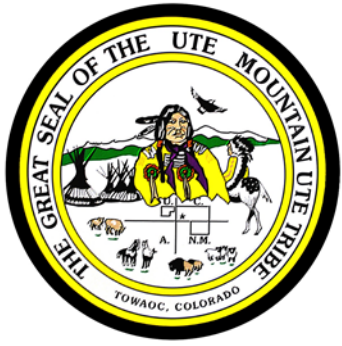


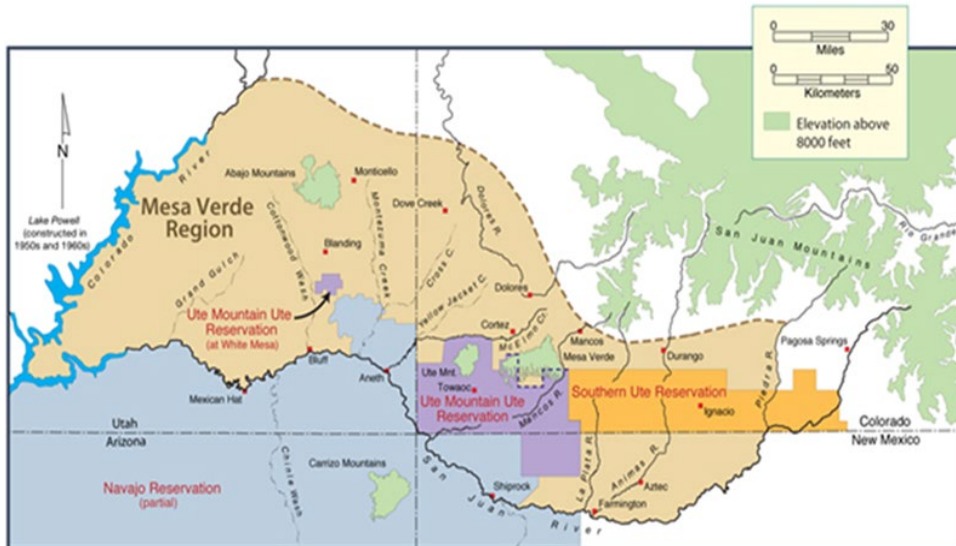
Department of Energy Office of Indian Energy Program Review 2024

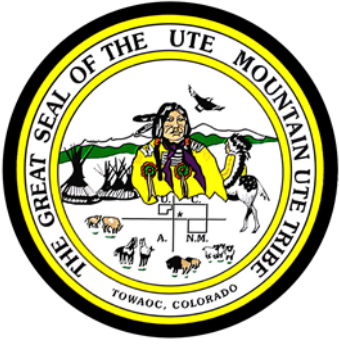
Ute Mountain Ute Tribe's
Towaoc Housing Solar Initiative
White Mesa Solar Initiative
Scott Clow
Environmental Programs Director
November 19, 2024



Ute Mountain Ute Tribe

- Originally, the Utes were seven Bands in CO, UT and NM
- 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

