

DOE / SANDIA INDIAN ENERGY – INTERNSHIP PROGRAM Immersion into Indian Energy



U.S. DEPARTMENT OF
ENERGY

Office of
Indian Energy

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AI / AN STEM Higher Education Reality

Unique challenges as the most under-represented group in education. To close the achievement gap:

- The National Caucus of Native American State Legislators:
 - programs developed with community and tribal collaboration
 - Including representation at federal levels
 - developing culturally (tribally) based curricula
 - buy-in includes culturally (tribally) appropriate standards.
- American Indian Science & Engineering Society (AISES)
 - programs for STEM access & success at post-secondary institutions, and
 - creating initiatives centered around STEM leadership & (systemic) change with STEM professionals

American Indian & Alaska Native STEM Students – AI / AN
(US Engineering workforce illustrated)

0.3% (3 out of 10,000) AI/AN in the US Engineering workforce (2010)

0.07% (1 out of 13,000) AI/AN women in the US Engineering workforce

0.4% earned Engineering Bachelor degrees of the US students (2012)

Approximate Average / year US Engineering degrees awarded between 2001 – 2013:
300 BS, 75 MS, 10 PhD

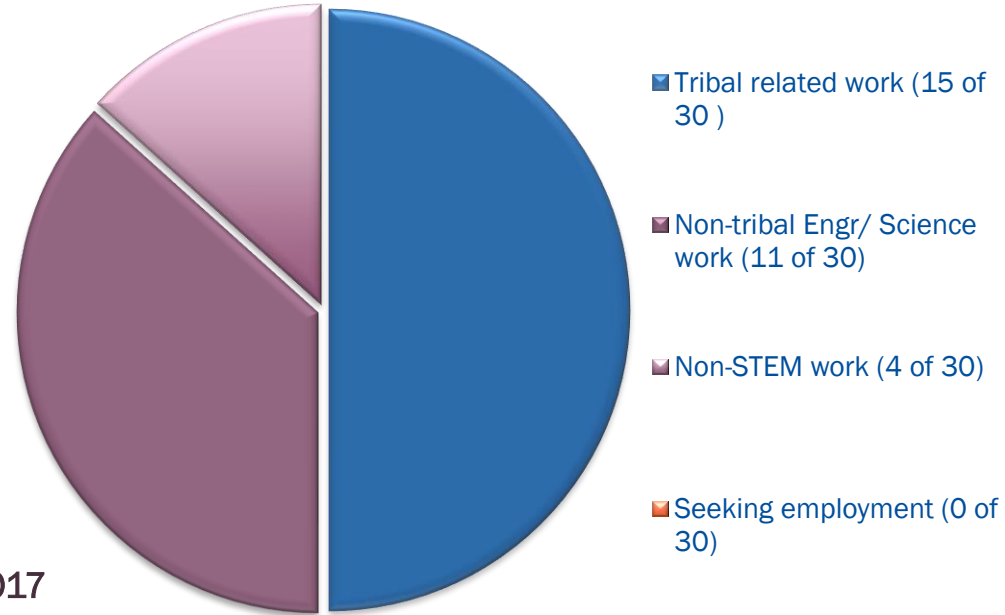
Only 7 of 100 AI/AN kindergarten students will eventually earn a bachelor's degree compared with 34 of every 100 White kindergarten students.

Overview: 2002 – 2017 Statistics



Intern Gathering at Navajo Energy Summit – Flagstaff, AZ
 Pictured: Debby Tewa, Suzanne Singer, Terry Battiest, Len Necefer, Carson Pete, Sandra Begay, Thomas Jones

Type of Work for Former Interns



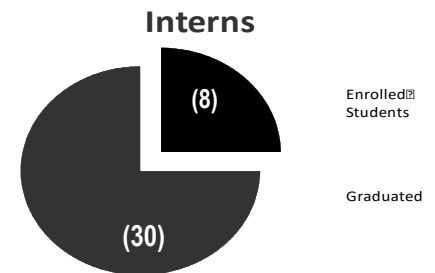
2002 - 2009

- 18 undergraduate & graduate interns have participated.
- 10 different tribal affiliations
 - 9 different majors
- 28 % of the interns converted to year-round status (5 of 18)
- 17% of the interns hired as FTEs or contractor (3 of 18)
- 56% female interns (10 of 18)

2010 - 2017

- 20 undergraduate & graduate interns have participated.
- 11 different tribal affiliations
 - 10 different majors
- 20% of the interns converted to year-round status (4 of 20)
 - 15% of the interns hired as FTEs or contractor (3 of 20)
- 75% female interns (15 of 20)

Graduation Rate of All Interns



Where are the IE /Sandia former interns working?

Internship graduates working on DOE or energy related activities:

- ✓ Serves as new Navajo Nation's tribal utility renewable energy engineer
- ✓ Serves as DOE National Lab - Sandia Corporate Planner, NM
- ✓ Serves as DOE National Lab - Sandia Corporate Planner, CA
- ✓ Served as DOE National Lab - Sandia corporate procurement representative
- ✓ Serves as DOE National Lab - Sandia R&D engineer
- ✓ Served as DOE Wind Program Manager; now in private industry
- ✓ Served as past Navajo Nation's tribal utility renewable energy engineer; successfully implemented Navajo's EECBG ARRA funds & TEP funds.
- ✓ Serves as a private commercial scale PV design engineer
- ✓ Serves as a tribal solar and energy efficiency consultant
- ✓ Serves as Taos Pueblo environmental staff
- ✓ Serves as Taos Pueblo community planner
- ✓ Serves as technical tribal energy sub-contractor, DOE Office of Indian Energy
- ✓ Serves as community energy coordinator NGO
- ✓ Serves as community college Sustainability Facilities Lead
- ✓ Serves as Bureau of Indian Affairs engineer

Of the current graduate student research (past & current interns):

- ✓ Researching barriers to development for Alaska Natives (DOE IE)
- ✓ Researching large scale off-shore wind energy turbines (NSF Fellow)
- ✓ Researching tribal climate change mitigations and adaptations (EPA Fellow)
- ✓ Pursuing renewable energy systems designs (DOE National Lab - NREL)
- ✓ Researching Pueblo leadership decision making (Kellogg Foundation Fellow)

US Engineering Institutions awarding the most engineering Bachelor degrees to AI/AN (interns' universities):

- ✓ Arizona State
- ✓ University of Oklahoma
- ✓ New Mexico State
- ✓ North Carolina State
- ✓ Northern Arizona University
- ✓ South Dakota School of Mines and Technology
- ✓ University of New Mexico