2014

Strategic Energy Management Plan for the Santa Ynez Band of Chumash Indians

Produced by the Santa Ynez Chumash Environmental Office

Last Updated: April 14, 2015

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1 Introduction

This plan outlines the Santa Ynez Band of Chumash Indians' comprehensive energy management strategy including an assessment of current practices, a commitment to improving energy performance and reducing overall energy use, and recommended actions to achieve these goals.

1.1 Vision Statement

The primary objective of the Strategic Energy Management Plan is to implement energy efficiency, energy security, conservation, education, and renewable energy projects that align with the economic goals and cultural values of the community to improve the health and welfare of the tribe. The intended outcomes of implementing the energy plan include job creation, capacity building, and reduced energy costs for tribal community members, and tribal operations. By encouraging energy independence and local power production the plan will promote self-sufficiency.

1.2 Mission & Objectives

The Strategic Energy Plan will provide information and suggestions to guide tribal decision-making and provide a foundation for effective management of energy resources within the Santa Ynez Band of Chumash Indians (SYBCI) community. The objectives of developing this plan include:

1. Assess current energy demand and costs of all tribal enterprises, offices, and facilities
2. Provide a baseline assessment of the SYBCI's energy resources so that future progress can be clearly and consistently measured, and current usage better understood
3. Project future energy demand
4. Establish a system for centralized, ongoing tracking and analysis of tribal energy data that is applicable across sectors, facilities, and activities
5. Develop a unifying vision that is consistent with the tribe's long-term cultural, social, environmental, and economic goals
6. Identify and evaluate the potential of opportunities for development of long-term, cost effective energy sources, such as renewable energy, energy efficiency and conservation, and other feasible supply- and demand-side options
7. Build the SYBCI's capacity for understanding, managing, and developing energy resources by identifying training, distribution of information materials, and community meeting needs and opportunities

1.3 Background Information

The SYBCI have jurisdiction over a 144-acre reservation, which is held in trust by the federal government, near Santa Ynez in Santa Barbara County, California. The reservation consists of 105 homes, the Tribal Government Administration Building, an outpatient health clinic, fire station, education center, Chumash Casino Resort, two parking structures, three restaurants, and a wastewater treatment plant (WWTP). There are also 20 vehicles in the tribal fleet, including approximately twelve full-sized shuttle buses. Off-reservation, the SYBCI owns the following properties in fee simple throughout Santa Barbara County:

- 2 gas stations
- Hotel Corque (122 guestrooms, pool, spa)
- Root 246 restaurant (on same property as Hotel Corque)
- Hadsten House Inn (71 guestrooms, spa, restaurant, indoor heated pool, outdoor whirpool)
- Santa Maria parking lot
- Chumash Employee Resource Center (CERC) building
- Parker Property also known as Camp 4 (1,390 acres of land recently acquired by the tribe that has some agricultural activities including a vineyard, stables, cattle and buffalo range land)
- Buellton Apartment Complex

The largest tribal enterprise is the Chumash Casino Resort, which opened in 2004 and receives approximately 8,000 patrons daily. Running 24 hours a day, the 180,000 square foot facility includes 2,000 slot machines and 40 tables, a 1,000 person capacity showroom (for concerts, bingo, and shows), 12 bathrooms, and four restaurants (fine dining, café, buffet, employee dining). The 106-room hotel covers 80,000 square feet and offers a spa, pool, and hot tub. The Chumash Casino Resort is the second largest employer in Santa Barbara County with approximately 1,700 employees.

1.4 Approach to Environmental Management

Energy for the tribal government administration building, health clinic, fire station, education center, and Parker Property are all managed directly by the Tribal Government. The Tribal Government also provides energy management services to residents of the reservation. The energy for all other properties and facilities is managed by the Chumash Casino Resort Facilities Department. Energy use at the Chumash Casino Resort is controlled and monitored using highly sophisticated systems and great effort has been put into greening operations.

As the SYBCI's resource agency, the Santa Ynez Chumash Environmental Office (SYCEO) works with other tribal decision makers to create strategic plans for the overall, long-term management and development of the tribe's natural resources, including energy. The mission of the SYCEO is "to responsibly manage natural resources for sustained social, cultural, spiritual, and economic prosperity." In keeping with its mission, the SYCEO takes a proactive and progressive approach to managing energy resources, while involving the community to understand their needs and interests. With a number of energy-saving projects underway (a list of sample projects is provided in Section 4.1), the SYCEO determined that an energy management plan was a crucial undertaking to maximize the impact of these and future projects. Understanding historic and present energy use and forecasting future demand will enable the SYCEO to cohesively manage energy projects and make informed decisions about future investments. SYCEO also provides guidance to commercial facilities upon request.

