NETWG
NUCLEAR ENERGY
TRIBAL WORKING GROUP

The Nuclear Energy Tribal Working Group (NETWG)
White Paper on Tribal Involvement in STEM Education and Workforce Development

This white paper published in 2018 provides an overview of past and present STEM opportunities in Indian Country, highlights gaps in these opportunities, and offers suggestions to expand and improve these opportunities.

NETWG White Paper on Tribal Involvement in STEM Education and Workforce Development

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- Catawba Indian Nation
- Confederated Tribes of the Umatilla Indian Reservation
- Consolidated Group of Tribes and Organizations
- Mashpee Wampanoag Tribe
- Nez Perce Tribe
- Omaha Tribe of Nebraska
- Oneida Nation of Wisconsin
- Prairie Island Indian Community
- Pueblo of Jemez
- Pueblo of Pojoaque
- Shoshone-Bannock Tribes
- Timbisha Shoshone Tribe

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I. NETWG Background

The Nuclear Energy Tribal Working Group (NETWG) is a Department of Energy-Office of Nuclear Energy (DOE-NE) Chartered Working Group established in 2014 and composed of tribal representatives from 12 federally recognized Indian tribes throughout the United States. NETWG is one of three Tribal Working Groups that serve to engage with DOE on activities that currently affect or potentially impact tribes' treaty rights, reserved rights and tribal ancestral lands. Specifically, NETWG serves as a conduit for communication between tribes and DOE-NE on nuclear energy-related activities. NETWG is supported with research, writing, meeting logistics and communications by the staff of the National Conference of State Legislatures.

Tribes represented in NETWG have a unique opportunity to develop and foster a government-to-government relationship by providing insights and options to consider regarding nuclear energy activities that can affect tribal homelands, environment, people and culture. Tribal representatives engage with DOE-NE on activities that include, but are not limited to, the nuclear fuel cycle, research and development, cultural resource management, DOE-NE outreach and presentation materials, NE educational opportunities, and Science, Technology, Engineering and Math (STEM) education.

II. Introduction

Because of the complexity of nuclear energy and its broad impact throughout its lifecycle, expanding educational opportunities and scholarships in Indian Country related to STEM topics, particularly on nuclear energy education, is a NETWG priority. It aligns with national efforts to broaden participation of underrepresented populations to diversify and sustain the future workforce needs in STEM fields.

The missions of DOE sites vary depending on the particular facility or lab's expertise, research and environmental cleanup goals. Like the sites, each tribe's interest in DOE activities varies depending on cultural, traditional and socioeconomic factors.

Over the past few decades, through a series of federal regulations and court decisions, tribes have retained control over their land, culture, languages, and traditional lifeways to strengthen and sustain sovereignty. Traditional Ecological Knowledge (TEK) has been practiced in indigenous communities from time immemorial. Indigenous people have been recognized by some academics and scientists as the original stewards and caretakers of the environment. Integrating place-based TEK within DOE STEM initiatives at DOE sites will better inform and influence DOE environmental impact studies and protect cultural assets.

This white paper highlights tribal interest in science & technology (S&T) and research & development (R&D) investment in the workforce and youth, as well as policies and orders that further support the need for STEM careers and education. Additionally, the paper explores the strengths and weaknesses of DOE's diversification efforts and the impact on STEM.

Specifically, this paper provides a snapshot of current tribal involvement at DOE facilities, existing DOE STEM initiatives and available STEM resources supported by national organizations and tribal colleges. It also provides an overview of STEM-related federal

legislation and policy, and calls attention to specific DOE orders that support STEM. Lastly, it identifies gaps in the working relationship between federal facilities and tribal governments.

NETWG hopes this paper will be a catalyst for further conversations between existing American Indian/Alaska Native (AI/AN) STEM professionals, DOE technical staff, and tribes to increase STEM opportunities and initiatives for Native Americans. Ultimately, the goal is to facilitate the development of career opportunities for Native Americans within DOE headquarters, at DOE sites, and within their respective tribes. Additionally, NETWG offers itself as a resource to explore and develop ideas within the DOE-NE, DOE- Office of Environmental Management (EM), and DOE-Office of Indian Energy Policy and Programs (IE) that can increase STEM opportunities.

