

Cover Sheet

DOE Award NO: DE-EE0006469

Type of Award: Community-Scale Clean Energy Projects in Indian Country

Applicant/Implementer: Southern Ute Indian Tribe

Project Title: Oxford Solar Project

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Project Location: Ignacio, Colorado

Project Period: 04-01-2014 through 6-30-2018

Fuel Use Targeted in Project: Solar Photovoltaic Systems

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Executive Summary

Located in southwest Colorado, the Southern Ute Reservation is 681,306 acres in La Plata, Archuleta, and Montezuma counties. Although the 2010 census demonstrated that 12,153 people live within the exterior boundaries of the reservation, 11.8% are Southern Ute, Northern Ute, Navajo, or from other Tribes.

Under its economic development plan, the Southern Ute Indian Tribe created the Southern Ute Indian Tribe Growth Fund to achieve economic goals, which include energy development. The Tribe has a diverse economy, but relies heavily on its businesses in oil and gas. The Tribe is aware that the oil and gas resources will not continue to produce indefinitely and is looking to diversify their businesses by moving into alternative energy for the benefit of future generations.

The Southern Ute Growth Fund had evaluated solar photovoltaic (PV) development opportunities on Tribal lands since 2008 but project costs had been too high to be economical. The matching grant from the Department of Energy (DOE) made this project economically viable. This completed project will bring a viable long-term clean energy operating company to Southern Ute Tribal Lands in accordance with the Southern Ute Growth Fund's business goals.

In 2012, the Growth Fund completed a utility-scale feasibility study for solar energy development on the Southern Ute Indian Reservation (Reservation). The Oxford Tract, identified as the most suitable location for this utility-scale development because the surrounding area exhibits strong solar resource, is located in close proximity to two substations, has no known presence of threatened and endangered species, and has areas contaminated by naturally occurring selenium, which limits the land's suitability for residential or agricultural use.

This project consists of a roughly 1-Megawatt photovoltaic system that interconnects to the local power grid and provides solar energy to multiple tribal buildings on the Reservation through an agreement with the local electric cooperative, La Plata Electric Association (LPEA).

The ten buildings, located on the tribal campus, which were chosen to benefit from the energy produced are:

• The Growth Fund Building	• SunUte Community Center
• Animal Shelter	• Construction Services
• Construction Services	• Water Resources Building
• Education Area Building 1	• Education Area Building 2
• Southern Ute Education Center	• Food Distribution

These buildings were selected due to their location and ability to offset greater than 15% of fuel usage through electric savings alone.

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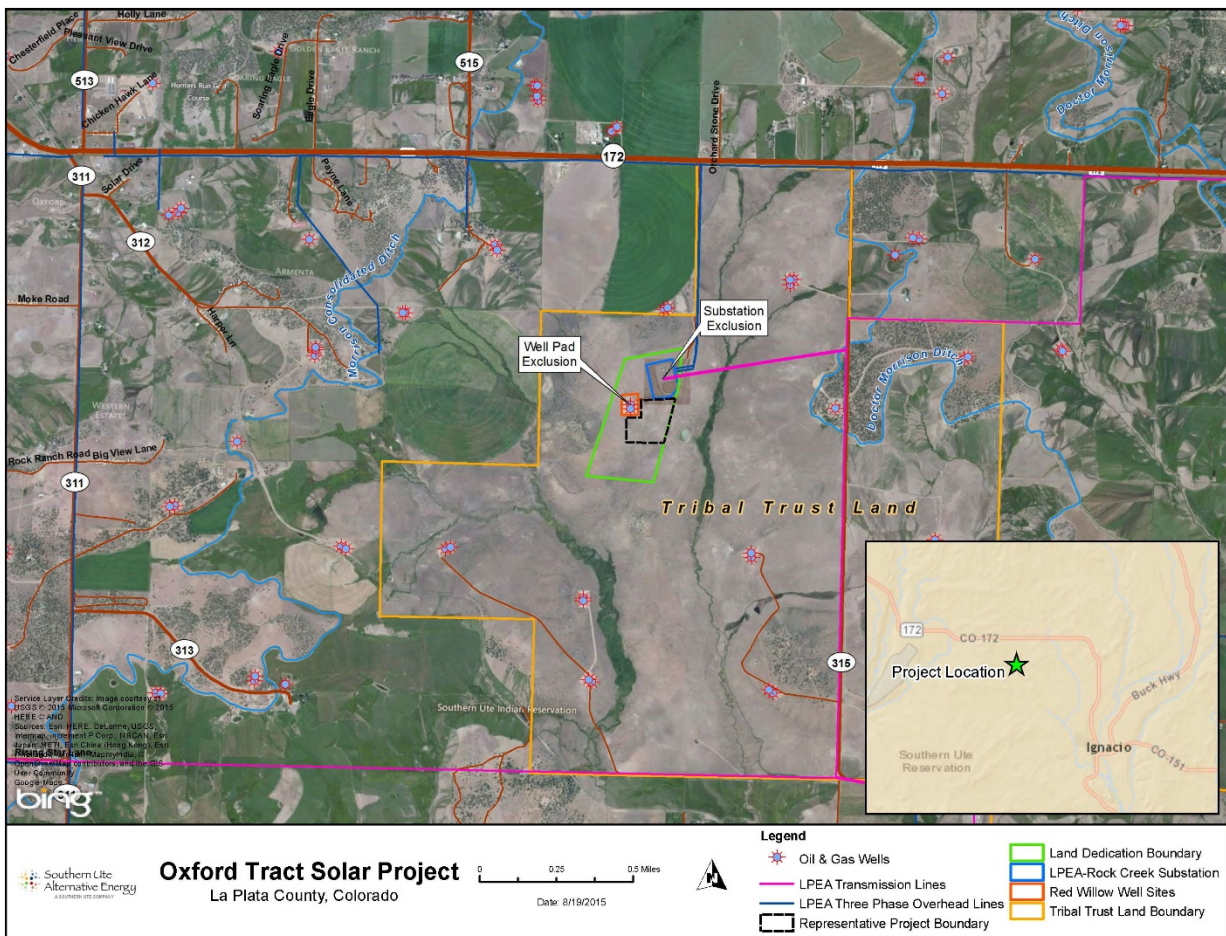
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Project Overview

