

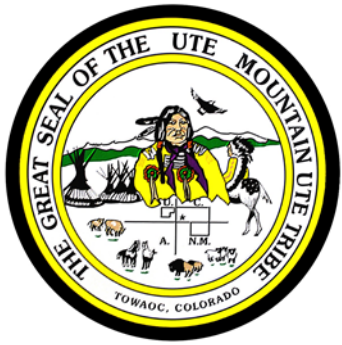
Department of Energy Office of Indian Energy Program Review 2021

Ute Mountain Ute Tribe's
White Mesa Solar Initiative
And Clean Energy Transition

Scott Clow

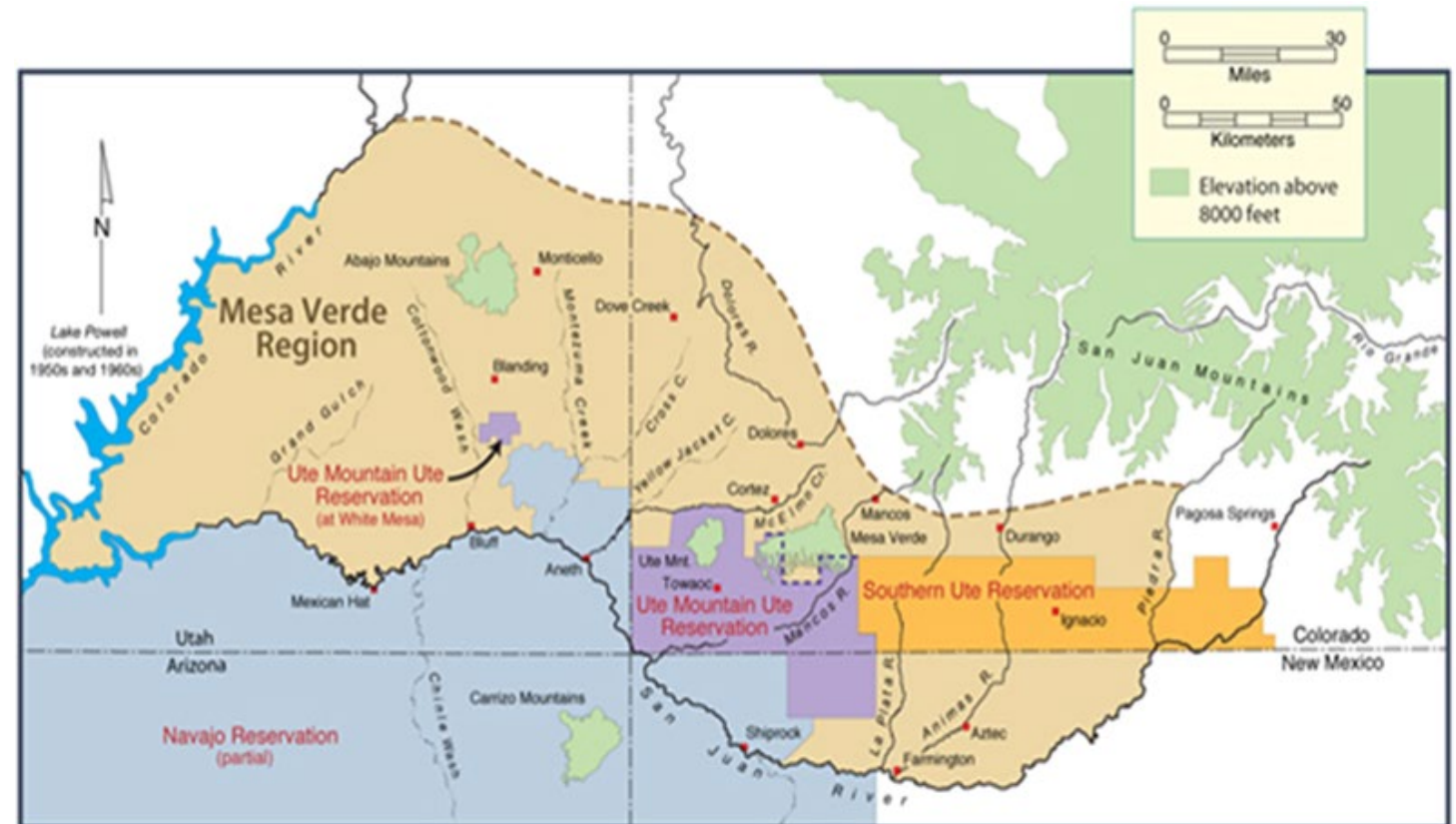
Environmental Programs Director

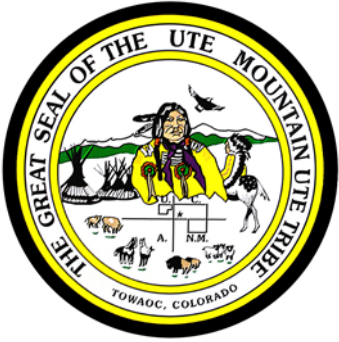
November 18, 2021



Ute Mountain Ute Tribe

- Originally, the Utes were seven Bands in CO and UT
- Weenuche Band is UMUT
- 582,321 Acres of Land
- Land Base in Colorado, New Mexico, Utah
- 7,700 acre Farm and Ranch Enterprise
