Sandia National Laboratories

SAND2019-7313PE

Tribal Technical Assistance

Energy Sovereignty Institute

2019 Tribal Energy Workshop

PRESENTED BY

Stan Atcitty, Ph.D.

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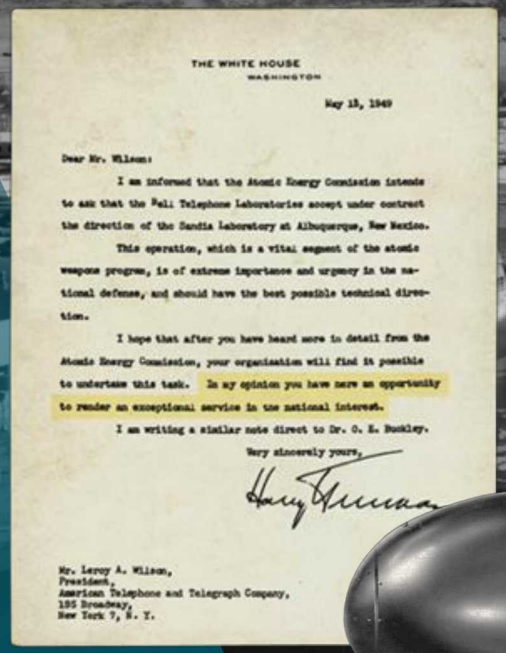
SANDIA'S HISTORY IS TRACED TO THE MANHATTAN PROJECT

…In my opinion you have here an opportunity to render an exceptional service in the national interest.

- July 1945
  Los Alamos creates Z Division
- Nonnuclear component engineering
- November 1, 1949
  Sandia Laboratory established
- AT&T: 1949–1993
- Martin Marietta: 1993–1995
- Lockheed Martin: 1995–2017
- Honeywell: 2017–present



THE WHITE HOUSE
WASHINGTON

May 13, 1949

Dear Mr. Wilson:

I am informed that the Atomic Energy Commission intends to ask that the Bell Telephone Laboratories accept under contract the direction of the Sandia Laboratory at Albuquerque, New Mexico.

This operation, which is a vital segment of the atomic weapons program, is of extreme importance and urgency in the national defense, and should have the best possible technical direction.

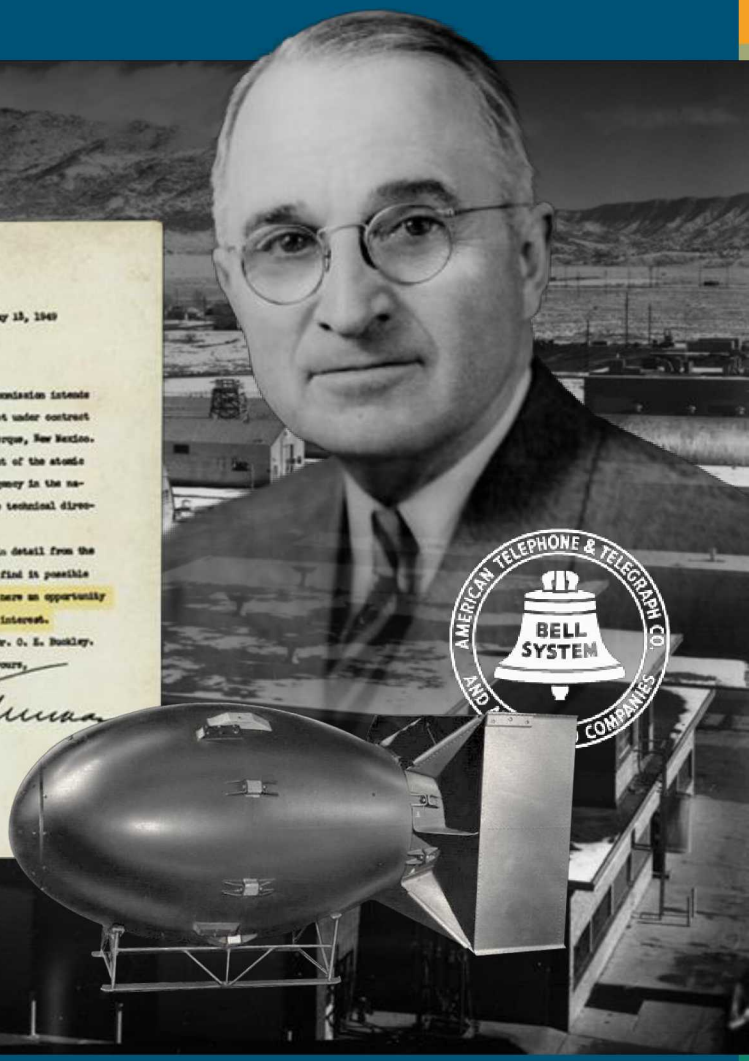
I hope that after you have heard more in detail from the Atomic Energy Commission, your organization will find it possible to undertake this task. In my opinion you have here an opportunity to render an exceptional service in the national interest.