III. Information and Data Gaps in STEM

In preparing this paper, it became evident that there was an absence of a metric for determining the impacts and outcomes of STEM efforts in Indian Country. The following were identified as requiring more information and data to evaluate past and current STEM efforts for NETWG tribes, youth and workforce relative to DOE activities and programs:

- Opportunities created by DOE offices in the form of scholarships, internships, fellowships and training are available, but outreach in Indian Country falls short compared to outreach efforts geared towards other underserved populations.
- NETWG tribes reported a lack of opportunities to work alongside any Native American STEM professionals employed at any DOE site for monitoring or cultural activities relevant to STEM projects.
- While various STEM-focused collaborations exist among DOE, non-governmental organizations (NGOs) and other federal agencies, it is difficult to determine the outcomes and impacts from these collaborations in Indian Country because of minimal or non-existent tracking.

Without a baseline of transparent reporting, tribes are unable to demonstrate improvements and impacts to tribal self-sufficiency as a result of STEM-related programs.

IV. Federal STEM Background and Rule Making: Legislation for STEM Education

In 2005, national interest in improving the U.S.'s status in Science and Technology (S&T) grew in response to concerns from government, corporate and scientific entities. The National Academy of Sciences (NAS) conducted a formal study on how S&T innovation is critical to prosperity in the 21st century. Their recommendations called for additional investment and creative program development in STEM public education, applied research, and advanced research in instrumentation and facilities, It also called for increased federal funding and research in the energy sector, and incentives for scientific and engineering innovations (Committee on Science, 2007).

Various congressional acts and agency policy changes were developed and implemented as a result. Prominently, the NAS report led to the America "Creating Opportunities to Meaningfully

Promote Excellence in Technology, Education, and Science" Act of 2007 (America COMPETES), which was reauthorized in 2015 (America, 2010). Numerous federal agencies, including DOE, receive appropriations under this act.

DOE American Indian and Alaska Native Tribal Government Policy (Indian Policy)

The U.S. Federal Government's trust responsibility and commitment to the government–to-government relationship with Indian Tribes includes regular and meaningful consultation on policies affecting Indian Tribes and is reaffirmed in Executive Order 13175*, Consultation and Coordination with Indian Tribal Governments (EO 13175)*. EO 13175 further establishes agency responsibilities when formulating and implementing policies that may have tribal implications. In compliance with EO 13175, DOE developed an agency-wide American Indian and Alaska Native Tribal Government Policy in 1992 (Energy, 2009) for departmental officials, staff, and contractors which outlines the federal trust obligations and responsibilities regarding natural and cultural resources as well as treaty and reserved rights of tribes. The latest revised and updated version of the DOE Indian Policy in 2009 specifically provided guiding principles for select offices and programs to follow, including DOE-NE STEM coordination and collaboration, which can be related to tribes' economic and self-determination efforts. Principle V of this policy focuses on DOE's responsibility for assisting tribes in these efforts:

> "The Department will initiate a coordinated Department-wide effort for technical assistance, business and economic self-determination, development, opportunities, education and training programs."

The DOE Indian Policy committed DOE to consult and coordinate with tribal leaders and representatives to identify and understand tribes' needs in technical assistance, business, economic development, as well as their capacity to provide services in pursuit of self-determination and self-sufficiency. Unfortunately, the policy does not outline any responsibility or guidance for measuring the effectiveness of these activities and their subsequent outcomes.

DOE Order 144.1: Implementation and Framework for the Indian Policy

Among the commitments to maintaining a government–to-government relationship with Indian tribes, the DOE Indian Policy committed DOE to establishing interdepartmental protocols and procedures for program and policy implementation. DOE issued the American Indian Tribal Government Interactions and Policy (DOE O 144.1) as a framework for DOE staff to follow when implementing the DOE Indian Policy.