2 Assessment of Current Energy Usage & Costs

The SYCEO collects energy use data for the majority of SYBCI's commercial and administrative facilities and enterprises. A list of 14 key facilities, as well as smaller services, included in this assessment is provided in Appendix A. Energy used for services such as lighting streets and parking lots is also

accounted for in this report. Data include monthly use and costs for electricity, natural gas, transportation, and backup generator fuel reaching as far back as 2007. For certain facilities such as the Tribal Hall and Health Clinic, utility data is reported together because of the way the facilities are metered. In future plans, the SYBCI would like to consider the indirect energy emissions related to reservation water use, so these data were also collected and are reported below, though analysis is limited in this assessment. SYCEO also collected 2008-2012 annual aggregated natural gas data for 76 of the 103 tribal residences.

At the time of this report data for certain facilities are still unavailable, though efforts will continue to collect these data for future incorporation. For example, due to privacy issues relating to disclosure of residential data, data for residential electricity and water use cannot be obtained. Excluded facilities include one additional parking lot, and part of the service to a recently acquired vineyard and ranch. The majority of transportation-related data is complete, however, parts are still missing for commercial and administrative facilities and enterprises due to incomplete reporting by various tribal departments. Transportation energy use is a priority for future analysis, because it is likely a high contributor to the reservation's total energy consumption and greenhouse gas emissions. Despite the lack of complete data, a number of ongoing SYCEO initiatives target sustainable transportation.

Protocols and tools, designed to be uniform across sectors, buildings, and activities, were developed to improve data collection, and allow for centralized, ongoing tracking and analysis of tribal energy data. These structures will help the SYCEO to provide an even more complete picture of the SYBCI's total energy use in future versions of the Energy Management Plan.

2.1 Energy Sources

The reservation receives its energy from a number of sources, derived both on and off reservation. Across the reservation, Pacific Gas & Electric Company (PG&E) provides electricity while gas is supplied by Southern California Gas Company (SoCal Gas). Municipal water comes from the Santa Ynez River Water Conservation District, Improvement District No.1 (SYRWCD ID#1). Reservation groundwater is utilized for dewatering at the wastewater treatment plant (WWTP) and fire suppression. Solar photovoltaic (PV) panels installed on the Tribal Administration Building and Tribal Health Clinic generate on average approximately 8,000 kWh of electricity per month; solar panels are also installed on 13 homes providing potential savings of 18.5 tons CO_2/year. In addition to traditional vehicle fuel types, the Chumash BioFuel Program collects, processes, and distributes used cooking oil from five Chumash-owned restaurants, which produce about 480 gallons WVO per month. One Chumash fleet vehicle and four additional vehicles have been converted to run on waste vegetable oil (WVO). Two electric vehicle charging stations are installed at the casino, one at the tribal hall, and one at the Santa Maria employee parking lot. The Chumash Casino Resort also heats water using solar energy provided by 720 heat transfer tubes installed on the roof.

2.2 Baseline Energy Use and Cost

The baseline period by which the impact of energy-reduction strategies will be measured is January 2012 to December 2012 inclusive. This period was selected based on the currency and completeness of data for the year 2012. However in order to include residential data, aggregate electricity data from

2009 was used as a proxy and aggregate natural gas data for 2012 was used, as they were the most recent available data.[1] Residential energy data does not include an estimate for costs or fuel because no data was available. Appendix A provides a list of all facilities and services included in the 2012 baseline, and the utilities used by each. Energy use data for all is not comprehensive across sectors, but does include one of the largest fuel users, the Casino's major fleet; consequently, "total measured" energy/costs may not be truly representative of the reservation's total use. Figure 2.1 below and Table 2 in Appendix C show the total measured electric, natural gas and fuel use for the reservation in 2012. Figure 2.2 below breaks energy use down by sector and Table 3 in Appendix C shows associated costs (residential costs not included). The key findings for administrative, residential and commercial energy use for included facilities are summarized as:

- Total measured annual energy use is 125,067 million British thermal units (MMBtu) with a monthly average of 10,422 MMBtu. Electricity accounts for 50% of this total energy use, natural gas accounts for 33% and fuel (gas and diesel) accounts for 18%
- Total measured annual energy costs (excluding residential) are $ 4,106,497
- The Chumash Casino and Hotel accounts for 85% of the total measured energy use; commercial enterprises account for 93% for all tribal holdings in the county
- Solar energy generated at the Tribal Hall and Health Clinic, 87,487 kWh per year, accounts for 30% of the total administrative electricity used

Figure 2.1. 2012 Reservation Total Measured Energy Use

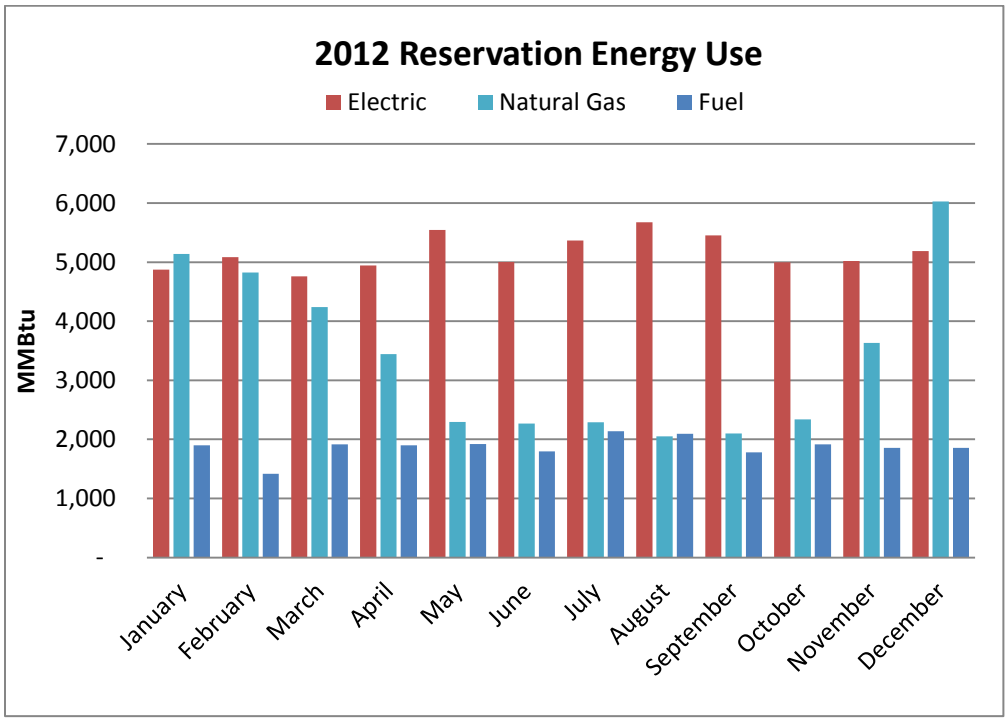
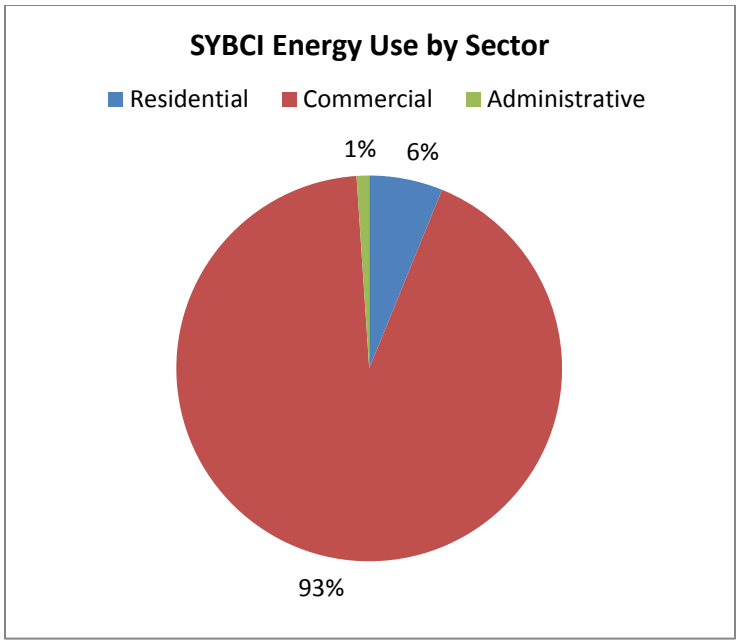


Figure 2.2. SYBCI Energy use by Sector

[1] Administrative percent use per month by energy type was used to scale Residential aggregate energy data.



