Tribaltraining/TSRTcoursework.html

[8] Status of Tribes and Climate Change Working Group (STACCWG). (2021). Status of Tribes and Climate Change Report. Institute for Tribal Environmental Professionals. Northern Arizona University. Retrieved from http://nau.edu/stacc2021; Goldtooth, D., Saldamando, A., and Gracey, K. (2021). Indigenous Resistance Against Carbon. Indigenous Environmental Network and Oil Change International. Retrieved from https://www.ienearth.org/wp-content/uploads/2021/09/Indigenous-Resistance-Against-Carbon-2021.pdf

Methodology

Interviews

11 semi-structured interviews were conducted between October and December 2021, with interviewees representing Ojibwe governments, and Indigenous-led or -centered nonprofit and for-profit firms. Interviewees represented members or officials of all 7 Ojibwe Tribes. Their positions ranged from Tribal executives and leaders in departments such as energy assistance and natural resources, to educators and chief executive officers. While the majority followed our interview protocol in Appendix A: Interview Protocol, a few additional interviews followed a more unstructured format, asking more specific questions on Tribal governance, policy, and history, especially as it regarded Tribal relationships with energy.

Interviews lasted between 0.5 and 1.5 hours, generally, and were typically recorded unless the interviewee requested otherwise. Although our findings are generalized across interviewees and Tribal nations, specific insights are noted where consent was given.

Data Analysis

To supplement our interviewees' personal and collective narratives of Tribal energy efforts, we also sought data sources to inform our findings. Data sources included the U.S. Census Bureau's American Community Survey, the Minnesota Public Utilities Commission, and other organizational and Tribal government documents, such as reports and strategic planning documents. Data sources are noted in the analysis below.

Current State

Tribal Energy Governance

Tribal Relationships with Electric Utilities Can Be Fragmented

Many interviewees referenced relationships with electric utilities that were strained at worst, incommunicative many times, and wanting for more support at the best.

Many of these relationship challenges are related to how electric utility service areas fragment Ojibwe government boundaries (Figure 2). Predominantly served by electric cooperatives, Tribal governments like Leech Lake can be served by as many as five different electric utilities.

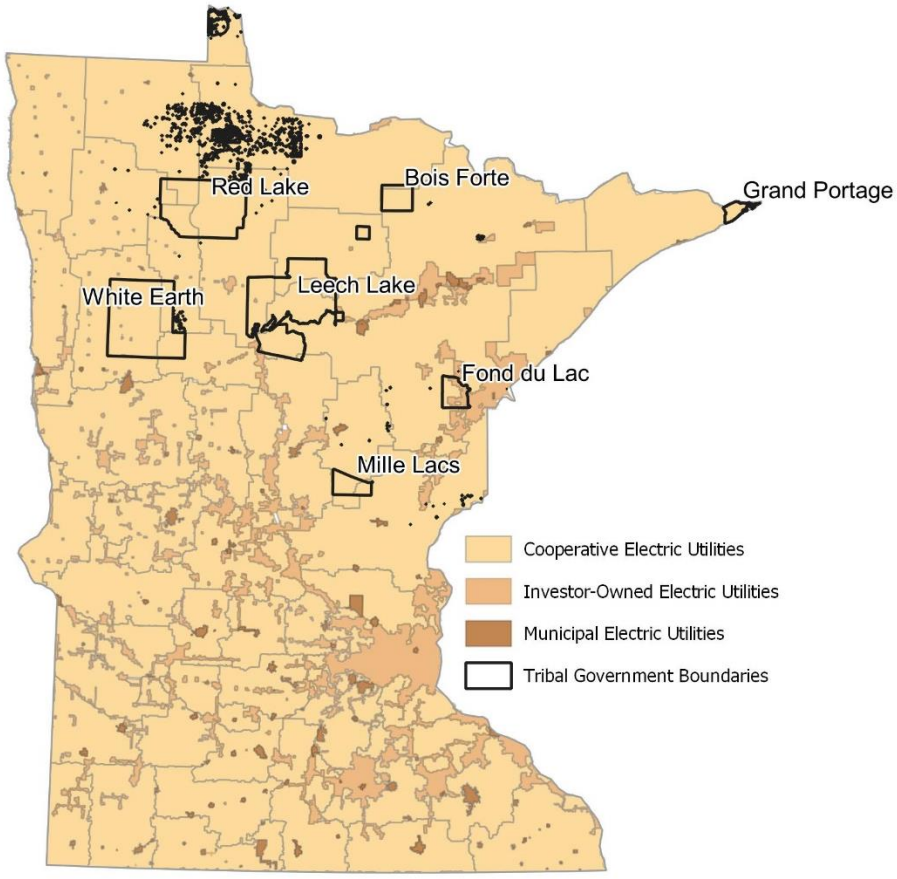

Figure 2: Tribal Government Boundaries Overlaid on Electric Utility Service Areas. Several electric utilities at a time serve northern Indigenous nations and their members. Data from U.S. Census Bureau and Minnesota Public Utilities Commission. Full Tribal-utility overlaps documented in **Appendix B: Ojibwe Energy Assistance, Weatherization, and Associated Agencies and Electric Utilities**.

When asked about relationships with electric utilities generally, at least three interviewees said that investor-owned utilities were easier to work with, because at least they are regulated by the state. Cooperatives were singled out as problematic in most interviews. Tribal representation on cooperative

boards was either minimal or nonexistent, and liaisons within all utilities themselves were either informal or unknown.

Across all utilities, however, interviewees were consistently frustrated at the lack of participatory planning and development practices. “Tribes are being notified after the fact,” said one interviewee. “We want to be at that initial table where the brainstorming happens.” A few interviewees were more specific, citing poor customer service practices and negligent regulatory practices. One interviewee fretted over how to let Minnesotans know that “institutional racism is rampant in the state of Minnesota.”

Tribal Relationships with Electric Utilities Can Be Overly Costly, Problematic

Perhaps as a signal of that racism, but also of other indicators like lower average incomes, heating fuel mixes, poorer housing stocks, and generally colder geographies, Indigenous participants in the state’s energy assistance program have the highest energy burdens both before and after receiving assistance (Figure 3). Energy burdens measure the percent of income that households spend on energy like electricity and heating.