- Hotel and Casino, Travel Centers, RV Park
- Weeminuche Construction Authority
- Tribal Park and Tourism
- 70+ years of Oil and Gas Leases and Royalty

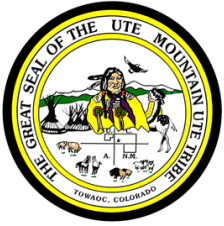




Snapshot of the Ute People



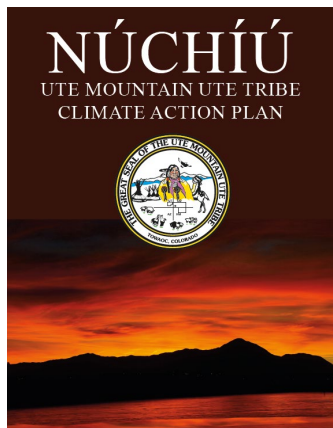
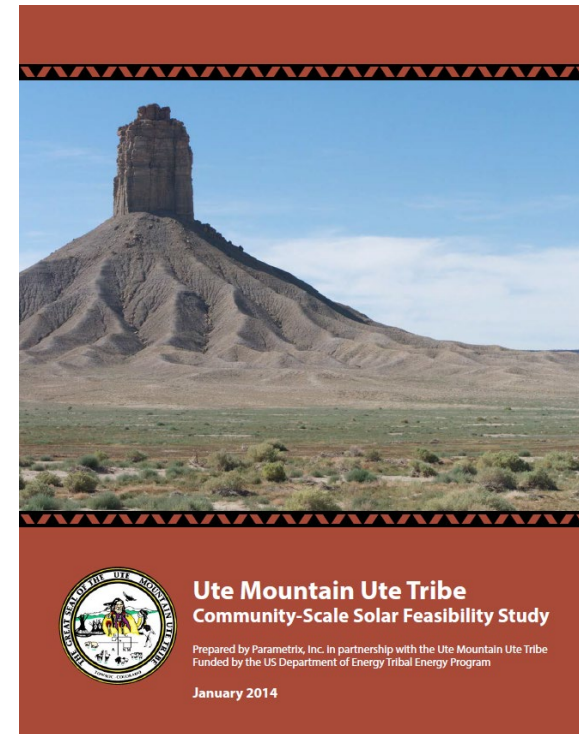
- ▶ Originally Hunters and Gatherers
- ▶ 2,100 Ute Mountain Ute Tribal Members
- ▶ 55 Years of Age, Life Expectancy
- ▶ 26 Years of Median Age
- ▶ 37.8% Poverty vs. 12.5% in Colorado
- ▶ \$13K Per Capita vs. \$42K in Colorado



