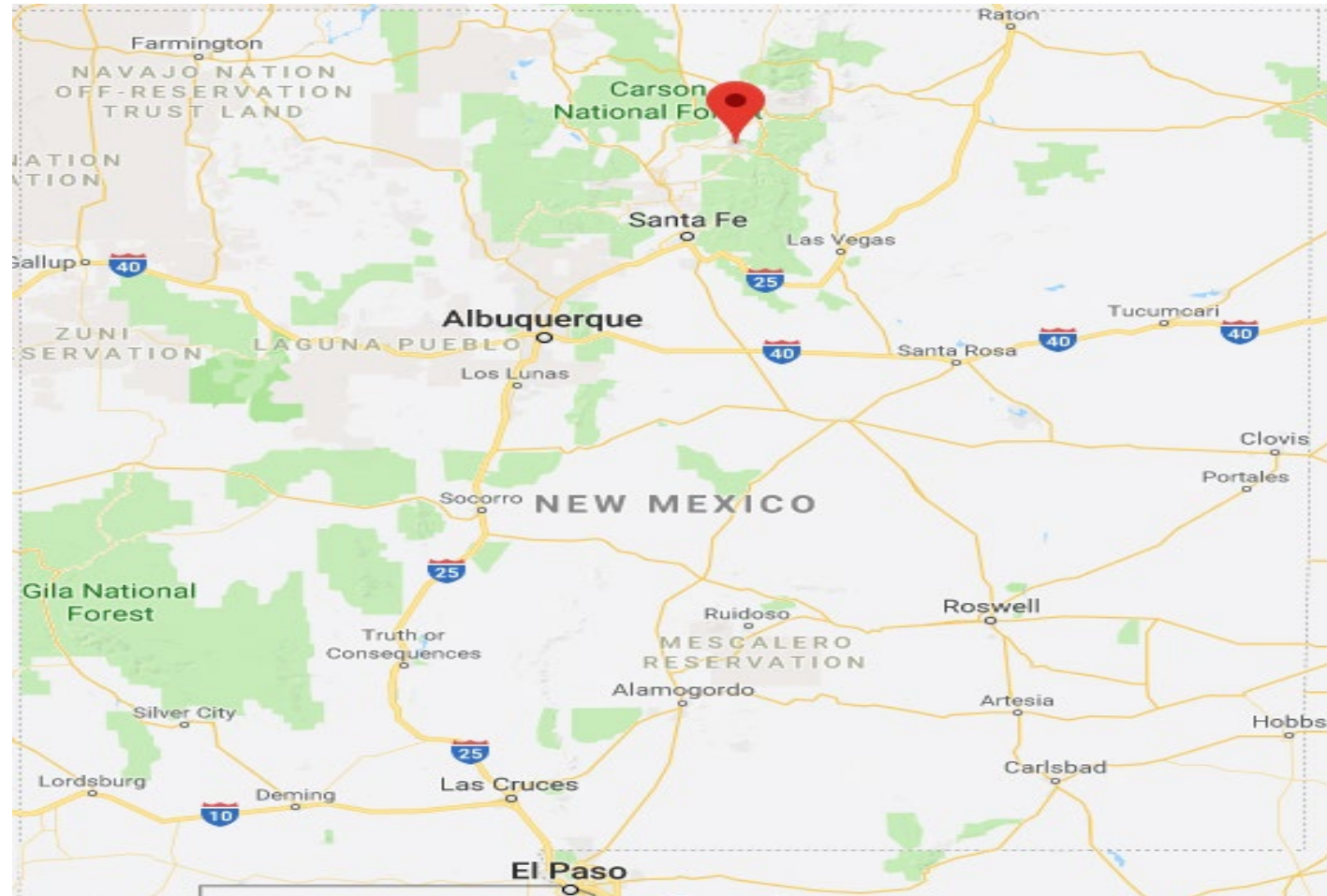


Pueblo of Picuris Community Solar Projects



Location in the State of New Mexico





60 miles N of Santa Fe
25 miles SE of Taos
The intersection of 75 & 76





About Picuris Pueblo

Picuris Pueblo currently has 306 members and 86 homes. Our traditional way of life starts with respect for the land and nature, our natural resources, everyday life consists of farming, hunting, providing for our families, and honoring our culture by practicing traditions and beliefs as our ancestors did before us. The Current Governor is Craig Quanchello along with seven (7) other tribal councilmen.

