



BISHOP PAIUTE TRIBE RESIDENTIAL SOLAR PROGRAMS

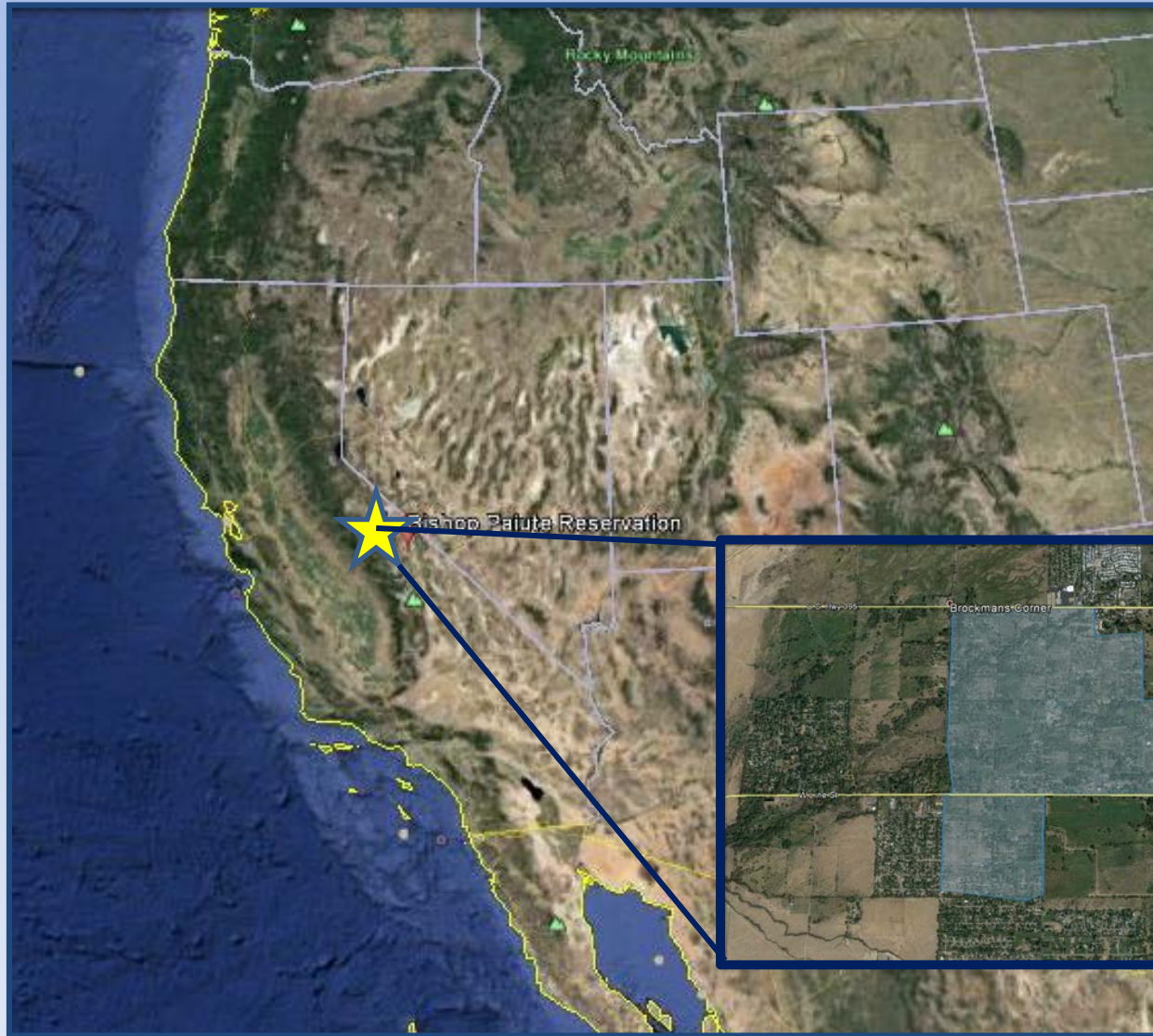


**Brian Adkins
Environmental Management Office
Bishop Paiute Tribe**

**Lisa Castilone
GRID Alternatives Inland Empire**

**2017 Office of Indian Energy Program Review
November 13-17, 2017**

Bishop Paiute Reservation



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

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 Tribe



PRESENTATION OVERVIEW

- Overview of Tribes long term goals
- GRID partnership & past projects
- Current projects
- Summary of training and project performance
- Future Projects

Bishop Paiute Tribe



2015 Tribal Strategic Energy Plan

Goal: Rooftop solar for ½ of eligible households by 2020:

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

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DOE FUNDING OPPORTUNITY	AWARD/PROJECT
Clean Energy and Energy Efficiency 2014	<u>Phase 1: Residential Solar Program</u> 22 single-family roof mount PV systems <u>DE-IE0006949</u>
Clean Energy and Energy Efficiency 2015	<u>Phase 2: Residential Solar Program</u> 34 single-family roof mount PV systems <u>DE-IE0006949</u>
DOE First Steps Grant 2016	<u>Bishop Paiute Tribe Youth Solar Job Training Development</u> <u>DE-IE000064</u>



2001: Founded by Erica Mackie and Tim Sears

2004: First install – San Francisco, California

2005- 2011: Expanded to 7 California offices, serving the entire state

2012: Expanded to Colorado

2013: Expanded to New York Tri-State region

2014: Expanded to Mid-Atlantic region and Nicaragua

2015: Launched RISE Initiative and expanded National Tribal Program

2016: Nepal Pilot Program





Solar Affordable Housing Program



SASH provides 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
3. **EMPLOYMENT:** Hands-on solar job training for volunteer installers