Project Overview

High Level Goals & Outcomes:

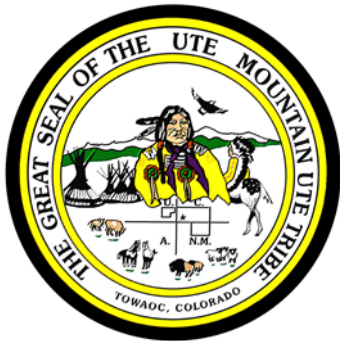
- Actualize phase I of 2014 Feasibility Study; enhance with facility installations
- Provide paid job skills training for Tribal members (intern positions) in solar installation, maintenance and repair, and additional Grid Alternatives led training through TERO, Temporary Worker Program, and for volunteers.
- Off-set all government buildings in White Mesa, and substantial percentage of load. 2019 usage at 207,000 KWh, \$20k
- Aiming for design to offset 95% of load
- Set UMUT on a path to energy independence; save tribe an estimated \$22,000 in energy expenses annually
- Transition tribal energy economy from exclusively fossil fuels to renewable energy revenue (Stepping Stone)



140 metric tons of carbon offset annually*
 *EPA Greenhouse Gas Equivalency Calculator, based on 95% of 207,000 KWh

Funding:

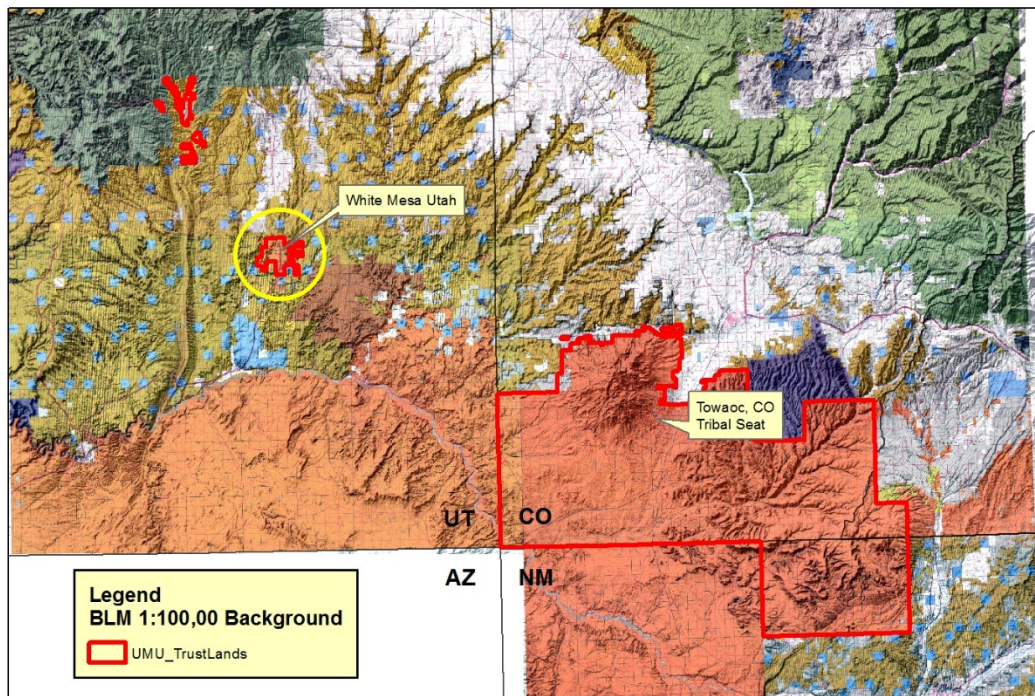
• DOE	\$393,055
• UMUT Match	\$98,264
Total Budget:	\$491,319
Total ROI: 19 years	
With cost-share reduction, Tribal Investment ROI: 3.8 years	

