Tribal Sovereignty and Nuclear Power[1]

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INTRODUCTION (HEADING A)

The majority of research that has been conducted regarding nuclear energy and native tribes has been largely focused on reparative efforts. Infamous examples include studies of mismanaged mining operations [1], failed waste management projects [2], and hazardous weapons testing programs [3] – all activities that have caused significant harm in the past. While incredibly valuable for learning from mistakes and oversights and developing means to alleviate these harms, this area of study focuses solely on how nuclear energy has harmed communities. This paper shifts from the perspectives of previous studies and aims instead to explore the capabilities of nuclear energy to uplift tribal communities. This paper will provide a brief overview of energy sovereignty in native land, followed by a preliminary investigation into a potential future that would utilize nuclear energy to achieve energy goals. The final findings of this study will be presented at the 2024 American Nuclear Society Student Conference.

Energy Sovereignty

While there is no consolidated definition of energy sovereignty by any group or government, many definitions have been proposed. This work will utilize the definition provided in [4], as "... a framework that recognizes the individual, community, or nation's rights, and strengthens their abilities to exercise choice within all components of energy systems, including sources, means of harnessing, and uses in order to satisfy their needs for energy." While part of a much larger overall discussion of tribal sovereignty, the concept of energy sovereignty for tribal nations is related to the dependency of United States-produced power. A main goal of many tribal energy initiatives is to achieve energy sovereignty and independence from the U.S. electric grid [5], which is often pursued through Tribal Energy Resource Agreements (TERAs) and Tribal Energy Development Organizations (TEDOs) [6]. Additionally, as outlined in United States legislation, the Department of Energy has a responsibility to aid in the energy goals of native tribes. The Energy Policy Act of 1992 [7] states "The Secretary of Energy... shall establish and implement a demonstration program to assist in Indian tribes in pursuing energy self-sufficiency and to promote the development of a vertically integrated industry on Indian reservations..." by providing grants, low-interest loans, and technical assistance. Recently, the Department of Energy has reaffirmed its right to preferentially purchase electricity from tribal groups with the Indian Energy Purchase Preference (IEPP) [8]. The mutual benefit among native tribes and the U.S. federal government is a key reason as to why tribal energy sovereignty remains a high priority for both groups. Within the preliminary investigation and literature review, no energy-producing tribal nation was identified to be entirely energy sovereign. Furthermore, despite the reaffirmation of the IEPP, no use of this authority has been identified. While important to exercise patience in these extensive transition endeavors, it is necessary to determine the challenges to energy sovereignty that tribal nations have faced until this point.

Barriers to Independence

An extensive review of the barriers facing tribal energy sovereignty was published in early 2024 [9]. The 'key barriers to tribal energy sovereignty' proposed in this paper can be categorized into two factors: historical (contexts that cannot be changed) and modern (challenges that could, in theory, be changed). The barriers titled 'Ethnic Cleansing,' 'Forced Migration,' 'Forced Coexistence,' and 'Land Fragmentation,' are examples of historical factors; these are challenges that have drastically altered the identities of native communities as a result of U.S. government actions. The barriers of 'Inadequate Consultation,' 'Federal Bureaucracy,' 'Lack of Institutional Capacity,' and 'Inability to access tax credits,' are examples of modern factors that could be addressed with proper intervention (refer to [9] for further definitions and examples of these factors). Unsurprisingly, the main modern barriers to tribal energy sovereignty are influenced most heavily by economic and regulatory/political factors. An important nuance to the complexity of regulatory solutions to energy sovereignty is highlighted in [**?**] through a quote by Former Senator Ben Campbell:

> The Committee on Indian Affairs has been informed over the year that the Secretarial approval process is often so lengthy that outside parties, who otherwise would like to partner with Indian tribes to develop their energy resources are reluctant to become entangled in the bureaucratic red tape that inevitably accompanies the leasing of Tribal resources.

Thus, this important lesson from previous energy endeavors indicates that over-regulation can be as detrimental to tribal goals as under-regulation. This complex problem of the proper level of regulation, coupled with economics and technology, are major reasons as to why no tribe has achieved complete energy sovereignty.

PRELIMINARY RESULTS

The preeminent organization for the use of nuclear energy for the advancement of tribal nations is the U.S. Department of Energy's Office of Nuclear Energy Nuclear Energy Tribal Working Group (NETWG). This group, which includes representation of 12 tribes and tribal organizations, is dedicated to aiding in the expansion of educational and economic op-

[1]Notice: this manuscript is a work of fiction. Any resemblance to actual articles, living or dead, is purely coincidental.

portunities, management of spent fuel, emergency preparedness, and advancement of emergent reactor technologies for tribal groups [10]. Economic development and technological advancement are directly related to the topic of energy sovereignty — while the other initiatives may benefit overall goals of self-sufficiency, they will not be a core focus of this work. The NETWG has two publicly available documents that report on the status of energy-related U.S.–tribal relations. The first, published two years after the NETWG charter, discusses the history of consent-based siting on tribal land [**?**], while the second reports on the status of educational opportunities in native lands [**?**]. Additionally, the NETWG announced a $1.5 million funding opportunity in 2023 for the facilitation of increased communications between tribal and federal nuclear energy representatives. Despite limited publicly available knowledge regarding in-depth government efforts and initiatives, it is evident that there are groups interested in and resources available for further work pertaining to nuclear-based tribal development.

Further Investigations

Due to the significant knowledge and development gaps surrounding this area of research, this study aims to serve as initial grounds for further exploration into nuclear energy solutions for native nations. The authors intend to survey tribal communities to determine the interest in tribal-owned nuclear power, as well as interview tribal leaders to strengthen context surrounding economic, regulatory, and cultural (e.g., education, risk-perception) challenges. Additionally, this study will include a review of existing federal energy and tribal legislation and nuclear power regulation. These reviews will determine the extent of under or over-regulation regarding nuclear technology deployment within tribal nations and may result in recommendations for legal or regulatory changes. Subsequently, the authors will demonstrate a feasibility utilizing a tribal-owned microreactor deployment scenario. The authors will subsequently The progress and findings of this work will be presented at the 2024 American Nuclear Society Student Conference.

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