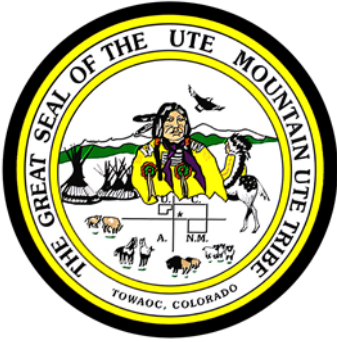




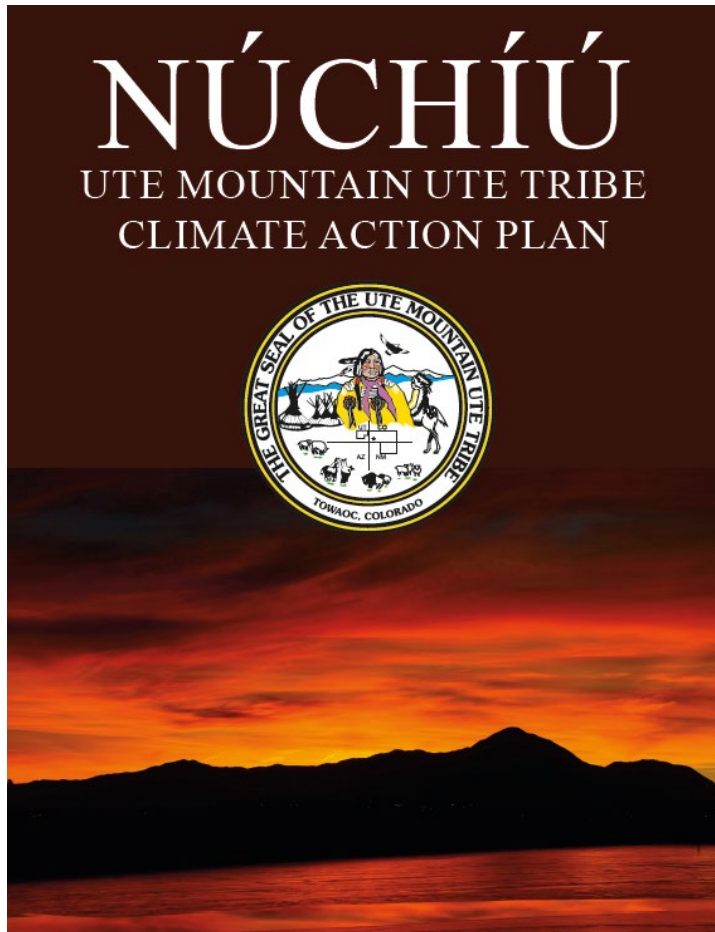
Snapshot of the Ute People



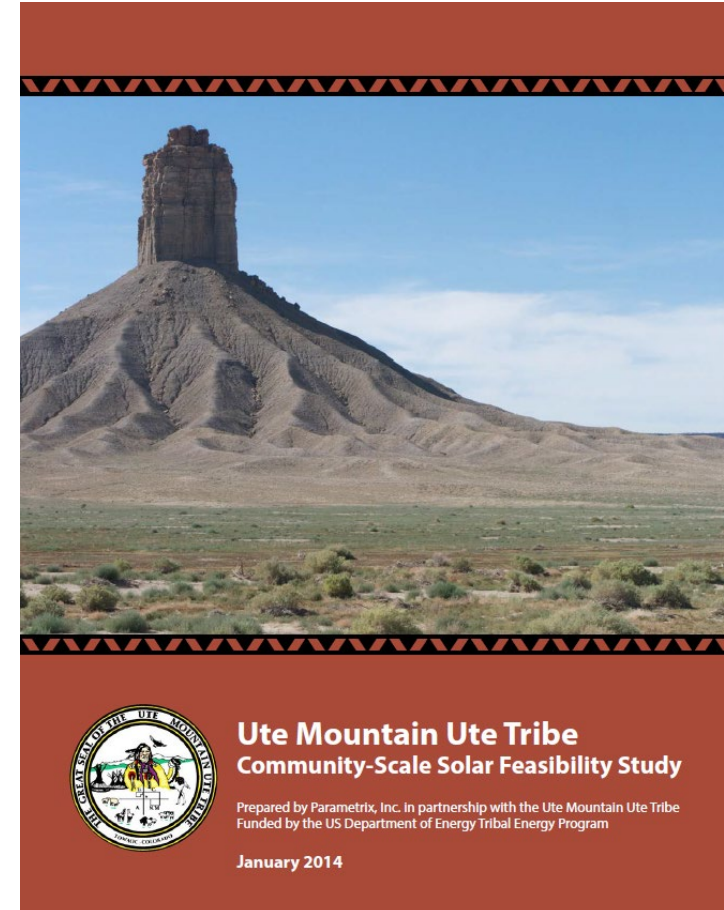
- ▶ Originally Hunters and Gatherers
- ▶ 2,100 Ute Mountain Ute Tribal Members
- ▶ 55 Years of Age, Life Expectancy
- ▶ 26 Years of Median Age
- ▶ 37.8% Poverty vs. 12.5% in Colorado
- ▶ \$13K Per Capita vs. \$42K in Colorado

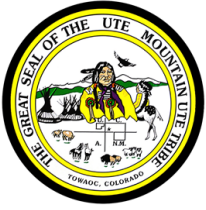


Planning and Plans



- EERE Grant circa 2008-9
- Community Solar Feasibility Study
- Renewable Energy Committee 10+ Years