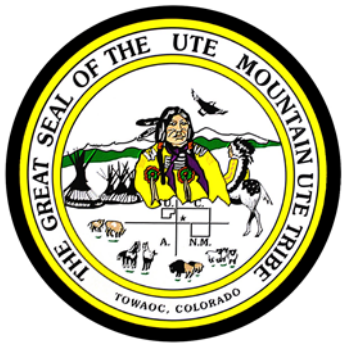


White Mesa Solar Initiative



**Ute Mountain Ute
Reservation Trust Lands**



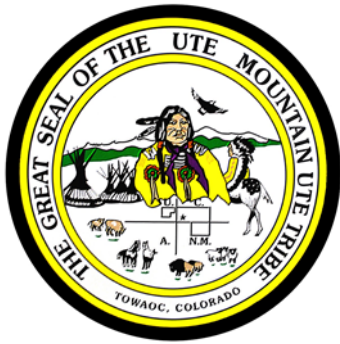


White Mesa Solar Initiative

- 7 meters in White Mesa Ute Community
- 144-DC PV facility installations
- Grid Alternatives as partner, EPC
- Local Electric Company – Rocky Mountain Power (subsidiary of PacifiCorp)

White Mesa Community Solar Overview Map





Cost Share Reduction!



The Deputy Secretary of Energy
Washington, DC 20585
January 11, 2021

Manuel Heart
Chairman
Ute Mountain Ute Tribe
125 Mike Wash Road Tribal Complex
Towaoc, CO 81334

SUBJECT: Cost Share Reduction Request Determination
Applicant: Ute Mountain Ute Tribe
Application Title: Solar Photovoltaic Deployment for Seven Government
Facilities in White Mesa, Utah.
Pending Award Number: DE-IE0000135

Dear Chairman Heart:

Thank you for submitting a cost share reduction request to the U.S. Department of Energy (DOE) Office of Indian Energy Policy and Programs (Office of Indian Energy) for your application previously selected for negotiation of award under Funding Opportunity Announcement (FOA) DE-FOA-0002168.

As Deputy Secretary of Energy, I have the delegated authority to determine whether requests for cost share reductions are necessary and appropriate. Your request for reduced cost share was carefully reviewed in accordance with the criteria published on the Office of Indian Energy website. Based on that review, I have determined that a cost share of 20% will be applied to your pending award.

I sincerely hope that this cost share reduction helps to alleviate the financial impacts of COVID-19 on your tribe and helps to ensure the successful completion of the project. DOE values its partnership with you and your tribe and, through awards like this, strives to help meet your energy development goals.

The Office of Indian Energy will reach out to your DOE grant manager regarding the next steps to incorporate this cost share reduction into your pending award. Any questions can be sent to TribalGrants@hq.doe.gov, and if you do so, please include your DOE Project Officer and Project Monitor on your correspondence.

Sincerely,



Mark W. Menezes

cc: Kevin Frost, Director of the Office of Indian Energy
Bernadette Cuthair, Director of Planning & Development

- Originally 50/50
- Reduced to 80/20
- Return on Investment
 - Originally 11 years
 - Now 3.2 Years

Ute Mountain Ute Tribe WHITE MESA SOLAR INITIATIVE

2168-1527

TOPIC AREA 1A

Project Summary

The overall **goal** of the Ute Mountain Ute Tribe White Mesa Solar Initiative is to reduce the Tribes dependence on outside energy sources to: a) support UMUT Tribal Sovereignty; and b) realize cost savings through a tribally-owned solar energy system. To that end, the specific objectives of this project are to deploy solar photovoltaics (PV) on seven Tribal facilities on the Utah portion of the Ute Mountain Ute Nation's homeland in White Mesa, UT. The proposed project consists of installing a total of 144 kW-DC of solar PV on seven of the Tribe's facilities. Collectively for these facilities, the Tribe uses 207,164 kW-h annually and in 2019 paid \$19,492.