2.2.1 2012 energy use

Electricity

In 2012 (including 2009 residential proxy data), SYBCI electricity demand for all users for which data was available totaled 18 gigawatt hours (GWh) at an annual cost of approximately $3.9 million (excluding residential). Use for commercial and administrative electricity was highest in August at 1.66 GWh. The greatest demand for electricity in 2012 came from the Casino which accounted for 74% of total demand. Additionally, solar panels on the Tribal Hall and Health Clinic generated 0.09 GWh of electricity. Peak solar generation coincided with peak electricity use in August. Figure 2.3 and Figure 2.4 show the distribution of the total electricity use for reservation demands.

Figure 2.3. Distribution of Total Electricity Use

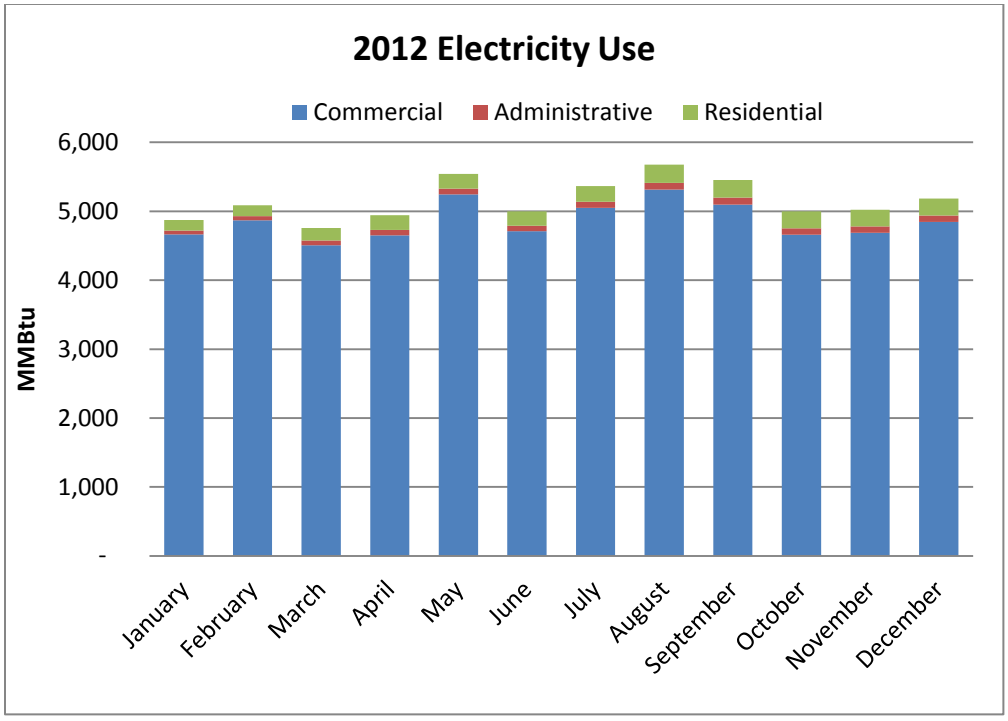
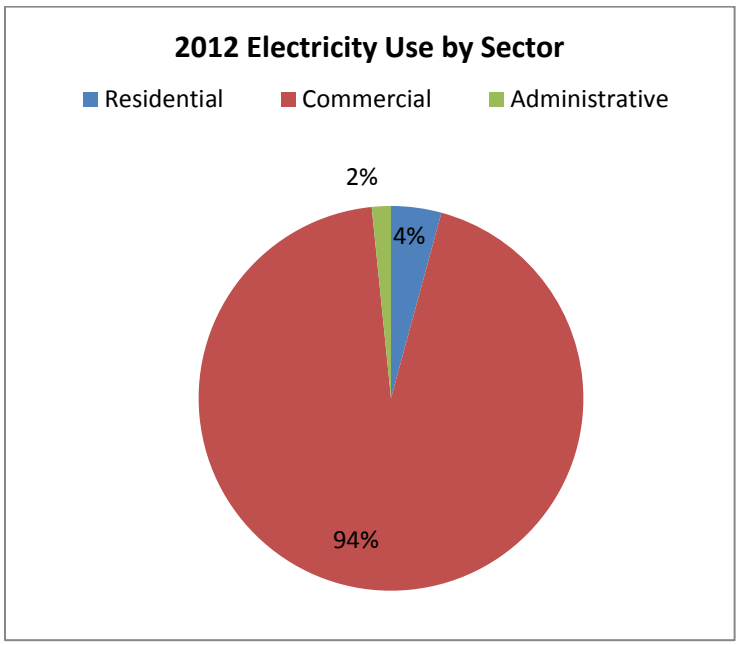


