



BISHOP PAIUTE TRIBE RESIDENTIAL SOLAR PROGRAMS



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Environmental Management Office
Bishop Paiute Tribe**

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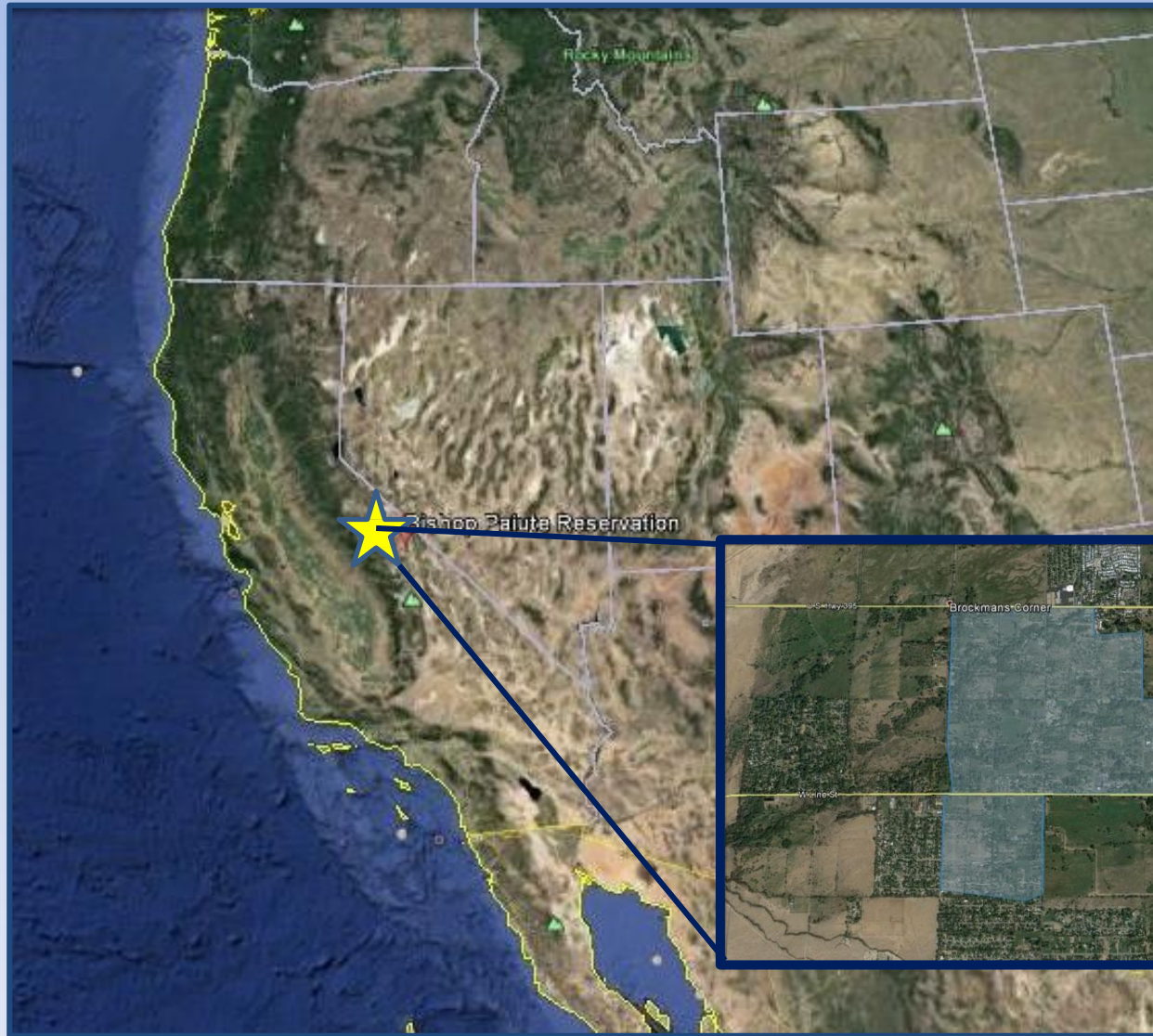
**2021 Office of Indian Energy Program Review
November 16, 2021**

Bishop Paiute Tribe



- **Descendants of the "Nu-Mu," of the Owens Valley**
- **Aboriginal land: Eastern Sierra: Owens Valley and Mono Basins**
- **Energy Demand: Homes, Community and governmental facilities, preschool and Ed Center; health clinic, museum, casino, domestic water pumping**

Bishop Paiute Reservation



- Created 1938 Land Exchange
- 879 Acres Trust
- Pop 2000
- 80% low-mod income

Bishop Paiute Tribe



ENERGY VISION

Achieve energy self-sufficiency while....