Key Personnel/Organizations

Ute Mountain Ute Tribe (Applicant)
Scott Clow (Technical Contact)
Bernadette Cuthair (Business Contact)
Patrick Littlebear (Financial Contact)
Grid Alternatives (EPC)

Budget

Federal funds requested: \$249,659.50* increased to \$393k
Cost-share proposed: \$249,659.50 reduced to \$98k**
Total Project Costs: \$491,319.00

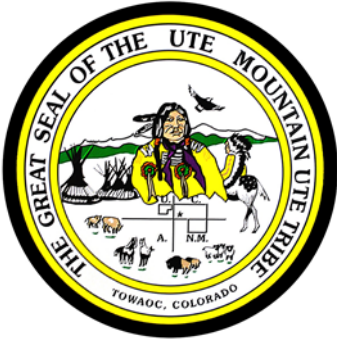
Project Outcomes

Key Project Outcomes are summarized below:

- 1.1) Seven Tribal government facilities will have PV solar systems installed to offset electrical costs
- 1.2) Based on 2019 electrical bills, it will save the Tribe over \$21,000 per year
- 1.3) The system is supplying a 'substantial' portion of the Tribal government's overall Tribal building energy needs in White Mesa (>95%)
- 2.1) Secure partnership with Rocky Mountain Power on in complying with Utah Schedule 136 policies for deployment of renewable projects, "Transition Program for Customer Generators"
- 3.1) Document and report the annual energy savings based on negotiated crediting structures
- 3.2) Analysis array's output
- 3.3) Analysis array's operational and maintenance costs



Successful completion of this project will reduce UMUT's dependency on external energy sources



Progress in 2021 – Project Start in June

PROFESSIONAL SERVICES CONTRACT

UTE MOUNTAIN UTE TRIBE
AND
GRID Alternatives Tribal Program

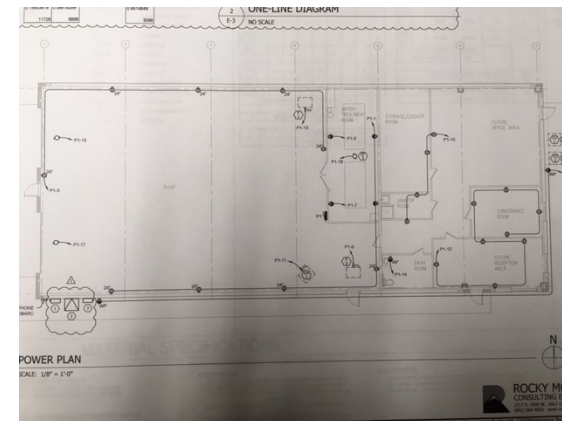
2021

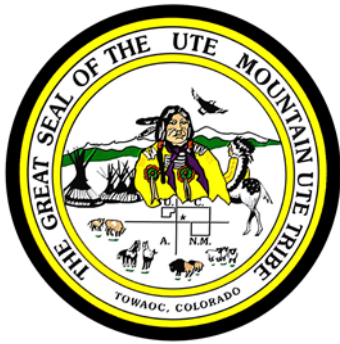
This Contract is by and between the Ute Mountain Ute Tribe (“UMUT”) a federally-recognized Indian Tribe of the United States (“Tribe”), and GRID Alternatives Tribal Program (“GRID”), with a principal place of business located at 1120 West 12th Ave, Denver, CO 80204.

1. PURPOSE

This Contract is intended to set forth the mutual obligations of the UMUT and GRID regarding the Engineering, Procurement, and Construction (EPC) of seven (7) solar PV systems offsetting electric bills for seven (7) UMUT Buildings in the White Mesa, Utah community (awarded to UMUT by the Department of Energy’s (DOE) funding opportunity Deployment of Clean Energy and Energy Efficiency on Indian Lands).

