

Tribal Utility Development Project

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Final Report

Presented to:

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TRIBAL UTILITY DEVELOPMENT PROJECT

Recipient Organization:	San Manuel Band of Mission Indians Highland, CA		
Project Title:	Tribal Utility Development Project		
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1. EXECUTIVE SUMMARY

Project Overview

The San Manuel Band of Mission Indians ("San Manuel") was awarded a grant under the U.S. Department of Energy's ("DOE") Tribal Energy Program to complete the initial legal, financial, and regulatory steps necessary to develop and implement a sustainable tribally-owned energy utility organization. The project is consistent with the Vision Statement and priorities identified in the Tribe's Master Plan, which was adopted by the Tribal General Council in August 2015.

Project Objectives

San Manuel's strategic energy initiative includes the following goals:

- Improve electric service for Tribal facilities within the Reservation
- Enhance electric reliability and resiliency
- Increase electrical capacity for Tribal business enterprises and Tribal facilities load growth
- Reduce utility costs
- Expand electric supply diversity

The project objectives are consistent with the energy strategy identified in the Tribe's Master Plan.

- 1. Comprehensive feasibility assessment to determine specific technical, financial, legal, and regulatory steps that must be taken to implement a tribally-owned utility organization on the San Manuel Reservation.
- 2. Establish a tribally-owned utility organization that advances sovereignty, builds self-sufficiency, champions culturally-conscious stewardship principles with respect to Tribal resources, and faithfully supports and serves the Tribal community

Project Results

This project enabled San Manuel to establish a Tribal Utility organization to implement planning and provide direction and oversight for several major projects that complement San Manuel's energy strategy, including the development of:

- A 5,000 kW combined heat and power ("CHP") project at San Manuel's Yaamava Hotel
- A 435 kW Solar PV project at San Manuel's Community Center
- A Tribal owned 66 kV Substation to enhance resiliency and accommodate load growth
- Framework for a Tribal Utility Implementation Plan

In addition to improving electric resiliency for critical San Manuel operations, these projects establish the basis for a Tribal microgrid that will result in aggregated economic efficiencies and resultant utility cost savings.

Conclusions and Recommendations

This DOE grant enabled San Manuel to establish a utility organization supported by experienced advisors to execute several strategic projects and establish a basis to implement a Tribal utility plan. Measures have been implemented to greatly improve electric reliability at San Manuel's Entertainment Enterprise with plans to enhance utility service and reduce utility cost for Tribal facilities.

The underpinning to establish a Tribal microgrid is a 66 kV Substation to enable Tribal facilities to transition from 12 kV distribution service to a single point of 66 kV transmission service. Policy framework to establish a Tribal Utility Authority is in process to enable San Manuel to operate as either a retail utility customer through a single point of aggregated facility loads or as a fully functional utility, procuring wholesale power and managing utility operations.

The following recommendations are being either implemented or considered by Tribal management.

Recommendation 1: Complete the San Manuel 66 kV Substation to facilitate higher voltage service to increase power quality, reliability and resiliency while benefiting from lower utility rates applicable to transmission level service.

Recommendation 2: Complete the Yaamava combined heat and power project at the new Yaamava hotel and entertainment facilities to maximize energy efficiency and diversify Tribal energy resource mix.

Recommendation 3: Develop a Tribal Utility Implementation Plan that is flexible to embrace either (a) a microgrid that aggregates multiple loads to a single point of retail utility service, or (b) a Tribal utility that procures its electric requirements from wholesale power markets and generating resources.

Recommendation 4: Investigate the development of electric production resources, including solar PV, battery energy storage, and energy management applications that optimize microgrid or Tribal utility operations.

Recommendation 5: Investigate the development of electric distribution infrastructure and retain 3rd party service providers to design, construct and maintenance such facilities.

2. INTRODUCTION

The Tribe used a 2009 Department of Energy ("DOE") Energy Efficiency Conservation Block Grant ("EECBG") award to fund an energy use analysis of the San Manuel Reservation buildings and facilities, excluding the Tribal Casino. The analysis was completed in 2010 and allowed the Tribe to develop initial energy-use and energy efficiency strategies for the Reservation, which served as the foundation for the development of the Tribe's Master Plan over the subsequent six years.

On March 25, 2014, the Tribe approved submittal of an application to the Western Area Power Administration ("WAPA") for acceptance into their Boulder Canyon Project ("BCP") Resource Allocation from the 2017 Resource Pool. WAPA found the San Manuel application satisfactory and on December 18, 2014, issued a final post-2017 power allocation in the Federal Register Vol.79, No.243, of 2,554 kW Capacity and 5,575,932 kWh of Firm Energy to be marketed from October 01, 2017 through September 30, 2067. The Tribal Business Committee approved the WAPA power purchase agreement ("WAPA PPA") on August 16, 2016. The first power delivery was made to Mead substation on October 1, 2017.

