



# **BISHOP PAIUTE TRIBE RESIDENTIAL SOLAR PROGRAMS**



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

**Lisa Castilone  
GRID Alternatives, Inland Empire**

**2020 Office of Indian Energy Program Review  
December 15, 2020**

# 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>



## **Nation's Largest Solar Non-Profit**

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

Over 28 Megawatts of solar installed

## **Solar Solutions for Underserved Communities**

Over 17k solar projects installed for low-income residents across the US

## **Workforce Development & Volunteerism Model**

Over 45k people have been provided hands on training

## **Economic & Environmental Benefits**

Generate over \$440,000,000 worth of clean renewable savings

Eliminate over 1 Million 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 3<sup>rd</sup> 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** –

3<sup>rd</sup> 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
<b>SASH 1</b>	<b>214 kW Completed</b>	<b>14</b>	<b>48</b>	<b>62</b>	<b>15%</b>



## 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%
<b>SASH 2 – Phase 1</b> <i>DOE Clean Energy</i>	<b>67 kW Completed</b>	<b>22</b>	<b>-</b>	<b>84</b>	<b>21%</b>

**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 3<sup>rd</sup> 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**





# Project Phases



Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 builds by 2020
<b><u>2013 - 2015</u></b>					
SASH 1	214 kW Completed	14	48	62	15%
Phase 1 <i>DOE Clean Energy Grant IE0006949</i>	67 kW Completed & Monitoring	22	-	84	21%
<b><u>2017</u></b>					
Phase 2 <i>DOE Clean Energy Grant IE0000041</i>	123kW Completed & Monitoring	-	34	118	30%
<b><u>2018</u></b>					
Youth Solar Training <i>DOE First Steps Grant DE-IE0000064</i>	15kW Completed	5		123	31%
Phase 3 <i>DOE Clean Energy Grant - IE0000099</i>	127 kW Completed	8	32	163	41%



# SASH 2- Final Phases



Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 builds by 2020
<u>2020</u>					
Phase 4 <i>DOE Clean Energy IE0000133</i>	67 kW Funded	3	16	182	46%
<u>2021</u>					
<i>Phase 5 Planned - DOE Clean Energy</i>	9 Enrolled as of 12/15/2020		-		

# Bishop Paiute Tribe



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



*Photo: 1st rooftop solar installation – 2013*

**Goals 200 by 2020    400 by 2025**



# Bishop Paiute Tribe



Project	Installs	Kilowatts
SASH 1	62 homes	190 Kw
SASH 2 DOE (1 & 2)	56 homes	190 kW
SASH 2/other	5 homes	15 kW
SASH 2 DOE (3)	40 homes	127 kW
SASH 2 DOE (4)	19 homes	67 kW
<b>Total</b>	<b>182 homes</b>	<b>613 kW</b>



*Photo: 1st rooftop solar installation – 2013*

**Goals 200 by 2020    400 by 2025**



# QUESTIONS?



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

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



# **BISHOP PAIUTE TRIBE RESIDENTIAL SOLAR PROGRAMS**



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

**Lisa Castilone  
GRID Alternatives, Inland Empire**

**2020 Office of Indian Energy Program Review  
December 15, 2020**