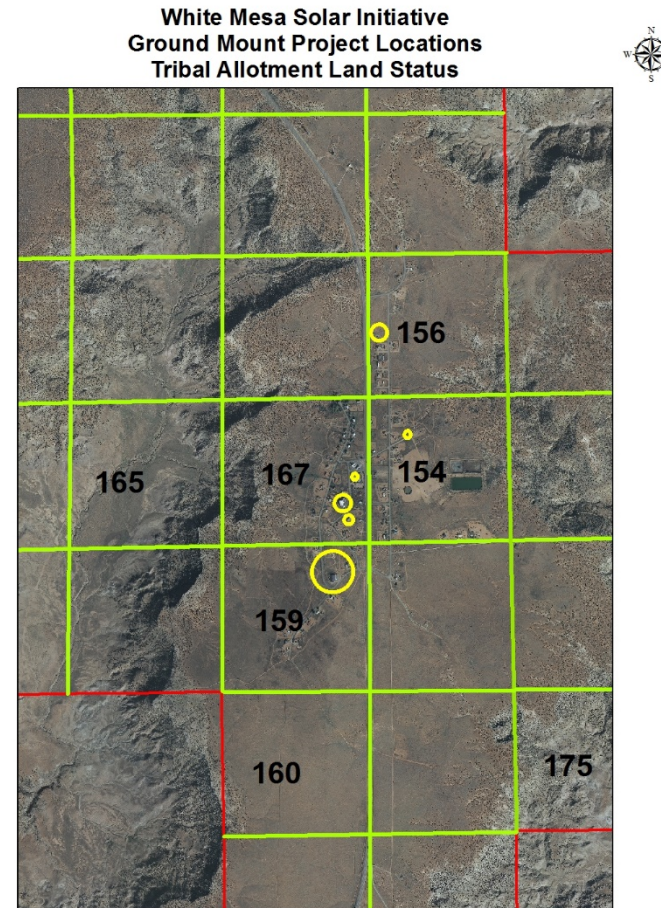
- Contract Executed in October
- Double Checking 2020 Electrical Usage
- Met with Rocky Mountain Power and Grid in August
 - Interconnection Options
 - Finalizing Designs



