DOE / SANDIA TRIBAL ENERGY – INTERNSHIP PROGRAM
Immersion of future leaders into renewable energy

Fall 2011
Sandra Begay-Campbell
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Intern Gathering at Southwest RE Conference, Flagstaff, AZ
Pictured: Suzanne Singer, Gepetta Billie, Sandra Begay-Campbell, Carson Pete, Terry Battiest, Prestene Garnenez

Type of Work for Past Interns

- **Tribal related work**
  - Tribal Energy Consultant
  - Navajo Tribal Utility Authority
  - AZ RE Community College
  - RE Technical Company
  - Inst. Of American Indian Art
  - Udall Foundation
  - NM Council of Gov’t

- **Non-tribal Engr/Science work**
  - Sandia Nat’l Laboratories
  - Lawrence Livermore Nat’l Labs
  - Lockheed Martin
  - INTEL

- **Seeking Employment**
  - 2011 Summer Graduates

2002 - 2011

- 23 undergraduate & graduate interns have participated.
  - 14 different tribal affiliations
  - 12 different majors
  - 30% of the interns were converted to year-round status
  - 13% of the interns were hired as FTEs or Sandia contractor

Graduation Rate of All Interns

- Enrolled Students
- Graduated
Deborah Tewa (Hopi)
BS - Indigenous Studies, Northern Arizona University
Her research focused on tribal off-grid PV systems and tribal RE systems.

"While I had worked with photovoltaic systems for several years including my experience at NativeSUN, the internship complemented my prior work ‘in the trenches’ and has been a gratifying experience. “
“Native Americans believe that the sun, wind, and geothermal waters are all gifts from the Creator. As people use these resources today, they should always remember to give thanks for all that is provided.”
Benjamin Mar (Cherokee), BS – Electrical Engineering, Worcester Polytechnic Institute
His paper entitled "Navajo Tribal Utility Authority: Photovoltaic Hybrid Operation and Maintenance Process for a Sustainable Program"

Jennifer Coots (Navajo), MBA – Finance, University of New Mexico, BA Finance
Her paper entitled "A Decade Of Changes To An Alternative Power Source For A Rural Utility."

Colin Ben (Navajo), MA – American Indian Studies, University of Arizona. His paper entitled "Researching Renewable Energy Systems Available to Indian Country"

Deborah Tewa (Hopi), BS - Indigenous Studies, Northern Arizona University.
Her research focused on DOE’s Solar Reliability Database for Off-grid PV systems.

“With our diverse backgrounds, we shared our perspectives as well as analyzed situations through different points of view whether cultural, technical or financial.”
“Tribal Nations do have unique cultures that must be considered for any government project and it increases the success of the project when that awareness is there.”

Pictured at Hopi Old Oraibi Village: Tanya Martinez, Deborah Tewa, Sandra Begay-Campbell, and Jennifer Coots.

Tanya Martinez (Mi’KMaq) Power Engineering graduate student, University of Massachusetts – Lowell, BS - Electrical Engineering. Her paper entitled “Remote Monitoring System Design - Sustainable Systems For The Navajo Tribal Utility Authority”.

Deborah Tewa (Hopi) BS - Indigenous Studies, Northern Arizona University. Her paper entitled “NativeSUN: A Model for Sustainable Solar Electric Systems on Indian Lands”.

Jennifer Coots (Navajo) MBA - Finance, University of New Mexico. Her research focused on the tribal housing mortgage finance for renewable energy systems.
2006 TEP / Sandia Student Interns

Pictured at Navajo Nation - Monument Valley, UT: Thom Sacco, Terry Battiest, Jonathan Biron, Sandra Begay-Campbell, Lani Tsinnajinnie & Debby Tewa

Terry Battiest (Choctaw)
MS – Telecommunications, University of Colorado – Boulder, BS - Industrial Engineering
His research focused on the Navajo Nation’s Internet-to-the-Hogan Project.

Jonathan Biron (Sault Ste. Marie Tribe of Chippewa)
BS – Biosystems Engineering, Michigan State University
His paper entitled, “Tribal Renewable Energy Integration: An Analysis of Current Tribal Infrastructure”

Lani Tsinnajinnie (Navajo/Filipino)
BS – Environmental Science & Native American Studies, University of New Mexico Her paper entitled “Benefits of Renewable Energy for Native Nations from the Environmental and Native Perspectives”

“…it has given me insight to what I want to do professionally…”
“Since day one, I have felt like a valuable member of the team, which is important because not only am I learning a great deal, I also feel like I am contributing to the group.”

**Terry Battiest (Choctaw)**
MS – Telecommunications, University of Colorado – Boulder
BS Industrial Engineering
His paper, "Navajo Tribal Utility Authority Solar Program System Data and O&M Initiative"

**Nick Johnson (Three Affiliated)**
BS – Mechanical Engineering
University of Colorado – Denver
His paper, "Sustainability of Small Wind Turbines on Native American Tribal Lands"

**Cherylin Wilson (Navajo)**
BS – Biology, AS – Environmental Science
Oklahoma Panhandle University.
Her paper, "The Ecological Effects of Native Wind Energy Projects"
“This internship has allowed me to learn and see first hand what it means to plan and build sustainably on Native lands. “
“I think what I learned that is important in all the tribes we visited, is the importance of ‘ownership’ of the project. If you’re investing part of what you have - your time, money, energy, pride - into these projects, [then] the projects can be successful, long-lived and sustainable.”
2010 TEP/Sandia Student Interns

Joni Fuenmayor (Navajo)
AAS – Energy Systems, Navajo Technical College, Crownpoint, NM
BA – Studio Art, Dartmouth College, Hanover, NH
Her paper entitled: “What’s in 880 Watts? An Exploration of the Basic Electrical Power Connections between a Residential PV System and an Appliance”

Gepetta Billie (Navajo)
MS – Community & Regional Planning, UNM; BA – Environmental Planning & Design, UNM; AAS – Civil Engineering Technology, SIPI
Her paper entitled, “Tribal Green Building: A Sustainable Approach to Addressing the Housing Crisis in Indian Country”

Prestene S. Garnenez (Navajo)
MA-Urban Planning, University of California, Los Angeles; BS-Biology and minor in Mathematics, New Mexico State University

Logan Slock (Hopi/Choctaw)
BA – Liberal Arts with a main focus in environmental studies, Johnson State College, Johnson Vermont
His paper entitled: “Achieving Overall Betterment of Energy Resource Use in Tribal Communities”
Tammie Allen (Jicarilla Apache)
MS – Community & Regional Planning, UNM;
BA – Art, College of Santa Fe

Gepetta Billie (Navajo)
MS – Community & Regional Planning, UNM; BA – Environmental Planning & Design, UNM; AAS – Civil Engineering Technology, SIPI
Her thesis entitled “Addressing Renewable Energy Development at the Local Level by Learning How to Plan through Green Building: An Example of Community-based Planning on the Navajo Reservation”

Chelsea Chee (Navajo)
MS – Community & Regional Planning, UNM; BS – Environmental Planning & Design, U of AZ
Her paper entitled: “Energy Efficiency and Renewable Energy Benefits Agua Caliente Band of Cahuilla Indians via Implementation at Their Indian Canyons Trading Post”

Devin Dick (Navajo)
AAS – Energy Systems, Navajo Technical College, Crownpoint, NM
His paper entitled: “Suggested Alternatives’ For Navajo Tribal Utility Authority: Utilizing Excess Power Generated By Stored Hybrid Units”