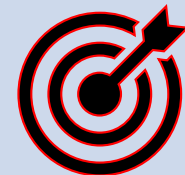
- *preserving cultural traditions,*
- *protecting the environment,*
- *developing the economy, and*
- *sustaining the efficient use of resources.*

Bishop Paiute Tribe



2015 Strategic Energy Goal: serve ½ of eligible households w/ PV solar by 2020

- **Single family homes: 490 in 2015.....**
 - **Low-income qualification rate: 81%.....**
 - **Eligible households: 400**
- **Goal: 50% (200 homes) served by 2020**





Past, Present, Future Partnership



Bishop Paiute Tribe

<http://www.bishoppaiutetribe.com/>



Bishop Paiute Environmental Management Office

<http://www.bishoptribeemo.com/>



Bishop Paiute Tribal Employment Rights Office/Ordinance

<http://bishoptero.com/>

GRID Alternatives

<http://gridalternatives.org/ie>





GRID Alternatives



Nation's Largest Solar Non-Profit

12 Regional Offices Across US (CA,CO,DC)

Over 28 Megawatts of solar installed

Solar Solutions for Underserved Communities

Over 15k solar projects installed for low income residents across the US

Workforce Development & Volunteerism Model

Over 36k people have been provided hands on training

Economic & Environmental Benefits

Generate over \$375,000,000 worth of clean renewable power

Eliminate over 972,000 tons of GHG emissions





Solar Affordable Housing Program



CA SASH 1 & 2 provided partial solar incentives for solar systems for low-income participants.

- 1. PEOPLE:** Low-income homeowners ($\leq 80\%$ of AMI) homeowner or tribal land in trust
- 2. PLANET:** Grid-tied solar electric systems to reduce energy bills and emissions
- 3. EMPLOYMENT:** Hands-on solar job training for volunteer installers that can lead to jobs / paid training





GRID provided

- Review of tribal energy goals
- Outreach with applicants
- Provide job training for volunteers (16 and over)
- Work with TERO compliance
- Provide 3rd party inspection



Tribe provided

- MOU
- Homeowner outreach
- Volunteer trainees outreach
- In kind donations
- Collaboration on grants and letters of support



GRID Program Steps

Outreach- Community meetings, applications, pre-inspections, designs, contracts

Training –GRID recruits job trainees with TERO Department

Installation - 2 Day Installs

Inspection & Completion –

3rd party inspections, interconnection with utility, PTO

Warranty – Community meetings, utility bill review with homeowners

Reporting - GRID provides monitoring data and provides reports over grant cycles



Build Schedule: BPT Low-Income Residential Solar Program

Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 builds by 2020
SASH 1	214 kW Completed	14	48	62	15%



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<u>2013 - 2015</u>					
SASH 1 204 kw	Completed	14	48	62	15%
<u>2016</u>					
SASH 2 – Phase 1 <i>DOE Clean Energy</i>	67 kW Completed	22	-	84	21%

TERO Placements – Volunteer Training
1080 job site hours – SASH 2 – Phase 1



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<u>2016</u>					
SASH 2 – Phase 1 <i>DOE Clean Energy</i>	67 kW Completed & Monitoring	22	-	84	21%
<u>2017</u>					
SASH 2 – Phase 2 <i>DOE Clean Energy</i>	123kW Completed & Monitoring	-	34	118	30%





- Phase 1: Eight (8) interns
 - Location: Bishop Reservation
 - 40 hours of classroom training
 - 5 rooftop installations (Summer 2018)



- Phase 2: Three (3) interns
 - Location: Riverside (Fall 2018)
 - 170 hours of training

Cynthia Corrales,
GRID project lead
with
Kanyon Martinez,
Bishop Tribal
Member and GRID
Fellow



- Phase 3: One (1) intern
- Location: Riverside/Reservation (2019)
- One (1) year fellowship with GRID