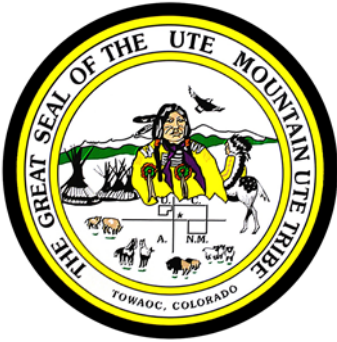


Progress in 2021 – Possible Project Changes

Project Economic Summary	Community Center	Diabetes Center	Education Building	EPD & Vocational Rehab	North Well	Public Works and South Well	Wood Yard	Summary
Address (See attached map)	Willow St, White Mesa	Willow St, White Mesa	Mesa View Drive, White mesa	1398 Hwy 191, White Mesa	Beaver Lane, White Mesa	Willow St, White Mesa	Wood Pile Rd, White Mesa	
System Size (kW)	43.1	2.8	47.6	7.5	16.8	23.8	1.26	142.86
Estimated Annual Production (kWh)	69480	5300	72020	1396	33270	39480	2490	153956
PV Racking/Mounting	GROUND	GROUND	GROUND**	GROUND	GROUND	ROOF	GROUND	6 GROUND, 1 ROOF
# of Modules	123	8	136	2	48	68	4	389
Module Rating (W)	350	350	350	350	350	350	315	-
Average Utility Rate (\$/kWh)	\$0.08	\$0.13	\$0.09	\$0.51	\$0.14	\$0.10	\$0.16	\$0.17
Average Annual Savings	\$5,787	\$691	\$6,224	\$718	\$4,793	\$3,961	\$390	\$22,565
Estimated System Cost	\$130,127.34	\$8,453.75	\$143,713.72	\$22,643.97	\$50,722.49	\$71,856.86	\$3,804.1	\$431,322.31
Simple Payback in Years	22	12	23	32	11	18	10	19
DOE Grant Allocation	\$65,063.67	\$4,226.87	\$71,856.86	\$11,321.98	\$25,361.24	\$35,928.43	\$1,902.0	\$215,661.16
System Cost After DOE	\$65,063.67	\$4,226.87	\$71,856.86	\$11,321.98	\$25,361.24	\$35,928.43	\$1,902.0	\$215,661.16
Simple Payback in Years w/DOE Funding	11	6	12	16	5	9	5	10
Funding Cost-Share	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
System Cost After DOE and Other Funding	\$65,063.67	\$4,226.87	\$71,856.86	\$11,321.98	\$25,361.24	\$35,928.43	\$1,902.0	\$215,661.16
Simple Payback in Years w/DOE & Foundation Funding	11	6	12	16	5	9	5	10
2019 Electricity Usage (kWh)	86,520	5,980	69,560	306	15,920	26,291	2,587	207,164
2019 Electricity Costs (\$)	\$7,206	\$780	\$6,012	\$157	\$2,293	\$2,638	\$406	\$19,492
% Energy Offset	80%	89%	104%	456%	209%	150%	96%	74%
% Cost Savings	80%	89%	104%	456%	209%	150%	96%	116%
Ute Mountain Ute Cost	\$98,264.00							\$
Total Cost	431,322.31							



- Utah Schedule 136 policies for deployment of renewable projects, “Transition Program for Customer Generators”
- This may allow us to consolidate to one or two systems
 - Allocate savings to certain meters and bills
 - Make installation more efficient and cost effective
 - Fewer interconnections
 - Less line loss



Workforce Development

- 4 Interns to be hired
- Training to be provided by GRID
- OSHA and Solar Installation



Annual Production Report produced by Cody Arnold

Community Center Ute's - White Mesa, 37.463552, -109.467005

Report		L101 System Metrics	
Project Name	Ute's - White Mesa	Design	Community Center
Project Address	37.463552, -109.467005	Module DC Powerplane	43% Inv
Prepared By	Cody Arnold carnold@gridlab.com	Inverter AC Powerplane	36.0 MW Load Factor 1.20
		Annual Production	48.45 MWh
		Performance Ratio	79.8%
		Availability	1.81E-5
		Weather Dataset	TMY, 10km Wind (37.45, -109.46), MREL (Granular)
		Simulator Version	4202700-15-44691 Solar-Array-3P00V-19462-00525

Project Location

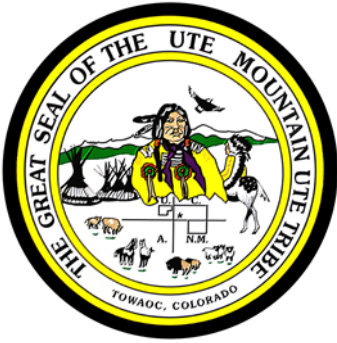
L101 Monthly Production

Month	Production (MWh)
Jan	3.5
Feb	4.0
Mar	5.5
Apr	6.5
May	7.0
Jun	7.5
Jul	7.0
Aug	6.5
Sep	5.5
Oct	4.5
Nov	3.5
Dec	3.0

Source of System Loss

Annual Production		
Description	Output	% Ratio
Annual Global Horizontal Irradiance	1,895.3	
POA Irradiance	2,044.0	2.4%
Shaded Irradiance	2,036.8	-0.2%
Irradiance after Reflection	1,864.6	-2.7%
Irradiance after Soiling	1,825.5	-2.5%
Total Collector Irradiance	1,825.0	0.8%
Powerplane	85,494.7	
Output at Irradiance Levels	87,240.7	+2.0%
Output at Cell Temperature Derate	79,894.7	-8.4%
Output After Mismatch	79,884.6	-0.0%
Optimizer Output	79,280.0	-1.2%
Optimal DC Output	79,250.2	-0.4%
Controlled DC Output	79,875.0	+0.8%
Inverter Output	64,828.4	-18.8%
Energy to Grid	85,499.3	-0.5%
Temperature Metrics		
Avg. Operating Ambient Temp	16.2 °C	
Avg. Operating Cell Temp	30.4 °C	
Availability Metrics		
Operating Hours	4564	
Scheduled Hours	4564	