The guiding principles derived from the DOE Indian Policy and implemented through DOE O 144.1 pertain to DOE staff working with tribes. The tribes recognized with this specific status, by DOE's definition, have entered into formalized agreements, accords, or memorandum of understandings. These formalized documents establish a mutual commitment to a working relationship and strengthening of the government-to-government interaction. Tribes can negotiate for financial and technical assistance to ensure their ability to perform a scope-of-work on DOE sites. These tribal activities may include monitoring, communicating and collaborating with DOE on actions that may impact natural and cultural resources, people, the environment,

and reserved treaty rights (Energy, 2009). Additionally, many of these agreements include provisions for educational and workforce opportunities to improve self-sufficiency within the scope of DOE site missions. These agreements, supported by regular and ongoing conversations, provide a chance for DOE and tribes to work together to create mutually beneficial STEM opportunities.

Federal and DOE STEM Policy

In 2012, the National Science and Technology Council (NSTC) under the White House Office of Science and Technology Policy (OSTP) reported on the progress of STEM investments at 13 federal agencies. DOE STEM education funding totaled $47 million, with $10 million earmarked for STEM programs focused on recruiting minority and underserved student populations. The following is the DOE STEM education mission in 2012 (Kuenzi H. B., 2014).

> "Maintain a vibrant and talented science and engineering workforce that will address DOE's current and future challenges in energy, the environment, national security, and discovery science, and train the workforce we need to ensure that the U.S. remains a driver of innovation in the 21st century."

DOE STEM opportunities for underrepresented groups are available in the offices of Environmental Management, Nuclear Energy, Economic Impact and Diversity, and Energy Efficiency & Renewable Energy. Native American youth are underrepresented in competing for the opportunities in these offices due to lack of information and resources.

V. A Snapshot of STEM Initiatives in Tribal Communities

Based on the 2008 "Science, Technology, Engineering, and Mathematics (STEM) Education: Background, Federal Policy, and Legislative Action" report (Kuenzi J., 2008), Congress passed legislation to develop STEM initiatives in various federal agencies, including DOE. While DOE did create a significant number of STEM opportunities, these opportunities often exclude youth in Indian Country.

For example, tribal engagement at DOE laboratories, sites and waste generator facilities is often limited, in part due to the lack of technical staff, financial resources, and timely communication between tribes and DOE. These challenges limit tribal input on current and future activities involving management, storage, disposal and transportation of spent nuclear fuel (SNF) and high-level waste (HLW) and future activities in small modular reactor siting and construction. To increase awareness and opportunities in STEM and workforce development, DOE and tribes will need to work closely on tribal-specific programs and may utilize recommendations outlined in this paper.

NETWG tribes are impacted by the lack of STEM and workforce development opportunities in tribal communities near DOE facilities, decommissioned and generator sites. Tribes and federal agencies sometimes have polarized views on cultural and sustainable environmental decisions, and tribal interests are often overlooked. However, tribes have a unique understanding of the connection between technical, environmental and cultural knowledge necessary to make decisions

that are protective, preventative, and sustainable for tribal people and beneficial for DOE. Tribes depend on DOE, and its contractors, to acknowledge and uphold the unique knowledge of tribes.

DOE STEM Programs Geared Toward Tribal Youth

Going back just five years, Native American youth were competing with all minority groups for DOE STEM funding opportunities, despite differences in their cultural, educational, and socioeconomic background. Recently, there has been a concerted effort to increase opportunities for Native Americans in DOE STEM education and initiatives. In 2016, DOE allocated funding in the offices of Indian Energy (DOE-IE) and Economic Impact and Diversity (DOE-ED) to promote and recruit Native Americans into STEM education and workforce development programs. According to a recent progress report (Policy, 2016), a total of $52 million was available from DOE for STEM initiatives, but the amount of funding that went towards DOE-IE and DOE-ED for Native American participation in these programs is unknown.