I am writing a similar note direct to Dr. O. E. Buckley.

Very sincerely yours,

Harry Truman

Mr. Leroy A. Wilson,
President,
American Telephone and Telegraph Company,
195 Broadway,
New York 7, N. Y.



SANDIA IS A FEDERALLY FUNDED RESEARCH AND DEVELOPMENT CENTER MANAGED AND OPERATED BY

National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc.: 2017 – present

Government owned, contractor operated

SANDIA HAS FACILITIES ACROSS THE NATION

Activity locations

- Kauai, Hawaii
- Waste Isolation Pilot Plant, Carlsbad, New Mexico
- Pantex Plant, Amarillo, Texas
- Tonopah, Nevada

Main sites

- Albuquerque, New Mexico
- Livermore, California

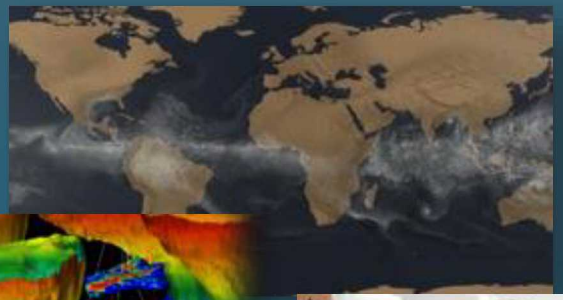
Energy & Climate

Energy Research

ARPAe, BES Chem Sciences, ASCR, CINT, Geo Bio Science, BES Material Science

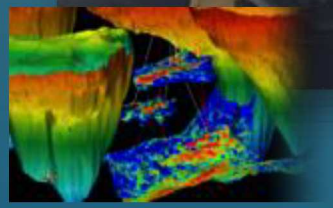
Climate & Environment

Measurement & Modeling, Carbon Management, Water & Environment, and Biofuels



Nuclear Energy & Fuel Cycle

Commercial Nuclear Power & Fuel, Nuclear Energy Safety & Security, DOE Managed Nuclear Waste Disposal



Renewable Systems & Energy Infrastructure

Renewable Energy, Energy Efficiency, Grid and Storage Systems

Transportation Energy & Systems

Vehicle Technologies, Biomass, Fuel Cells & Hydrogen Technology

DOE Office of Indian Energy Policy and Programs

Authorized to fund and implement a variety of programmatic activities that assist American Indian Tribes and Alaska Native villages with:

- Energy development
- Capacity building
- Energy cost reduction
- Electrification of Indian lands and homes

To advance the mission, IE works with American Indian Tribes and Alaska Natives to maximize the value of their energy resources through:

- Facilitation of energy development
- Education and training
- Technical assistance
- Funding

Ref. https://www.energy.gov/indianenergy/office-indian-energy-policy-and-programs

Tribal Strategic Energy Planning - Facilitation

Facilitate on-site strategic energy planning for the tribal leaders, elders, and staff

- Resource assessment
- Energy options analysis
- Roadmap for future development

Learning and blending facilitation techniques for strategic energy planning

https://www.energy.gov/indianenergy/technical-assistance

DOE Office of Indian Energy Technical Assistance

Technical assistance provided to federally recognized Indian tribes, including Alaska Native villages, tribal energy development organization, and other organized tribal groups and communities – to advance tribal energy projects.