Figure 2.4. Electricity Use by Sector



Natural Gas

Natural gas use for all SYBCI sources for which data was available totaled 406,600 therms in 2012. Commercial and administrative use accounted for 355,700 therms or 88% of demand at an annual cost

of $186,017, with peak use of 45,742 therms in December. The Casino accounted for 56% of total demand. Figure 2.5 and Figure 2.6 show the distribution of the total demand for natural gas across commercial, residential, and administrative uses.

Figure 2.5. Distribution of Natural Gas Use

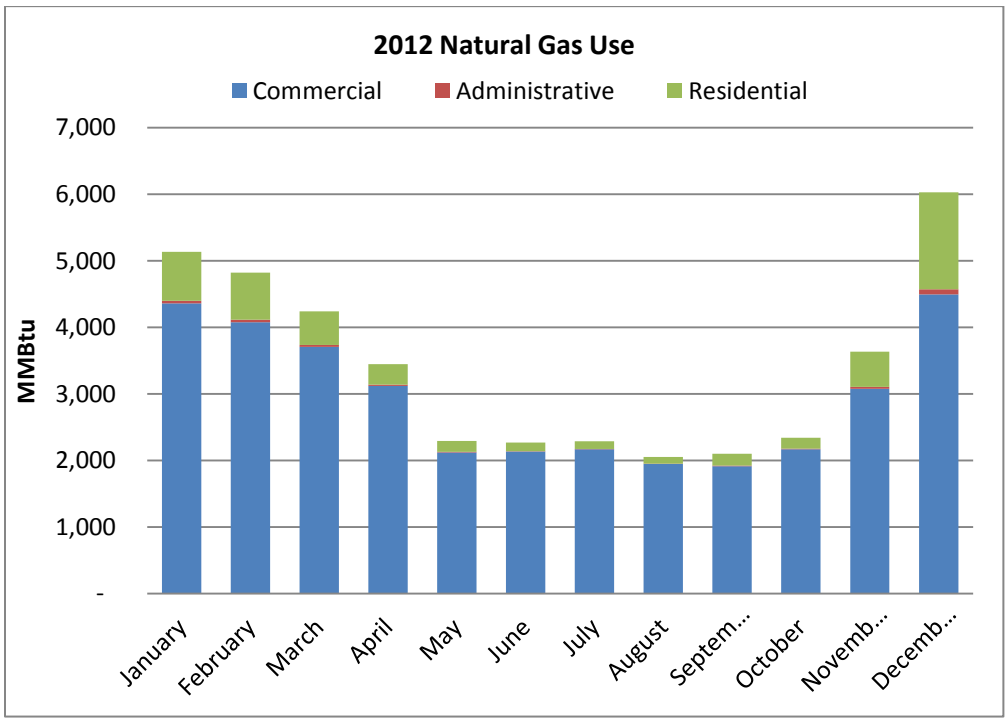
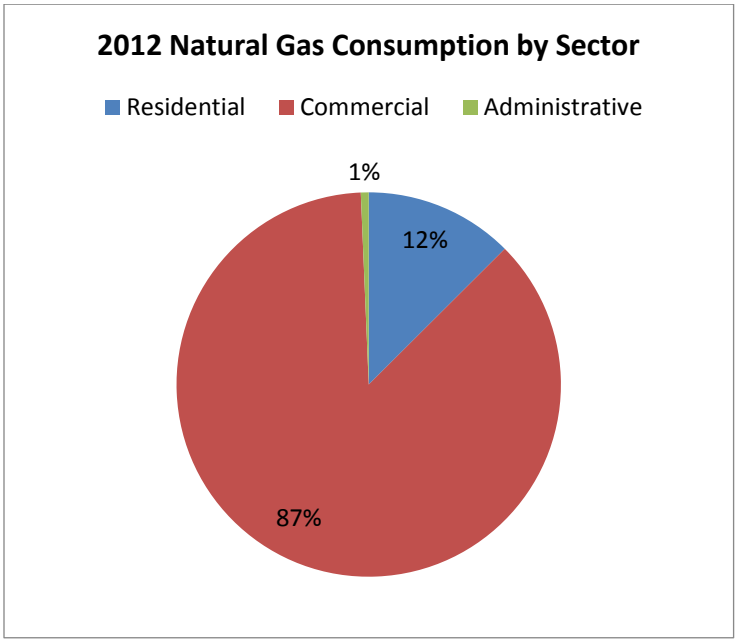