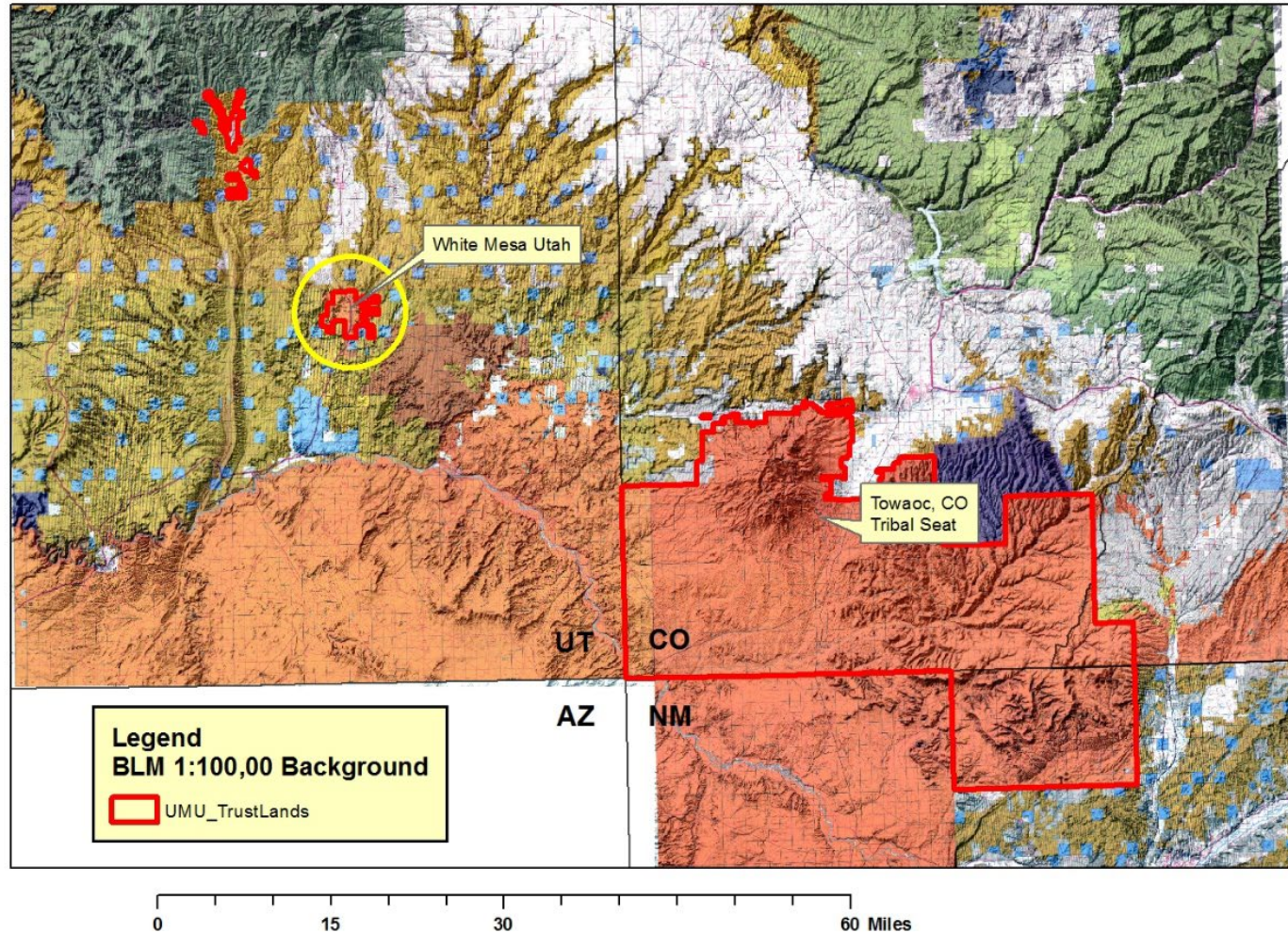


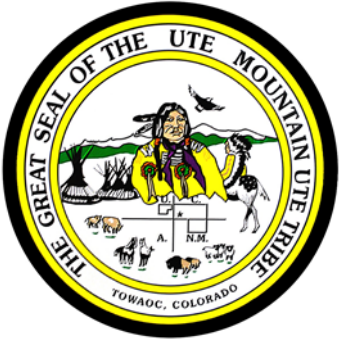


Solar Initiatives



Ute Mountain Ute Reservation Trust Lands

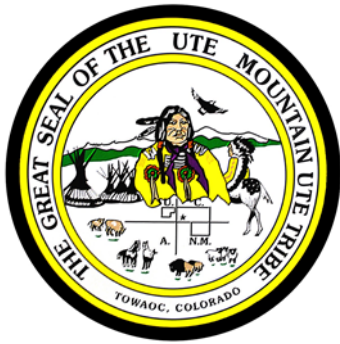




Workforce Development

- Trainees!
- Training provided by GRID on 2 projects so far (22 and counting)
- OSHA and Solar Installation
- Utility Scale Projects- partnering with local schools and project partners
 - Pueblo Community College
 - Ft. Lewis College
 - San Juan College





Towaoc Housing Solar Initiative

Cost share reduction!

DOE: \$432,661

Tribe: \$111,679

Total: \$544,340

Similar reduction of ROI for Tribe as WMSI

- Originally planned to have 20 individual rental homes solarized
- 23 installed after design and cost considerations
- 50 KW Supportive Housing Unit apartment building



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 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

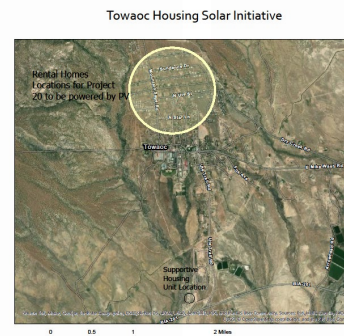
The Ute Mountain Ute Tribe (UMUT) is the lead applicant, under the leadership of Scott T. Clow, UMUT Environmental Programs Director (technical contact). Other key personnel/organizations involved include: Bernadette Cuthair (Business Contact); Ronald Scott (Financial Contact); and Grid Alternatives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

Budget

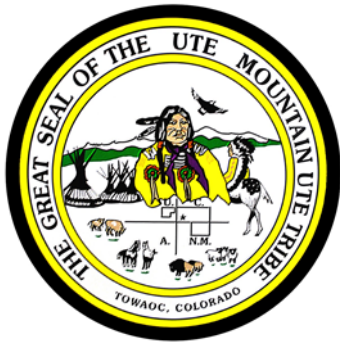
Federal funds requested: \$267,486
Cost-share proposed: \$267,486
Total Project Costs: \$ 534,972

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.



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



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.

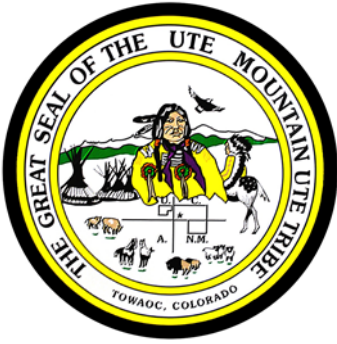
Sincerely,



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
- Tribe's Return on Investment
 - Originally 11 years
 - Now 3.2 Years



Towoac Housing Solar Initiative

WORFORCE

- 11 Trainees (interns) employed for 3 months
- GRID hired

Customer Name: Ute Mountain Housing Authority Account Number: 39620182
Meter # 152402911

Generator / Inverter Information:

Manufacturer: Enphase

Model: IQ7plus-72-2-US

AC Power Rating: 290W

Voltage and Phase: 240V single phase

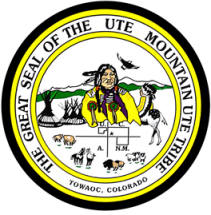
Location: Microinverters under each module at array.

Visible Open Disconnect: (Required for systems larger than 10 kW AC)

Manufacturer & Part Number: 30A AC disconnect - Square D DU221RB Disconnect Switch 240V AC, NEMA 3R, 2 Pole, 30 Amps

Location: West side of the house within 10ft right of the meter.





Payment: 833-923-1409 Office: 970-666-4444
 Hours: 7:30 a.m. - 5:30 p.m. Monday - Thursday
 7:30 a.m. - 11:30 a.m. Friday
www.eea.coop

On Peak hours are 1pm-9pm, Monday through Saturday

Page 50 of 78

Account Number: 39820145 Rate Description: RESIDENT TOU NET ON PK Service Address: 918 LAFAYETTE HEAD ST
 IND

Meter #	Description	Days	Services From	To	Readings Previous	Present	Metered Usage	Meter Multiplier	Recorded Usage
146757103	Delivered On Peak	30	09/01/24	10/01/24	10881	11150	81	1	81
146757103	Received On Peak	30	09/01/24	10/01/24	6171	6033	255	1	255
146757103	Net On Peak						-174	1	-174
146757103	Delivered Off Peak	30	09/01/24	10/01/24	10881	11150	187	1	187
146757103	Received Off Peak	30	09/01/24	10/01/24	8171	6633	208	1	208
146757103	Net Off Peak						-21	1	-21

Previous Account Activity		
Previous Balance		\$44.43
Payment Received - Thank You		-\$44.43
Balance Before Current Charges		\$0.00
Current Activity		
Grid Access Charge		\$32.40
Distribution Demand	3.028 kW @ 2.74000	\$8.30
Total Current Activity		\$40.70
Total Amount Due		\$40.70

Your On Peak Net Meter Bank

This month we delivered 81 kWh of energy to you and we received 255 kWh from you. Thus, you produced more energy than you used this month.

Previous Balance	666 kWh
Gain or Loss	174 kWh
Current Balance	840 kWh

Usage History

PERIOD ENDING	10/2023	10/2024
Avg Daily Temp	60	64
Avg Daily kWh	13	-8

Your Off Peak Net Meter Bank

This month we delivered 187 kWh of energy to you and we received 208 kWh from you. Thus, you produced more energy than you used this month.

