



STATE & COMMUNITY ENERGY PROGRAMS

**FOA Title:** 2024 Funding Opportunity Announcement for Communities Sparking Investment in Transformative Energy (C-SITE)

**FOA Number:** DE-FOA-0003229

**Control Number:** 3229-1569

**Project Title:** Ticaboo Renewable Energy Project

**Project Location(s):** Ticaboo, UT 84533, located along Highway 276, at Mile Marker 28

**Name of Prime Applicant Organization:** Garfield County

☒ Local Government

☐ Federally Recognized Indian Tribe

☐ Disadvantaged Community

☒ Energy Community

☒ Small-sized jurisdiction

☐ Medium-sized jurisdiction

**Total Federal Budget Requested:** \$2,942,000

**Prime Recipient Total Budget Requested:** Ticaboo Utility Improvement District

**Sub-Recipient(s) Total Budget Requested:** N/A

**Cost Share**

\$155,000 (5%)

TUID/SITLA: In kind – labor/project management (\$40,000)

TUID: \$50,000 cash

SITLA/NLP: 5 acres of land will be made available for the project by a major landowner at no cost. A 2022 appraisal valued land in the area at \$13,000 per acre for a total value of \$65,000

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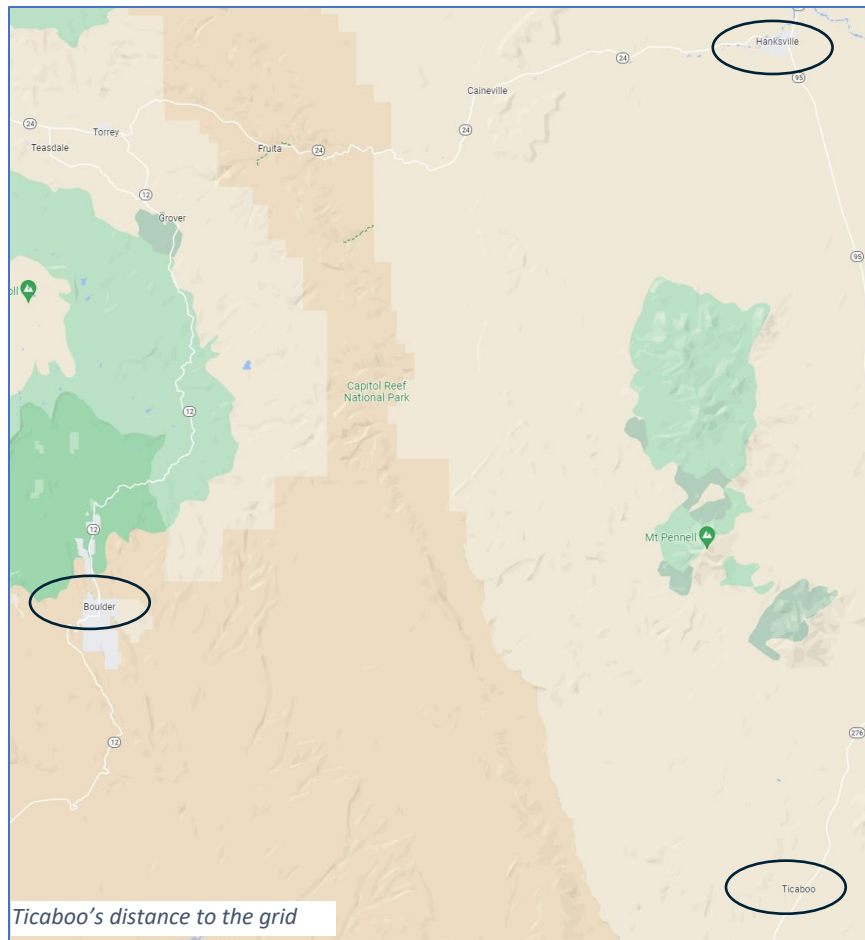
**Partners/Subrecipients**

Partner: N/A

**Confidentiality note:** None



## Project Opportunity



TUID manages the power generation and distribution for the town of Ticaboo, an unincorporated town in Garfield County, located near the Bullfrog Marina by Lake Powell. The town consists of approximately 70 residences (50% permanently occupied) and one major business which runs a hotel and ancillary businesses in town. Ticaboo is not connected to the national power grid and all power is generated by a set of four diesel generators. Ticaboo is a very isolated community, located 55 miles from Hanksville, the nearest community to the north and 75 miles from Boulder to the west.