Types:

- Technical Analysis – transmission and/or utility assessment, market access, and energy efficiency reviews
- Financial Analysis – economic or market analysis for early stages of development
- Strategic Energy Planning

Ref. https://www.energy.gov/indianenergy/office-indian-energy-policy-and-programs

Office of IE Strategic Energy Plan and Planning Handbook

- Tool for tribal communities to achieve near- and long-term energy goals
- Helps tribal leaders and community members define their unique energy goals and priorities
- It can create opportunities to integrate energy, environmental, economic development, and community interest
- Benefits of a strategic energy plan:
  - Cost saving for tribal members
  - Potential revenue from renewables
  - A stronger economy
  - Greater energy independence and security
  - Local influence over energy facility siting
  - More energy efficient communities
  - Healthier communities
  - A cleaner environment
  - Regional tribal coordination and collaboration
  - A chance to demonstrate leadership

Ref. https://www.energy.gov/indianenergy/downloads/tribal-strategic-energy-plan-and-planning-handbook

Office of IE Strategic Energy Plan and Planning Handbook (cont.)

Step 1: stakeholders and community members is central to the development (local utility, community leaders & members, facilities manager, community businesses, etc.)

Step 2: Leadership is key to a successful plan. It has the power to make decisions, direct funding resources, and promote the project throughout the process.

Step 3: Clearly articulate the community's long-term energy vision and goals (assure affordable and reliable energy, strengthen economic development, build workforce, etc.)

Step 4: An effective plan builds upon what has already been accomplished (energy usage baseline, understanding strengths, weakness, and opportunities, list of energy systems and resources, etc.)

Basic cycle for effective strategic energy plan

Ref.
https://www.energy.gov/indianenergy/downloads/tribal-strategic-energy-plan-and-planning-handbook

Office of IE Strategic Energy Plan and Planning Handbook (cont.)

Step 5: Energy efficiency and renewable energy can meet multiple goals (energy savings, sustainability and reduction in the use of diesel fuel, e.g. reduce energy consumption by x% by x year, etc.)

Step 6: Resource is limited so prioritizing projects will be critical, pursue highest impact projects first, etc.)

Step 7: Various options are available to fund and finance energy projects (federal, state, non-profit grants, private investments, etc.)

Step 8: This public document summarizes all the data, information, vision, goals, and priorities – most effective when formally adopted and approved by the Tribal Council.

Step 9: Once adopted the plan becomes a living document (can be updated, used to reflect and verify projects are moving the Tribe closer to its stated vision and goals.

Basic cycle for effective strategic energy plan

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https://www.energy.gov/indianenergy/downloads/tribal-strategic-energy-plan-and-planning-handbook

Sandia Energy Storage Valuation with QuESt Software

- **What is QuESt?**
  - Accessible and easy-to-use software tool for energy storage valuation and related applications developed at SNL
  - No software licenses required – It's free!
  - Can be adjusted to fit specific needs
- **What does it do?**
  - **ESS Valuation** – Estimate potential revenue generated by energy storage systems providing multiple services in the electricity markets of ISOs/RTOs.
  - **Behind The Meter** – Estimate the cost savings for time-of-use/net energy metering customers using behind-the-meter energy storage systems.
- **How is it beneficial?**
  - Analysis of cost savings obtainable given tariff structure (time of use, demand charges)
  - Sizing of Energy Storage – system power (kW) and capacity (kWh)
- **For more information on QuESt:**
  - github.com/rconcep/snl-quest or sandia.gov/ess

Sandia Internship Program

DOE's Tribal Energy Program offers student internships at Sandia National Laboratories

Eligibility: Current college upper-classmen and graduate students, who are familiar with Native American culture and tribal issues, support the Tribal Energy Program efforts with technical project tasks

Required: As authorized by the TEP, the student applicant must

- be a US Citizen
- be a Native American as defined as

  - a member of a Federally-recognized Tribe, Alaska Village or Alaska Corporation
- be specifically interested in renewable energy

2002 – 2019

- Over 30 undergraduate & graduate interns have participated
- Over 13 different tribal affiliations
- Over 12 different majors
- Four interns have been hired this year

Field trip to the Navajo Nation

Contact

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Distinguish Member of Technical Staff

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