

## Climate Change Research Program Round 3 Awards

### Humboldt State University

### **Smoke, Air, Fire, Energy (SAFE) in Rural California: Energy and Air Quality Infrastructure for Climate-Smart Communities**

Principal Investigators: Peter Alstone (HSU), Deepti Chatti (HSU), Tesfayohanes Yacob (HSU), Jana Ganion (Blue Lake Rancheria), Shawn Bourque (Karuk Tribe)  
\$990,350.00

#### **Partners:**

- Blue Lake Rancheria
- Karuk Tribe

#### **Research Priority Area(s):**

- Supporting and Protecting Vulnerable Communities from the Impacts of Climate Change
- Accelerating and Supporting Transitions to Climate Smart Communities
- Integrating Land Use, Conservation, and Management into Climate Change Programs

#### **Crosscutting Thematic Lenses:**

- Social Dimensions of Change
- Integrating Climate Vulnerability/Adaptation with Climate-smart Approaches

#### **Research Activities:**

The project goal is to identify sustainable pathways to climate-smart rural California communities through development of energy and air quality infrastructures that are responsive to community needs and that build on community strengths. This study will focus on smoke, air, fire, and energy systems, and the social dimensions of understanding and changing them. With an interdisciplinary approach, the researchers will work to identify and understand how near-term investments and community actions can lead to long-term sustainability. The research team will develop engineering design tools and management strategies that can accelerate deployment of energy and air quality infrastructure systems for households, critical community facilities, and isolated clusters of 10-50 households and businesses. The project will also work directly with community members and leaders to advance understanding of the social dimensions of climate- and fire-smart practices and infrastructures. Finally, the project will advance sustainable university-community research partnerships by assessing the needs and opportunities for universities to play a supportive, long-term role in connecting indigenous communities with resources for environmentally just community development and research.

#### **Facilitates Greenhouse Gas Emissions Reductions:**

Enabling the deployment of clean technologies in rural communities will reduce emissions by increasing accessibility of clean energy microgrids that support renewables integration and avoid climate and health impacts from fossil fuel combustion during blackouts (e.g., from diesel generators). The project will also focus on identifying infrastructure that supports indigenous land use and prescribed fire, resulting in additional emissions reduction and sequestration through reduced catastrophic wildfires and improvements in forest health.

#### **Benefits Disadvantaged, Low-Income, and/or Underserved Communities:**

This work is explicitly focused on meeting the needs of rural indigenous communities in Northwest California. These are among the most underserved and historically disadvantaged communities in California. Many of these communities still face a lack of infrastructure investment, economic opportunity, and access to healthy food, among other challenges. There is also significant exposure to air pollution from forest fire smoke, particularly in river-valley and forested communities where atmospheric inversion layers can trap pollution for days or longer. The project objectives aim to support a just transition to clean energy and air systems based on community mores, which can also support local economic opportunity and reduce exposure to harmful pollution.