



Submitted by:  
PECHANGA BAND OF INDIANS  
Tribal Priority Climate Action Plan  
Climate Pollution Reduction Grants Program

Submitted to:  
United States Environmental Protection Agency  
Office of Air and Radiation

**Title and Approval Page**

**Priority Climate Action Plan for  
EPA: Climate Pollution Reduction Grant  
Climate Action Planning**

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**PCAP Revision History**

| <b>Revision No.</b> | <b>Description</b> | <b>Author</b>            | <b>Date</b> |
|---------------------|--------------------|--------------------------|-------------|
| Original            | Version 1          | Pechanga Band of Indians | 02.26.24    |
|                     |                    |                          |             |

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## Executive Summary

This Climate Pollution Reduction Grant (CPRG) program consists of a planning phase and a subsequent implementation phase. The Pechanga Band of Indians (Tribe, or Pechanga) was awarded funding for the planning phase and has used the funding to develop this Priority Climate Action Plan (PCAP) with a focus on implementation-ready priority greenhouse gas (GHG) reduction measures. For this PCAP, the Tribe intends to focus on the GHG emissions, particularly CO<sub>2</sub>, from its utility operations. Later efforts will address other types of GHG emissions from the tribal activities.

In total, Pechanga's emissions of CO<sub>2</sub> related to their utility function equals 23,539 metric tons for internal natural gas generation and 13,898 metric tons related to market purchases for a total of 37,437 metric tons.

The Tribe intends to use this planning grant to build upon the decisions already made by the Tribe related to energy independence and sovereignty. Because significant planning work has already been done, this planning grant nicely compliments that work by highlighting the environmental and GHG related impacts of all planning efforts. Previous planning efforts have identified and partially explored energy projects that will not only mitigate GHG emissions but meet other tribal goals.

The Pechanga Tribal Council, as authorized representative of Pechanga's General Membership, has considered all of these benefits. In addition, the Tribal Council considered all the information provided in the Background Section of this PCAP, and PWE's Strategic Energy Plan. Based on this important input, the Tribal Council previously directed the following goals in prioritizing the measures proposed.

1. Self Sufficiency – The Tribe is committed to development of onsite (on Reservation lands) power generation that utilizes Tribal resources to reduce reliance on unreliable local and regional electric systems.
2. Efficiency – The Tribe is dedicated to the prevention of wasted resources, and whenever possible that resources are reused.
3. Reliability – The Tribe is committed to ensuring its power supply is reliable, safe, and resilient.

This PCAP further explores implementation-ready measures that meet all Tribal goals and will be effective at reducing emissions. Finally, this PCAP considers the funding sources available for each measure. The Tribe intends to utilize the CPRG Implementation Grant funds for projects that may not otherwise have available funding sources. Below is a ranking of the implementation-ready measures, in order of the Tribe's preferences for implementation through the EPA CPRG Implementation Grant.

1. 5 MW Cogeneration

2. Boost Box for Diesel Generation
3. Other measures including but not limited to, Energy Efficiency (Pechanga Resort Casino, Government Center, etc.) Solar/Battery projects, and Utility Scale Batteries.

## Introduction

The Tribe developed its first Climate Change Adaptation Plan (CAP) in 2016. Many of the projects proposed in the 2016 CAP have either been implemented or are currently in development. In 2023, the CAP was updated and includes community input, proposed projects, and other components that establish a structure for addressing the Plan's findings. The 2023 CAP identifies issues and concerns caused by the extreme impacts of climate change that threaten the health and prosperity of the Pechanga community. The 2023 CAP established a list of potential mitigation strategies and projects that if implemented could build resiliency in the face of climate change.

This CPRG program consists of a planning phase and a subsequent implementation phase. The Tribe was awarded funding for the planning phase and has used the funding to develop this PCAP with a focus on implementation-ready priority greenhouse gas (GHG) reduction measures. A Comprehensive Climate Action Plan (CCAP) will be developed before the end of the grant period and will provide a comprehensive overview of the significant GHG sources/sinks and sectors, establish near-term and long-term GHG emissions reduction goals, and provide additional strategies to meet these goals. The timeline for the planning phase will cover two separate efforts over 30 months. Since November 2023, the team has worked to complete the PCAP and identify GHG reduction measures that could receive funding under the implementation phase of the CPRG. Development of the CCAP will begin in Spring 2024 with a more substantial emphasis on community engagement and a more expansive GHG Inventory.

The world is currently experiencing a vast and accelerated environmental change. As described in the 2023 CAP, since the 1880s, the global temperature has risen at a rate of 0.14 degrees Fahrenheit per decade and in the last 40 years the rate of warming has more than doubled. The 10 warmest years on record have all occurred since 2005. Much of this change is the result of human activities that increase greenhouse gases (e.g., carbon dioxide, methane, and nitrous oxide).

The Pechanga community and Reservation are already experiencing the impact of climate change. Extreme temperature changes have resulted in more intense droughts, more frequent high intensity wildfires, and other severe weather events. These impacts place significant pressure and create challenges for the Pechanga community, both economically and culturally. Other challenges include diminished water availability which ultimately impacts water quality. This poses a threat to the health and wellbeing of the Pechanga community. In response to these concerns, the Tribal Council continues to assess the ongoing climate impacts and identify opportunities to implement strategies that mitigate and/or reduce the impacts of climate change.

Energy reliability and extremely high energy costs are issues that the Tribe has historically struggled with. Pechanga continues to battle energy reliability issues during the hot summer

months and especially during times of extreme temperatures (i.e., heat waves). A multi-faceted approach towards energy production is necessary to establish a sustainable energy source for the Tribe's energy sector. Energy independence is a crucial element that supports tribal sovereignty. Since time immemorial, the Tribe has maintained a strong relationship and connection with its ancestral homeland and the environment.

The purpose of this PCAP is to identify vulnerabilities in the Tribe's utility infrastructure, evaluate greenhouse gas emissions reduction strategies, and develop a list of priority projects. The focus area of this PCAP is the energy sector on the Tribe's lands. This PCAP addresses strategies to improve and strengthen the Tribe's utility infrastructure by identifying a focused list of near-term, high-priority, implementation ready measures to reduce GHG pollution. This PCAP also provides an analysis of GHG emissions reductions that would be achieved through implementation of the identified measures and is organized into the following four sections:

1. Greenhouse Gas Emissions Inventory
2. Quantified Greenhouse Gas Reduction Measures
3. Benefits Analysis
4. Authority to Implement

Potential upgrades and improvements will increase clean energy production and decrease greenhouse gas emissions on the Reservation. Localized energy production is extremely important during heatwaves and times of increased demand. Upgrades and improvements to the Tribe's current energy grid will be instrumental in preventing service disruptions to the Pechanga community, which can be deadly during times of extreme weather, especially for vulnerable age groups such as children and elders.