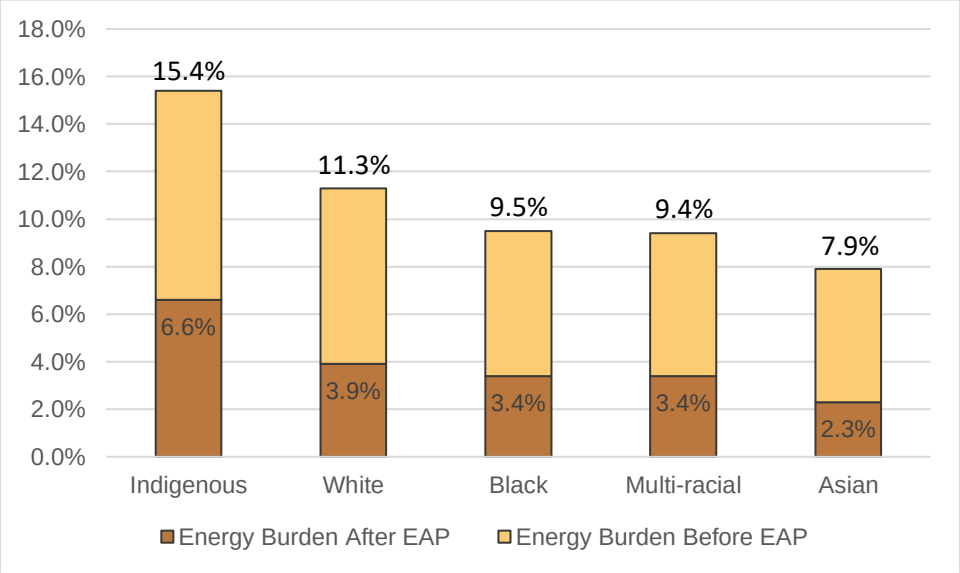

Figure 3: Energy Burdens, by Race, of Energy Assistance Participants Before and After Assistance. Minnesota’s energy assistance program (EAP) serves about 125,000 households with low incomes per year in Minnesota. According to groups like the American Council for an Energy-Efficient Economy, a severe energy burden is above 10%, while a high burden is above 6%. Even after energy assistance is applied, Indigenous households (both

members and non-members of Tribes in Minnesota) have high energy burdens. Data from Minnesota Department of Commerce, from 2019 program year.[9]

Adding to that burden, said many interviewees, are the billing and ratemaking practices of electric cooperatives, in particular. For example, the high monthly fixed fees of co-ops could often be double or quadruple the amount from nearby investor-owned utilities.

Additionally, moving into a new home or apartment often requires a security deposit from the electric co-op, based on the credit score of the resident. The amount for one interviewee was in the hundreds of dollars. Although the amount is applied generally to all co-op members, and would be applied to electric bills after a year of on-time payments, the upfront amount was said to leave many Indigenous households scrambling for money, at a moving time when personal funds were already often scarce.

The most consistent critique of co-ops' costly, sometimes "predatory" practices revolved around their disconnection practices. Disconnection could happen without enough advance warning, or even during the Cold Weather Rule months, when disconnections were forbidden. Multiple interviewees said that reconnection, interest, and other fees could often be in the hundreds of dollars, that comes on top of already-owed arrears. A few interviewees said that Native peoples are targeted specially, since electric co-ops know that they can easily get emergency crisis funds from Tribal energy assistance providers, Tribal housing funds, or other Tribal or non-Tribal services. The outcome is a revolving door for dollars leaving the Reservation.

Tribal Governments Are Pursuing Alternative Grid Governance Structures, Where Possible

Currently, Ojibwe energy governance is decentralized in and outside of Reservations. In Reservations, Tribal governments often have several on-site experts in departments ranging from Natural Resources, Community Development, Energy Assistance, Housing, and the Tribal councils themselves. Historically, governance over disconnections has sometimes even fallen to Tribal courts. Many of these staff have expertise built from years of U.S. Environmental Protection Agency-funded positions for issues such as air quality.[10] Few Tribes have single point-people for energy projects, relying instead on collective knowledge.

Interviewees mentioned there were additional shortcomings with internal capacity for dealing with new technologies or new projects. Tribes like Fond du Lac exemplified the advantages of consistent staffing and expertise, working toward a strategic energy plan for more than a decade now.[11] Leech Lake, too, recently completed internal strategic energy plans for electric vehicles, solar, and net zero energy

[9] Minnesota Department of Commerce. (April 14, 2021). Commerce Department Overview: Energy Programs and Funding Paths. Presentation for Advisory Committee Meeting #2. Midwest Tribal Energy Resources Association. Retrieved from https://bit.ly/3EE6vAI

[10] EPA Region 5 Tribes. (2021). Tribal Air Resources Journal, Volume XIII. Retrieved from https://bit.ly/3evSHwL

[11] See http://www.fdlrez.com/RM/energyplan.htm

buildings.[12] Outside of the Ojibwe Tribes, Dakota Tribes like the Prairie Island Indian Community are beginning to exemplify what net-zero energy planning looks like for Tribal buildings.[13]

Other nations, often those with smaller Tribal governments, said they sometimes struggled to keep up with new initiatives, partially as a result of COVID-induced economic stressors on Tribal enterprises like casinos. These and other interviewees mentioned the need to find outside grants, partnership, and government funding before relying on internal resource bases.

Off-Reservation, several nonprofit and for-profit organizations help bolster energy services and governance. As cited from the interviews, these Native and non-Native collaborators included the Midwest Tribal Energy Resources Association (MTERA), Rural Renewable Energy Alliance (RREAL), Honor the Earth, Harvest Nation, Solar Bear, the Iron Range Resources and Rehabilitation Board (IRRRB), local and state universities, the Clean Energy Resource Teams (CERTs), local architectural firms like DSGW Architecture, the Department of Energy, the National Renewable Energy laboratory, and others like foundations and local initiatives.

Despite these latent abilities across the Ojibwe governments, members, and partners, there was a feeling in interviews that there isn't enough coordination between nations on energy issues. Recently proposed legislation from Rep. Jamie Becker-Finn (HF1647) would have mandated the Department of Commerce to provide technical support for a new Tribal advocacy council on energy.[14] The council would facilitate idea sharing, education, research, and policymaking. While the legislation eventually stalled, it was supported by the Minnesota Indian Affairs Council, which is inclusive of 10 Indigenous nations in Minnesota.[15]

To have sovereignty over their energy issues, most Ojibwe nations are considering or in the process of forming their own utilities commissions, energy partnerships, enterprises, and utilities. Nationwide there are numerous Tribal utilities, regulatory commissions, and energy enterprises.[16] The number of Tribal utilities has quadrupled in the past decade, according to one interviewee.