Previous Balance	0 kWh
Gain or Loss	21 kWh
Current Balance	21 kWh

Account Number: 39820146 Rate Description: GEN SERV 1 PH TOU ON PEAK Service Address: 920 LAFAYETTE HEAD ST

Meter #	Description	Days	Services From	To	Readings Previous	Present	Metered Usage	Meter Multiplier	Recorded Usage
152404776	On Peak	30	09/01/24	10/01/24	10366	10522	156	1	156
152404776	Off Peak	30	09/01/24	10/01/24	14909	15219	310	1	310

Previous Account Activity		
Previous Balance		\$125.89
Payment Received - Thank You		-\$125.89
Balance Before Current Charges		\$0.00
Current Activity		
Grid Access Charge		\$32.00
On Peak kWh	156 kWh @ 0.16607	\$25.91
Off Peak kWh	310 kWh @ 0.04185	\$12.97
Distribution Demand	2.157 kW @ 6.82000	\$14.93
PCA On Peak	156 kWh @ 0.01483	\$2.28
PCA Off Peak	310 kWh @ 0.01483	\$4.54
Total Current Activity		\$92.83
Total Amount Due		\$92.83

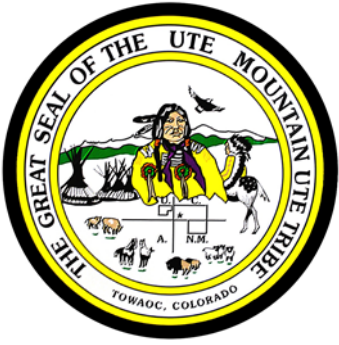
Usage History

PERIOD ENDING	10/2023	10/2024
Avg Daily Temp	60	64
Avg Daily kWh	21	16

918 Lafayette Head St. and 920 Lafayette Head St.- October 2024

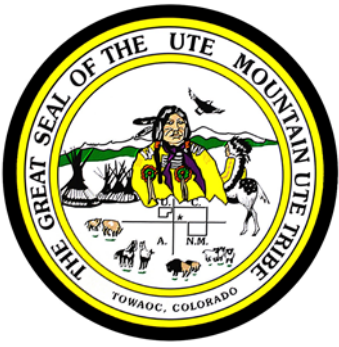
- Systems producing full offset
- Additional daytime generation
- Empire Electric Association tabulates the “net meter bank”- one time annual payout or roll-over

EEA Policy Changes and Implications



Towoac Housing Solar Initiative

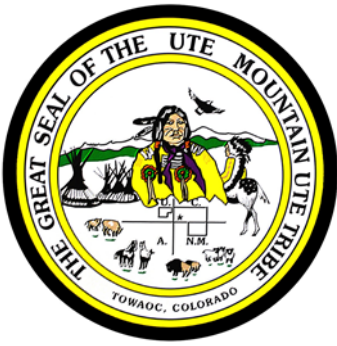




Towoac Housing Solar Initiative – *Supportive Housing Unit*

- 50 KW design (AC)
- Ground mount
- Anchor screws instead of driven piles





Towoac Housing Solar Initiative – *Supportive Housing Unit*

Customer Name: Ute Mountain Housing Authority Account Number: 18825

Generator / Inverter Information:

Manufacturer: SolarEdge

Model: SE50KUS

AC Power Rating: 50 KVA

Voltage and Phase: 208V 3PH

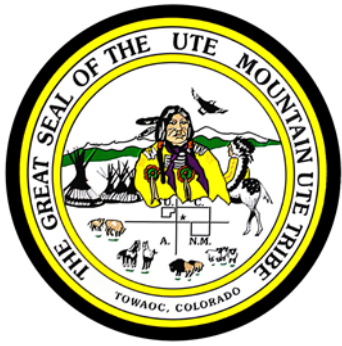
Location: PV Equipment Pad at Ground Mount Array (See Site Plan, Page C1.1-B3)

Visible Open Disconnect: (Required for systems larger than 10 kW AC)

Manufacturer & Part Number: Square D HU364NRB

Location: Next to main service panel on SW exterior wall (See Site Plan, Page C1.1-B2)

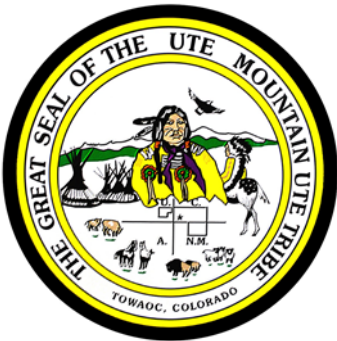




Towoac Housing Solar Initiative – *Supportive Housing Unit*

50 KW
System for
apartments
Online
January
2023





October 2024

Payment: 833-923-1409 Office: 970-565-4444
 Hours: 7:30 a.m. - 5:30 p.m. Monday - Thursday
 7:30 a.m. - 11:30 a.m. Friday
www.eea.coop

On Peak hours are 1pm-9pm, Monday through Saturday

Account Number: 18825

Rate Description: LARGE POWER 2 VOLT NET
 INDEF

Service Address: #4 RODEO DR

Meter #	Description	Days	Services		Readings		Metered Usage	Meter Multiplier	Recorded Usage
			From	To	Previous	Present			
147493105	DELIVERED	30	08/31/24	09/30/24	2277	2367	90	40	3,600
147493105	RECEIVED	30	08/31/24	09/30/24	2974	3099	125	40	5,000
147493105	NET						-35	40	-1,400

Previous Account Activity
 Previous Balance \$1,055.38
 Payment Received - Thank You -\$511.46
 Late Fee \$8.16
 Balance Before Current Charges \$552.08

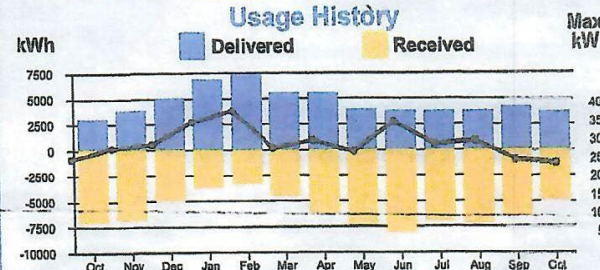
Current Activity
 Grid Access Charge \$231.15
 Distribution Demand 24.44 kW @ 10.25000 \$250.51
 Total Current Activity \$481.66

Total Amount Due \$1,033.74

Your Net Meter Bank

This month we delivered 3,600 kWh of energy to you and we received 5,000 kWh from you. Thus, you produced more energy than you used this month.