Beyond the required elements, this PCAP identifies workforce development opportunities associated with potential upgrades and improvements to the existing energy infrastructure, including exploring partnership opportunities with local nonprofits to offer renewable energy installation and maintenance training programs. The renewable energy sector is rapidly becoming a major economic base with a need for installers, technicians, and electricians. The development of renewable energy training programs will develop economic opportunities for both the Pechanga community and neighboring tribal communities.

One recurring piece of tribal knowledge that was gathered is that every aspect of a resource must be utilized and not wasted. Since time immemorial, the Pechanga people have developed a culture of conservation, sustainability, and connection with the land. One resource that is an integral part of the land is energy. By adopting modern technology, the Tribe can capture energy through solar PV arrays and can store energy in battery systems to be utilized in the future, just like food and other natural resources. Renewable energy systems align with Pechanga's past, present, and future way of life in that they help avoid waste and represent an opportunity for the Tribe to adapt to threats that are constantly evolving. Utilizing the Tribe's sovereignty to build a resilient energy system is critical to reduce increasing outages and combat climate change.

Existing GHG inventory calculations were obtained from the Tribe’s utility company, Pechanga Western Electric (PWE), and the Pechanga Environmental Department and will be further validated in accordance with quality assurance practices outlined in the Quality Assurance Project Plan (QAPP). This PCAP identifies areas of concern, trends, and measures, as well as recognizes potential opportunities for reducing emissions within the energy sector. This data supports the identified upgrades and improvements to the Tribe’s current energy sources.

The stakeholder engagement for the project will include intratribal agency coordination between PWE, the Tribal Treasurer, CFO, Casino Resort staff, Purchasing, the Office of the General Counsel and our appointed Tribal Council liaison. This group is collectively referred to as the Pechanga Energy Planning Team, who are working to identify methods, processes, and projects that can be implemented to mitigate these concerns.

The Pechanga Energy Planning Team will provide regular reports to the Pechanga Tribal Council, as the elected representative of the General Membership. When called for under tribal protocols, the General Membership of all tribal members will be updated and may be asked to vote to approve certain plans. Community engagement is critical to the implementation of solutions that will combat the climate pollution issues at hand.

## Background

The Tribe is a federally recognized Indian Tribe located in Temecula, California, with more than 2000 Tribal members. Due to its geographic location and for other reasons identified in this PCAP, the Pechanga Reservation is experiencing increasing threats of wildfires and other climate change impacts that must be addressed.

The Tribe operates its own tribal utility, PWE, which provides power to many facilities and residences throughout the Reservation during most times of the year. Since 2017, when PWE began operations, PWE has lowered its customers electric costs by almost 50%. PWE also greatly improved the self-sufficiency and reliability of electric service to the Reservation by designing its systems to be capable of islanding as an 18 MW microgrid. When the regional electric utility, Southern California Edison, has outages, PWE can disconnect from the grid and continue generating and delivering power, without grid support, to the entire Pechanga Resort Casino (PRC), government center, fire station, recreation center, and many residents. In addition to providing reliable service, the microgrid provides broad community support and safety services to the local medical, fire, and services center.

However, due to a number of factors, including climate change, the Pechanga Reservation is experiencing increased heat for longer periods of time, which leads to more frequent outages and downtime. These periods of increased heat are negatively impacting the Tribe and PWE’s current energy production. The increased burden on the Tribe’s energy systems during these periods is requiring the Tribe to identify measures to improve its systems to accommodate these needs.



The Reservation and PWE are also expecting significant load growth with a new school, new housing developments, and new, significant commercial development on lands adjacent to existing commercial facilities on Tribal trust lands. These changes require strategic planning and long-term thinking. The Tribe and PWE are constantly adjusting plans based upon benefit/risk analyses. This PCAP will assist in facilitating those planning efforts.

While PWE's generation portfolio contains a significant amount of renewable hydropower and solar generation, the Tribe presently remains reliant on several technologies that emit greenhouse gasses. Reducing these emissions is critical for the Tribe to meet its established energy goals as identified throughout this PCAP. For example, the Tribe has emergency diesel generators which are used in the event of emergency outages. The Tribe also purchases power from the market that is generated with non-renewable sources, which further exacerbates the greenhouse gas emissions problem. PWE also operates a natural gas cogeneration (cogen) facility and is considering development of a second cogen facility. However, as discussed further below, cogens ultimately reduce greenhouse gasses on the Reservation.

PWE's operations have given the Tribe a new avenue for expressing its sovereignty. The State of California does not have or exercise regulatory jurisdiction on the Reservation over utility services to the Tribe. As such, the Tribal Council acts as PWE's regulatory body, the "Local Regulatory Authority" or "LRA" under the California Independent System Operator's (CAISO) tariff. The Tribal Council determines policies and procedures applicable to utility and gas operations.

## Climate Change

According to the U.S. Environmental Protection Agency (EPA), heat waves are becoming increasingly prevalent across the United States, which has a direct impact on human health and safety.<sup>1</sup> Certain experts indicate that California, and more specifically the Inland Empire (where the Tribe is located), faces a much greater risk of heatwaves that will continue over the next 25 years.<sup>2</sup> In addition, there has been a considerable increase in droughts, water stress, and wildfires in the area. These threats are further compounded with greater intensity and longer durations resulting in a critical challenge that must be addressed by Tribal leadership and other stakeholders on the Reservation.

Climate change is impacting every aspect of life. The Tribe needs energy generation and storage systems that will not further aggravate the climate change problem and are capable of sustaining the Tribe during extreme conditions for lengthy periods of time. The Tribe is presently working to address issues related to the accessibility and availability of water and is also installing appropriate measures to prepare and mitigate risk from wildfires. The impacts from the resulting droughts and wildfires have a critical impact on our energy systems. By identifying and pursuing mitigation measures today for energy systems tomorrow, the Tribe can address its vulnerabilities and reduce

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<sup>1</sup> See: <https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves>.

<sup>2</sup> See: <https://www.sbsun.com/2023/12/26/climate-change-will-reshape-the-inland-empire-by-2048/>.

emissions that are contributing to the increase in droughts and wildfires, which are currently presenting major impacts on the Reservation.

This PCAP takes into consideration methods and projects that can help the Tribe prepare for a longer frequency and higher intensity of heat, which will drive a higher demand for cooling in the summer on an already taxed system. It will help identify mechanisms, processes, and tools to meet increased electricity demands, which could grow as high as 60% above present demands by the end of the century, based on estimates from the state of California.<sup>3</sup> This PCAP identifies not only what drives the need for stable power to keep life comfortable for the community, but also potential opportunities to lessen or remove the problems anticipated to be encountered by the Tribe's energy systems.