In 2013, the Southern Ute Growth Fund began looking at Solar Power as a business option. The goal was to reduce the energy costs of the Tribe and to produce a local clean energy that would benefit the community. In the beginning of the project, eight different local sites were proposed as possible locations for the construction of a community-scale Solar Facility that would accomplish these goals.

After careful consideration, the site known as the Oxford Tract was chosen. This 10-acre site was identified as the most suitable location for the Solar Facility due to its close proximity to an existing La Plata Electric Association sub-station, the strong and consistent solar presence in the area, the lack of any known threatened and endangered species and the naturally occurring selenium in the soil that makes the site difficult to use for residential or agricultural use.

Site Map



After the Oxford Tract was selected for the project, preliminary construction designs and cost estimates began. The total cost of the proposed project was determined to be \$3 million dollars. In 2014, the Tribe applied for and was awarded a \$1.5 million dollar grant from the U.S. Department of Energy-Tribal Energy Program to help offset construction costs.

In 2015, the Tribe reached an interconnection agreement with La Plata Electric Association, in which, the electricity generated by the Solar Facility would be sold by the Tribe directly to La Plata Electric Association at a set rate per each Kilowatt produced.

Final design of the project was completed in the summer of 2016. At this time, the Southern Ute Growth Fund Properties Group was selected to oversee and manage the construction and completion of the project. Namaste' Solar Electric, Inc. was the Contractor and construction of the project began during the fall of 2016 and was completed in June of 2017.

Construction Picture



The completed Solar Facility is described as a 1-Megawatt ground-mount Photovoltaic solar generator. The Facility features 4,000 individual solar panels and generates enough electricity to power 250 homes. In the first year of operation, the Oxford Solar Facility generated 2,772,977 kWh of electricity.

Finished Product Picture



Project Objectives

The Oxford Solar Facility is intended to reduce energy costs to the Southern Ute Indian Tribe and to increase local clean energy that will benefit the Tribe. Ten local buildings were selected to benefit from electricity generated from the site. These buildings were chosen due to their location and the ability to offset greater than 15% of fuel usage through electrical savings.

During the first year of operation, the Ignacio area experienced an unusually warm, dry, and sunny winter. Consequently, the Oxford Solar Facility generated 2,772,977 kWh of electricity—an amount that exceeded expectations for the initial year. This represents 111.9% of the kWh for the buildings selected to benefit from the facility.

Description of Activities Performed

Task 1: Public Outreach

The Project Team began a full public outreach process upon award of this grant. The public outreach included articles in the Southern Ute Drum and Durango Herald; radio interviews; and informational meetings. Although public outreach efforts were an on-going process of the project, the bulk of the public outreach was implemented during the early stages of the project.

