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# 2012 Summer Internship Sandia National Laboratories

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# Sandia National Laboratories

- **Energy, Climate & Infrastructure Security** delivers Sandia's mission to enhance National security and prosperity through sustainable, transformative approaches to our most challenging energy, climate, and infrastructure problems.



# DOE Tribal Energy Program

- **Mission:** to provide financial and technical assistance to tribes through government-to-government partnerships that:
  - Empower tribal leaders to make informed decisions about energy choices
  - Bring renewable energy and energy efficiency options to Indian Country
  - Enhance human capacity through **education and training**
  - Improve local tribal economies and the environment
  - Make a difference in the quality of life of Native Americans

# Intern Duties

- Support efforts to learn and develop customer relations; and assist with Tribal Energy Program tasks as needed. Specifically, assist with strategic energy planning tasks.
- Assist an intern team to perform specific tasks and learn skills to facilitate.
- Write a paper on relevant research topic based on internship experience.
- Create and present summer work various venues.



Photo courtesy of Colleen Cooley

# Field Visits

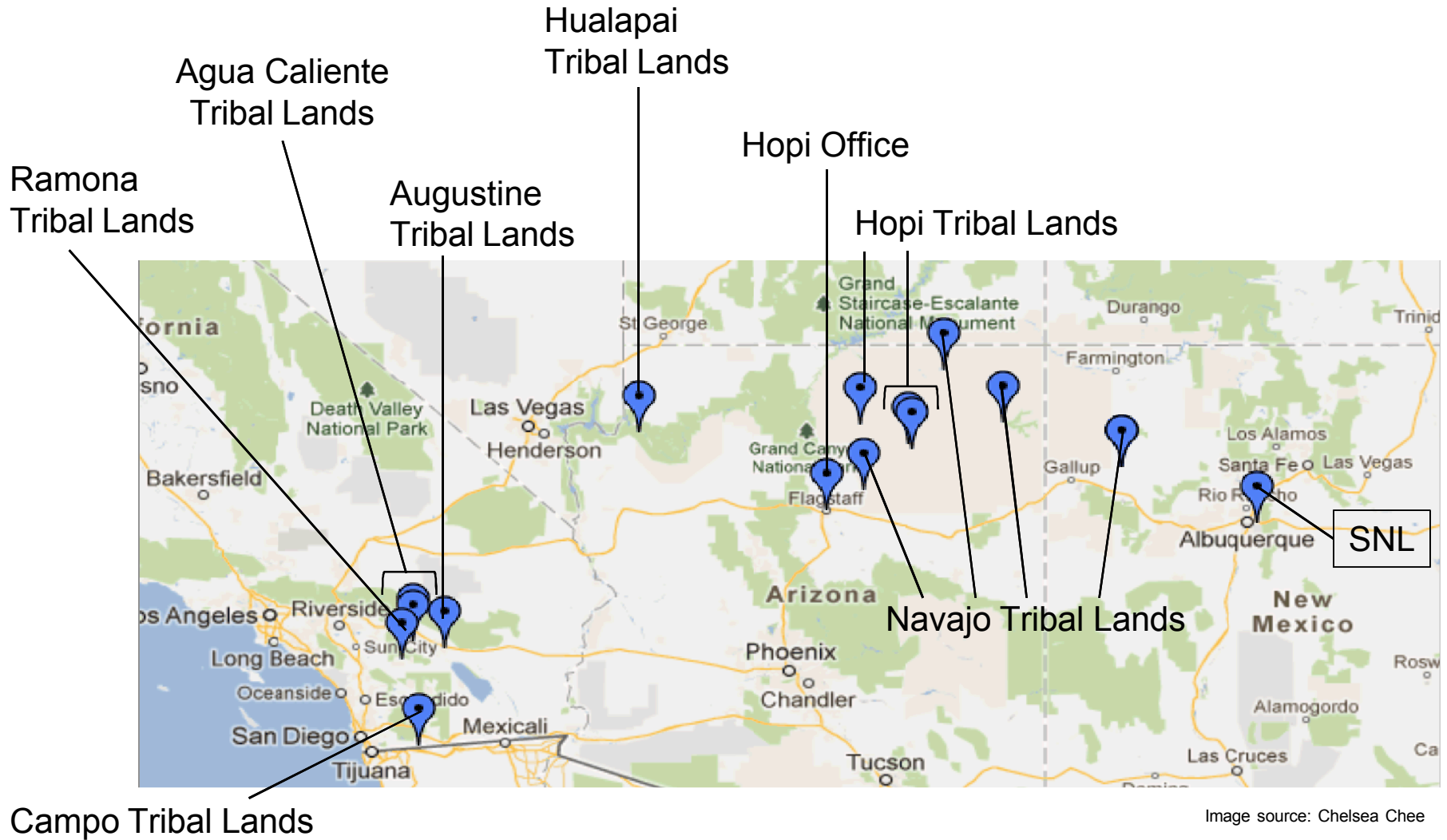


Image source: Chelsea Chee

# Residential solar electric systems



Ground mounted solar PV system on residential unit in Grand Falls, AZ



1080 W PV-wind hybrid system on residential unit in Kayenta, AZ



Solar panels at Grand Canyon West

# Large scale RE systems



Solar array on Ramona  
Band of Cahuilla Indian  
land



Solar panels on Trading Post on  
Agua Caliente of Cahuilla Indian  
land



50 MW Wind Farm on  
Campo Band of  
Kumeyaay Nation

# Navajo Nation and LEED



Photo courtesy Colleen Cooley

- NTUA Chinle, AZ district office
- 69 kW: Two 34.5 kW solar arrays
- 30% of building needs
- LEED-gold standard



Photo courtesy Chelsea Chee

- NTUA Crownpoint, NM district office
- 69 kW: Two 34.5 kW solar arrays
- LEED-platinum standard



# Product/Deliverables

- Interactions with Native American Sandia staff
- 2-day Facilitation Training at Sandia with Leslie Kabotie
  - Applied to Hopi Strategic Energy Planning Meeting in Flagstaff
  - Will apply to future discussions in class, with family, or on a professional level
- Reflection Papers
- Research Paper: “Mitigating Climate Change on a Tribal Level”
- Poster Presentation: Student Intern Symposium at Sandia
- PowerPoint Presentation: Tribal Energy Program Renewable Energy/Energy Efficiency Workshop in Milwaukee, WI

# Career Goals

- To work with a tribal entity and/or non-profit organization in the renewable energy sector
- To help tribes understand the effects of climate change and find ways to adapt through renewable energy, energy efficiency, water conservation, waste management, etc.
  
- Internship experience
  - Helped understand RE potential on tribal lands
  - Helped understand RE systems through hands-on activities and interactions with tribal professionals/leaders
  - Interactions with Native American professionals at Sandia
  - Milwaukee TEP/RE/EE workshop

# Challenges



Photo courtesy of Colleen Cooley

# Acknowledgements

- Sandia National Laboratories
- Tribal Energy Program
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- Stanley Atcitty
- Leslie Kabotie
- Sandia Staff
- Contacts from Field Visits
- NAU's Climate Science & Solutions Program

# Questions?



Photo courtesy of Colleen Cooley