Picuris pueblo is nestled in a setting of serene beauty in what is known as the "hidden valley" of the Sangre de Cristo Mountains in Northern New Mexico. Its located 60 miles north of Santa Fe, and 24 miles southeast of Taos on scenic highways 75 & 76.

Our tranquil village rests along the banks of the Rio Pueblo river, which nourishes the evergreens, cottonwoods, aspens, grasses, and flowers that blanket our valley and surrounding mountains. The scenic beauty is unsurpassed in New Mexico, the Land of Enchantment.

In the 1600s, the tribe lost 85% of its people due to smallpox and went from being one of the larger pueblos to presently the smallest. The result is a strong commitment to the survival and resiliency of its people.

Tribal Considerations

- **Traditional Values of the Tribe recognize its ongoing relationship with Mother Earth and the need for sustainable renewable energy**
- **Resiliency and Self Reliance that in the future removes its dependency on third-party energy suppliers and their utility Infrastructure**
- **Stable supply of low-cost energy to tribal buildings, households & economic development projects**
- **Protect itself from External Threats:**
 - **Wild Fires that may impact the utility grid such as this year's Hermit fire which was the largest of its kind in US.**
 - **Cybersecurity Concerns**

Location on the Reservation



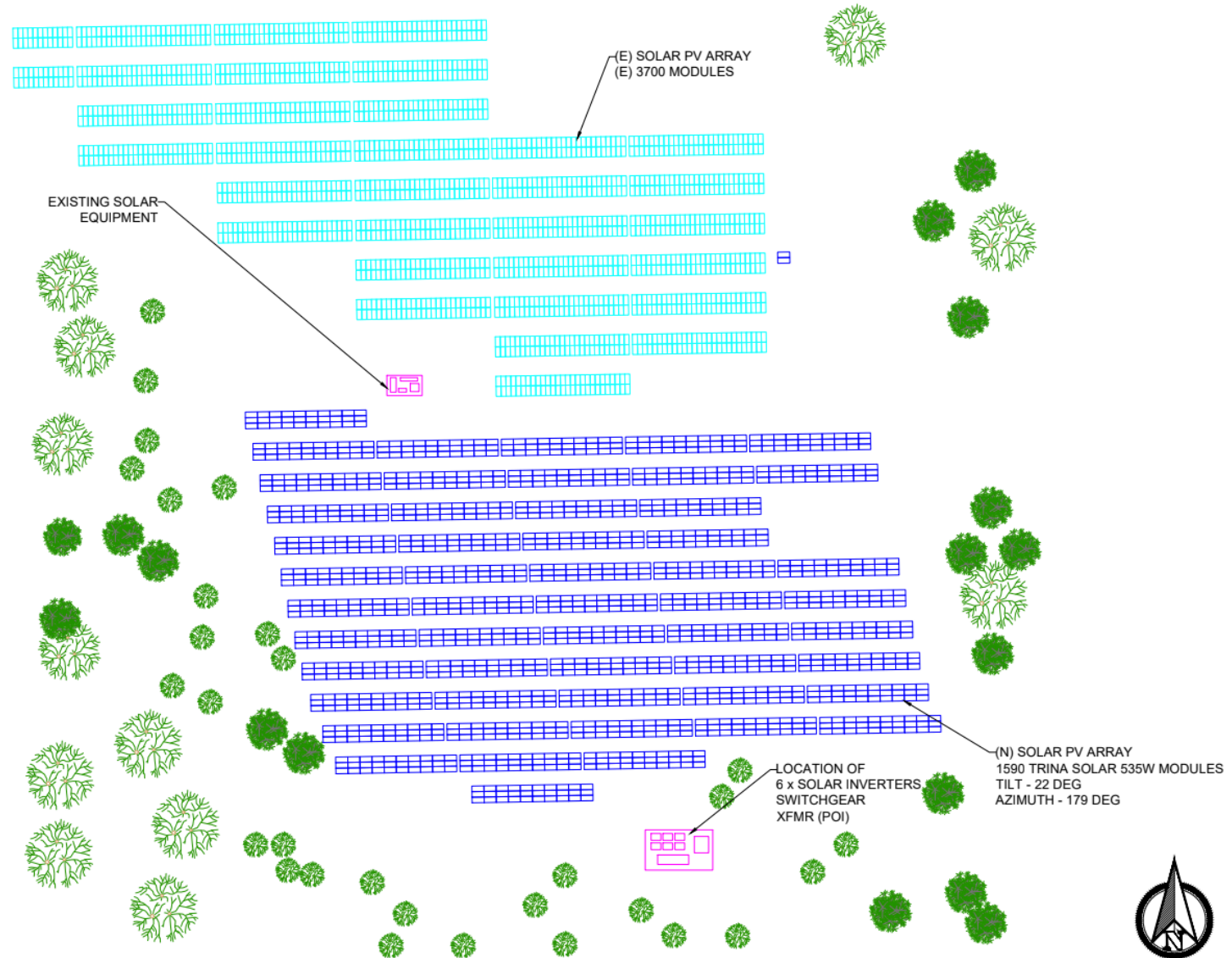
Existing 1 MW Solar Array



Existing and Proposed Solar Arrays

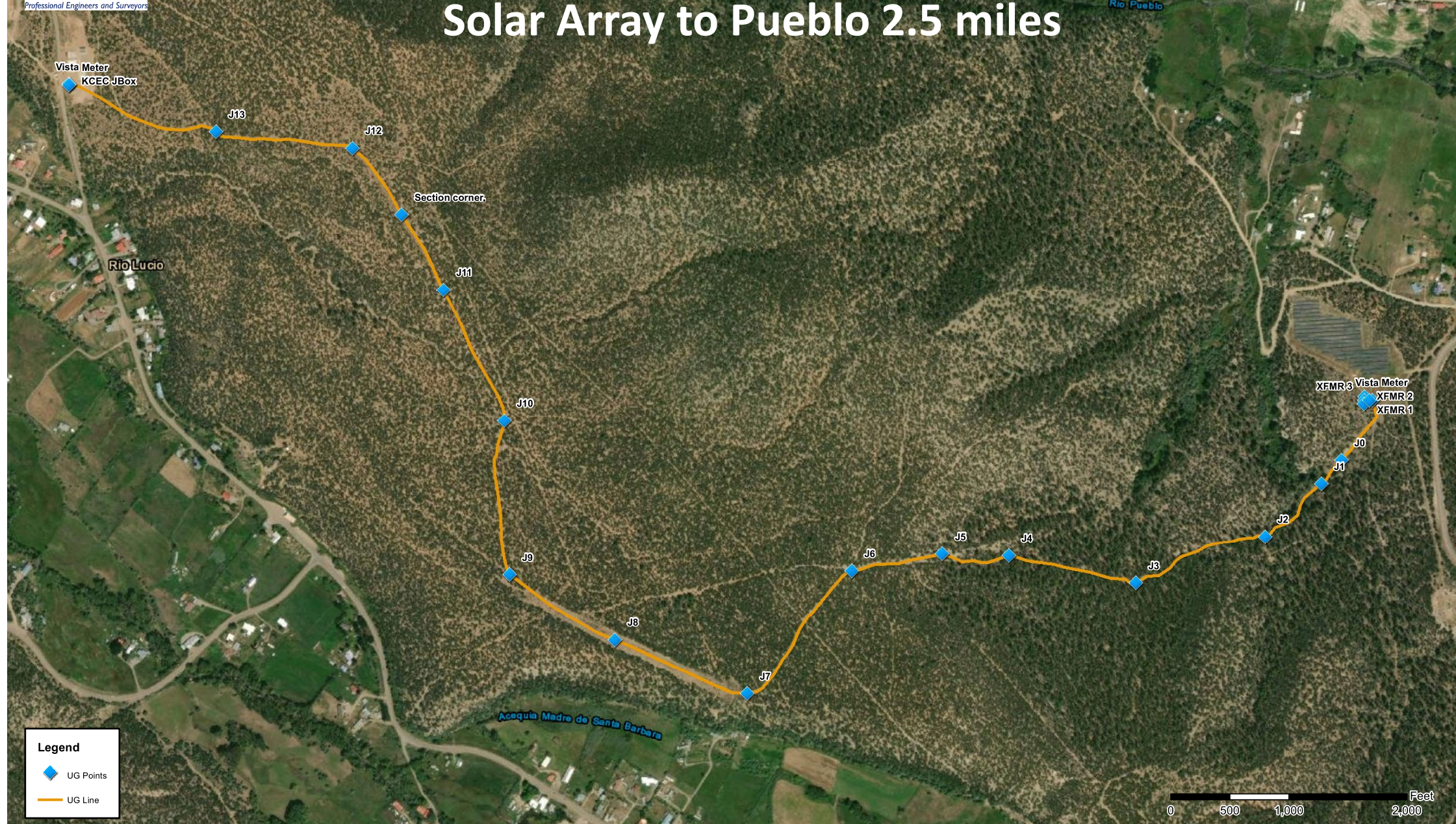
PV ARRAY INFORMATION

1590 TRINA SOLAR 535WATT MODULES
MODEL # TSM-DEG19C.20 535 (1500V)
6 SMA SUNNY HIGHPOWER 125 KW INVERTERS, MODEL# PEAK 3 125US
PV MODULES: 1590 x 535 = 850,650W (850 kW)STC-DC
INVERTERS: 6 x 125KW = 750 KW (AC)







Underground Feeder From Solar Array to Pueblo 2.5 miles



Legend