The WAPA PPA motivated San Manuel's initial efforts to develop a tribal utility organization, in addition to other factors including electric reliability and managing utility costs. For example, the Tribe currently spends more than \$5 Million per year on electricity that is purchased from Southern California Edison ("SCE"). San Manuel places an exceedingly high value on sovereignty, self-determination, and energy resiliency. The potential to control energy infrastructures within the Reservation represents a significant opportunity to enhance these values. Based on this new opportunity, the Tribe initiated efforts in September 2016 to evaluate the feasibility of creating its own tribal utility authority ("TUA") in order to maximize the WAPA PPA benefit to the Tribe and to look at other sustainable energy solutions for the benefit of its people.

TRIBAL MANAGEMENT OF ITS ENERGY DESTINY

- Sovereignty (Tribe owns & operates)
- Ability To Address Future Growth
- More Resilient Electrical Infrastructure 66 kV is a dedicated line served by two substations

Obtain Needed Infrastructure Faster

3-5 years faster than SCE built and owned

Cost Savings on Energy Cost

66 kV estimated to reduce cost by 20% compared to 12 kV retail utility service

3. PROJECT OBJECTIVES

The Project Objectives are consistent with the energy strategy identified in the Tribe's Master Plan.

- 1. Comprehensive feasibility assessment to determine specific technical, financial, legal, and regulatory steps that must be taken to implement a tribally-owned utility organization on the San Manuel Reservation.
- 2. Establish a tribally-owned utility organization that advances sovereignty, builds self-sufficiency, champions culturally-conscious stewardship principles with respect to Tribal resources, and faithfully supports and serves the Tribal community

San Manuel achieved most of the Project Objectives associated with this Project through milestone tasks that reflect the Tribes Energy Strategy and anticipated requirements of Tribal Utility Authority ("TUA"), as summarized below:

Milestone 1.1 Power Supply Strategy

- Implemented on-site generation projects including CHP and Solar PV
- Aggregate multiple utility services through a single-point of transmission service
- Supplement power supply procured from SCE or wholesale power markets

Milestone 1.2 Electric Infrastructure Strategy

- Established new 12 kV circuits to support Entertainment enterprise requirements
- Joint collaboration with SCE resulting in a Tribal owned 66 kV substation
- Planning for 12 kV circuits from the substation to serve other Tribal facilities

Milestone 1.3 Electric Facilities O&M Strategy

- Defined terms of long term service agreement for a CHP Facility
- Identified general requirements for substation operations and maintenance ("O&M")
- Identified general requirements for tribal electric distribution facilities O&M

Milestone 1.4 Complete Detailed Utility Formation and Management Strategy

- Initiated drafting of San Manuel's TUA Implementation Plan
- Defined organization structure and services required for TUA operations
- Established a Utility Authority Ordinance and governance policies
- Initiated TUA economic models to support development of rate making policies
- Identify agreements required for TUA implementation:
 - Wholesale Distribution Access Tariff ("WDAT") Agreement with SCE
 - CAISO Participating Load Agreements and other required agreements
 - CAISO Schedule Coordination services

- Milestone 2.1 Develop Job Description and Recruit a Full Time Equivalent Manager
 - Filled a Utility Authority General Manager role as a contracted position

Milestone 2.2 Completion of Code of Ethics for Utility

- Codes and ethics reflected in the Utility Authority Ordinance and other Tribal policies
- Utility policies to be further developed as part of the TUA Implementation Plan

Milestone 2.3 <u>Interview Utility Manager Candidates</u>
Filled a Utility Authority General Manager role with a contracted position

Milestone 2.4 Completion of Utility Rules and Regulations

- Utility rules and regulations are reflected in the Utility Authority Ordinance
- Utility policies to be further developed as the TUA is implemented

Milestone 2.5 Completion of Utility Charter

• A Utility Authority Ordinance was established as part of the San Manuel Utility Authority Act adopted by the Tribal General Council on March 13, 2018.

Milestone 2.7 Develop Organization Chart

• The following is a preliminary organizational structure for the TUA. Further enhancements to organizational structure and requirements will evolve as TUA implementation is pursued.