One interviewee said that utilities should be more aware and intentional in their relationships with Indigenous nations. "Do they even know what they're doing?" they questioned. A few interviewees mentioning that regulating rates or taking over infrastructure might be their only recourse to meeting their Tribal goals on cost, reliability, and climate change adaptation and mitigation.

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[12] Donahue, M. (2021). Leech Lake strengthens sustainability framework with new guidance. Clean Energy Resource Teams. Retrieved from https://www.cleanenergyresourceteams.org/leech-lake-strengthens-sustainability-framework-new-guidance

[13] Prairie Island Indian Community. (2021). Phase 1 Report for Prairie Island Indian Community: Net Zero Project. Retrieved from https://prairieisland.org/wp-content/uploads/2021/07/Phase1ReportforPIICNetZeroProject.pdf

[14] See https://www.revisor.mn.gov/bills/bill.php?f=HF1647&y=2021&ssn=0&b=house

[15] Minnesota Indian Affairs Council. (2020). Resolution 11102020_01. Retrieved from https://mn.gov/indianaffairs/Resolutions/MIAC%20Resolution%2011102020_01%20Tribal%20Energy.pdf

[16] Schaff, M. (2020). Regulation of Electric Utilities on Indian Reservations: Tribal Governments' Oversight of Renewable Energy Development and Utility Providers and Authority to Create Tribal Utilities. *Energy LJ*, *41*, 261; Western Area Power Administration Renewable Resource Program. (2010). Tribal Authority Process, Case Studies: The Conversion of On-Reservation Electric Utilities to Tribal Ownership and Operation. U.S. Department of Energy. Retrieved from https://www.energy.gov/sites/default/files/2016/04/f30/tribal_authority_case_studies_report.pdf

Clean Energy Projects

Clean Energy Resource Deployment Within Reservation Boundaries Is Generally Low

Distributed energy projects include smaller wind, solar, and other energy projects. As of 2020, on average, there was about one distributed energy project for every 400 Minnesotans, according to data from the Minnesota Public Utilities Commission. But in ZIP codes intersecting with Ojibwe Reservation boundaries, there is only 1 distributed energy project for every 700 people (Figure 4: Distributed Energy Project Penetration (Projects per Total Population) on ZIP Codes Intersecting with Ojibwe Reservations, as Compared to State Average.Figure 4). More than 70% of those ZIP codes have less than the state average of deployment. Where there was higher deployment of clean energy projects, it was often on large commercial properties or several properties in larger, off-Reservation cities.

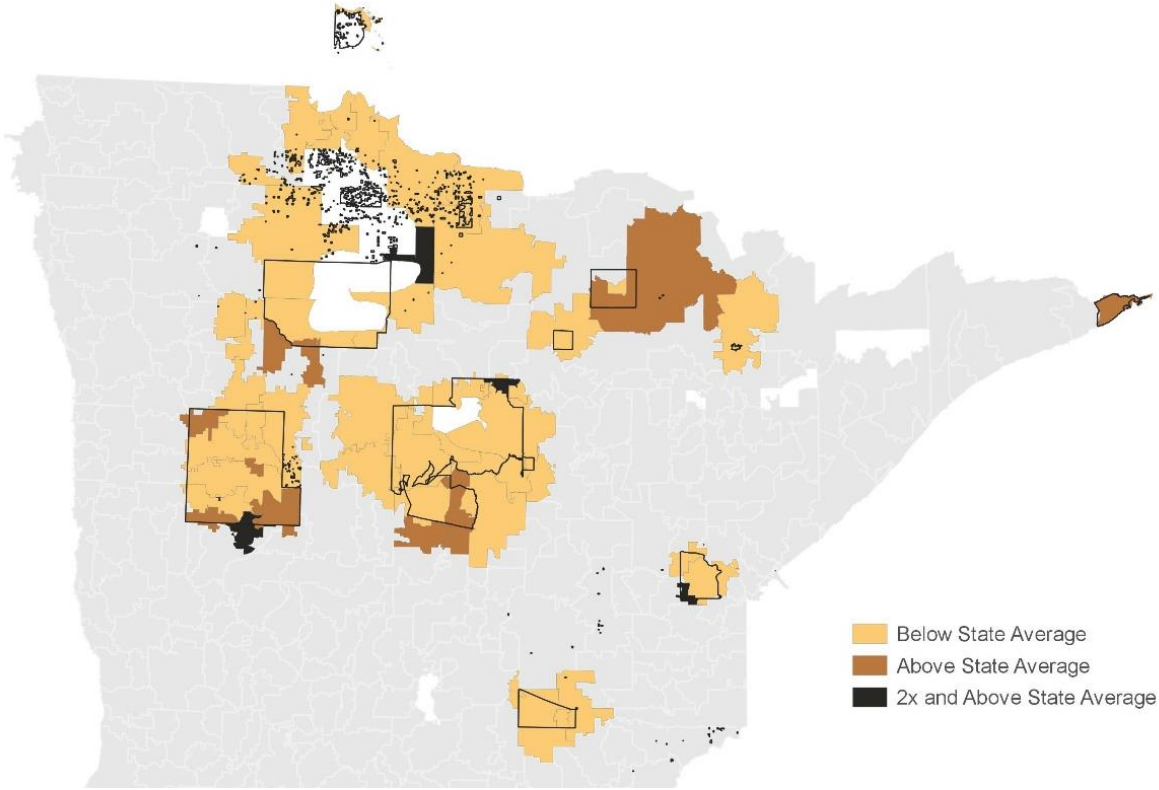

Figure 4: Distributed Energy Project Penetration (Projects per Total Population) on ZIP Codes Intersecting with Ojibwe Reservations, as Compared to State Average. There are more than 14,000 distributed energy projects in Minnesota, including developed and developing projects, as of 2020. Only 189 of those projects are in ZIP codes

intersecting with Reservations. Data sourced from Minnesota Public Utilities Commission: https://mn.gov/puc/activities/utility-reporting/annual-der-reports/.

Financing Tools and Large Loads Have Helped Encourage Tribal Clean Energy

Despite the uneven deployment, the Ojibwe nations have made much progress on clean energy projects. Large leaps in solar deployment, in particular, were made via assistance from the state's Guaranteed Energy Savings Program and other energy services company (ESCO) contracts. ESCO contracts leveraged a pay-as-you-save model on Tribal government buildings, timing solar potential studies and installations with energy audits and retrofits. Though creating pathways for financeable clean energy, some said the paperwork required by the state program was onerous, and at least one Tribe chose to fund theirs from general funds rather than pursue the state option.