DOE-IE plays a central role in engaging Native American youth in STEM careers and education related to energy projects in Indian Country. They provide internship opportunities via contracts with national sites and federal agencies. The first STEM funding allocation from DOE was in 2002 when the Sandia National Laboratory created two AI/AN STEM programs: one for middle and high school students, and the other for a college internship program.

Now in its 18th year, the internship program at Sandia serves as a model of success. It has provided evidence, through data, that shows that access to STEM education, resources, mentorship, and workforce experiences leads to a higher degree of completion rates, and an increase of Native Americans in science and engineering careers at Sandia National Laboratory and in the surrounding STEM workforce.

In 2015 and 2016, DOE-ED hosted a series of roundtables to engage with tribal participants on how to develop effective STEM programming in Indian Country. The recommendations from the roundtable discussions were to: solicit input from Native youth, contact Native STEM professionals, mentors, and Native organizations, and interact with tribal leaders. The discussions resulted in the development of a STEM strategic plan on a national scale, including an assessment of STEM workforce needs, existing resources, and initiatives. (Diversity, 2015)

Some DOE sites, such as Los Alamos National Laboratory (LANL), Idaho National Laboratory (INL), and Hanford provide scholarship and K-12 funding to tribes, but often tribes are not consulted on the best way to use the funds. Therefore, the funding does not effectively meet the needs of local tribes, nor does it fulfill DOE's commitment to STEM.

In addition, there are DOE site-sponsored STEM activities such as STEM Cafés, and STEM forums for minorities, but nothing specifically for tribal youth and the American Indian workforce. In the past, internship opportunities for tribal youth and college students at DOE sites were discontinued due to low participant interest or lack of funding. For example, in 1990, INL and DOE Idaho operations office provided a summer internship program for Shoshone-Bannock tribal youth (17 and older). Unfortunately, within 10 years of program implementation, it was eliminated due to low participation and has not been replaced.

In the office of Nuclear Energy is the Nuclear Energy University Program (NEUP), created to fund R&D and infrastructure upgrades at universities that provide support to students pursuing nuclear-related fields. Also within DOE-NE is the Integrated University Program (IUP), which provides scholarship and fellowship funding to graduate and undergraduate students attending "IUP accepted" colleges or universities. Regrettably, neither program works with tribal colleges or mainstream universities located near tribal communities.

While there have been positive developments, gaps remain, particularly at DOE laboratories and waste generator sites. STEM workforce funding is managed independently at each DOE site and budgeted broadly under "community outreach, education and development." There is no data, outcome metrics or analysis on return-on-investment of DOE Native American focused STEM initiatives, which often hinders new program development.

STEM efforts of Non-Governmental Organizations (NGOs) in Indian Country

In addition to efforts by the federal government, and DOE specifically, there are several non-governmental organizations in Indian Country which focus on building capacity in STEM and raise awareness of achievement gaps in the AI/AN populations. Many create culturally relevant programming for AI/AN K-12 and college students and share experiences and best practices. Oftentimes, DOE partners with NGOs to increase their impact in Indian Country. Below are examples of national NGO/DOE partnerships that provide STEM opportunities for tribal youth and workforce development which could serve a role in expanding DOE-NE site-specific STEM opportunities.