Hanksville and Boulder are connected to the national grid. However, connecting to the grid at those locations is not financially feasible as a result of the great distances.

Ticaboo is located in Eastern Garfield County. The County has a population of 5,314 (July 1, 2023, US Census data) making it a small jurisdiction. Eastern Garfield County is designated as an "Energy Community" on the eligibility map. The CJEST mapping tool does not show Eastern Garfield County as a disadvantaged community. However, the combination of very high energy costs and the relatively low average income of the permanent residents of the town of Ticaboo, would qualify it for the status of disadvantaged community, if it were analyzed by itself.

### History

Ticaboo's location is close to Lake Powell and surrounded by spectacular red rock landscapes. This unique landscape generates endless opportunities for economic development, attracting lake traffic that otherwise would go to Page AZ and providing additional recreational opportunities for tourists when Moab and Zion NP are "full".

However, life in Ticaboo is expensive: grocery shopping happens in Price (2 hours away); doctor's visits in Green River or Salt Lake City (3-4 hours away), and a simple monthly residential power bill has a base rate of \$75 plus 55 cents per kWh. Large customers pay 34 cents per kWh.



*View of Ticaboo from Ticaboo Mesa*

Even with the very high electricity rates, TUID is not financially sustainable. Diesel prices over \$3/gallon make the day-to-day operation insolvent; deferred maintenance of generators and the power grid require investments of sums that are not available, and the high utility costs prevent the economic growth and (second) home building activity that would move TUID to solvency.

## **Project Vision and Summary**

TUID is working on a three-step plan to move forward to financial stability, a reliable and affordable power supply, and an environmentally sustainable generation model to support existing residents and businesses, as well as accommodate future development. **Step 3, described below, is the focus of this grant application:**

1. **Financial Stabilization:** Effective April 1, 2024, TUID has added a fuel price surcharge to the already very high rates to balance revenue with the cost of running the generators in 2024.
2. **Mechanical Stabilization:** TUID has a fleet of 4 generators of different sizes; a small one for winter, two medium generators (CAT C9) and a larger one (CAT C15). The two C9s are each several thousand hours over the recommended schedule for a rebuild of the engines. These C9s are essential for the uninterrupted power supply, especially in summer and are no longer reliable. During the year 2024 TUID will attempt to gather funds to schedule the maintenance for one of them to work towards ensuring power reliability until we can transition to solar generation and battery storage.
3. **Environmental Stabilization and rate reduction:** The third phase includes adding solar generation and battery storage to the microgrid, actions directed at lowering the price of power and moving TUID closer to environmental sustainability. The project consists of adding a new 438 kW solar array and a 1439 kWh of battery capacity to generate the power needed for **85% of the current loads**, a distribution system upgrade from the 25,000-volt system to a common 12,470-volt service lines and transformers. The project costs are: \$3,097,000 (Distribution System Upgrade: \$918,000, Solar Array and Batteries: \$1,609,000, Engineering/permitting: \$505,000, 5 acres land: \$65,000)

## **Deliver direct local community benefits**

TUID provides power to 70 residences (35 full time) and one tourist-oriented business. The

full-time resident (50% employed/50% retired) have a median income of \$34,000 per year. They are faced with some of the highest power rates in the country. Many of the residents live on modest service industry wages and fixed social security incomes. Rates range from \$0.34 to \$0.52 per kWh in addition to the monthly base rate of \$60-\$75 per month, which is 3 to 4 times as much as most Utahns pay. The target rate after the implementation of the project is \$0.15-0.23/kWh, a reduction of 55%. Residents regularly express their frustration at having to pay these rates and let us know the strain it puts on their limited budget. The TUID board is comprised of representatives of local business, homeowners, and development partners, ensuring that the interests of all stakeholders are represented. In addition to reducing energy costs, replacing most of the diesel generated power with clean energy will reduce local air pollution and reduce the impact of the community's power generation on climate change.

