

Energizing Rural Community Prize---Cover Page

Title: Partnering for Sustainable Energy Renaissance for Rural Communities

Competitor Name: Robert G. Hockaday

Organization Name: Tucumcari Bio-Energy, Inc.

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Location of Primary Benefits: City of Tucumcari, Quay County, NM.

Rural/Remote Classification: Quay County is considered rural according to the USDA rural counties map with a population of 8,656. Tucumcari is considered a remote town. The nearest large city, Albuquerque, New Mexico is 176.3 miles; and the nearest small city is Amarillo at 115.1 miles away.

Tucumcari, New Mexico Population Demographics (Census Bureau 2021)	Quay County, New Mexico Demographics (Census Bureau 2021)
<ul style="list-style-type: none">• Population of 5,207 people (1% decrease between April 2020 to July 2021)• 27.8% persons live in poverty• Median household income \$30,679	<ul style="list-style-type: none">• Population of 8,656 people (1% decrease between April 2020 to July 2021)• 22.0% persons live in poverty• Median household income \$33,067

Short description of proposed plan, activities, and use of prize funds:

Tucumcari Bio Energy, Inc. (TBEC) and partners is addressing the region's urgent agriculture input challenges by producing local fuel, fertilizer, fortified household and community photovoltaic systems, and refining and storing compressed natural gas for the electrical grid and transportation. TBEC is collaborating with other organizations to build and test a solar-powered and heated prototype thermophilic digestion plant of cattle manure, effluent waste, and cheese whey waste to capture and purify methane, carbon dioxide and grade-A liquid and solid fertilizer. Fertilizer doubles the number of people who can be fed by a single acre of land by supplying essential soil nutrients and thereby increasing the opportunity for small farms to recoup input cost losses to make a profit. Pure carbon dioxide can be used in greenhouses or geologically in the nearby Permian basin through local pipelines. TBEC will also build a community solar/storage system on the property and enable local public investment in the system to serve the community with lower cost electricity option. This synergism of addressing multiple input challenges, fosters a tighter and more resilient circular economy for Tucumcari, and other rural communities nearby. Once the concept has been proven and verified, the system will be extrapolated to other rural communities with similar energy and input challenges. Our natural gas pipelines in our area are completely full and we cannot export gas via pipelines, but we are located in a 288 mile natural gas filling station gap on I-40. So by fueling truck transport locally we can reach the renewable fuel and greenhouse gas reduction markets. We propose to use the prize funds to partner with truck fleet operators and obtain contingency purchase agreements for our renewable natural gas and hydrogen. With these out-take partner agreements we qualify for greenhouse gas reduction credits, and can obtain bank financing and private equity finance for plant reconfiguration and filling stations.