It is imperative that these concerns are addressed and resolved now, to protect and support the health, safety, and comfort of the Pechanga community. The Tribe understands the importance of natural cycles and has managed the land since time immemorial. As noted by Helen Hunt Jackson, a Bureau of Indian Affairs employee in the late 1800s, Pechanga peoples' homes, wells, and farms were much more successful than their non-Indian neighbors during the early establishment of the Pechanga Reservation. Incorporating tribal traditional knowledge into potential projects will help build strong partnerships between stakeholders and increase the likelihood of successful implementation.

## Trends and Projections

The International Energy Agency projects that global energy related CO<sub>2</sub> emissions will peak by 2025, pushing the transition to clean energy, which is constant and growing, with the energy world set to change significantly by 2030.

As discussed in the latest edition of the *World Energy Outlook*, which is widely considered the most authoritative global source of energy analysis and projections, clean technologies will play a significantly greater role in 2030 than they do today. This includes almost 10 times as many electric cars on the road worldwide, global solar PV generating more electricity than the entire U.S. power system does currently, renewables' share of the global electricity mix nearing 50%, up from around 30% today, heat pumps and other electric heating systems outselling fossil fuel boilers globally, and three times as much investment going into new offshore wind projects than into new coal- and gas-fired power plants.

The Tribe continues to maintain low emissions from its current energy systems and is constantly pursuing opportunities to accommodate energy needs by keeping emissions low. The opportunities proposed in this PCAP are no different. The proposed projects will support and/or improve energy emissions on the Pechanga Reservation from our local sources. For example, Pechanga currently owns and operates a 4.6 MW natural gas fired cogeneration plant. Cogeneration is a highly efficient

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<sup>3</sup> See: <https://oag.ca.gov/environment/impact>.

form of energy conversion and can achieve energy savings of approximately 40% compared to purchasing power.

## I. Greenhouse Gas Inventories

### On-Reservation Energy Generation Inventory

For purposes of this PCAP, the Tribe will begin with a simplified GHG inventory and then complete additional analysis and data collection necessary to provide a comprehensive GHG inventory in the forthcoming CCAP. Inventory years were chosen based on availability of underlying data.

The emissions inventory contains the existing data from local energy operations captured by the Pechanga Environmental Department. This inventory represents emissions primarily from commercial, governmental, and emergency facilities located on the Reservation. As such, the emissions inventory includes the following PWE utility equipment: existing 4.6 MW cogen plant, 1 MW rooftop solar power, 1 MW of batteries, 14 MW of backup diesel generation, and the microgrid which supports these facilities for utility operations. The inventory also includes other generation not connected to the utility, which is scattered across the Reservation, such as other emergency generators. Emissions data are submitted to the Pechanga Environmental Department on an annual basis. This PCAP utilizes data from the 2022 GHG Inventory. The list of Emissions Units includes:

- 16 industrial boilers powered by natural gas.
- 13 standby generators powered by diesel, and
- 5 water cell cooling towers.

The sources identified in the 2022 GHG Inventory are from the utility generators at the PRC (which includes a hotel and RV park), Pechanga Emergency Operations, and the Pechanga Recreation Center, which supports Pechanga governmental and educational services. These sources were inventoried individually to match the baseline emissions data captured in the 2012 baseline to enable use in calculating trends discussed later in this report.

A recap of the 2022 GHG Inventory for on-Reservation energy generators (not including the diesel or other emergency generators, which are not required to be reported pursuant to 40 CFR 98.30(a)(2)) are as follows:

| Source Name  | 2022 Actual Emissions (tpy) |                               |       |      |      |       |
|--|-----------------------------|-------------------------------|-------|------|------|-------|
|  | NOx                         | CO <sub>2</sub> (metric tons) | CO    | VOC  | SOx  | PM10  |
| PRC  | 9.89                        | 20,527.46                     | 8.70  | 1.01 | 0.23 | 20.01 |
| Other Tribal Generators not Connected to the Utility | 1.54                        | TBD                           | 0.18  | 0.09 | 0.04 | 0.07  |
| Rec Center   | 3.21                        | 3,011.94                      | 4.65  | 0.30 | 0.03 | 0.42  |
| <b>Total</b>   | 14.64                       | 23,539.40                     | 13.52 | 1.41 | 0.31 | 20.50 |

### Tribal Utility Purchases of Energy from Market Sources

In addition to generating power on the Reservation, PWE also purchases power from market sources to meet utility loads. Much of this power is purchased from the Western Area Power Administration, so is hydroelectric power from the Boulder Canyon Project (Hoover Dam) and from the Parker-Davis Project (Parker and Davis Dams). For purposes of this PCAP, we have not explored federal hydropower purchases of market (GHG emitting) power to “firm-up” the federal power when water levels do not permit the hydropower to meet contractual needs. This potential option will be explored further in the CCAP.

PWE also purchases power from the California Independent System Operator (CAISO), which is a mixture of renewable and non-renewable power. Estimates of emissions for those power purchases have been determined through CAISO information sources and using EPA tools. The PWE power purchases for the year 2022 were as follows:

Energy data from 2022 shows Pechanga Western Electric (PWE) purchased 44,378 MWh from CAISO, through our scheduling coordinator, Shell Energy North America. Of this amount, 12,250 MWh of energy represented Federal Hydropower contracts from Boulder Canyon Project (Hoover Dam), and Parker Davis Project (Parker and Davis Dams). Therefore in 2022, PWE purchased 32,128 MWh, which included non-renewable energy. Using EPA Tools this resulted in 13,898 metric tons of Carbon Dioxide (CO<sub>2</sub>) emissions.<sup>4</sup> Per the EPA, 13,898 metric tons of CO<sub>2</sub> is equivalent to greenhouse gas emissions from 3,093 gasoline-powered passenger vehicles driven for one year and is equivalent to CO<sub>2</sub> emissions from 1,752 homes’ energy use for one year, 2,704 homes’ electricity use for one year, and 32,146 barrels of oil consumed.

### Summary of CO2 Emissions

In total, Pechanga’s emissions related to their utility function equals 23,539 metric tons for internal natural gas generation and 13,898 metric tons related to market purchases for a total of 37,437 metric tons.

<sup>4</sup> <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results>.