### Spark additional investments

Ticaboo is located in the North Lake Powell area. In a collaboration with the State of Utah, Garfield County and local stakeholders the Institute of Outdoor Recreation and Tourism of the Utah State University has published a feasibility study of outdoor recreation and tourism development in the North Lake Powell region. The study identifies the high cost of power as the major bottleneck to economic development in the region.

The executive summary states in relevant part:

The North Lake Powell Region, known for its stunning landscapes and diverse ecosystems, holds vast opportunities for sustainable tourism and economic growth.....

..... The report also identifies and discusses three **major bottlenecks** to the future of outdoor recreation and tourism development throughout the region. These include:

- **Power generation. The cost of power generation throughout North Lake Powell is, and will likely remain, the most significant barrier to the region's economic growth.....**

..... • **Capital improvements** in and around Ticaboo. The very significant planned investments in and around Ticaboo would have a very large impact on the region's economy. These potential impacts are only likely to be realized if construction and development is **economically feasible.**

Ticaboo is stuck in a vicious cycle where TUID needs more paying customers, more residents and businesses to become solvent, while high power rates stand in the way of further expansion. We anticipate that our project will significantly lower power rates, while alleviating the structural deficits of the district. This will put Ticaboo in a position to take advantage of its stunning landscapes and the nearby Lake Powell for the development of a tourist-based economy.

### **Advance community-identified energy priorities**

As the only local public organization in Ticaboo, TUID's monthly board meetings often serve as a forum for community communication. Residents and businesses consistently express concern about the lack of reliability and high price of power generation. In addition, there is concern about burning fossil fuels to power the generators, both in terms of its polluting qualities and its impact on price instability.

### **Build capacity and partnerships in local governments.**

Solar generated power has been a goal in Ticaboo since its start as a mining community in 1978. In 1978 a feasibility study was conducted to investigate the possible installation of solar heating and cooling instead of relying on diesel generators. 1978 may have been a little early for solar energy, but fast forward to 2024, almost 50 years later and solar energy technology has developed to a point where it has become feasible for a small community like Ticaboo. TUID and other stakeholders have built partnerships with Garfield County, surrounding county leadership and various departments and the leadership of the State of Utah to establish a way forward:

- In 2021 the North Lake Powell Accord was established. North Lake Powell Accord (NLPA) was formed as a coalition between Kane, Garfield, Wayne, and San Juan Counties to plan transportation, water, energy, recreation, and economic development infrastructure needs and opportunities. These are all small counties with a common interest of the north end of Lake Powell, namely surrounding Halls Crossing and Bullfrog Marinas. The NLPA included Glen Canyon Recreation Area, UDOT, Utah Department of Natural Resources, the Utah Office of Tourism and each of the Counties.
- In the 2022 Utah legislative session the North Lake Powell Accord was funded with \$100,000. This was used to commission a study by Utah State University, who organized a series of workshop meetings with stakeholders at all levels of government and Ticaboo residents, businesses, and landowners. A report of its findings was published in April 2024. The report identified the Ticaboo area as one of two locations in the study area at which the tourism based economic development was most likely to be successful. The report identified the cost of power generation as the main bottleneck for achieving its potential.
- A program of outreach to leadership at the Federal, State and local level has led to support for renewable power generation in the town of Ticaboo, as evidenced by letters from leaders in support of TUID's efforts. These letters will be added to the formal application for funds.