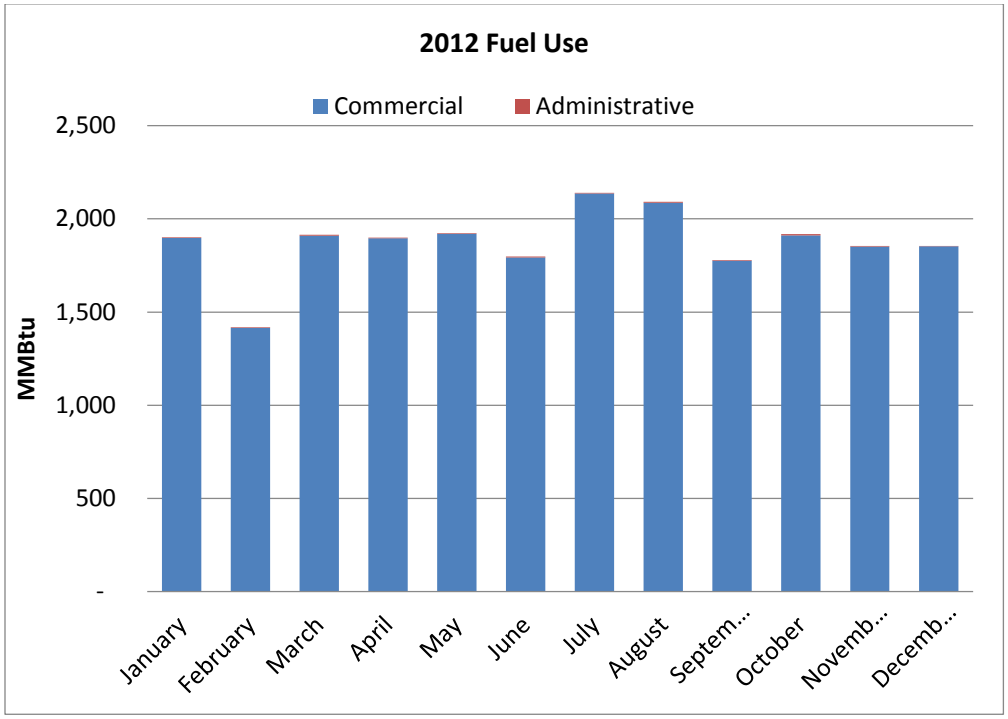
Figure 2.6. Natural Gas Use by Sector



Fuel

Fuel consumption for all SYBCI sources for which data was available totaled 161,816 gallons of diesel fuel and 410 gallons of gasoline (residential excluded). Commercial use accounted for nearly 100% of it. Figure 2.7 and show the distribution of the total fuel demand across commercial and administrative uses.

Figure 2.7. Distribution of Fuel Use



2.2.2 2012 energy use by user type

Commercial

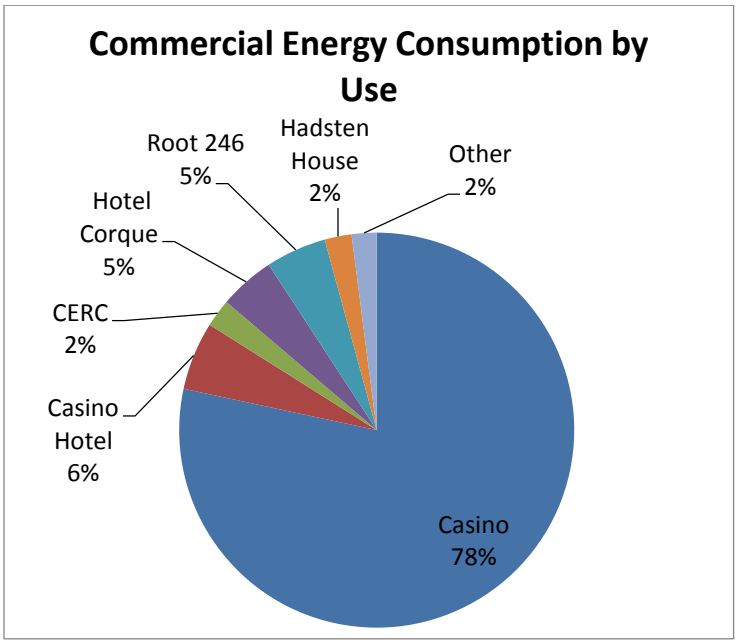
Total, monthly, and average commercial energy use and cost for the baseline year are summarized in