-  UG Points
-  UG Line



- **1st Solar Array Project:**

- The first phase of the solar power initiative Picuris Pueblo has been undertaken. The first 1 MW project utilized a combination of funds from a DOE grant and a conventional loan.
- The first project has been operational since January 2018 and all the energy produced goes directly into the Kit Carson utility grid.

1st Solar Array Project:

- The tribe receives its revenue from its power purchase agreement with Kit Carson Coop which pays for each KW generated. The tribal buildings, member homes, and economic development buildings are billed by Kit Carson as any other consumer subject to the PRC-approved rates.
- The surplus generated by the difference of the monthly Revenue received and the monthly Loan payments has allowed for a \$ 75 subsidy per household for the four winter months and a \$ 50 subsidy per household for the other eight months.

2nd Solar Array Project:

- The Pueblo has secured another DOE grant for a project that would provide electricity directly into the tribal buildings, member homes, and economic development buildings that would include the new travel center complex.
- The matching requirements for the tribe have been reached from funds from Grid Alternatives/Wells Fargo and from the 11th Hour Project Foundation.

2nd Solar Array Project:

- There is a need for an energy storage component that would support the electricity needs when the solar array is not generating and would be available for backup if the utility grid is offline. The tribe worked with Sandia Labs which provided an Energy Analysis that was used as the basis for securing funds for energy storage.
- With a micro-grid design, the cost of electricity per KW will be significantly less than the present cost that uses the Kit Carson grid system. The goal is that with both solar projects, the tribal household members would have their electric bills completely subsidized.

