Tribal Renewable Energy - Final Report

Recipient Organization:	**Bishop Paiute Tribe**
Project Title:	**Bishop Paiute Tribe Youth Solar Job Training Development**
Date of Report:	**September 4, 2020**
Award Number:	**Award DE- 0000064**
Total Project Costs:	**$163,633**
Technical Contact:	**Bishop Tribal Environmental Director, Brian Adkins, brian.adkins@bishoppaiute.org**
Project Partner:	**GRID Alternatives Inland Empire, Jaime Alonso, Jalonso@gridalternatives.org**

ACKNOWLEDGMENT

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DISCLAIMER

1. Table of Contents:

2. Executive Summary:

This Project provided workshops and hands on opportunities for young tribal adults to gain education, training, and employment in the solar industry; including 1 youth to meet the eligibility requirements for the NABCEP Solar Installer Exam. 10 tribal youth, ages 16-24, attended workshops focused on learning solar fundamentals and then applied those learned skills to hands on training, installing solar on 2 tribal homes. GRID provided certificates authenticating their volunteer hours and skills learned. This program of youth training really excited the tribal leadership as well as the tribal youth. This opportunity was in alignment with the tribe's Strategic Energy Plan, and supported tribal self-sufficiency, a path to economic development and for the youth it also represented the environmental stewardship the tribe believes in.

3. Project Objectives:

The goals of the Bishop Paiute Tribe Youth Solar Job Training Development Project were to provide opportunities for young adults to become familiar with jobs in the solar industry, to increase knowledge of basic skills required for employment in the solar industry including eligibility requirements for the North American Board of Certified Energy Practitioners (NABCEP) Solar Installer Exam, and to begin development of a tribal youth work force capable of assisting the Tribe in future solar installation.

The proposed activity had three job training related phases:

1) The Advanced Solar Futures Program trained 8 tribal youth, 16 -24 years of age, and consists of 6 workshops: Session 1 – General Foundational Knowledge, Session 2 – Energy Concepts & Audits, Session 3 – Solar Specifics, Session 4 – Marketing/Outreach & Solar Financing, Session 5- Solar Installations, Session 6 – Career Planning.

2) A Solar Construction Internship provided a three-month internship opportunity for 3 of the Phase 1 participating Tribal volunteers, 18 -24 years old. This was a paid internship with the non-profit GRID Alternatives.

3) SolarCorp Fellowship Program, the final phase, provided 1 of the three interns (Kanyon Martinez) a full-time opportunity, where he worked with GRID Alternatives for 12 months.

4. Description of Activities Performed:

10 youth signed up, only 8 showed up for classroom sessions that included participated in 46 hours of workshops related to various aspects of the solar industry. GRID Alternatives conducted a series of 5 workshops: Session 1 – General Foundational Knowledge, Session 2 – Energy Concepts & Audits, Session 3 – Solar Specifics, Session 4 – Marketing/Outreach & Solar Financing, Session 5 – Solar Installations, Session 6 - Career Planning. After the classroom trainings the solar installations were scheduled, and all 8 students showed up to install a solar system on 2 low income tribal member homes. All safety equipment and instructions were provided, and everyone got a chance to showcase their newly learned skills. During the construction the supervisors were evaluating the youth on their level of skills learned and their level of participation. Staff conducted interview and trainees were able to voice their willingness to move forward or not. Many youths were planning on matriculating in college and others had other obligations and could not leave the reservation.


Taken during a break after racking. Taken during interviews for interns. Taken showing females involved in the training.

After many discussions 3 of the youth were selected to participate in the paid Solar Construction Internship. This was a full-time job training offer, for 3 months spending 95% of their time assisting trained professional with hands-on solar installations off the reservation. The 3-youth moved off the reservation into a small apartment in Riverside, CA near the GRID office and for the first time they were living on their own.
During the 3 months all participants did a variety of trainings, outreach events and even some public speaking about the DOE funded program.

Out of the 3 youth volunteers participating in the Solar Construction Internship, 1 youth was hired, (Kanyon Martinez) for the 12-month SolarCorps Fellowship to support various aspects of PV installations.

Kanyon not only received in-depth solar training and earned certificates, he also traveled to a SolarCorp retreat. Also took the stage and represented the Bishop Paiute Tribe on at the California Energy Commissions, first Inaugural Tribal Energy Summit, at Pechanga Resort and Casino, in 2018 and spoke about his training.