Milestone 2.8 Establish Energy Organization

- The TUA General Manager will administer energy planning and procurement
- Schedule Coordination services will be retained prior to TUA Implementation

Milestone 2.9 Secure Power Purchase Agreements

- Incorporate WAPA PPA as part of a portfolio of wholesale power transactions
- Procure balance of requirements through CAISO markets or bi-lateral contracts

Milestone 2.10 Engage in discussions with Incumbent Utility

- Completed a SCE 66 kV "Method-of-Service" Study in March 2019
- Collaborating with SCE to construct a 66 kV "customer owned" substation
- Established executive level communication with SCE

Milestone 3.1 Develop 2 Year Program Plan and Staffing Plan

- Full Day Tribal Energy Strategy Workshop in Dec 2018 to establish TUA basis
- Incorporated Casino Central Plant development into Tribal Energy Strategy
- Held monthly tribal Utility Working Group meetings to review utility projects

Milestone 3.2 Hire and Train Staff, Training for Project Team Members

- Hired Utility General Manager as contracted position, reporting to the TUA Board
- Identified Tribal staff support to Utility General Manager
- Hired consultants for technical advice related to utility projects and TUA Implementation

Milestone 3.3 Conduct Community Stakeholder Workshops on a Quarterly Basis

- Formed the San Manuel Utility Working Group to engage other Tribal Stakeholders to coordinate tribal utility needs and advise on energy projects
- Established monthly meetings with SCE (local utility) to coordinate utility projects within the Reservation

4. ACTIVITIES PERFORMED

The DOE Grant enabled San Manuel to plan, develop, and implement several programs and projects reflective of the Project Objectives defined for this project.

Established a Tribal Utility Organization

- Established a "Utility Working Group" consisting of members of San Manuel's Planning and Real Estate Development, Legal, Finance, and Environmental organizations.
- Defined utility infrastructure projects within the Reservation, including a combined heat and power project at San Manuel Casino expansion and Yaamava project.
- Hired a TUA General Manager with experience in energy project development, utility infrastructure and utility regulatory matters to manage project implementation.
- Coordinated Southern California Edison ("SCE") on the implementation of several 12 kV service projects associated with Casino expansion and San Manuel's Yaamava project.
- Completed a Method of Service Study with SCE to develop a Tribal owned 66 kV substation that will be interconnected to SCE's sub-transmission system.
- Performed an electric load analysis of all Tribal facilities currently served by SCE.
- Initiated the drafting of an Implementation Plan for the TUA.
- Established a TUA Board consisting of San Manuel Band of Mission Indians ("SMBMI") Business Committee members, supported by the Utility Authority General Manager and other members of San Manuel's Executive Management Team. It is contemplated that the Implementation Plan will be reviewed by the San Manuel Utility Working Group and will be subject to TUA Board and approval.
- The key members of the San Manuel Utility Working Group consist of:

Utility Authority General Manager Vice President of Planning & Real Estate Development Vice President, Associate General Counsel Vice President, Finance Environmental Manager

• The San Manuel Utility Working Group is in continuous communication and meets at least once per month to discuss strategy pertaining to coordination with SCE, energy projects, power procurement, utility infrastructure, O&M, administration, and TUA formation & management.

Interconnection to SCE 66 kV System

On June 27, 2019, San Manuel and SCE executed a Letter Agreement to support SCE initiation of design and regulatory approvals associated with San Manuel's 66 kV Method of Service ("MOS") study. SCE will own and maintain approximately 2,000 feet of underground 66 kV sub-transmission lines looping into SCE's Highland – Del Rosa 66 kV sub-transmission circuit to feed a new SCE owned and maintained 66 kV switchyard on San Manuel property. San Manuel will design, construct, own and maintain the Tribal owned section of the 66 kV substation providing transformation for 12 KV distribution to select San Manuel facilities. San Manuel will also perform various construction services associated with SCE's underground transmission line, site preparation, and SCE's section of the substation.



- During the 4th quarter of 2019, SCE and San Manuel initiated design and development of the 66 kV San Manuel substation. One section of the substation will be owned and maintained by the Tribe and another section of the substation and associated underground transmission lines that will be owned and maintained by SCE. The Tribal section of substation will include two 28 MVA 66/12 kV transformers that will tie to a 12 kV switch rack to supply power to Tribal facilities, including the San Manuel Casino and the Yaamava hotel currently under construction.
- During the 1st quarter of 2020, San Manuel substantially completed design of the substation geotechnical studies, grading plan, and specifications for major equipment including the 66 kV transformers.
- Construction of the San Manuel substation is expected to commence during the fourth quarter of 2020 with completion and energizing of the San Manuel substation expected by the end of the second quarter of 2021.