NON-GOVERNMENTAL ORGANIZATIONS	PRODUCTS OF DOE PARTNERSHIPS
The American Indian Science and Engineering Society (AISES)	
Non-profit organization that provides pre-college, college and, professional, and strategic partnerships and resources for AI/AN students, teachers and professionals in STEM. Creates programming to supports students with scholarships, professional mentorships, and peer support through college and university chapters and networks. Continually seeks partnerships with industry and government sector entities to create pathways for student members	• Conference sponsorships • Technical Assistance • 2017 #PledgeNativesinSTEM • Scholarships
American Indian Higher Education Consortium (AIHEC)	
The American Indian Higher Education Consortium (AIHEC) is the support network for the 36 Tribal Colleges and Universities (TCU's) across the country. Since the inception of AIHEC in 1973, AIHEC and TCUs have collaborated to work together to provide leadership and influence public policy on American Indian higher education issues through advocacy, research and programs initiatives.	• American Indian Research and Education Initiative (AIREI) - partnership with AISES
Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)	
The Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) is the largest multicultural, multidisciplinary STEM organization, with a diverse network of members, student and professional chapters, and annual conference attendees each year (SACNAS, 2017). Like AISES, SACNAS strives to support and foster the unique and diverse needs of its membership by creating a network of STEM students.	• Conference Sponsorships • Scholarships • Mentoring
Tribal Colleges and Universities (TCUs)	
There are 36 accredited Tribal Colleges and Universities (TCUs) across the country which provide higher education opportunities to over 19,000 students, 90% of whom are American Indian/Alaskan Native (AI/AN) and 60% are first-generation or non-traditional students. Of the 36 TCUs, 24 have STEM degree programs ranging from Associates to Master of Science degrees, most of which focus on environmental science and natural resources. TCUs are uniquely positioned to foster community-developed STEM learning and concept delivery through Traditional Ecological Knowledge (TEK) (Nicholas-Figueroa, 2017).	• Varies among colleges; scholarships, internships, mentorships

Figure 1 – Non-Governmental Organizations

VI. Tools for Increasing Tribal Engagement

Cooperative Agreements:

Generally, NETWG tribes communicate and collaborate with site-based DOE representatives on past, present and future lab missions and activities that affect the tribes' homelands, environment, people and culture. DOE cooperative agreements negotiated with NETWG tribes are provided to ensure financial resources for tribal self-sufficiency, specifically the ability for tribes to provide subject matter experts (SMEs) on cultural and natural resources, and environmental and emergency management and preparedness. Tribal SMEs work directly with tribal liaisons and DOE project managers on monitoring transportation and shipments of spent nuclear fuel, environmental monitoring and co-sampling, the National Environmental Policy Act (NEPA) public involvement process, meeting National Historic Preservation Act (NHPA) requirements and power plant safety. These activities are dependent on the tribe's agreement with DOE and what is mutually beneficial to the two parties.

For example, Shoshone-Bannock Tribes and Pueblo of Jemez conduct environmental sampling within the scope of their cooperative agreements. Their interest in monitoring the soil, air, water and vegetation is based on protection of agricultural, ceremonial practices, as well as the health and safety of tribal members and residents within impacted areas. DOE relies on this monitoring to ensure that its activities are not adversely affecting tribal residents or their environment.

Unfortunately, all tribes do not have equivalent funding and resources to perform monitoring, planning, and technical activities on DOE sites. Tribal staff designated to monitor activities within their ancestral lands or tribal lands may not have sufficient STEM training or education to adequately advise and assist tribal leadership on decisions related to DOE activities. This may be due to the inherent nature of the type of projects DOE sites engage in, including nuclear, chemical and other technical activities. Tribes may find it difficult to hire a culturally-competent tribal SME, due to the lack of funding or an insufficient workforce pool of geologists, engineers and biologists.

When tribes can't participate in these activities due to the lack of a qualified tribal SME, DOE's perception may be that the tribe seems complacent, or uninterested. As a result, DOE may not pursue tribal members as collaborators, and the protocols of consultation and cooperation are neglected.

Workshops and Technical Assistance:

DOE also provides workshops and technical assistance to tribes. For example, at INL, DOE project managers and contractors have conducted workshops on environmental sampling and monitoring. Through online, field and classroom settings, DOE and contractor field professionals train tribal technical staff to collaborate on INL groundwater and surface-water sampling and monitoring. This mentoring has given tribes the capacity to develop their own sampling program and collect and analyze their own data. Hanford created a long-term project in partnership with the Umatilla Tribe for revegetation and building tribal capacity for future revegetation efforts using Traditional Ecological Knowledge (TEK) and science-based techniques. Prairie Island Indian Community has collaborated with Nuclear Regulatory Commission (NRC) staff to train tribal inspectors at the Prairie Island Nuclear Power Plant, which provides a technical capability within the tribe that

would otherwise be difficult for PIIC to obtain. Much like environmental co-sampling with DOE, the tribal inspectors provide a level of assurance that no federal entity can provide (e.g. a tribal perspective on safety and cultural knowledge).