Previous Balance 36,040 kWh
 Gain or Loss 1,400 kWh
 Current Balance 37,440 kWh



PERIOD ENDING 10/2023 10/2024
 Avg Daily Temp 56 62
 Avg Daily kWh 100 120

MEMBER COINCIDENT PEAK (MCP) = 0.000 kW
 Measured Distribution Demand = 24.440 kW
 Power Factor = 99.7%

Towoac
 Housing Solar
 Initiative –
*Supportive
 Housing Unit*

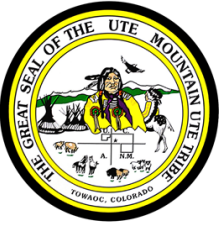
Sign Up Today
 Visit eea.coop or download the
 SmartHub app to your mobile device.



Member Appreciation Day

October 31st

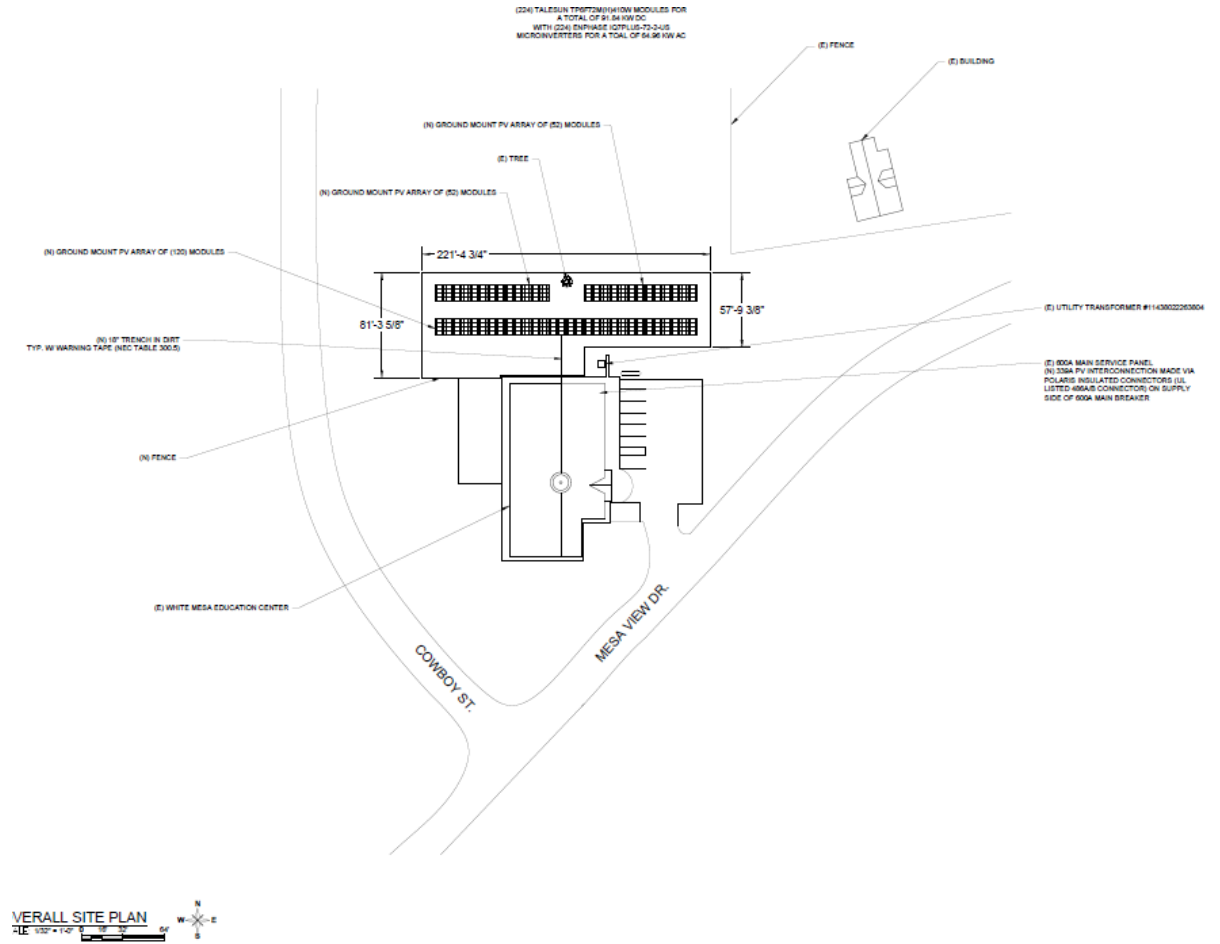


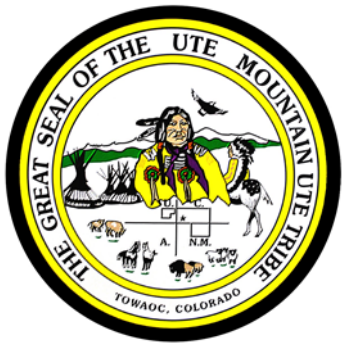


White Mesa Solar Initiative

- **High Level Goals & Outcomes:**

- Actualize phase II 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
- **“Net-Zero” Goal**
- Transition tribal energy economy from exclusively fossil fuels to renewable energy revenue (Stepping Stone)



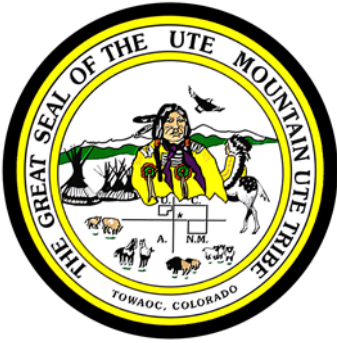


White Mesa Solar Initiative- Original Plan

- 9 meters evaluated; 5 meter load offset designed
- 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