GRID provided

- Initial review of tribal energy goals
- Applications, contracts, warranties
- Training for volunteers
- TERO compliance
- 3rd party inspection



Tribe provided

- MOU
- Homeowner outreach
- Volunteer trainees
- In kind donations
- Letter of support for AB217



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

Build Schedule: BPT Low-Income Residential Solar Program

Phase	Status	Training Builds	SPP Builds	Running Total Builds	Goal 200 builds by 2020
SASH 1	204kw	14	48	62	15%



- 22 Income qualified, owner-occupied homes
- Rooftop Solar PV systems tied to SCE utility
- \$437,147 Total Project Cost
- Non-federal share
 - 48% SASH rebate covered to GRID in a rebate (\$209,621)
 - 2% Tribal Trainee hours (\$9,000 in kind)
- Federal share
 - 50% DOE Clean Energy (\$ 218,574)



• **Months 1-5:** Homeowner selected, qualified and educated on program and EE

• **Months 6-14:**

1. Site visits conducted
2. PV systems designed
3. Homeowner client contracts signed
4. Solar rebates reserved
5. Interconnection process begins
6. TERO Compliance Plan and permits
7. Equipment and materials procured
8. Systems installed (about one per day)
9. Volunteers trained and supervised
10. Installed 22 net-metered rooftop systems
11. Trained 20 tribal job trainees

Total deployed rated capacity of ~~58 kW~~ 66.6 kw, over 8 kW more that originally estimated

At least 60% of total electricity used displaced by system or 80 000 kWh/year



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





SASH 2- Phase 1

DE-EE0006949



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>	66.6 kW Completed & Monitoring	22	-	84	21%

- 34 Income qualified, owner-occupied homes – **123 kw installed**
- Rooftop Solar
- PV systems tied to SCE utility
- **Sub-Contractor Partnership (SPP)** - local licensed PV contractors partner with GRID
- GRID requires SPP to hire 1-2 job trainees per installation
- SPP's are vetted
- Installs are inspected by an independent 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

DE-IE000041



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%
2016					
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%

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Training and Apprenticeships

Phase 1:
24 Trainees
(48hrs/trainee)

Phase 2:
13 Paid Apprenticeships
(55hrs/apprentice)

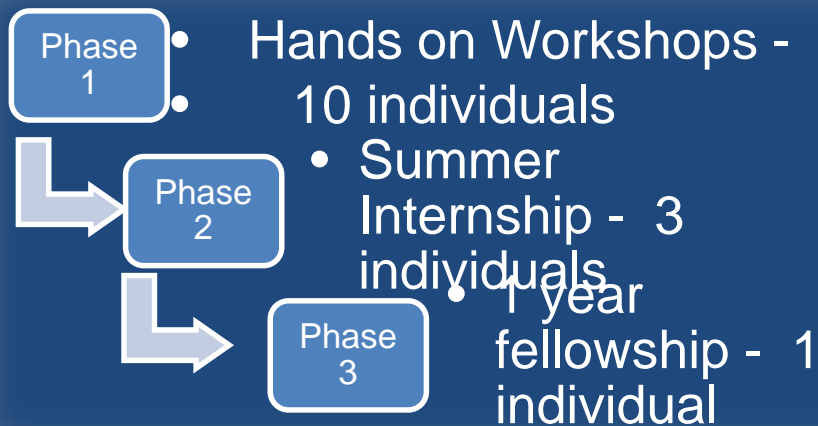


Training and Apprenticeships

Solar Futures: 5 young adults –four homes - four systems - one week!



Project Summary



Key Personnel/Organizations

Principal Investigator: Brian Adkins, Bishop Paiute Tribe Environmental Manager

Key Participant: GRID Alternatives, 501(c)(3) non-profit solar installer

Budget and Timeline

Federal (90%)	<i>DOE First Steps Grant DE-FOA0001621</i>	\$147,566
Recipient (10%)	<i>TERO & In-kind</i>	\$16,396
Total		\$163,962

Objectives:

- *Provide opportunity for young adults to gain skills and knowledge required for employment in the solar industry.*
- *Continue development of a work force capable of future solar installations on and off reservation..*



Bishop Paiute Tribe



Performance – Phase 1: 22 Tribal Homes <i>DE-IE0006949</i>			Performance – Phase 2: 34 Tribal Homes <i>DE-IE0000041</i>		
	<u>Goal</u>	<u>Actual</u>		<u>Goal</u>	<u>Actual</u>
Installed capacity	58 kW	67 kW	Installed capacity	120kW	123 kW
Solar production	<i>80,000 kWh</i>	105,591 kWh@ 11mo	Solar production	<i>170,000 kWh</i>	59,177 kWh@ 3 mo
Total Annual Savings <i>Historic usage 128,785 kWh</i>	60%	82%	Total Annual Savings <i>Historic usage 233,467 kWh</i>	65-79%	25%

Lifetime production = 8,965,210 kWh
Lifetime homeowner savings = \$2,035,103

ENVIRONMENTAL IMPACT

CO2 reduced over lifetime	4,182
Equivalent to trees planted	87,285
Equivalent to cars off road	800



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<u>2013 - 2015</u>					
SASH 1	Completed	14	48	62 (204kw)	15%
SASH 2 – Phase 1 <i>DOE Clean Energy</i>	67 kW Completed & Monitoring	22 (67 kW)	-	84 (221kw)	21%
<u>2017</u>					
SASH 2 – Phase 2 <i>DOE Clean Energy</i>	123kW Completed & Monitoring	-	34 (123 kW)	118 (382 kw)	30%
<u>2019</u>					
Multifamily - Phase 3 <i>DOE Clean Energy</i>	Pending funding	(42 kW)		156 (424 kw)	39%





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