Mentorship and partnership collaboration employed by DOE facilities (INL and Hanford) and NRC, are not representative of all federal government-tribal interactions. Even at INL and Hanford, mentorship and collaboration opportunities continue to be developed and improved. Still, these examples do illustrate the types of activities needed to increase tribal participation, build capacity for self-sufficiency, and train a workforce with STEM professionals.

VII. Suggestions for DOE

Based on its findings, NETWG is pleased to provide DOE with the following suggestions, aimed at improving STEM and Workforce Development opportunities for Native Americans:

DOE-Headquarters	•Track the current DOE funding impacts at DOE sites on/near impacted tribes •Explore funding mechanism changes by providing STEM funding directly to tribes •Improve cross-agency collaborations
DOE-Facilities	•Identify dedicated DOE staff at each site to focus on tribal engagement •Increase training for DOE contractors on tribal engagement
DOE-Tribal Collaboration	•Identify Native mentors/advisors from DOE affected tribes •Establish guidelines to increase collaboration among DOE funded tribal programs

Figure 2. Table of Suggestions to Consider

Suggestions to Consider for DOE-Headquarters

Tracking the current DOE funding impacts at sites on/near impacted Tribes

The importance of updated and readily available program data on DOE sites near tribal lands, as well as tribal DOE programs, is the first step to improving the effectiveness of STEM related projects. Data should be updated by DOE headquarters with annual reporting reflective of funding levels and success metrics to inform subsequent decisions. By disseminating consistent

and timely data, DOE can demonstrate program effectiveness to internal stakeholders as well as to tribes and the public.

Funding Mechanism Changes

DOE funding is designed to improve, strengthen, and promote programs at DOE sites in collaboration with state and tribal governments. DOE's broadly stated objectives and metrics do not necessarily correlate with the needs of tribal governments. DOE has an opportunity to enrich programs by working collaboratively with tribes to refocus funding and customize the funding to the tribes needs and goals to ensure that it will positively impact the work between DOE sites and tribal governments.

Cross-agency and DOE intra-office collaborations

DOE provides funding under many program areas to meet a wide range of needs at sites and laboratories, yet there continues to be an interagency disconnect pertaining to tribal efforts. DOE sites with a greater presence of NE activities can assist with intra-office and interagency collaboration and establish a STEM-career pathway to develop and enhance existing STEM programs. Federal agencies can share STEM opportunities between agencies and build-in grant proposal assistance for tribal participants.

Suggestions to Consider for DOE Facilities

Opportunities to collaborate with DOE contractors

Contractors make up a large percentage of DOE facilities' staff, yet they may not be familiar with DOE policies, authorizations, tribal guides and cultural protocols. It is important for contractors to work with tribal officials to adequately address challenges in a timely and productive manner. DOE should educate and prepare all DOE contractors by hosting site meetings with the appropriate tribal staff and officials to exchange ideas, explore opportunities and outline best practices in communication and collaboration on STEM initiatives.

DOE Tribal Liaison priorities on STEM and Tribes

The appointment of a dedicated DOE tribal liaison has helped to prioritize interactions between the tribes and DOE. The tribal liaison should also communicate between DOE and the tribes on STEM opportunities from DOE or within the local site.

Native American scientists, engineers and other STEM-related professionals employed at DOE sites are an essential resource and should be better utilized by DOE to engage with tribes. The Office of Diversity and Inclusion (DOE-D&I), established in 2011 within the Office of Economic Impact and Diversity, promotes the DOE policy of inclusion and diversity within the DOE workforce. According to the DOE-D&I mission, Native American STEM professionals fall within the purview of D&I, which creates a possible pathway to DOE careers. Giving tribal staff the opportunity to work with Native American STEM professionals is an important component for inclusion and connection between TEK concepts and the science and technology utilized at the sites.