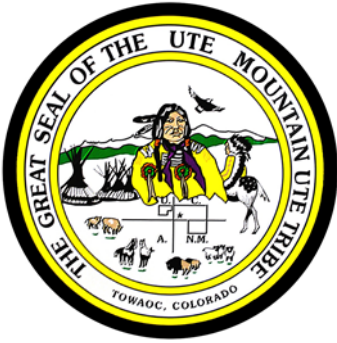


2022 – 2023

- Consolidated interconnection Applications prepared – 2 systems, submitted in July, 2022
- Applications REJECTED!
- Met with Rocky Mountain Power and Grid in August
 - “You can connect 10KW...”
- System Impact Study Needed
 - Substation backflow concerns
 - \$5000 down payment, potential ~\$10,000 cost
 - Waiver of Sovereign Immunity in Document going to Tribal Council November 22
 - Outcome to determine if any upgrades to substation are needed
 - Upgrades to RMP substation could be pricey, prohibitive to project budget
 - ***May also present an opportunity for future larger project preparation***

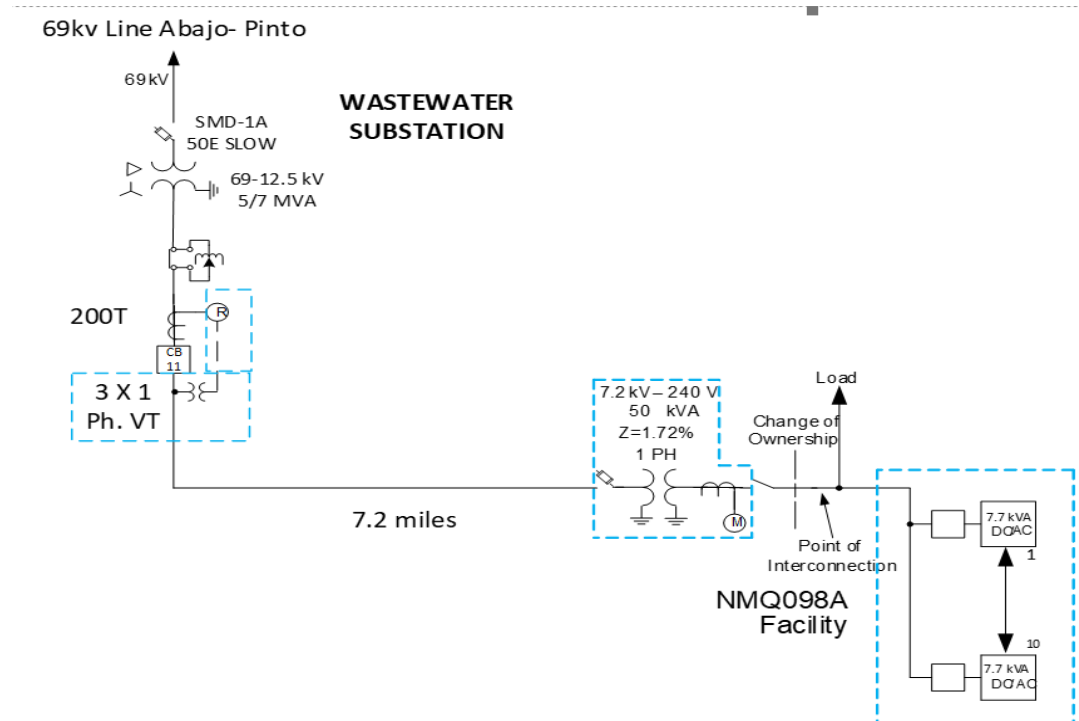
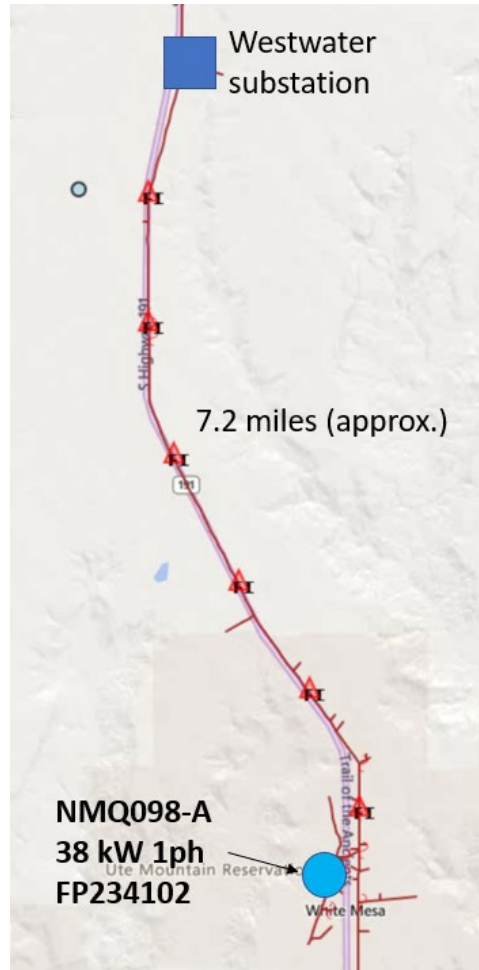


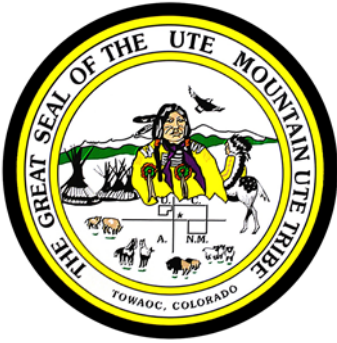
PUT ON THE BRAKES!