Often, other Tribal clean energy developments focused on large Tribal enterprises like casinos. Fond du Lac, for instance, deployed a 1 megawatt solar array at the Black Bear Casino Resort with help from Minnesota Power, who provided assistance as settlement for their coal plant's pollution of the Reservation. In another project, with federal funds, White Earth deployed a 750 kilowatt wind turbine in 2012 to help supply a local clinic and other Tribal buildings.[17] Buoyed by other federal or state grants and technical assistance, other Tribal clean energy projects included solar arrays that fed directly into energy assistance, Tribal housing, food sovereignty initiatives, or Tribal government buildings.[18]

Tribal Clean Energy Expertise is Growing

Despite shortages in staff capacity, it was clear in interviews that knowledge and awareness of how to implement clean energy projects was growing across the Reservations. This occurred especially in relation to community economic development or reducing pollution from sources like mercury or carbon. For instance, Solar Bear out of Red Lake Nation is assisting the Tribal government in workforce and solar development, having built an 80- and 240-kilowatt solar arrays on the Nation's government and workforce development centers, respectively (Figure 5).[19] Solar Bear is working now toward a 13-megawatt solar farm on Tribal land, and the creation of a Red Lake Tribal Utility.

[17] Triplett, M. (2013). White Earth Tribal Government addresses energy efficiency, renewable energy. Clean Energy Resource Teams. Retrieved from https://www.cleanenergyresourceteams.org/white-earth-tribal-government-addresses-energy-efficiency-renewable-energy

[18] Clean Energy Economy Minnesota. (2021). White Earth Nation and RREAL – A New Twist on Building a Clean Energy Economy. Retrieved from https://www.cleanenergyeconomymn.org/blog/white-earth-nation-rreal-new-twist-building-clean-energy-economy; Lake Superior Living Labs Network. (2021). Northland Solar Commons Living Lab. Retrieved from https://livinglabs.lakeheadu.ca/partner-organizations/university-of-minnesota-duluth/northland-solar-commons-living-lab/

[19] Clean Energy Economy Minnesota (2021). Red Lake Solar Project. Retrieved from https://www.cleanenergyeconomymn.org/success-stories/red-lake-solar-project

Figure 5: Red Lake Government Center's 70-kilowatt Solar Array. Designed by Solar Bear, and installed by newly-trained Tribal members, the solar array is first of many planned for the Red Lake Nation. Photo from Honor the Earth.

Other Tribes such as White Earth might be following Solar Bear and Red Lake in the creation of Tribal Energy Corporation, largely in collaboration with outside utilities.[20] Other Tribes were building internal government capacities toward clean energy project creation, largely through strategic planning, collaborations with federal, state, and nonprofit funders and developers, and the eventual creation of Tribal utilities.

Numerous interviews stressed the importance of ongoing K-12 and adult education for clean energy. Working often with Tribal colleges, these initiatives from groups like RREAL, Honor the Earth, and Solar Bear brought outside experts and grew internal job skills in solar installation at the Tribal nations. Other interviewees said the education had to continue through social media and Tribal newspapers, and extend to face-to-face education with elders, in particular.

Utility Clean Energy Implementation Can Be Lacking But Remains Important Asset

In a few interviews, Native leaders spoke of miscommunications or delay with utility staff that hampered clean energy project development. For instance, after years in pre-development and after selecting a developer to begin construction, one wind project was canceled when a distribution cooperative said that its power supplier's transmission lines couldn't handle the proposed project's excess power. While those parties couldn't determine a workaround, other examples showed misinterpretations of state and federal rules. Avoided cost determinations, which are used for reimbursing larger power projects above net metering, were inconsistently communicated or applied, according to interviews.

As mentioned above, some interviewees said specifically feeling frustrated that there was no competition for their electric utilities. With no competition, one interviewee said, there's no opportunity

[20] Red Lake Nations News. (2021). White Earth Reservation Business Committee Presents Their Midterm Report. Red Lake Nation News. Retrieved from https://www.redlakenationnews.com/story/2021/12/06/news/white-earth-reservation-business-committee-presents-their-midterm-report/102600.html

for saving on rates, no ability to create overall green energy shifts. At least two interviews stressed the need for positions like utility Tribal liaisons, to help adapt to Tribal clean energy needs.

Despite these criticisms, others mentioned that utilities were getting better in Tribal relations in areas such as interconnection and project planning. One interviewee mentioned that utilities can be and have been the Tribal governments' greatest partners – but only if they are and have been ready to cooperate.

Electrified Residential Heating

Despite High Rates of Electrification, Interviewees Generally Don't Prioritize Electrification

Delivered fuel providers, along with electric utilities, provide the great majority of heating to buildings within Ojibwe Reservation boundaries (Figure 6). Households within many Reservations are already near or exceeding the state average on electrified homes, benefitting in part from old electric cooperative- and investor owned utility-marketed electric resistance heating deployments. Still, interviewees tended to be more focused on non-electric heating, while questioning the value and reliability of electric heating generally. "First to lose power," said one interviewee of Tribal electricity reliability, "last to get it back."