Pre-Feasibility Utility Report- National Renewable Energy Laboratory

- This initial report was conducted on the feasibility of options for the Picuris Pueblo to become electrically self-sufficient.
- Pueblo's request states, "We would like to understand the likely next steps to exercise our sovereignty and become electrically self-sufficient on our small Pueblo. We would like a study that gives us an overview of tribal utilities, does an initial assessment of our loads, provides an initial financial and technical feasibility study of the Pueblo providing its own power and operating an electric system, the types of tribal laws that are needed and other related matters."



Energy Storage Benefits to Picuris Pueblo

Rodrigo Trevizan, Stan Atcitty, Alvaro Bastos, and Henry Guan



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

Picuris Proprietary

Energy Storage Benefits - Goals of the Project

- Sandia National Laboratories work was to evaluate the benefits of energy storage systems to the tribe in three scenarios:
 - Pueblo uses storage and solar for themselves
 - Purchases power from the grid when necessary
 - Sells excess power to the local utility

The tribe would like to acknowledge the support from Dr. Imre Gyuk, the program manager for the U.S. Department of Energy Office of Electricity Energy Storage program.

Phased Development

Phase I – 1 MW Photovoltaic Array (Completed)

Phase II – 750 kW Photovoltaic Array (In Process)

Phase III – 1 MW/4 Hours Energy Storage (In Planning)

Phase IV – Operational Microgrid (Conceptual)

Other Related Issues

- Involvement in related State Legislation efforts
- Development of tribal utility:
 - Water
 - Waste Water
 - Electricity
 - Broadband