### **Economic Development and Sparking Investments**

Quoting in more detail from the research by the Utah State University (Jordan W. Smith. Ph.D., April 2024) of the economic feasibility in the North Lake Powell Region (As a side note: the described Bullfrog Block is within the service area of TUID):

..... the very small amount of private industry within the region has been centered in, and near, the town of Ticaboo. Nearly all proposed



development is facilitated through leased Utah Trust Lands Administration lands. The current development plans include both upgrades to, and an expansion of services at, the lands immediately adjacent to the town. Currently, services include two gas stations (one with a convenience store), a hotel and adjoining restaurant, a rental and guiding service, and an off-shore marina. Future development plans for this region include the development of RV, glamping, and modular tiny homes as well as a mixture of over 450 residential units. Eight miles south of Ticaboo, more extensive development is planned on the "Bullfrog Block." Here, current operators are planning more RV/glamping/camping/tiny modular homes (in addition to those planned at Ticaboo), 500 residential units, a resort and hotel with conference facilities, 200 "casitas," and equestrian facility, and commercial development. ....

The results suggest, as might be expected, the very significant planned investments in and around Ticaboo would have a very large impact on the region's economy. .... The operation of all planned development could generate upwards of 450 new jobs for the county, as well as an associated \$12 million in labor income ..... post-construction economic activity could also add \$23 million to the Garfield County economy each year. This would equate to effectively doubling the size of North Lake Powell's outdoor recreation and tourism economy. Annual local and state tax revenues would also be expected to increase by \$4 million. Again, this would be a very significant boost in the region's economy.

While the potential economic impacts of fully developing the very limited amount of developable land in and around Ticaboo are great, they are only likely to be realized if construction and development is economically feasible. This will only happen if actual construction costs align with those across the region. The costs used to estimate potential economic impact are based on having reliable and cost-effective power generation and a geographically proximate supply of raw building materials. In the absence of these two things, the 'current' costs of development within the region are likely to be significantly higher than the costs reported here.

**Local owners and operators expressed a sentiment of being in a "chicken and egg" situation with regards to their future development. Without reliable and cost-effective power and a proximate supply of raw materials, the true economic potential of any planned development is unlikely. And conversely, the development of a cost-effective power generation or a regional distribution network of building materials is unlikely until there is a market for future development.** Are projected annual state and local tax revenues that are more than double what they are now (\$7 million relative to \$2 millions)

adequate to justify the very significant capital investments necessary to make generate those revenues (i.e., to generate reliable and cost-effective power for the region)? The answer to this question will depend upon how “significant” future capital investments will need to be and who will be bearing their costs.

### **Transformative Approach and Replicability**

In addition to the research performed by Utah State University about economic development drivers on the North Lake Powell Region, two studies have been performed more directly related to the delivery of power in Ticaboo and the region:

In 2022 Garfield County in cooperation with a major landowner in Ticaboo (SITLA) commissioned a study titled Ticaboo Power Plan Study: Exploring Power Supply Options to Support Future growth in the Ticaboo (and two nearby locations within a 7 mile stretch of road) through 2041. It inventoried all planned development in the area and created scenarios to provide the necessary power. The scenarios ranged from continued reliance on diesel generation, to different mixes of diesel and solar/battery and 100% renewable energy use and different levels of connectivity, from three separate mini grids to local connectivity and connectivity to the main Utah grid 55 miles away. The conclusion based on the report is that continued use of diesel generators in combination with a base level of renewable generation offered a balance of affordable energy, attainable capital investments and limited CO2 emissions. This approach is scalable, and the current project is a small step in this direction.

To help TUID along on this path we applied for the expert match program by the Clean Energy to Communities Program (“C2C”), which is run by NREL at the US Department of Energy. They offered 40 to 60 hours of technical support and after a 10-week collaboration, released their final report in May 2024. The proposed project is based on their expert recommendations.