Task 2: La Plata Electric Association Interconnection

At the beginning of the project, the Tribe initiated discussions with LPEA about interconnection to their grid. LPEA and the Tribe worked together to identify the best interconnection locations. LPEA provided a rough timeline for interconnection with a one-year timeline for permitting and design followed by three (3) months of construction. The milestone for this activity was LPEA's approval to interconnect and specific tasks included:

- Interconnection Application
- Interconnection Engineering and Agreement
- Interconnection Approved
- Interconnection Construction

Task 3: Tribal Approvals

After award of the grant, the project team begin the project permitting required to receive final land dedication and Tribal approval to build the facility on the Oxford Tract. The Lands Division uses a clear-cut process for Tribal approval. Lands Division submitted the clearance letter and assisted with the land dedication package to Tribal Council. The milestone for this task was Tribal Council's land dedication for the project, and the specific tasks included:

- Archeological Survey
- Geotechnical Survey
- Submitting Project Summary, Archaeology, and Threatened and Endangered Species to Tribal Environmental Division
- Lands Division Onsite Evaluation
- Site Survey
- Final Report and Clearance Letter
- Tribal Council Land Dedication
- Visual Impact Study

After the Tribal Lands Division provided its final report and clearance letter, the Growth Fund submitted the Final Report and Clearance Letter to the Department of Energy.

Task 4: EPC Contractor Selection

The project team selected Namaste Solar Electric Inc. to complete the construction of the project through a request for Proposal process. The project then followed the Tribe's established subcontractor plan. The selection of a suitable EPC contractor was essential to the successful completion of the project. This activity had two milestones: the completion of the RFP and the award of the contract. Specific tasks for this activity included:

- Developing EPC RFP
- Issuing RFP for EPC Contract
- Receiving EPC Contractor Proposals
- Negotiating EPC Contract
- Awarding EPC Contract

Task 5: Engineering

The EPC contractor completed the project engineering based on parameters identified in the EPC contractor RFP. The project team approved the project design prior to ordering long lead-time items and commencing construction. The approval of engineering was a key milestone for this activity and the tasks included:

- Engineering Drawings
- Engineering Review and Approval
- Order Long Lead Time Item

Task 6: Construction

Namaste Solar Electric Inc. was responsible for the construction of the project. Growth Fund staff also oversaw the construction of the project. The task for this activity included:

- Construction of the approximately 1-Megawatt ground-mount photovoltaic system that is interconnected to the electric grid.

Task 7: Commissioning

The commissioning of the project included final testing, start up, performance testing and acceptance. During the commissioning process, some of the project team received high-level training on the operation and maintenance of the facility. This training was not sufficient to take over the direct operation and maintenance activities but it did familiarize the team with the equipment and helped facilitate improved long-term ownership and management of the facility.

The milestones for this activity included:

- Staff Training
- Performance Testing
- Official Commissioning/Acceptance

Task 8: Operations and Maintenance (O&M) Contract

- Establish a contract for the facility operations and maintenance with a qualified contractor and work to move the operations and maintenance in-house as staff is hired or trained.

Project Challenges

Challenges associated with the construction on the solar facility included:

- The completion of all the required archeological, environmental and wildlife studies in order to obtain the FONSI report.
- Reaching the agreement with the local electric company for the power purchase agreement and interconnection agreement.
- Contacting and contracting with a local solar company for post construction operation and maintenance.

- Obtaining the required easements and right-of-ways through the regional BIA office.

Lessons Learned

Keys to the success of the project included:

- Working closely with the Tribal Lands Division and the regional BIA office to obtain all required project permitting.
- Promptly submitting all required grant quarterly reports.
- Securing a quality contractor who is committed to performing construction and maintenance activities in a professional and timely manner.

Conclusion

Known for its success in oil and gas ventures, the Southern Ute Indian Tribe took the initiative to explore renewable energy and now has a fully operational solar facility on their reservation. Located approximately three miles from the tribal campus, the 1.3-megawatt, ground mounted solar photovoltaic (PV) system is located on a nearly 10-acre parcel of mostly unusable tribal trust land known as the Oxford Tract. The system will generate clean energy to approximately 10 tribal buildings on the Southern Ute tribal campus.

The first year of operation experienced an anomaly of production where it generated 111.9% of the kWh for the selected tribal buildings—a pleasant outcome that exhibits the benefits of solar power.

The Southern Ute Tribe, dedicated in their efforts for clean and renewable energy, will ensure the Oxford Tract will continue to benefit both the Tribe and the environment into the future.