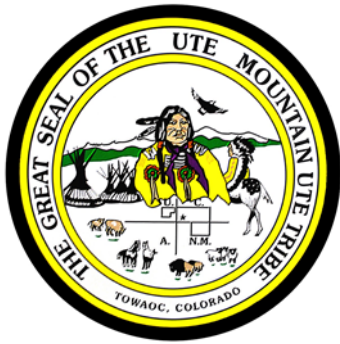
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Truly Clean Energy

- Neighbor to White Mesa Ute Community is the White Mesa Uranium Mill
- One of the Tribe's major concerns and environmental justice issues





Next Project in Negotiation



Ute Mountain Ute Tribe UMUT Towaoc Housing Solar Initiative TOPIC AREA 1a: Energy Generating Systems

Control Number: 2317-1548

Project Summary

The Ute Mountain Ute Tribe (UMUT) is pursuing a **Topic Area 1a: Energy Generating Systems** initiative through which it will address energy challenges in the highly rural, high-poverty, remote UMUT Reservation community of Towaoc (Colorado), bringing solar photovoltaic systems to 20 homes managed by the UMUT Housing Authority as well as a Supportive Housing building. The goal of this initiative is to reduce the Tribe's dependence on outside energy sources, support UMUT Tribal Sovereignty; and realize energy cost savings for 20 homes and a Supportive Housing building managed by the UMUT Housing Authority. Installation of the 140 kW-DC of solar PV will save 222,585 kWh/year and \$24,484.

Key Personnel/Organizations

The Ute Mountain Ute Tribe (UMUT) is the lead applicant, under the leadership of Scott T. Clow, UMUT Environmental Programs Director (technical contact). Other key personnel/organizations involved include: Bernadette Cuthair (Business Contact); Ronald Scott (Financial Contact); and Grid Alternatives (Primary Vendor)

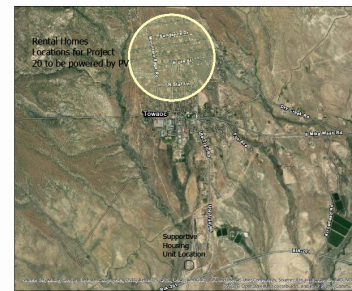
Budget

Federal funds requested: \$267,486
Cost-share proposed: \$267,486
Total Project Costs: \$ 534,972

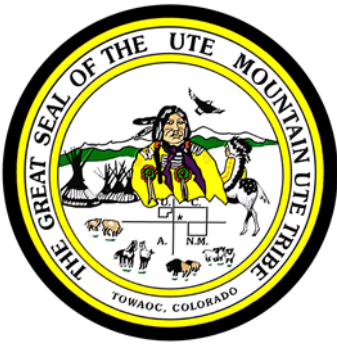
Project Outcomes

The 20 UMUT Housing Authority-managed homes and the Supportive Housing facility used 207,164 kWh of electricity costing \$48,853 in 2019. With the proposed 140 kW-DC solar photovoltaic systems, the Housing Authority will save 222,585 kWh and an estimated \$24,484 per year. These savings will offset an estimated 82% of current usage and 56% on costs. Over the 30-year lifetime of the project, considering decreased production of the system and increases in electricity costs, the UMUT is anticipated to save \$746,000. The project will create four jobs for interns over the 2-year project period and has a payback period of 11 years.

Towaoc Housing Solar Initiative



Deployment of this initiative will reduce energy costs for 20 homes and Supportive Housing Unit managed by the UMUT Housing Authority



Future of Clean Energy Transition

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