## **Community Opportunity**

### **Community Engagement**

TUID has a community engagement plan consisting of the following elements:

1. Outreach to residents in Ticaboo: Ticaboo is a small town, the TUID management company has personally reached out to most of them, shared details of the project with them and solicited their opinion. Additionally, TUID has started a petition drive on Change.org to spread the word about the project and solicit support. All customers of TUID have received an email about the project and will receive continued communication about the project, as it moves forward. They will be invited to connect with the managers on site and through additional resources on YouTube, Facebook and the TUID website (ticabooid.com).
2. Individual discussion with business owners: There are only a few business owners in town, so TUID managers have been able to talk to all of them.
3. Outreach to legislative representatives: TUID managers have reached out to legislative representatives on the local, state, and federal level with information about the project.

Some of them confirmed their support by letter, which are included with this application.

4. Survey full and part-time residents: Over the summer TUID shall publish an online survey, to solicit input on the details of the project.
5. We are planning a special session on renewable energy in general and the plans in Ticaboo specifically on TUID YouTube channel, TUID-TV.
6. Create web presence for the project on the TUID website and create a Facebook presence for TUID with regular updates, progress reports and pictures and videos.
7. Community Meeting: During the summer a special community meeting will take place on site to provide face-to-face interaction between TUID staff and board and the people affected by the decisions. All residents will be invited for a project presentation, followed by informal discussions with board members and project managers while enjoying snacks and soft drinks.
8. Project updates during public TUID board meetings and periodic in person project updates, updates published via all available channels/media.

### **Leadership Support**

In the context of the community engagement plan TUID has been in contact with local leaders and political representatives. Letters of support from many of them are included with the application. Contacts with leadership has been conducted in many forums in the following manners:

1. TUID staff have communicated the plans to community and business leaders in town to discuss the plans and receive input.
2. TUID board and management presented the project to Garfield County Commissioners and staff during a regular meeting. It was well received.
3. TUID management has been in touch with legislative leaders on the state and federal level to solicit their support.
4. Garfield County and the Utah legislature has expressed support for the project by funding the research which forms the basis of the current project.

### **Worker & Community Benefits**

The local workforce in Ticaboo is limited. Many workers must move to Ticaboo to fill new positions. The desert life is not for everyone, and retention of workers is a struggle. As a result of the recruiting practices of our management company, which includes a wide outreach, and a willingness to train extensively for each position, the current employees are a mix of people of varied racial, economic, and regional backgrounds. Many of the positions are service positions, which are traditionally not very well paid. High utility rates are a struggle for these workers. The lower power rates resulting from this project will directly affect the standard of living for these workers. Many of the employment opportunities are seasonal. If lower power rates spark community investment as is anticipated, more seasonal jobs will transition to year-round and provide an opportunity for establishing roots in the community. Ticaboo is a disadvantaged



community when judged independently. Support of the community aligns with the Justice40 program.

## Partnerships and Project Feasibility

### Team Description and Skills

Our project team consists of the TUID board and the key personnel of the TUID management. The members of the team have deep and varied experience and skill sets, and an unwavering commitment to the success of TUID, significantly contributing to the chances of success of the proposed project.

Key team Members are:

*Alexa Wilson, TUID Board of Trustees Chair: Grant and Project Management:*

Alexa has a graduate degree in economics, accounting and business administration, and 25 years of project management and administration experience, managing the Ticaboo/Bullfrog development projects, and has familiarity with the area and its economic environment. She has the following relevant skills: project, contractor and budget management; understand financial statements, legal documentation, interpretation of rules and statutes; and navigate State and Federal procurement rules, administrative and grant management skills.

*John Motley, TUID general manager: Project and operational management*

John is an experienced remote operations property and infrastructure management professional with a broad range of soft and practical skills and experience in building and running complex, technical operations. He has hands-on experience in QHSE/safety, industrial services, equipment and fleet and has management, mechanical, electrical, and building/infrastructure related processes and systems. John has strong people management, communication and leadership skills. His relevant skills include grant writing and project implementation, conflict resolution, project management, excellent verbal and written communication, mechanical and infrastructure knowledge, operations management, technical labor supervision and production, financials and budgets, contractor bids, human resources oversight.