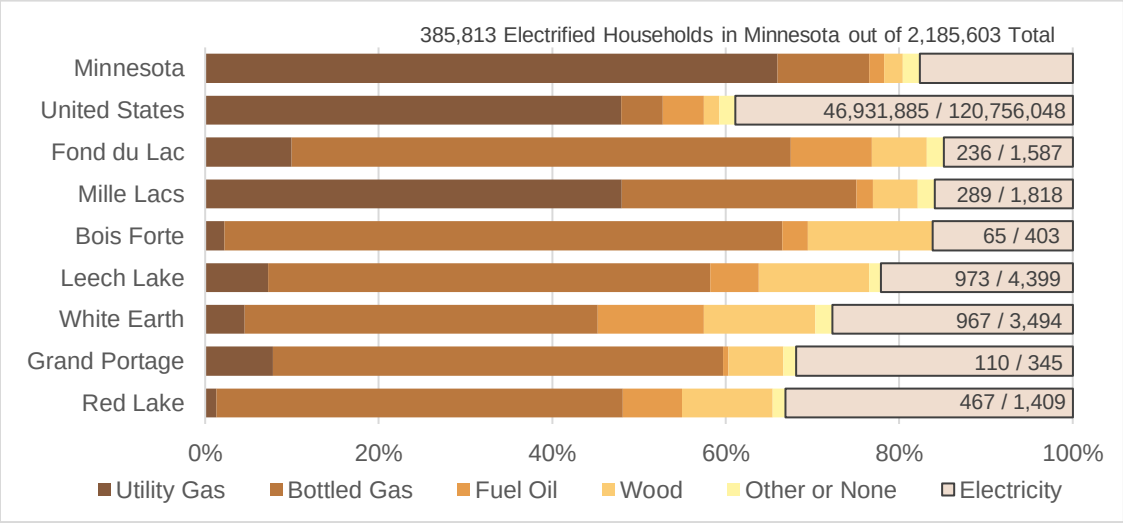

Figure 6: Percent of Occupied Buildings by Primary Heating Fuel, With Numbers of Electrified and Total Households, for Ojibwe Reservations, Minnesota, and United States. While Minnesotan homes are, on average, primarily heated by utility gas, and average homes across the nation are heated by either utility gas or electricity, homes within Reservation boundaries rely on mostly electricity and delivered fuels or wood for warmth. "Other or None" category includes homes heated by coal, solar, other, or no fuels. Data include all housing within Reservation boundaries, both Native-occupied and non-, and are estimates from 2015-2019 American Community Survey, IPUMS NHGIS, University of Minnesota, www.nhgis.org.

As partnerships like the Minnesota Air Source Heat Pump Collaborative[21] are working to greatly diffuse heat pumps across the state, it's telling that electrification options like air source heat pumps were

[21] See https://www.mnashp.org/

rarely mentioned as solutions in our interviews (through ground-sourced options were mentioned in two). Most, if not all, interviewees indicated that they were primarily concerned about the cost of heating, not necessarily its source. In one example at Leech Lake, converting from propane to natural gas at housing and community buildings generated a payback of less than 3 years.[22]

Another potential interviewee told us that our interview protocol was too "electric-centric," giving biased answers "on electrical energy at the expense of all other energy forms out there, even certain forms of clean, renewable, non-carbon energy." Though electric heating programs existed, especially for electric co-ops, some interviewees either didn't mention them or didn't know about them, citing instead the high per kilowatt hour-cost of electricity as a reason for abstaining from electric heat.

Tribal Governments Have Innovative, But Costly Relationships with Delivered Fuel Providers

Other interviewees noted the volatile prices of fossil fueled heating, especially in late 2021, and took steps to mitigate it. Tribal governments created Tribal enterprises and strategic negotiations to ensure cost containment and reliability for their members. At least three nations own their own propane companies and serve their members on- and off-Reservation. One more interviewee mentioned looking at buying a propane company. Others negotiated a fixed price contract for their entire governmental operations. At least one negotiated the placement of a central distribution tank for propane for Tribal housing. In an especially unique arrangement, another nation saw to it that off-Reservation members received the same fixed price discount on propane as on-Reservation members. Despite these measures, many interviewees still noted that heating prices were on the rise for many Native households, and that old, inefficient housing was creating many heating crises.

Tribes Have Worked to Diversify Their Heating Sources

Pressed to explain the future of delivered fuels in an electrified future, especially considering Tribal ownership of propane distributors, one interviewee explained, "We'll always need a backup." Tribal heating arrangements mentioned in interviews ran the gamut. Tribal governments and members close to natural gas pipelines often took natural gas heating, citing its historically low cost. Other government buildings across the Reservations used solar heating, working off grants provided from organizations like Honor the Earth. Another interviewee said that geothermal was a huge opportunity for his Tribe. As mentioned before, no interviewees mentioned air-source heat pumps.

Many interviewees mentioned biomass as important for heating and, more broadly, economic development. Some nations had programs for keeping wood stocked on Tribal elders' property. At a larger scale, several biomass planning studies or projects have been completed at most, if not all, Tribes. The Sawyer Community Center District Heating project at Fond du Lac is an example of one such innovative project, displacing more than 13,00 gallons of propane annually for the Tribe.[23] In addition, at

[22] Toft, B. (2018). A course towards sustainability: Leech Lake Band of Ojibwe. U.S. Department of Indian Energy Program Review. Retrieved from https://www.energy.gov/sites/prod/files/2018/12/f58/37-Leech-Lake.pdf

[23] Fond du Lac Band of Lake Superior Chippewa. (2021). Ganawenimang Gimaamaaminaan awe Aki: Taking Care of Our mother Earth. Retrieved from http://www.fdlrez.com/RM/downloads/FDL-Energy-Profile-Brochure_4-15-21.pdf

least one Tribe was working to assess its lands' ability to sequester carbon, and generate voluntary carbon credits and additional revenue.[24]

Tribal Governments Have Promising But Unclear Authority on Broad Building Electrification

With their current diversity of heating sources and lack of clear definitions surrounding electrification, many interviewees wondered what exactly they could do to promote specific technologies inside the non-Tribally- and Tribally-owned home. One interviewee said they would need more dedicated staff to address retrofitting homes on fee simple land. Another worried that dictating electric heat, even if the Tribe has the authority, might be a form of over-reach to on- and off-Reservation members. Without an overall culture shift among the Ojibwe nations themselves, yet another interviewee wondered if they would ever fully break away from fossil fuels.

Still, at least one Tribe (Leech Lake) has created a plan for net zero buildings. Another interviewee mentioned his Tribal government could alter their nation's building code. Tribal building codes are an expansive, yet underutilized policy nationwide.[25] Such building codes would apply to new construction on Tribal trust land and allow the Tribes or their Tribal housing authorities to determine for themselves how to use the funds to meet housing needs.[26] Using this approach, and working through specific ESCO contracts, and local architects and contractors, many Tribal governments in this report have installed efficient (but not necessarily electrified) measures across their buildings.

There were few instances of how Tribal governments could work beyond their trust land, to help with off-Reservation members and on-Reservation members on fee simple land. One Tribe helped coordinate solar electric and thermal installations for members on fee simple land. Another interviewee said that off-Reservation members were sometimes helped by Tribal housing inspectors. Other on- and off-Reservation members were sometimes helped through information flows from different community liaisons, either in formal offices or informally connected. Filling some of these gaps left by nested jurisdictions, Native-led organizations like Honor the Earth have sometimes stepped in to provide Native households with solar thermal panels (Figure 7).

[24] See National Indian Carbon Coalition for more information at https://www.indiancarbon.org/the-carbon-credit-market/

[25] U.S. Environmental Protection Agency. (2015). Tribal Green Building Toolkit. Retrieved from https://www.epa.gov/sites/default/files/2020-05/documents/tribal-green-building-toolkit-mobile-2015-rev2.pdf

[26] Begay, S. K. (2018). How citizen potawatomi nation utilizes energy efficiency and renewable energy to address its high energy burden. The Electricity Journal, 31(6), 16-22.