Funding: US Dept of Energy "First Steps" grant opportunity - 2018

➤ **Since 2013 GRID has trained 60 Bishop tribal members = 2600 hours**





Training Builds



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<u>2018</u>					
SASH 2 – First Steps – Youth Solar Training	15kW Completed	5		123	31%



Past Phases



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SASH 2 – Phase 3 <i>DOE Clean Energy</i>	127 kW Completed	8	32	163	41%

19 Tribal Homes 67 kw Rooftop, grid tied solar system

Sub-Contractor Partnership (SPP) vetted, local contractors partner with GRID, hire 1-2 trainees, all projects are inspected by 3rd party

Status: 3 systems installed

Forecast: the *remaining 16 to be installed Fall 2021*

Total Project Cost: \$ 332,214

- Non-federal share: \$189,887 (57%)
Source: SASH rebate
- Federal share \$ 142,327 (43%)
Source: DOE Clean Energy

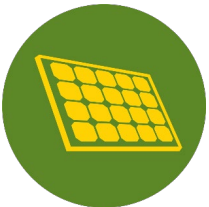


Courtney Taylor Tribal trainee, completed 33 hours of training in first 3 installations!





Estimated Solar Savings	
Estimated Savings from Solar (1 st year)	\$407.66
Estimated Savings from Solar (20 years) ^{1a}	\$9,810.33
Estimated Annual Bill Reduction from Solar	67%
Annual Electric Bill <u>Before</u> Solar	\$610.23
Estimated Annual Electric Bill <u>After</u> Solar ^{1b}	\$202.57



Solar System Details and Production	
Solar System Size	2.065 kW DC
Historic Electric Usage (pre-solar)	3095 kWh
Annual Solar Production	3047 kWh
Your Original Rate Schedule	TOU-D-5-8PM
Your New Rate Schedule ^{4a}	TOU-D-5-8PM-NEM2



Estimated Environmental Impacts Over Solar System Lifetime	
Equivalent Number of Tree Seedlings Planted	808
Equivalent Number of Cars Taken off the Road	7
Greenhouse Gas Emissions Prevented	34.74 tons of CO2



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Current & Future Phases



Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 (50%) builds by 2020
<u>2020-2021</u>					
SASH 2 – Phase 4 <i>DOE Clean Energy</i>	19 installs funded 214 kW Planned	3	8 <i>to-date</i>	174 (182)	44% (46%)
<u>2021-2022</u>					
SASH 2 – Phase 5 <i>ARPA Solar 5</i>	Funded ARPA 19 installs 215 kW Planned		(19)	(201)	(50%)
<u>2022-2023</u>					
DAC SASH – Phase 6 <i>(funding dependent)</i>	Enrolling Target = 20		(20)	(221)	(55%)



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SASH 2 – Phase 5 <i>ARPA Solar 5</i>	Funded ARPA		(19)	(201)	(50%)
	19 installs 215 kW Planned				Mid – 2022!
<u>2022-2023</u>					
<i>DAC SASH – Phase 6 (funding dependent)</i>	<i>Enrolling Target = 20</i>		(20)	(221)	(55%)

Bishop Paiute Tribe



Project	Installs	Kilowatts installed
Phase 0	62	214 KW
Phase 1 & 2	56	190 KW
Solar Futures	5	15 KW
Phase 3	40	127 KW
Phase 4 – to date	3	8 KW
Total	166	554 KW



Photo: 1st rooftop solar installation – 2013

Goals 200 by 2020 400 by 2025

Bishop Paiute Tribe



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Goals 200 by 2020 400 by 2025

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	Cumulative Carbon reduced over system life (tons)
Non DOE	3,516
DOE	4,668
<u>Total</u>	8,184



Photo: 1st rooftop solar installation – 2013

Goals 200 by 2020 400 by 2025

Bishop Paiute Tribe



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Total	8,184



Photo: 1st rooftop solar installation – 2013

Goals 200 by 2020 400 by 2025



QUESTIONS?



Principal Investigator: Brian Adkins, Environmental Director, Bishop Paiute Tribe: (760) 873-3584 x 237 brian.adkins@bishoppaiute.org

Key Participant: Lisa Castilone, Tribal Program Manager, GRID Alternatives; (951) 471-7047 lcastilone@gridalternatives.org



THANK YOU!



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