## II. Quantified GHG Reduction Measures

The Tribe explored and considered the following measures to reduce or mitigate GHG emissions.

| Measure   | Description  |
|---|--|
| Boost Box   | Equipment to be added to Diesel Generators to improve efficiency and reduce emissions                                    |
| Carbon Sequestration  | Equipment to be added at generation site for Diesel and Cogen to capture and sequester emissions                         |
| Carbon Offsets – In The Carbon Credit Market  | The Tribe would buy carbon credits on the market to offset our emissions   |
| Carbon Sequestration - Tree or Vegetation Planting or other forestry/farming arrangements | Planting trees or other vegetation either on tribal lands or contracted for off tribal lands                             |
| Energy Efficiency at PRC  | Increased sustainability practices   |
| Energy Efficiency on Government Uses, including buildings, water pumping, etc.            | Increased sustainability practices   |
| Energy Efficiency at Residences   | Increased sustainability practices   |
| Solar/Batteries   | Additional batteries will reduce purchased power and can mitigate cogen emissions  |
| Utility Scale Batteries   | PWE’s installation of up to 4 MW of utility scale batteries to support existing power operations and improve reliability |
| Cogen   | Additional cogen will reduce purchased power   |
| Renewable Energy Credits  | PWE currently sells its Hoover energy credits; Option to purchase benefit crediting partners' RECs                       |

### Measures Considered-Not Implementation Ready or Not Desired by the Tribe

| Measure              | Description  |
|----------------------|--|
| Carbon Sequestration | The Tribe considered exploring new technologies which could filter, capture, and sequester the emissions coming from the power generators on the reservation used for PWE power. Given the space requirements, and |

|   |   |
|---|---|
|   | available technologies (according to preliminary research) it does not appear that additional cost-effective carbon sequestration technology is available and therefore was deemed not implementation-ready. Further review of this option may be made in later phases of this project.   |
| Carbon Offsets – Carbon Credit Market   | This measure would not meet the Tribes other goals of self-sufficiency or reliability of electric supply.   |
| Carbon Sequestration – Tree or Vegetation Planting or Other Forestry/Farming Arrangements | The Tribe already significantly contributes to community tree-planting efforts. This measure would not meet the Tribes other goals of self-sufficiency or reliability of electric supply.   |
| Energy Efficiency at Residences   | While this measure was considered, it was eliminated early due to previous findings during an attempt to do energy audits at Reservation homes that Reservation residents are not interested in third parties accessing their homes for energy auditing purposes. However, The Tribe anticipates applying for the Bureau of Indian Affairs’s (BIA) Tribal Electrification Program grant once the second round of funding becomes available. In addition, the Tribe expects to apply for the DOE’s tribal home appliance rebate program. Applications will be limited to those energy efficiency programs, such as appliance replacements, which will not require energy auditing. |
| Renewable Energy Credits  | This measure would not meet the Tribes other goals of self-sufficiency or reliability of electric supply.   |

Below is a more detailed list of near-term, high-priority, implementation-ready measures that have been identified for implementation by the Tribal Council. Each measure includes a preliminary estimate of the quantifiable GHG emissions reductions, key implementing agency or department, implementation schedule and milestones, expected geographic location (if applicable), milestones for obtaining implementing authority as appropriate, identification of funding sources (if relevant), metrics for tracking progress and quantitative cost estimates.

**BoostBox H2 Technology**

PWE can draw on 14 MW of emergency diesel generation operated by PRC for back-up purposes. An additional 1.25 MW of emergency diesel generators are located at various buildings near the government center.

This measure includes adding “BoostBox” technology developed by BootBox H2 to the Tribe’s existing Diesel Generators to improve efficiency and reduce emissions. BoostBox H2 is a Proton

Exchange Membrane technology company that produces hydrogen on-demand, on-site to improve the efficiency of existing installations of diesel engines and generators. This technology will improve the torque of the diesel generator engines, reaching max torque faster at lower RPM. This technology will improve fuel efficiency by an average of 10% and make the existing diesel cleaner, which will result in the reduction of greenhouse gas emissions.

|   |   |
|---|---|
| Estimate of Quantifiable GHG Emissions Reductions | <ul style="list-style-type: none"> <li>• Reduces CO emissions by 35%+</li> <li>• Reduces CO2 emissions by 10%+</li> <li>• Reduces NOx emissions by up to 75%</li> <li>• Reduces particulate emissions (opacity) by between 65-85%.</li> </ul> |
| Key Implementing Agency or Department             | PRC and PWE will work with BoostBox H2 to develop the project and incorporate the technology.   |
| Implementation Schedule/Milestones                | TBD – Boostbox H2 is providing the Tribe with a proposal.   |
| Expected Geographic Location                      | To be installed on the Tribe’s existing diesel generators at the Casino and government center.  |
| Milestones for Obtaining Implementing Authority   | Subject to Tribal Council approval.   |
| Intersection with Other Funding Sources           | <ul style="list-style-type: none"> <li>• U.S. Clean Energy Tax Credits</li> <li>• EPA CRPG Implementation Grant</li> <li>• Community Change Grant</li> </ul>  |
| Metrics for Tracking Progress                     | Boostbox data tools, Pechanga’s Environmental Protection Office   |
| Quantitative Cost Estimates                       | TBD   |

The benefits of this measure are that the technology is innovative and makes all generators more efficient. A con is that because the diesel generators are not frequently used, are used only for standby, the payback time is longer, and the emissions reduced is low in the short-term. Pechanga does not have experience with this product, but the technology appears to have been successfully implemented in other areas.

**Energy Efficiency at PRC**

The Resort employs a Sustainability Manager. Significant work has been done to identify reasonably priced energy efficiency and other sustainability measures. Further, PRC was updated in 2017 with numerous energy efficient elements included in the design. The following list of efficiency measures are either already in place at PRC, or are anticipated. All of the anticipated measures require funding and are in the planning stages. Any of these may be further recommended for implementation.



**Restaurants**

- Food Waste Recycling – Anaerobic Digester
- Frylow – Sustainable Deep Frying Solution
- Reusable Cups in Team Member Dining Room
- Biodegradable & Compostable Resin Straws
- Reusable Cups – for purchase @ Food Court and Blends – free refills
- Kitchen Equipment Upgraded (Energy Star)
- Eco-Friendly To-Go Packaging (Food Court)
- Sustainable Pechanga logo cups for Beverage *Coming Soon*

**Hotel**

- Eco-Friendly Cleaning Products
- Sustainable Paper Products
- Washable Linen Shower Curtains
- LED Light Fixtures, Dimmers and Low Flow Water Fixtures-Toilet Flush Valves
- Green Key ECO-Rating
- Conserve to Preserve – Reusing Existing Sheets and Towels (Stayover Guests)
- Digital Room Key thru MyPechanga Mobile App.
- Wall Mounted Larger Refillable Bath Amenities in Showers for Shampoo, Conditioner & Shower Gel Larger Refillable Amenity Bottles for Liquid Soap, Body and Hand Lotion on Sink – L’Occitane Products
- Zero Waste Label Liners Placed on Unused Toilet Paper
- Clean the World – Recycling Soap
- Project Touch-Donating Used Toilet Paper, Facial Tissues, Linens and Pillows
- Smart Restroom Technology *Coming Soon*
- Compostable Coffee Pods/Lids *Coming Soon*