Figure 7: Solar Thermal Panel Installation on the Bois Forte Reservation. Solar thermal panels from 8th Fire Solar (a project of Honor the Earth) pair well with electrified options like air source heat pumps. Photo from 8th Fire Solar.

Tribal Enterprises and Programs Are Important Assets for Further Electrification Efforts

At each Ojibwe Reservation except Grand Portage, Tribal Employment Rights Ordinances or Offices (TERO) monitor the federal requirement that all employers on Reservations give preference to qualified Native persons in employment. Alongside Tribal Colleges at Fond du Lac, Leech Lake, Red Lake, and White Earth, TERO programs have and could also help create employment pathways for important building trades like electricians and heating, ventilation, and air conditioning (HVAC) technicians. At least a few interviewees mentioned these options.

Electrified Transportation

Electrified Vehicle Penetration for Ojibwe Nations is Low, But Changing Rapidly

Electric or hybrid vehicle penetration for northern Minnesotan Tribes are almost nonexistent. More than 18,000 fully or partially electrified vehicles (EVs) exist in Minnesota, as of February 2021, according to the Minnesota Public Utilities Commission. But only 70 of those cars are in ZIP codes that intersect with Tribal government boundaries up north (Figure 8). And even then, the great majority of intersecting ZIP codes are home to larger cities such as Bemidji that are outside Reservation boundaries.

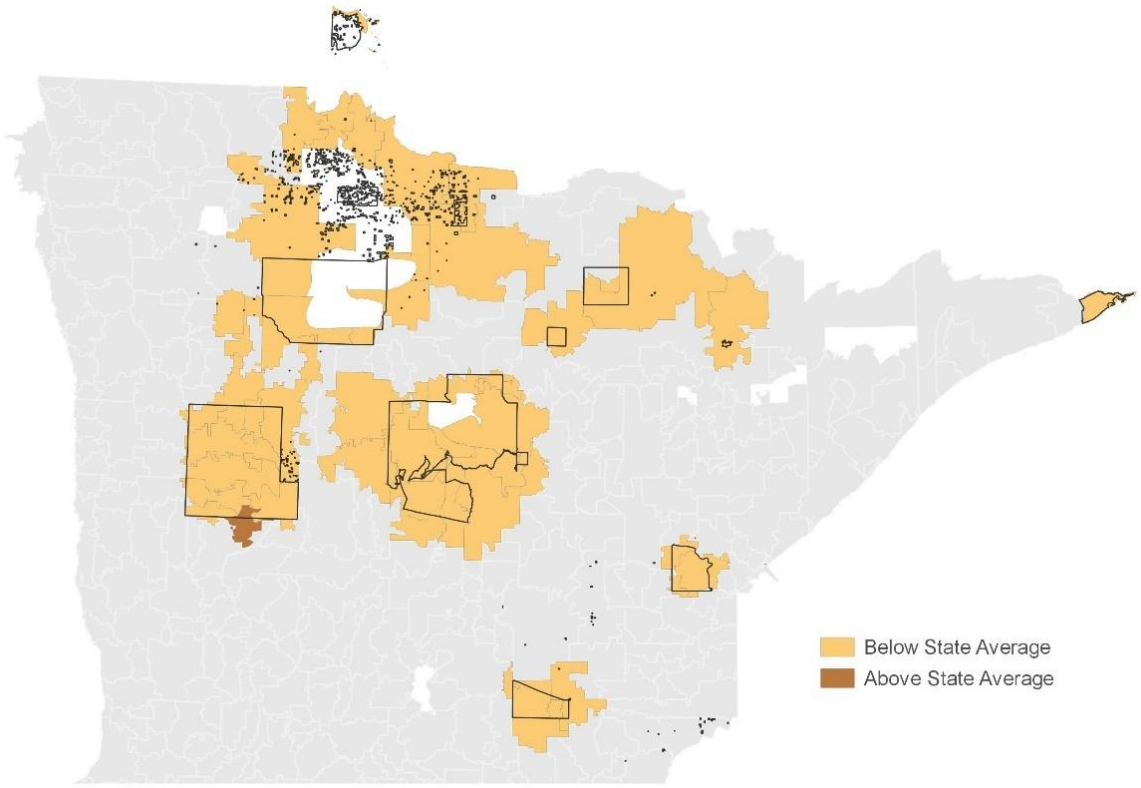

Figure 8: Electric Vehicle Penetration (Vehicles per Total Population) on ZIP Codes Intersecting with Ojibwe Reservations, as Compared to State Average. 1 in 300 Minnesotans have a fully or partially electrified vehicle. In ZIP codes intersecting with Reservation boundaries, that number drops to 1 in 1700. Data sourced from Minnesota Public Utilities Commission: https://mn.gov/puc/activities/economic-analysis/electric-vehicles/.

Where electric vehicles were often deployed was on Tribal government fleets, said interviewees, where the nations had the most power to make change. Past EV deployments centered on hybrid vehicles, given a lack of charging infrastructure. Now at least two interviewees from separate nations mentioned that they were planning electrified transportation rollouts on their fleets, depending on the availability of different grants and general funds. One nation (Leech Lake) has created an internal electric vehicle strategic plan for their Tribe.

More Education, Outreach Needed on Electric Vehicle Access, Despite Tribal Assets

Tribal government ability to influence other transportation options was latent in their numerous Tribal enterprises and actions. For instance, at least a few nations owned mass transit buses, and at least one interviewee mentioned moving ahead on electrified bussing. Another nation began supporting electric vehicle fairs to on-Reservation Tribal members. Two interviewees said their Tribal governments owned or had recently bought gas stations.

Still, the majority of interviewees stressed that electric vehicles, overall, were unavailable or inaccessible in their regions. Interviewees tended to emphasize that education was needed for electric vehicles. Some doubted their ability to withstand cold weather. Others wanted to know about emerging

transportation options such as Tesla, electric vehicle battery technology, and other collaborations. This showed, among most interviewees, that electric vehicles are still early in the diffusion stages for many Reservations.

EV Infrastructure is Being Built, Mostly at Larger Loads and Through Large Native-led Projects

Casinos sported some of the first and most prominent charging stations for the Ojibwe Reservations. Leech Lake, for example, has one of the largest EV-charging networks in Northern Minnesota, with 6 chargers at their 3 casinos. Leech Lake is also working to install another 14 chargers throughout the Reservation.