Progress in 2023 –

- System Impact Study
 - Substation backflow concerns
 - \$5000 cost





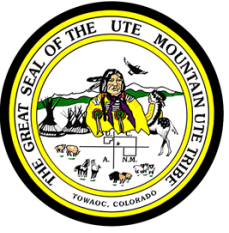
Upgrades to Substation – Part 1 (first system)

PROTECTION REQUIREMENTS

- The existing DPU relay on Westwater CB11 needs to be replaced with SEL-751 with directional control of overcurrent elements, Vs-line side voltage detection for hot line blocking, and mirrored bit transfer trip communication. The auto reclosing of CB11 shall be stalled until deadline condition is established (10% of phase voltage). 3 - 1 ph. line side VTs shall be installed on the line side of the breaker CB-11 and connected to the relay to detect deadline condition. This relay will issue DTT over radio to the collector main CB relay- SEL 751 for opening of CB11 and for exceeding voltage and frequency for out of tolerance conditions. The DTT will be sent via mirrored bits to the collector relay that will disconnect generation for opening of CB11.
- 1 phase 50kVA transformer shall be protected with fuse on high side of the transformer.
- At collector sub
- The generation facility needs to be equipped with main CB with SEL-751 for following reasons,
- Detect faults at the generation facility
- Receive transfer trip from West water-CB11



- Upgrades to substation are needed
- Upgrades to RMP substation estimated to be **\$302,000** without ancillary construction costs for NMQ098-A
- Upgrades would also benefit the City of Blanding and the White Mesa Uranium Mill
- **RELIABILITY** concerns not adequately represented in remote data or meeting



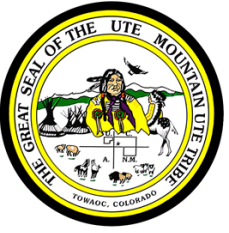
Upgrades to Substation – Part 2

PROTECTION REQUIREMENTS

- Westwater CB 11 SEL-751 relay (Part of NMQ098-A) shall issue DTT over radio to the collector main CB relay- SEL 751 for opening of CB11 and for exceeding voltage and frequency for out of tolerance conditions. The DTT will be sent via mirrored bits to the collector relay that will disconnect generation for opening of CB11.
- 1 phase 75kVA transformer shall be protected with fuse on high side of the transformer.
- At collector sub
- The generation facility needs to be equipped with main CB with SEL-751 for following reasons,
 - Detect faults on the at the generation facility
 - Receive transfer trip from West water-CB11
- Additional Costs for NMQ098-B = **\$66,000**
- Total project cost increase (without ancillary construction costs) = \$368,000
 - Initial Project Cost Budgeted: \$425,724
 - New Project Cost: \$793,724
 - Increase of **86.4%**
 - **NO GO as Planned?!?!**

NOW WHAT

?



Next Steps for White Mesa

- **Downsize Solar Installations**

- Home Scale systems
- Reduce potential for substation overcurrent issues
- Who gets it?
- Rental Homes like the Towaoc Housing Solar Initiative
- Fixed income, low income
 - Elder Priority – owned homes
 - Rental homes may address low income demographic

-NEW PLANNING AND DESIGN WITH EPC

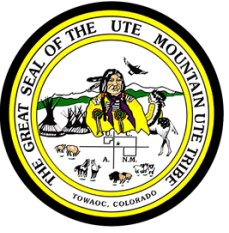
-NEGOTIATE CHANGES TO PROJECT WITH PROJECT OFFICER

-REVISE NEPA PLANNING

- **SUPERSIZE White Mesa Solar**

- Whole Community scale generation
- Commercial generation with community delivery offset
 - Purchase micro grid
 - Create small utility
 - Become independent from RMP-Pacificorp





Next Steps for White Mesa- “Pivot to Towaoc”

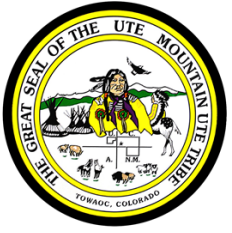
- Home Scale systems
- Use the 10 KW on the table!!
 - 3 elder homes in White Mesa
 - 19 homes in Towaoc