**Property-Wide**

- 75 Electric Charging Stations
- Window Films and Coatings
- Combo Recycle Bins
- World Oil Recycling and Hazardous Waste Pick-Up – Bulbs, Batteries, Paint, Hazardous Liquids
- Recycling Services Contract with CR&R (Food Waste/Anaerobic Digester, Mixed Recycling, E-Waste)
- Solar Panels on East Parking Garage – 3,670 panels – 2,760,000 Kilowatt
- Cogen Plant – Produces Electricity thru the Generation of heat/Collects Water to Cool Casino
- USAgain - Non-Logo Uniform/Garment Donation
- Golf and Department of Public Safety use Electric Carts
- State of the Art Irrigation, Reclaimed and Recycled Water Features and Less Manicured Grounds at Journey Golf Course
- TerraCycle – Cigarette Butt Recycling
- Urban Beekeeping @ The COVE *Coming Soon*
- Electric Guest Shuttles *Coming Soon*
- TRUE Registered – Green Building Zero Waste Certification *In-Progress*

**Back of House**

- Shredding Facility – Documents/Cards
- Bottle Fillers
- Team Member Dining – Reusable Cups, Mugs, Plates, Silverware
- Green Team – Internal Green Initiative Group
- Digital Gift Cards - Prezzy
- Community Beautification Project – Tree Planting/Trash Pick-Up

**Casino**

- Smoke Free
- Combo Recycle Bins
- LED Light Fixtures w/Automatic Dimmers
- Terracycle-Cigarette Recycling
- Hydration Stations (bottle fillers) *Coming Soon*

**Sustainability On Another Level**

While all efficiency will succeed in some GHG reduction, a priority measure that will specifically and significantly reduce GHG emissions is the initiation of Electric Guest Shuttles. Currently the numerous shuttles that move guests around PRC are gasoline powered. These operate continuously through the day, every day. Replacing them with efficient electric vehicles that are powered by PWE clean power would substantially reduce their emissions.

### Energy Efficiency on Governmental Facilities

In recent years, the Tribe’s governmental facility operators have identified and are prioritizing the replacement of many energy inefficient systems throughout the Reservation that directly impact the Pechanga water system, governmental operations, and recreational areas. Addressing these inefficiencies and reducing associated greenhouse gas emissions requires a holistic approach, including the adoption of modern technologies, regular maintenance, and the development of energy-efficient practices in the planning and operation of the Tribe’s infrastructure.

For the Pechanga water system, energy inefficiencies have been detected due to aging infrastructure reaching the end of its lifecycle. The Tribe’s well motors need to be replaced with a more efficient model as current water extraction and pumping processes involve energy-intensive pumps. Because these motors are outdated, they operate inefficiently, leading to increased energy consumption that is largely based on traditional sources of non-renewable power. Additionally, the Tribe anticipates equipping the water infrastructure with a smart meter system that would greatly decrease the amount of water pumped when leaks are detected. Modernizing control systems and implementing automation will help optimize tribal processes and reduce energy consumption across the Reservation.



For governmental operations, an energy efficient panel installed in the Tribal Government Center would result in reduced energy consumption, lower utility bills, and a smaller environmental footprint, contributing to sustainability goals and demonstrating a commitment to energy efficiency and conservation. The panel would also help monitor and reduce instances where power is wasted, such as lights being left on. Also, approximately 40% of the light bulbs in the government center need to be replaced with LED light bulbs. Efficient lighting is needed at all government buildings.

6 original HVAC units (out of 14 total units) were installed at the Tribal Government Center when it was originally built in 2000 and need to be replaced. The old HVAC units have become less energy-efficient over time due to several factors such as wear and tear, refrigerant issues, and outdated technology. Additionally, the walk-in refrigerator and freezer system in the building need to be updated to be energy efficient for similar reasons.

Lastly, at the government center, an EV charger management system will be installed to disconnect EV charging during peak energy usage times. This management system will ultimately reduce the usage of the diesel backup generators.

For the Pechanga Recreation Center, the solar installation for the pool is not used and, if replaced with an efficient solar product, the recreation center would be able to reduce its overall energy consumption. Approximately 60 lightbulbs at the recreation center need to be replaced with LED products. Finally, the boiler room at the recreation center is also 14 years old and upgrades would significantly improve energy efficiency, leading to reduced energy consumption and operational costs. Consideration is being given to incorporating renewable energy sources, such as solar thermal systems and geothermal heat pumps, which can further reduce reliance on fossil fuels and improve the environmental sustainability of the heating system. By combining these measures, upgrading the boiler room can lead to a substantial increase in energy efficiency, resulting in cost savings and reduced environmental impact.

|   |  |
|---|--|
| Estimate of Quantifiable GHG Emissions Reductions | Depends on Measures Identified   |
| Key Implementing Agency or Department             | Tribal Council   |
| Implementation Schedule/Milestones                | Once funding is approved the projects would begin.   |
| Expected Geographic Location                      | Pechanga Reservation   |
| Milestones for Obtaining Implementing Authority   | Tribal Council approval was previously authorized by the General Council.  |
| Intersection with Other Funding Sources           | <ul style="list-style-type: none"> <li>• US Clean Energy Tax Credits</li> <li>• Tribal General Operation Funds</li> <li>• Pechanga Community Fund</li> </ul> |

|                               |   |
|-------------------------------|---|
|                               | <ul style="list-style-type: none"> <li>• Energy Efficiency and Conservation Block Grant Program</li> <li>• Community Change Grants</li> </ul> |
| Metrics for Tracking Progress | Pechanga’s Environmental Protection Office  |
| Quantitative Cost Estimates   | Proposals are pending   |

### Utility Scale Batteries

PWE was previously awarded the California Public Utilities Commission Self-Generation Incentive Program (SGIP) grant for battery storage. Pechanga is installing a 1.1 MW battery storage system near the Great Oak Substation. The system is scheduled to be completed in 2024. Batteries allow us to store “free” solar energy or charge the batteries from grid power when market prices are low (generally late at night or during sunny hours), to offset 1 MW of purchases when prices are high (generally in late afternoon).

PWE wishes to purchase an additional 2-4 MW of batteries to improve existing system reliability and reduce purchased power generated by non-renewable sources. With load growth projected as discussed below, Tribal engineers recommend 5 MW of new Combined Heat and Power (CHP) and 2 MW of batteries. The batteries assist the CHP in avoiding market purchases and can make the most of solar power generated when loads are lower than generation.

