



BISHOP PAIUTE TRIBE RESIDENTIAL SOLAR PROGRAMS



**Brian Adkins
Environmental Management Office
Bishop Paiute Tribe**

**Lisa Castilone
GRID Alternatives, Inland Empire**

**2019 Office of Indian Energy Program Review
November 19, 2019
Denver, Colorado**

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 Tribal Strategic Energy Plan – by 2020:

Goal: Serve ½ of eligible households: Target: 200 systems

- *Single family homes: 490*
- *Low-income qualification rate: 81%*
- *Total potential eligible households: 400*



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
Inland Empire

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 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%



22 Tribal Homes

Income qualified, owner-occupied

Rooftop Solar

PV systems grid tied

\$437,147 Total Project Cost

- **Non-federal share \$218,621**
 - **48% SASH rebate (\$209,621)**
 - **2% Tribal in-kind (\$9,000)**
- **Federal share \$ 218,574**
- 50% DOE Clean Energy**



**Total deployed rated capacity of 67 kw,
(8 kW more than estimated)**

- **Months 9-21:** Interconnection with utility
- **Months 12-28:** Warranty training, utility bill reviewed and systems performance verified
- **Months 29-30:** Final reports done



Build Schedule: BPT Low-Income Residential Solar Program

Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 builds by 2020
<u>2013 - 2015</u>					
SASH 1 204 kw	Completed	14	48	62	15%
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



34 Tribal Homes

123 kw installed

Rooftop, grid tied solar

Sub-Contractor Partnership (SPP)

vetted, local contractors

partner with GRID, hire 1-

2 trainees, all projects are

inspected by 3rd party



- **Total Project Cost: \$ 683,635**
- **Non-federal share: \$ 341,818 (50%)**
Source: SASH rebate covered to GRID in a rebate
- **Federal share \$ 341,818 (50%)**
Source: DOE Clean Energy





SASH 2- Phase 2



Build Schedule: BPT Low-Income Residential Solar Program

Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 builds by 2020
<u>2013 - 2015</u>					
SASH 1	Completed	14	48	62	15%
<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)**

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





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

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





- 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)



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



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



- 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

- 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**





SASH 2- Next Phases



Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 builds by 2020
2013 - 2015					
SASH 1	214 kW Completed	14	48	62	15%
2017					
SASH 2 – Phase 1 DOE Clean Energy	67 kW Completed & Monitoring	22	-	84	21%
2018					
SASH 2 – Phase 2 DOE Clean Energy	123kW Completed & Monitoring	-	34	118	30%
SASH 2 – First Steps – Youth Solar Training	15KW Completed	5		123 Current total	31%



SASH 2- Next Phases



Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 builds by 2020
<u>2013 - 2015</u>					
SASH 1	214 kW Completed	14	48	62	15%
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%
<u>2018</u>					
SASH 2 – First Steps – Youth Solar Training	15kW Completed	5		123	31%
SASH 2 – Phase 3 <i>DOE Clean Energy</i>	127 kW Completed	8	32	161	41%

Bishop Paiute Tribe



Project	Installs	Kilowatts installed
SASH 1	62	214 KW
SASH 2 DOE (phase 1 and 2)	56	190 KW
SASH 2 Other	5	15 KW
SASH 2 DOE (phase 3)	40	127KW
Total	163	546 KW



Photo: 1st rooftop solar installation – 2013

Goals 200 by 2020 400 by 2025

Bishop Paiute Tribe



	Cumulative Carbon reduced over system life (tons)
Non DOE	3516
DOE	4540
<u>Total</u>	8056



Photo: 1st rooftop solar installation – 2013

Goals 200 by 2020 400 by 2025



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

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



BISHOP PAIUTE TRIBE RESIDENTIAL SOLAR PROGRAMS



**Brian Adkins
Environmental Management Office
Bishop Paiute Tribe**

**Lisa Castilone
GRID Alternatives, Inland Empire**

**2019 Office of Indian Energy Program Review
November 19, 2019
Denver, Colorado**