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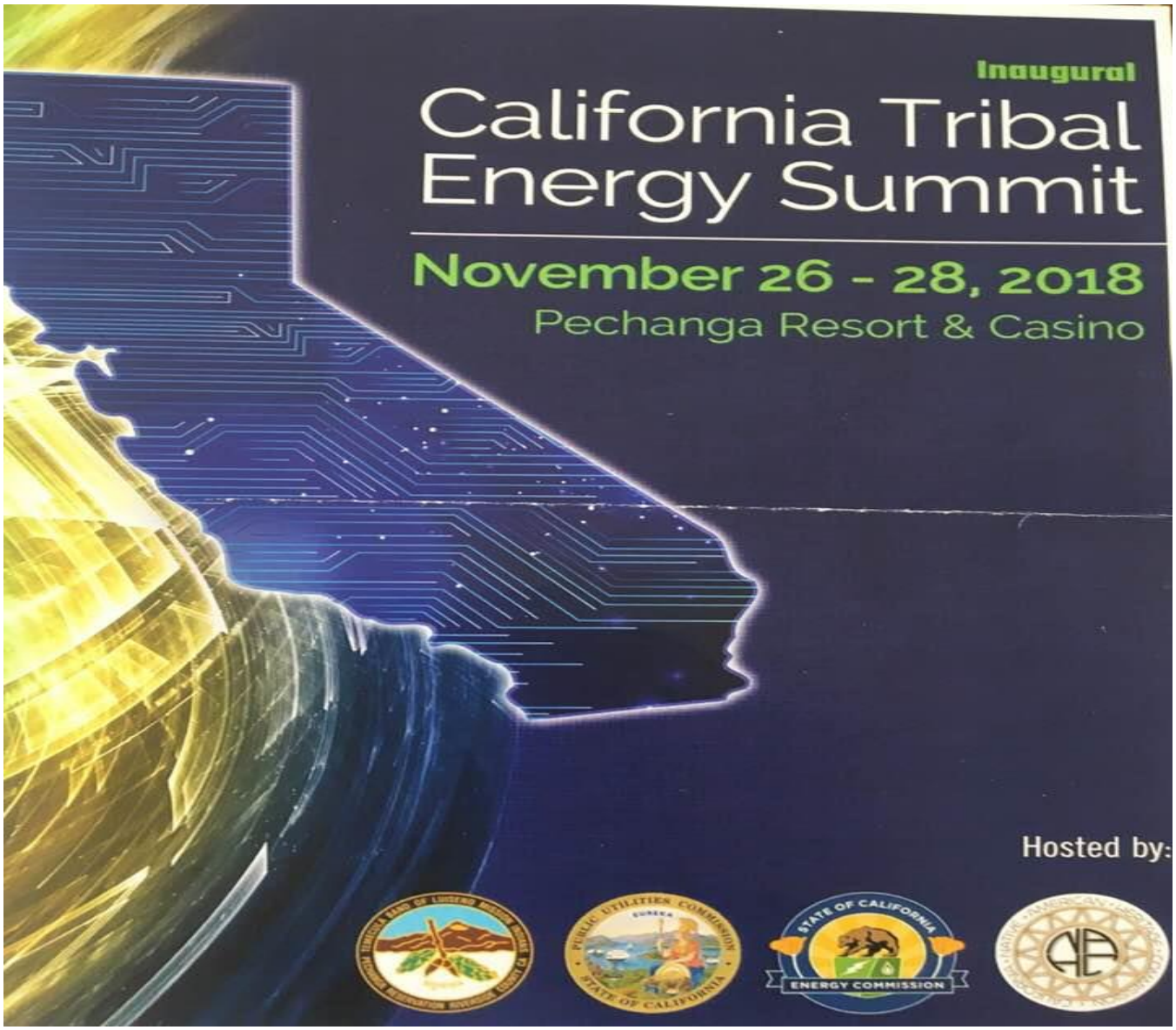

Flyer from the 2018 event

Brian Adkins/Environmental Director (tan shirt) Kanyon Martinez (cap) sitting on stage presenting


GRID ALTERNATIVES
BISHOP PAIUTE TRIBE
Solar Workforce Training Project
Brian Adkins
Environmental Management Office
Bishop Paiute Tribe
Kanyon Martinez
GRID Alternatives Inland Empire
2018 California Tribal Energy Summit
November 26-28, 2018
Pechanga Resort and Casino
ENERGY


EXIT
EXIT
EXIT
RVCA
Bishop Paiute Tribe

Brian Adkins, Kanyon Martinez, with 2 Commissioner from the California Public Utility Commission CPUC,

5. Conclusions and Recommendations:

Kanyon completed the following Installation Basic Training (IBT) Electrical Certificates and received a SolarCorp completion certificate:

Installation Basics Training

ARRAY BASIC CERTIFICATE SUMMARY

Kanyon Martinez demonstrated basic competency in the following solar PV installation skills:

Job Site Safety

Demonstrate & encourage adherence to Heat Illness Prevention Plan Encourage volunteers to wear proper PPE Set up and explain OSHA requirements of proper ladder use Instruct on proper power tool use Encourage and demonstrate compliance w/ site safety plan during all install phases

Fall Protection

Install, under supervision, fall protection to manufacturer's specifications Encourage fall protection plan during all phases of the install

Array layout

Translate array layout considering setbacks and shade, mark layout for array and racking, locate rafter center and mark misses

Racking Installation
Install stand-offs and flashings to manufacturer's specifications, cut and splice rails to manufacturer's specifications, install and align rails according to manufacturer's specifications, bond racking according to manufacturer's specifications
Module Level Power Electronics (MLPE) Installation
Install MLPE to manufacturers specifications ensure trunk cable is properly terminated and watertight (micros), ensure proper electrical connection in MLPE circuit or string wire management - properly dress and secure cabling Homerun installation, identification, labelling, and termination

Module Installation
Install and align modules, manage module leads/wires, ensure end and mid-clamps are properly seated and torqued

The second certificate
Installation Basics Training
ELECTRICAL BASIC CERTIFICATE SUMMARY
Kanyon Martinez demonstrated basic competency in the following solar PV installation skills:

Job Site Safety
Demonstrate & encourage adherence to Heat Illness Prevention Plan encourage volunteers to wear proper PPE Set up and explain OSHA requirements of proper ladder use, instruct on proper power tool use, encourage and demonstrate compliance w/ site safety plan during all install phases
Electrical Safety
Identify electrical hazards and how they can be removed or controlled, test components with a multi-meter (A vs. V, DC vs. AC), understand causes of arc flash and how and when to wear PPE, demonstrate electrical safety plan during all phases of install
Electrical Wiring
Prepare and execute wire pull, trip wire cleanly without "rings" or knicks, terminate wire to appropriate torque, wire and bond equipment grounding conductor at rails and boxes, wire junction box, AC disconnect, production meter.

The third certificate
Installation Basic Training
ELECTRICAL BASIC CERTIFICATE SUMMARY – ADDED SKILLS
Electrical Layout and Mounting
Read and translate single-line diagram to wall, plan and install electrical Balance of Systems (BOS), install box fittings and bushings

Conduit Bending and Installation
Cut and ream conduit, measure and bend conduit for 90-degree, angle, offsets, kicks, and saddle bend. Install flashing for stub up to manufacturer's specifications. Install conduit to code for including appropriate strapping and fittings, ensure conduit is properly supported on blocks.

Kanyon accomplished and received his signed certificate from GRID Alternatives Chief Executive Office, Erica Mackie for completion of the GRID Alternatives SolarCorp Fellowship.

Kanyon and the DOE First Steps Program received earned media:

https://www.educationdive.com/news/partnership-grid-alternatives-dive-awards/565165/
GRID Alternatives Solar Futures Program Award EducationDive Partner of the Year 2019

Studying solar: CTE programs expose students to fast-growing renewable energy careers
Kanyon featured in photo on the roof in second photo

https://www.sierrawave.net/solar-futures-grid-alternatives-to-recognize-local-tribal-youth/

6. Lessons Learned:

Having such young interns was a challenge. The 3 did not have any real-world work experience and things like showing up on time, work ethic and staying focused was a barrier at first. The 3 that moved off the reservation for the first time had a difficult time transitioning being away from their families. None of the youth had a car or driver's license

when they arrived, and transportation to and from work, shopping and other medical appointments was a challenging for a time. Having 2 males and one female sharing an apartment was challenging at times.

Solutions the GRID team came up with were more regular check ins with supervisors, we provided call numbers and a buddy system so folks could car pool, call whenever they needed things after work hours, and really stressed the need to be on time and stay on task. We provided them with bicycles so they could to and from work. Moving forward we would choose to work with a slightly older group (18-24) for an off-reservation internship to ease the challenge of being away from family and make sure some sort of transportation was available.

OUTCOMES:
Sarah Voss completed the program and moved back to the reservation. Sarah is now a mother and works in the health care industry.
Ed Piper moved out of the apartment and went on to a training program for H.E.R.S. air conditioning and energy repairs and is currently working with a contractor doing home energy audits and upgrades.
Kanyon Martinez stayed a few months after the internship due to a shortage of hours. Kanyon got his CA driver's license, bought a car, moved into another shared living apartment, then transitioned, left GRID and got a job installing solar with a for profit company. He currently residing in Riverside, California.

https://energy.gov/indianenergy/articles/bishop-paiute-tribe-celebrates-milestone-quest-energy-self-sufficiency

https://gridalternatives.org/headquarters/news/earth-day-marks-completion-56-new-solar-systems-bishop-paiute-reservation

https://www.educationdive.com/news/partnership-grid-alternatives-dive-awards/565165/