Benefits of 2 MW of additional battery storage include:

- The batteries assist the CHP in avoiding market purchases,
- Batteries make the most of solar power generated when loads are lower than generation.
- Batteries meet immediate needs for capacity.
- Batteries meet the goal of self-sufficiency.
- The Tribe has experience with battery storage.

|   |   |
|---|---|
| Estimate of Quantifiable GHG Emissions Reductions | According to the Energy Storage Association, every MWH of battery storage can reduce CO <sub>2</sub> emissions by an average of 300-600 metric tons per year. |
| Key Implementing Agency or Department             | PWE   |
| Implementation Schedule/Milestones                | 1-2 years   |
| Expected Geographic Location                      | Near the existing battery bank at the substation  |

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| Milestones for Obtaining Implementing Authority | Tribal Council approval was previously authorized by the General Membership. Some coordination with Southern California Edison and CAISO will be needed.   |
| Intersection with Other Funding Sources         | <ul style="list-style-type: none"> <li>• SGIP Grant</li> <li>• Clean Energy Tax Credits (Investment Tax Credit and 48(e) Low-Income Communities Bonus Tax Credit)</li> <li>• The Tribe also applied for the BIA’s Tribal Electrification Program grant for this project but was not awarded the grant under the first round of funding. BIA has encouraged the Tribe to apply again when the second round of funding becomes available.</li> </ul> |
| Metrics for Tracking Progress                   | Pechanga’s Environmental Protection Office.  |
| Quantitative Cost Estimates                     | 2 MW of Batteries is estimated at \$5,000,000  |

### 5MW Cogeneration Facility

Pechanga currently owns a 5.85 gross/4.6 MW net natural gas fired Cogeneration Plant (2 SunPower turbines with other associated equipment), which is located at PRC and is managed by PRC. Cogeneration, through CHP, is the simultaneous production of electricity with the recovery and utilization of steam to heat or cool. According to the EPA, CHP’s key roles in a clean energy market are to (1) reduce emissions while the grid transitions towards cleaner energy; (2) support solar and wind power resources in microgrids to increase on-site reliability and resiliency; and (3) reduce emissions in sectors that are hard to decarbonize.<sup>5</sup> EPA also indicates that when evaluated against comparable separate heat and power options, CHP reduces emissions of greenhouse gases and other air pollutants by avoiding the need for grid-based electricity generation, transmission, and distribution, and an on-site boiler.

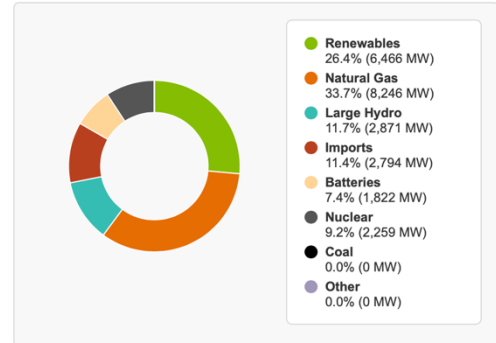
CHP plants significantly reduce carbon emissions and cogeneration is a highly efficient form of energy conversion. It can achieve primary energy savings of approximately 40% compared to the separate purchase of electricity from the national electricity grid and a gas boiler for onsite heating. PWE has completed negotiations on new Wholesale Distribution Access Tariff agreements which allow PWE to export this power, allowing the power to be counted toward PWE’s Resource Adequacy needs.

Pechanga has estimated its load growth in the next 8 years to be between 7.25 MW and 14.8 MW. This load growth is resulting from a new school, new commercial ventures, added land base for housing and other development, tribal government growth and significant new electric vehicle charging, both for tribal members, tribal employees, and for PRC guests. These projected loads

<sup>5</sup> See: <https://www.epa.gov/chp/chps-role-decarbonization#:~:text=CHP's%20key%20roles%20in%20a,on-site%20reliability%20and%20resiliency>.

versus the current generation resources indicates that if new on-reservation generation is not added, power will be required by PWE from market resources through purchases from CAISO. As shown in the graphic (as of February, 2024), CAISO’s largest resources is natural gas.<sup>6</sup> To avoid making market purchases of power to meet load growth at fluctuating rates that has the likelihood of being serviced by less efficient natural gas, or potentially by imports that are also often not renewable, tribal investment in new CHP facilities, with the latest technology and the efficiencies of using the waste heat from the CHP for other purposes, is projected to improve the Tribe’s emissions. While it is recognized that there may be some emissions from a new CHP, added solar and batteries can mitigate this generation. Tribal engineers recommend an additional 5 MW of CHP, and 2-4 MW of battery storage in the short term.

Current supply



This measure will involve the purchase and installation of a second CHP facility, which will reduce purchased power generated from non-renewable sources. The proposed new Pechanga CHP-2 plan will provide enough thermal energy to cover current output of not only existing pool heaters, but also existing steam boilers in the Tribe’s South Central Plant. The CHP-2 project will also produce chilled water and offset energy used by electrical chillers. Additionally, it will generate electrical energy and reduce carbon emissions from the utility power plants. Please see the graph from Pechanga’s recent study that shows annual distribution of the generated by the proposed CHP thermal energy:

<sup>6</sup> See <https://www.caiso.com/TodaysOutlook/Pages/supply.aspx>.