Accessing non-Tribal funds like the Volkswagen settlement (Figure 9) and federal Department of Energy grants, other, mostly larger Tribal governments were working on building charging capabilities on other Reservation corridors. Siting charging equipment at Tribally-owned gas stations, or along other government property, was cited by interviewees as a potential opportunity for more charging infrastructure.

Figure 9: Fond du Lac Member Charging His Electric Vehicle at One of Three Charging Stations Installed on the Reservation. Using funds from the Volkswagen settlement, Fond du Lac installed charging stations at their casino and resort, government building, and clinic. Photo from Fond du Lac.

The largest electric vehicle charging project that interviewees spoke of was the Upper Midwest Inter-Tribal Electric Vehicle Charging Community Network.[27] Funded by a $6.5 million grant from the U.S. Department of Energy, the project is “our answer to the pipelines,” according to Robert Blake, Executive Director of Solar Bear and Native Sun Community Power Development, awardee of the grant along with

[27] Thompson, D. (2021). Native-owned Renewable Energy Companies to Receive more than $6.5 Million from Department of Energy. Native News Online. Retrieved from https://nativenewsonline.net/environment/native-owned-renewable-energy-companies-to-receive-more-than-6-5-million-from-department-of-energy

the Standing Rock (SAGE) Renewable Energy Power Authority. The grant will fund at least 19 EVs for Red Lake and the Standing Rock Sioux Tribe, along with installing more than 120 charging stations on corridors throughout the Tribal Reservations in North Dakota, South Dakota, and Minnesota (Figure 10).

Figure 10: Map of Planned Route for the Upper Midwest Inter-Tribal Electric Vehicle Charging Community Network. Spanning at least 4 Reservations in Minnesota, and many more in the Dakotas, the project from Native Sun and SAGE will help install at least 120 charging stations and 19 electric vehicles. Image from Native Sun.[28]

[28] See press release at https://bit.ly/3pBFecW

Conclusion and Recommendations

The goals of this report, as stated in the Introduction, required an assessment of clean energy, electrified heating, and electrified transportation projects on Ojibwe Reservations within Minnesota. While Tribal clean energy capacity is growing, and progress on electrification of heating and transportation is emerging, all three efforts have uneven results and require further support to overcome challenges in staff capacity, utility coordination, and supporting policies.

Despite challenges, our interviews also showed that interviewees are working hard to create a more even, equitable deployment of technologies. In doing so, our interviewees demonstrated a remarkable range of professions, interests, and competencies. Working between departments, organizations, and Native and non-Native spaces, they intermediated between multiple institutions, often simultaneously. To work on electrification with Indigenous nations, then, requires great skill, knowledge of context, and creativity. As the state's electrification action plan has focused on elevating equity in cost-effectiveness testing[29], and local projects are seeking to quantify potential energy savings for buildings within Reservation boundaries in Minnesota[30], it's worth asking here how Indigenous peoples begin to fit into that conversation – or, more equitably, how that conversation can fit with Indigenous peoples.

This suggests that different actors, from the state of Minnesota to electric utilities, should begin moving beyond purely technological focuses, as on heat pumps. Instead, they should focus on practices and implementation, on people and organizations like Indigenous people, Indigenous-led organizations, and Tribal governments. This means working to understand and act on important details and contexts that set Indigenous energy transitions and people apart from a general catalog of policy tools.

Electrification with Indigenous nations is set for a boost, as proposed federal legislation now includes electrification and clean energy incentives for Indigenous nations.[31] But details matter. For Indigenous peoples, decisionmakers need to understand what practices are already in use, who is doing them, and the desired outcomes. Though not expressive of all Indigenous nations or people, outcomes expressed in our interviews included sovereignty, energy independence, health and environmental benefits, land conservation, and improving the socioeconomic statuses of Indigenous peoples.

From these outcomes, and the practices and people detailed in this report, we propose a Bottom-up Framework for Electrification with Indigenous Nations (Figure 11). With the framework, and from suggestions

[29] Samuelson, C., and Salazar, A. (2021). Electrification Stakeholder Engagement. Prepared for the Minnesota Department of Commerce, Division of Energy Resources. Retrieved from https://michaelsenergy.com/wp-content/uploads/2021/11/Electrification-Stakeholder-Process-Final-Report-me.pdf

[30] Midwest Tribal Energy Resources Association. (2021). Advisory Committee Meeting: MN CARD – Conservation Improvement Programs for Tribal Government and members in Minnesota. Presentation. Retrieved from https://bit.ly/3ze2Yah

[31] The Build Back Better Act, for instance, includes billions in rebates, loan guarantees, and incentives for Tribal electrification projects through the U.S. Department of Energy, Department of Interior, and Environmental Protection Agency. See https://www.congress.gov/bill/117th-congress/house-bill/5376/text

from our interviewees, we see several actionable steps going forward (Table 2). These actions are meant as potential beginnings, not ends, if electrification is to be truly beneficial for Indigenous nations.

Figure 11: Bottom-up Framework for Electrification with Indigenous Nations Electrification should be 1) Flexible, taking advantage of Indigenous community assets along with new communications and grid technologies to work synergistically with the energy system; 2) Holistic, working across sectors and Tribal governments, from transportation to the home; 3) Efficient, striving for energy savings and other non-energy benefits as compared to other fuel sources; 4) Clean, energized by renewable energy that is locally-(em)powered; and 5) Equitable, providing enhanced governance, justice, opportunity, and outcomes for Indigenous peoples.

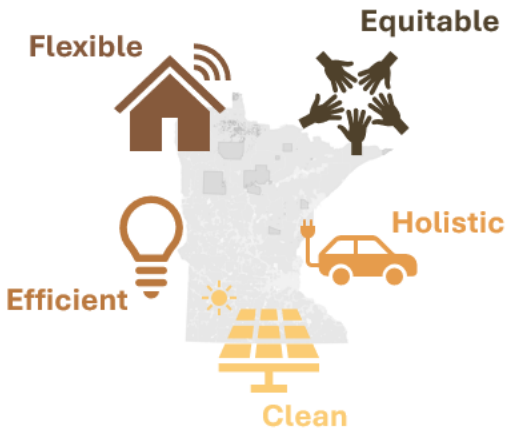

Table 2: Potential Actions for Rural Electrification with Indigenous Nations. Actions are sampled from our interviews and internal discussions.