Suggestions to Consider for DOE and Tribes funded by DOE Cooperative Agreements

Native mentors from DOE affected Tribes

Building tribal capacity through mentorship programs will maximize learning opportunities, information sharing and professional development. It will also build trust and confidence and increase the candidate pool for hard-to-fill positions. Often, mentorship in Native communities happens informally. Formalizing the process along with providing adequate funding will allow mentors to dedicate more time and resources to mentees for pathway development, networking opportunities, post-mentorship tracking and follow-up (Figure 1).

DOE Native mentors can bridge the gap of knowledge between DOE and STEM-related projects, by helping tribes incorporate TEK concepts into their projects. DOE can work collaboratively with tribes to develop guidelines for safeguarding cultural knowledge within TEK concepts.

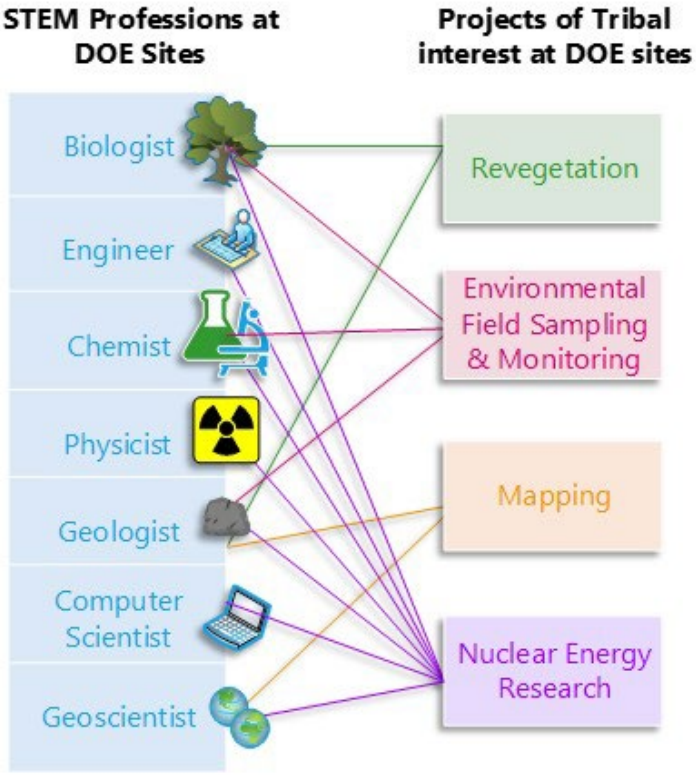

Figure 3. DOE mentors from STEM Professions can assist and train tribal staff based on tribe's interest and scope of work

Guidelines to Increase Collaboration Between DOE and Cooperative Agreement Tribal Programs

In the future, DOE and tribes impacted by the department's actions should work to prioritize and direct program funding to better coordinate and refine collaboration across tribal programs and DOE sites for STEM opportunities. This includes developing a cohesive strategy and approach, with defined metrics to better document the impacts of STEM initiatives at the federal and tribal level. To substantially improve collaboration between tribes and DOE, the tribal programs that receive DOE funds should be subject to an evaluation at the end of each program year to identify communication barriers, staff challenges and opportunities, and assess tribal policies and frameworks that are imperative to the success of the program.

VIII. Conclusion

DOE and NETWG share a common concern for the current and future state of available qualified STEM professionals. Tribes require STEM professionals to apply Traditional Ecological Knowledge, a critical element in fulfilling their role as stewards of the land.

The NETWG members are focused on the challenge of working within their internal governmental structures and tribal programs to work with DOE to improve the pathways for students and increase the number of STEM professionals with TEK and a science background. DOE tribal liaisons/points of contacts and tribal program directors and administrators should establish protocols for exchanging program information that is relevant to STEM activities and of interest to both parties. By gaining access to program data, NETWG tribes can identify the access points and gaps within the current programs which can help channel future funding to programs and initiatives that will provide the greatest benefit.

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