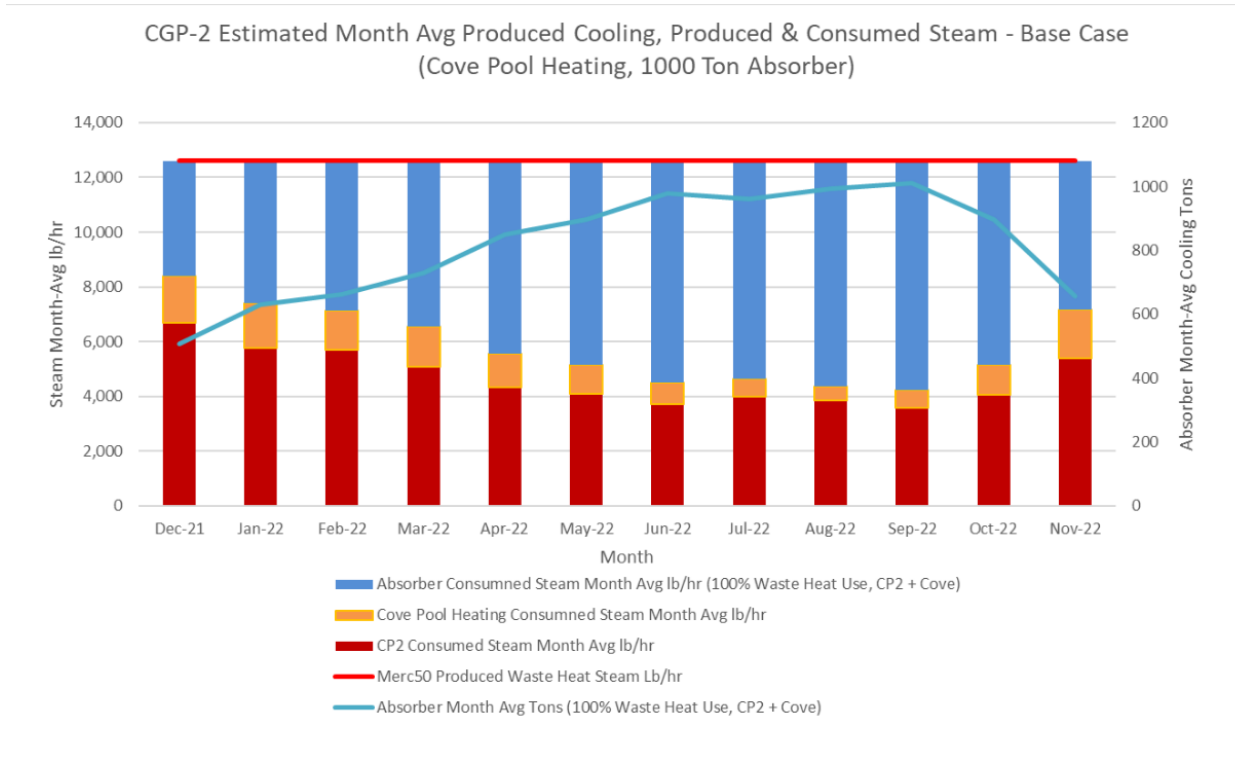


Figure 3 - Estimated CGP-2 Monthly-Avg Thermal Performance including Cove Pool Heating

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|---|--|
| Estimate of Quantifiable GHG Emissions Reductions | <p>Generally, the Tribe uses the standard California marginal emissions rate of 0.0004 tonnes (metric tons) of CO<sub>2</sub> per kWh and the difference between the standard efficiency of a typical gas power plant (40%) and the expected combined efficiency of our CHP (60%).</p> <p>Per the Tribe’s analysis, the proposed 5 MW Mercury 50 turbine generator is expected to generate 32,000 MWh of electricity annually. As a result, the proposed CHP should save approximately 8,500 metric tons of CO<sub>2</sub> annually.</p> |
| Key Implementing Agency or Department             | PWE  |
| Implementation Schedule/Milestones                | 3-4 years  |
| Expected Geographic Location                      | At current PRC Powerplant  |
| Milestones for Obtaining Implementing Authority   | General Council Approval, SCE Interconnection Agreement, CAISO Interconnection Agreement.  |

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| Intersection with Other Funding Sources | There is a lack of non-CPRG funding to support cogeneration development. However, the Tribe will consider loans and other debt vehicles to fund the project as needed. |
| Metrics for Tracking Progress           | PWE, Pechanga’s Environmental Protection Office.   |
| Quantitative Cost Estimates             | Initial estimate by PWE’s engineers for the added CHP is \$44,945,000.   |

### Solar + Batteries

Pechanga currently owns a 1.3 MW rooftop system at its East Parking garage, installed in 2022, which has produced 2,182.8 MWh of electricity. Operation and maintenance services for the solar project are provided by SunPower. Solar data services are under discussion with TotalEnergies Distributed Generation USA, LLC. In addition to the SGIP battery outlined in the battery section above, PWE is in the process of designing a residential solar and battery project. As these systems are built out in the residential area, the power will be used at both existing residences and as new systems at new housing developments. PWE can also utilize the generation capacity to meet our CAISO obligations for Resource Adequacy.

This measure will involve PWE purchasing and installing approximately 2 MW of additional solar to be sited with batteries on the Reservation, which will reduce purchased power generated from nonrenewable sources.

|   |  |
|---|--|
| Estimate of Quantifiable GHG Emissions Reductions | According to the Energy Storage Association, every MWH of Battery Storage can reduce CO2 emissions by an average of 300-600 metric tons per year. For each MW of Solar we offset external purchases.   |
| Key Implementing Agency or Department             | PWE  |
| Implementation Schedule/Milestones                | 2-3 years  |
| Expected Geographic Location                      | Pechanga Reservation – Up to 2 MW available space on North Parking Garage; Recreation Center; School; Additional locations for smaller systems.  |
| Milestones for Obtaining Implementing Authority   | Tribal Council approval was previously authorized by the General Membership.   |
| Intersection with Other Funding Sources           | <ul style="list-style-type: none"> <li>Clean Energy Tax Credits (Investment Tax Credit and 48(e) Low-Income Communities Bonus Credit Program)</li> <li>The Tribe also applied for the BIA’s Tribal Electrification Program grant for this project but was not awarded the grant</li> </ul> |

|                               |  |
|-------------------------------|--|
|                               | under the first round of funding. BIA has encouraged the Tribe to apply again once the second round of funding is available.   |
| Metrics for Tracking Progress | PWE, Pechanga’s Environmental Protection Office  |
| Quantitative Cost Estimates   | 2 MW Batteries estimated at \$5,000,000; Levelized Cost of Utility Scale Solar is \$33.83/MWH (EIA Annual Energy Outlook 2022) |

Benefits of Solar include:

- Solar can be easily sized.
- The Tribe has a parking garage rooftop location available.
- The Tribe has experience with solar.
- It is renewable, and the Tribe is located in a high solar area.
- Solar can completely offset other emissions.

### III. Benefits Analysis

Analyzing the benefits of greenhouse gas reduction measures involve the evaluation of both the direct and indirect impacts on various aspects of the Reservation, the environment, and the economy. Broadly speaking, there are several types of benefits that will impact the Tribe with the implementation of the identified measures.

1. **Environmental Benefits:** Includes a reduction in greenhouse gas emissions, improved air quality, and mitigating climate change impacts. Lowering levels of air pollutants will ultimately reduce harmful emissions such as particulate matter, nitrogen oxides, and sulfur dioxide. The reduction in greenhouse gas emissions helps slow down global warming, reduces the frequency and intensity of extreme weather events, and preserves ecosystems and biodiversity.
2. **Health Benefits:** Lowering greenhouse gas emissions leads to improved air quality, which in turn reduces the risk of respiratory and cardiovascular illnesses among the population. Additionally, improving the air quality by reducing greenhouse gas emissions will decrease the number of premature deaths.
3. **Economic Benefits:** Includes cost savings associated with energy efficiency improvements, renewable energy deployment, and reduced reliance on fossil fuels. Additionally, employment opportunities will be generated by investments in renewable energy, energy efficiency, and other green technologies identified in this PCAP. Cost savings and job creation will ultimately help increase productivity due to improved health, reduce absenteeism, and an enhance workforce morale.
4. **Social Benefits:** The Tribe has been historically disadvantaged by the lack of opportunities to reduce greenhouse gas emissions on the Reservation. Implementing the measures

identified in this PCAP will help enable the Tribe to build a resilient community that is better equipped to withstand and recover from climate-related disasters.