*Connie Malone, TUID administrator: Project administration and contract management*

Connie has lived in the Ticaboo, Utah area since 2013, working for local businesses as a human resources director and administrative assistant. Her skills include private and public business administration, state and local compliance, job site creation and seasonal recruiting, employee housing and property management, effective communication, and conflict resolution skills. She enjoys using her skills and knowledge of the community and its needs to work towards mutually beneficial connections between TUID and its consumers, vendors, and overseers. Connie has a professional in human resources certification and a Bachelors Licensure degree to teach English subjects to grades 7-12.

### **Strategy and Workplan:**

The work plan consists of the following elements:

- 1) Engineering, Construction Management and Permitting: The first step is to publish and Request for proposal for the detailed engineering of the system. This will include the solar panels, batteries and the distribution system upgrade. This can be started as soon as the grant award negotiations are concluded. It includes associated electrical, civil, air quality and environmental engineering required to proceed, as well as the air permitting for associated modifications to electrical generation through the Utah Division of Air Quality.
- 2) Distribution System Upgrade: Upgrade the existing TUID infrastructure to transition the system from a 25,000-volt system to a 12,470-volt system to enable the community to reduce operating costs and improve efficiency. The upgrade will provide operational savings due to the system generating half as many volts just to keep the system operational. The transformers will be upgraded to industry standard residential sized from expensive industrial models. This upgrade will also include new main 12,470-volt service lines, which will enhance reliability and redundancy.
- 3) Renewable energy equipment:
  - a) Ticaboo 438 kW Solar / Inverters: Construction of a solar based renewable energy system of approximately and in combination with a battery set designed to provide 85% of the community's power needs. The balance will be handled by the existing generators. A solar component of this size will significantly reduce fuel and operational expenses while also improving the emissions profile of the generation facilities.
  - b) Battery Storage / Pad: In order to maximize the potential benefit of the solar generation equipment and the existing diesel generation equipment, 1439 kWh battery capacity will be installed to deliver power 24 hours a day, 7 days a week. As a result, instead of running continuously, the generator is expected to only run approximately 4 to 8 hours per day, providing an operational reduction in annual off-peak fuel costs of up to 40%. Includes required concrete pad for weight distribution.

The items 2, 3 and 4 can run in parallel and RPFs will be published for this work starting in the fall of 2025 and will be concluded in early 2026. The construction/installation will be started in the spring of 2026 and will be concluded in the spring of 2027. The current thinking is, to publish 3 separate RFPs and combine projects (or not) depending on what is most economical/practical based on the responses. Details about timing can be found in the GANTT chart attached hereto as Exhibit A.

### **Budget, Spend Plan, Timeline:**

Timelines:

0. Start up:
    - a. Grant application, award, and negotiations: March 2024-December 2024
    - b. Community Engagement: May 2024 - April 2027
  1. System Design and Engineering: January 2024 – September 2024
  2. Distribution System Upgrade: October 2025 – December 2026
  3. Renewables: October 2025- April 2027
- Details about these timelines can be found on the GANTT chart attached hereto as Exhibit A.

Budget Narrative:

0. Start up:
  - a. Grant application, award, and negotiations: \$0
  - b. Community Engagement: \$0
1. System Design and Engineering: \$505,000
2. Distribution System Upgrade: \$918,000
3. Renewables: 1,609,000
4. Land: \$ \$65,000

Combining timelines and budgets the spending plan is as follows:

Federal fiscal year 2025: \$1,058,429

Federal fiscal year 2026: \$1,660,429

Federal fiscal year 2027: \$378,143

Details about these timelines can be found on the uploaded budget spreadsheet.

**Statement on Building Capacity**

TUID has contracted for its day-to-day management with the major business owner in town. This allows us to share personnel capacity, recruitment efforts and staff-related recordkeeping tasks. As a result, there is a level of efficiency and flexibility in the type and number of workers we can use for tasks of differentiated levels, that otherwise would be hard to achieve. This ability to quickly respond to different staffing needs will put TUID in a position to quickly adjust to its own changing demands as well as that of the business and residents of the town.

[illegible]