Downsides

- Reduced 130 KW in White Mesa to 10 KW (for now)
- “Left Overs” phenomenon

- NEW PLANNING AND DESIGN WITH EPC
- NEGOTIATE CHANGES TO PROJECT WITH PROJECT OFFICER
- REVISE NEPA PLANNING

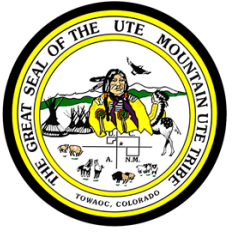


Next Steps



White Mesa Solar Initiative
Elder Home Solar Systems
2024





Next Steps

With DOE

- Finalize approval of project modification
- Set extended grant completion date

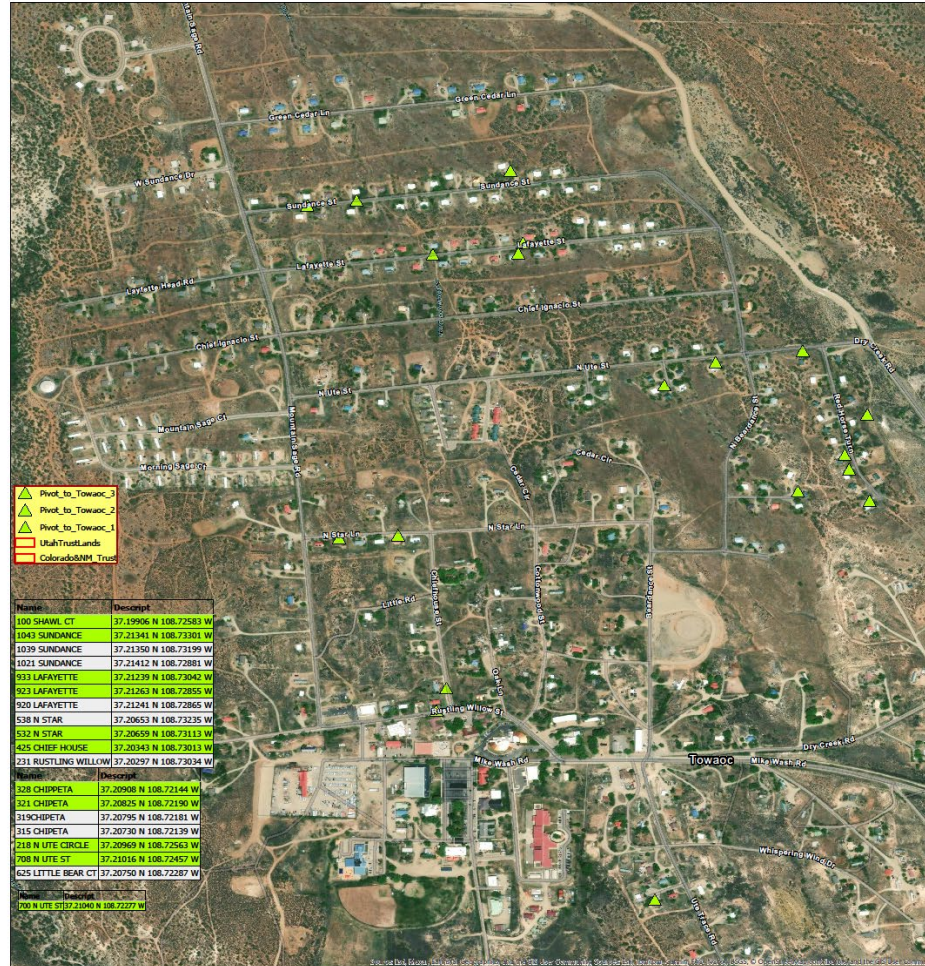
With GRID

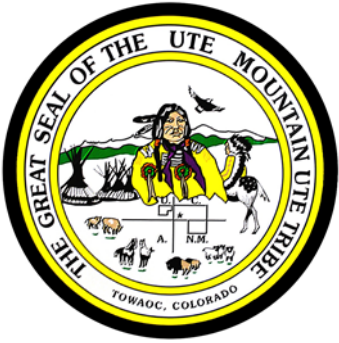
- Finish interconnection process for EEA- Towaoc
- Propose interconnection with RMP
- Hire Trainees
- Train
- Build

TEST SYSTEMS!



White Mesa Solar Initiative "Pivot to Towaoc" 2024 Rooftop Solar Rental Home Locations



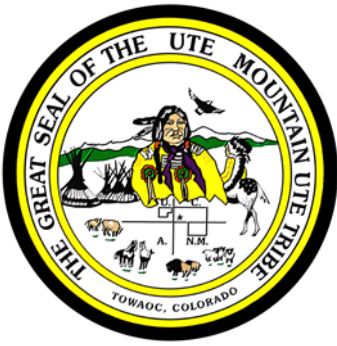


Truly Cleaner Energy

- Neighbor to White Mesa Ute Community is the White Mesa Uranium Mill
- One of the Tribe's major concerns and environmental justice issues
- No free lunch- PV Equipment, Li, V
- NEW REACTOR PROGRAM – CONSULTATION WITH DOE AND NRC
- SMALL MODULAR REACTORS (HALEU)



Site 42Sa6386 at White Mesa Uranium Mill Site



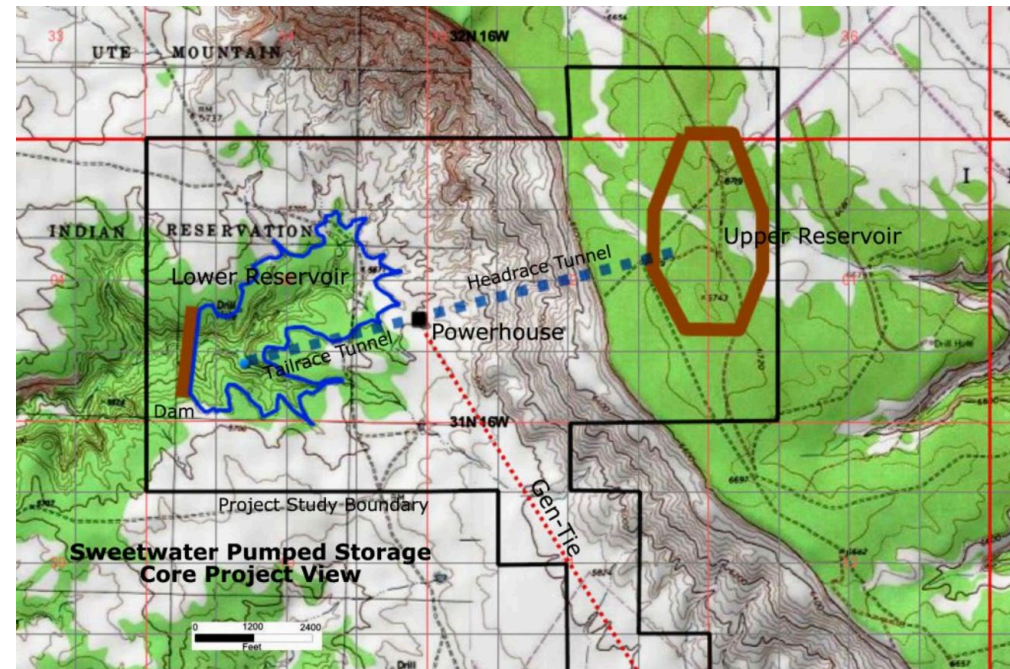
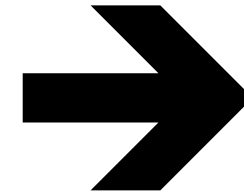
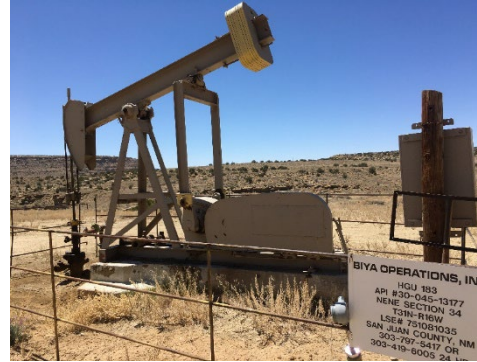
Future of Clean Energy Transition

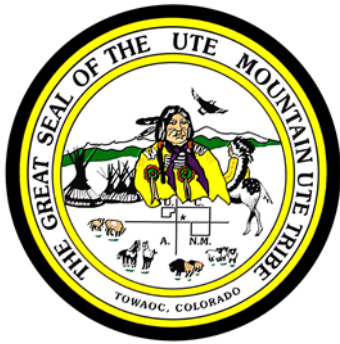
2025 Likely to see ground breaking on 2 Utility Scale Solar projects

Sun Bear in CO: 756 MW AC
Foxtail Flats in NM: 171 MW
“The money-makers”

Continued work on “Sweetwater” Closed-Loop Pump Storage Project

- 600 MW for 6-8 hours (preliminary)
 - Land
 - Vertical Drop
 - Water
 - Interconnection
 - Customers





Ute Mountain Ute Tribe Renewable Energy

Thanks
for
Listening!

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