5. **Technological Benefits:** Investments in clean energy technologies spur innovation, enhance technological competitiveness, and stimulate economic growth. Further, infrastructure improvements will allow the Tribe to transition to a low-carbon economy.
6. **Long-Term Benefits:** Reducing greenhouse gas emissions on the Reservation will carry many long-term benefits including assisting in climate stabilization, safeguarding future generations, and preserving our natural resources for sustainable development.

The Tribal Council, as representative of the Tribe's General Membership, considered all of these benefits. In addition, they considered all the information provided in the background section of this PCAP, and PWE's Strategic Energy Plan. Based on this important input, the Tribal Council established the following goals in prioritizing the measures proposed.

1. Self Sufficiency – The Tribe wishes to assure that generation utilize tribal resources, including Reservation lands and existing tribal utility human and infrastructure resources, and that any new resources limit the reliance on the unreliable outside electric systems.
2. Efficiency – The Tribe wishes to assure that resources are not wasted, and where possible, resources are reused.
3. Reliability – The Tribe wishes to assure its power supply is safe and constant.
4. Funding Source Availability – The Tribe wishes to utilize the EPA Implementation resources for projects that may not otherwise have available funding sources.
5. Effectiveness at GHG Reduction – The Tribe wishes to reduce its GHG emissions to protect the environment, reduce climate pollution, and secure the future for later generations.

After application of all of these factors, the following measures were identified as priority measures for implementation:

- The primary measure that meets all five criteria established by the Tribal Council is the 5 MW Cogeneration measure. All other measures have other low-cost funding sources. We know of no other grant assistance which may be available for the Cogeneration measure. The 5 MW Cogeneration Measure will provide self-sufficiency to the Tribe as reliance on Southern California Edison's delivery systems is not needed, is an energy efficient system and does not waste heat produced by generation and is reliable. Further, the Tribe already has a powerplant and staff capable of operating these systems.
- Boost Box systems meet all 5 goals listed above, but because emissions reduction is smaller, have a lower priority than the 5 MW Cogeneration measure. We do not know of other funding sources for this measure.
- Utility Scale Batteries meet four criteria established by the Tribal Council; however, other funding sources are available for this measure.



- Solar/Battery systems meet four criteria established by the Tribal Council; however, other funding sources are available for this measure.
- Energy Efficiency at both PRC and at the government center is also favored and meets four of the Tribal Council goals. However, there are numerous other funding sources we could utilize for energy efficiency projects.

## IV. Authority to Implement

Each measure listed above describes authorities needed to implement.

All identified greenhouse gas reduction measures will require expert advice, staff approvals, and presentations to the Tribal Council for final decisions. The Tribal Council is the authorizing entity within the Tribe for most measures, although any measure that impacts our electric delivery system also requires amendments to our agreements with our wholesale utility transmission provider, Southern California Edison. The Cogeneration Measure, due to its cost, will require approval by the General Membership (a vote of the tribal membership). The Cogeneration Measure will also require an Interconnection Agreement with Southern California Edison and CAISO. As the power will be generally utilized onsite, the interconnection process through both entities does not implicate the transmission queue.

## V. Workforce Planning Analysis

The Tribe has an existing workforce, including at PWE, PRC (14 full time employees who operate the microgrid system), and at various facilities throughout the Reservation (numerous facilities managers, as well as the water department which operates back-up generators and other power systems).

Further developing a workforce to implement the identified greenhouse gas emission reduction measures involves several key steps and considerations. Historically, the Tribe has faced and learned from numerous workforce development challenges such as instances of skilled labor shortages and employee recruitment. Addressing these challenges requires proactive project management, investing in the right resources, and a commitment to continuous improvement in workforce development strategies.

By ensuring a workforce development strategy is in place, the Tribe can ensure opportunities are available to create high-quality jobs and expand economic opportunities to underserved workers on the Reservation. Ultimately, the Tribe's workforce development plan will prioritize creating desirable jobs in alignment with tribal principles and the U.S. Department of Labor's Good Jobs Principles. Below is an analysis outlining the Tribe's anticipated approach to workforce development to ensure the identified priority measures are implemented in a way that is most beneficial for the Tribe and its people.

1. **Current Workforce Assessment:** The Tribe will begin its planning efforts by evaluating its current workforce composition, skill sets, and capacity related to GHG emission reduction efforts, particularly among PWE and PRC. As there are several GHG emission reduction methods identified in this PCAP, additional planning will be needed to identify any gaps or areas of improvement based on the amount of funding that may be awarded.
2. **Research and Training:** The Tribe will strive to develop training programs or courses aimed at equipping workers with the skills and knowledge needed to contribute to GHG reduction efforts. This would involve technical training in the energy technologies identified in this PCAP, energy efficiency, maintenance and operations, etc.
3. **Collaborating with Third Parties:** Many third parties are interested in working with tribes, and can be a great source of qualified talent, expertise, support for meeting goals, and financial support. As part of the workforce development plan, the Tribe will strive to collaborate with educational institutions, industry partners, and relevant organizations to design and implement effective training programs. This step will help ensure the training provided aligns with industry needs and standards. The Tribe is very supportive of growing educational opportunities for Native students, including sponsoring the annual ASIES conferences.
4. **Incorporating Emerging Technologies:** To stay informed on emerging technologies and innovation related to GHG emission reduction, the Tribe will integrate training on emerging technologies such as electric vehicles, renewable energy systems, smart grids. Etc., into workforce development programs.
5. **Promotion of Tribal Workforce Development:** The Tribe prioritizes creating high-quality jobs for its tribal members. This workforce development plan will aim to target recruitment efforts at qualified tribal members first and foremost, and then to other qualified individuals. The Tribe recognizes the importance of building institutional knowledge surrounding these emerging technologies that are designed to reduce GHG emissions for generations to come. The Tribe is very supportive of growing educational opportunities for Native students including sponsoring the annual ASIES conferences and providing STEM camp days in our summer programs.
6. **Management and Evaluation:** The Tribe will implement mechanisms to monitor the effectiveness of workforce development initiatives in reducing GHG emissions. Key metrics such as the number of trained workers, emissions reductions achieved, and the various impacts on the Reservation will be monitored and evaluated.
7. **Continuous Learning and Adaptation:** The Tribe recognizes that the field of GHG emission reduction is continuously evolving, and ongoing learning and adaptation are essential to ensure emissions are effectively managed to combat climate change. The Tribe will regularly review and update this workforce development plan to reflect new technologies, best practices, and changing industry needs.

By following these steps and considerations, the Tribe's comprehensive workforce development plan will support GHG reduction efforts and facilitate the transition to a more sustainable economy.