Area of Action	Potential Actions
Research	• **Look at cross-sectoral effects and potential of Indigenous energy transitions.** Study the synergies between clean energy and electrification in Indigenous nations, and create technical potential studies • **Find common Tribal pathways for energy transition.** Compare Tribal strategic energy plans and actions from around the United States, focusing on distinctions between programs for governments, enterprises, on-Reservation members, and off-Reservation members • **Determine equitable plans for and evaluations of the benefits of an Indigenous-led energy transition.** Create qualitative and quantitative estimates surrounding distributional equity in energy infrastructure planning and deployment with Indigenous nations. For instance, utility cost of service studies could be used to determine equitable rates for Tribal members for numerous distributed energy resource projects and clean energy goals.
State Government	• **Support Tribal efforts to capacity-build.** Create Tribal advocacy council on energy, with support from the Department of Commerce, for instance, to help build internal know-how for energy projects and education at each Tribe. • **Provide adequate Tribal funding for electrification, efficiency, and renewables.** For instance, move beyond project-funding programs to organization funding by

	creating lump sum payments in energy programs like Conservation Improvement Program funding for Tribal governments, members, and Indigenous-led organizations. Work on additional project incentives for electrified technologies like air- and ground-source heat pumps, or electric vehicles, in particular. • **Provide Indigenous-focused data and rule-making.** Require reporting on services rates, fees and disconnections, as it relates to Indigenous households. These actions should inquire about both on- and off-Reservation members, and Indigenous households more generally. State should also apply these actions to all electric and natural gas utilities, as well as delivered fuel providers. Decision-makers could then use data to create new or hone existing rules.
Utility and Energy Vendor	• **Recognize Indigenous and traditional knowledge, as well as Tribal co-management of energy systems.** Utilities could, for instance, create more emphasis on increasing Indigenous workforce diversity and representation on utility governance structures. • **Support coordination and implementation of Indigenous-led projects.** Create Tribal utility liaisons, to help foster Native inclusion in utility processes like integrated resource planning, distribution planning, and programs like the Conservation Improvement Program. Inclusion should strive for empowerment, where Native energy resources can be leveraged in all planning and procurement processes.
Tribal Government	• **Expand Tribal governments toward electrification of heating and transportation, emphasizing economic development, health, and environmental impacts.** Tools here include those many Tribes have used for clean energy: strategic energy planning, collaborations and outside funding, increasing decision-making at energy utilities and vendors, group procurement powers and bargaining, and the creation of Tribal utilities or enterprises. • **Expand energy efforts beyond trust lands, expand partnerships, and work across boundaries.** For instance, Tribes could leverage their buying power for on- and off-Reservation members through agencies like the U.S. General Services Administration to buy technology like solar panels or heat pumps at bulk, then provide them to Tribal members at cost or discount. They could also expand current Tribal assets like TERO programs and Tribal colleges.

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Appendix A: Interview Protocol

My name is Matt Grimley and I am an independent consultant working with Honor the Earth on a research project about rural electrification with Indigenous nations. Today we are going to be talking about electrification, renewable energy, and energy equity among the Tribes in northern Minnesota. It's a broad interview, taking about an hour so, so feel free to ask questions of me at any point and elaborate on key points you think are essential.

For this interview, I will be taking your insights and applying them generally in a written report and seeing what the generally opportunities and challenges are across your and others' insights. To be clear about how you would like your insights to be mentioned, I'm going to ask for three different consents.

First, can I attribute quotes or insights from this interview to your Tribe?

Second, can I attribute quotes or insights from this interview to you?

Third, if it's alright with you, I would like to start recording. Is that OK?

Introduction

1. Tell me your name, about your position, and a little bit of your personal history in the energy space
2. Could you walk me through some of the history with your Tribe and energy?

Renewable Energy

4. What current initiatives is your Tribe pursuing toward renewable energy?
5. What are the most critical challenges and opportunities for your Tribe's efforts with renewable energy?

Home Electrification

6. What current initiatives is your Tribe pursuing toward residential electrification?
7. What are the most critical challenges and opportunities for your Tribe's efforts with residential electrification?

Transportation Electrification

8. What current initiatives is your Tribe pursuing toward transportation electrification?
9. What are the most critical challenges and opportunities for your Tribe's efforts with transportation electrification?

Holistic

10. What collaborations have helped the most in your energy work?

Looking Forward

12. What collaborations or policies would you like to see from policy makers, utilities, or others to help you in your energy efforts?
13. What particular outcomes would you like to see for your Tribe in the energy space?

Appendix B: Ojibwe Energy Assistance, Weatherization, and Associated Agencies and Electric Utilities

Table 3: Ojibwe Reservation Energy Assistance (EAP), Weatherization (WAP), and Power Supplier Associations.
Data from Department of Commerce and Reservation, electric utility service area shapefiles.

Tribe	Tribal EAP	Tribal WAP	EAP/WAP Service Provider	Electric Utilities	Power Supplier, If Any
Bois Forte	Yes	No	WAP- Arrowhead Economic Opportunity Agency (AEOA)	Lake Country Power	Great River Energy (GRE)
				North Itasca Electric Co-op	GRE
				North Star Electric Co-op	Minnkota Power Cooperative
Fond du Lac	Yes	Fiscal Agent	WAP- AEOA	East Central Energy	GRE
				Lake Country Power	GRE
				Minnesota Power	NA
Grand Portage	No	No	EAP & WAP- AEOA	Arrowhead Electric Co-op, Inc	GRE
Leech Lake	Yes	No	WAP - Bi-County Community Action	Beltrami Electric Co-op, Inc.	Minnkota
				Crow Wing Co-op Power & Light, Inc.	GRE, Basin Electric Power Cooperative
				Lake Country Power	GRE
				Minnesota Power	NA
				North Itasca Electric Co-op	GRE
				Otter Tail Power	NA
Mille Lacs	No	Yes	EAP - Lakes & Pines Community Action	Crow Wing Co-op Power & Light, Inc.	GRE, Basin
				East Central Energy	GRE
				Lake Country Power	GRE
				Mille Lacs Electric Co-op	GRE
Red Lake	Yes	No	WAP - Inter-County Community Council & Northwest Community Action	Beltrami Electric Co-op, Inc.	Minnkota
				Clearwater Polk Electric Co-op	Minnkota
				North Star Electric Co-op	Minnkota
				Red Lake Electric Co-op	Minnkota
				Roseau Electric Co-op	Minnkota
White Earth	Yes	Fiscal Agent	WAP - Mahube Otwa Community Action Partnership	Clearwater Polk Electric Co-op	Minnkota
				Itasca-Mantrap Co-op Electric Assn	GRE
				Otter Tail Power	NA
				Wild Rice Electric Co-op	Minnkota