Tribal Energy Resources:

- San Manuel completed the installation of a 435 kW Solar PV project at its Tribal Community Center in August 2019.
- San Manuel initiated construction of a 5.0 MW combined heat and power ("CHP") facility that will be integrated into the Casino/Yaamava hotel central plant. Completion and initial operation expected during the 4th quarter of 2020.



• During the 2nd quarter of 2020, San Manuel will replace four 1.5 MW diesel generators with four 2.0 MW Tier IV diesel Generator at the San Manuel Casino, resulting in 8.0 MW of back-up emergency capacity with a net reduction in air emissions.

Micro Grid Deployment

A microgrid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in either grid-connected or island-mode.

San Manuel's 66 kV substation will serve as a hub around which a microgrid emanates, supported by a diversity of power generation resources (CHP, solar PV, diesel standby generation), loads (including electric vehicle charging stations) and energy management practices. Battery energy storage, additional solar PV, and other energy projects may be added at future dates to further compliment San Manuel's microgrid. Aside from enabling access to lower cost utility service (or wholesale power), a microgrid will provide aggregation benefits of multiple diverse loads sharing a coincident peak demand (offsetting individual peak demand charges).

San Manuel envisions managing the microgrid as either a single meter transmission level retail customer of SCE or as a Tribal Wholesale Customer in accordance with SCE's Wholesale Distribution Access Tariff and the CAISO Tariff. Under either approach, San Manuel's TUA will manage the operations of its microgrid facilities, assets, and electric procurement.



CONCLUSIONS AND RECOMMENDATIONS

This DOE grant enabled San Manuel to establish a utility organization supported by experienced advisors to execute several strategic projects and establish a basis to implement a Tribal utility plan. Measures have been implemented to greatly improve electric reliability and at San Manuel's Entertainment Enterprise with plans to enhance utility serve and reduce utility cost for Tribal facilities.

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Presentations:

Clifford Batten and Bob Hoffman presented a "Summary of Our Project to Date" at the DOE's November 2019 Office of Indian Energy Programs meeting in Lakewood, CO. The project was presented to the San Manuel Tribal Business Committee in December 2017 who approved the formation of the San Manuel Utility Authority ("SMUA") in February 2018. Several Tribal codes related to SMUA have been presented and approved by the Business Committee. The General Manager presents reports to the SMUA Board on a monthly basis.

5. LESSONS LEARNED

Developing and implementing a Tribal Energy Strategy is a complex process requiring collaboration with Tribal Planning, Facilities Operations, and the local utility ("SCE"). This DOE Grant allowed San Manuel to better define its infrastructure needs, utility costs, and operational resources. Developing a plan for Utility Authority implementation presented an opportunity to consider the Reservations long-term energy needs and how best to serve those requirements, while maintaining Tribal sovereignty and control of its energy destiny.

San Manuel's casino is the predominant electric load and was the primary focus of this effort. Electronic equipment associated with casino operations is extremely sensitive to utility power quality and service reliability. SCE's 12 kV distribution system serving San Manuel's casino and other Tribal facilities is aging with limited capability to meet San Manuel's growing electric demand and power quality requirements.

Through detailed assessment of its electric utility requirements, the Tribe recognized the need to develop facilities and processes to better manage resources available to San Manuel. It became evident that the existing SCE 12 kV service did not have sufficient capacity to meet the Tribes growing development and associated power needs. The Tribe recognized there are tremendous opportunities to capture the value of its WAPA contract and develop energy resources within Reservation boundaries.

A 66 kV substation looped through two SCE substations will provide a high degree of redundancy, reliability, and enhanced power quality, mitigating existing utility service deficiencies. SCE originally intended to own all facilities associated with the San Manuel Substation. However, San Manuel determined it was in the Tribe's best interest to have key elements of the substation (transformers and 12 kV switchgear) owned by the Tribe as a "customer owned substation". This assures the substation will be fully dedicated to Tribal needs, allowing the Tribe to manage and serve additional Tribal loads from a single connection to the grid.

The Tribe implemented plans that were developed as part of this DOE Grant to enhance electric resource diversity and resiliency, including:

- Capturing the value of its WAPA Contract allocation
- Combined heat and power ("CHP") to provide on-site generation
- Solar PV at its Community Center
- Installation of electric vehicle ("EV") charging stations to capture the value of Solar PV

Expected Tribal benefits from implementing a microgrid either as a single transmission service customer of SCE or as part of a TUA include:

- Tribal sovereignty and energy independence
- Energy resiliency
- Cost competitive electric services
- Sustainable energy supply, including renewable energy resources, minimal greenhouse gas emissions resources, hydropower, and energy efficiency