Table 4 and

Table 5 in Appendix C. The Chumash Casino Resort & Hotel accounted for 85% of total commercial electricity (kWh) and 73% of natural gas (therms). Commercial electricity is predominately used by the casino HVAC system and casino plug load, which account for 31% and 48% of total commercial electricity use, respectively.

Figure 2.8 below shows the breakdown of commercial energy consumption by user.

Figure 2.8. Commercial Energy Consumption by Use



Administrative

Total, monthly, and average administrative energy use and cost for the baseline year are summarized in

Table 6 and Table 7 in Appendix C. The Tribal Hall and Health Clinic accounted for 81% of total administrative electricity (kWh) and 92% of natural gas (therms). In addition, the solar panels on the Tribal Hall and Health Clinic generated 87,487 kWh of electricity.

Residential

The available residential data was aggregated annual natural gas use for 2012 and aggregated annual electricity use for 2009. The natural gas aggregation included only 76 residences, so this total was used to estimate a total for all 103 residences. Estimated residential natural gas use totaled 50,917 therms. Residential electricity use in 2009 was 766,559 kWh.

2.2.3 How SYBCI energy use measures up

In order to better understand SYBCI's energy use, it is important to know how its facilities measure up to similar facilities elsewhere. Energy Star's Portfolio Manager has a number of benchmarking tools and data trends that allow us to compare SYBCI's facilities against large samples of similar facility types.[2]

For example, the median hotel size in Energy Star's Portfolio Manager is 75,000 square feet and the median hotel uses, or has an energy use intensity (EUI) of, approximately 162 kBtu per square foot. The Casino Hotel is near the median hotel size at 80,000 square feet, however its energy use intensity is far lower than the median hotel use at only approximately 81 kBtu per square foot.[3] Table 1 below lists how the energy use of some SYBCI facilities measure up to the national median energy use intensity (EUI) for similar facility types.

Table 1. 2012 Energy Use Intensity (EUI): National Median v. SYBCI Facilities.

2012 Energy Use Intensity (EUI): National Median v. SYBCI Facilities		
Facility	**Energy Star Source EUI (kBtu/ft^2)**	**SYBCI Facility EUI (kBtu/ft^2)**
Administrative		
Health Clinic[4]	183	30
Tribal Hall[4]	148	31
Fire Station	154	79
Commercial		
Casino	85	379
Casino Hotel	162	81
CERC	148	181
Corque Hotel and Root 246	162	60

For the most part the EUIs of SYBCI facilities are much lower than the Energy Star Source EUIs. However, the Casino and CERC both exceed the national median EUI of similar facilities in Energy Star's Portfolio Manager. In the case of the Casino's EUI, it is likely that the reference data source used to calculate the

[2] Energy Star. (N.A.). Benchmark energy use. Retrieved from http://www.energystar.gov/buildings/about-us/how-can-we-help-you/benchmark-energy-use; fuel is not included.

[3] Energy Star Portfolio Manager. (2013). U.S. Energy Use Intensity by Property Type. Retrieved from https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf?9e49-7a8d

[4] Electricity usage for the Health Clinic and Tribal Hall is metered together. Each is billed for half of total, consequently, for the purpose of the EUI calculation, electricity use was split evenly between the two facilities. EUI does not include energy generated or used from solar panels.

Energy Star Source EUI is not a fair comparison because it includes a wide variety of entertainment facilities with very different energy demands; for example, the category includes zoos and nightclubs. As Energy Star continues to refine the EUI dataset, it may be useful in the future to analyze the Casino's EUI when the category only includes reference data from other Casinos. On the other hand, CERC has a greater EUI than the national median EUI for offices, which is a much more robust dataset than the Casino comparison, including nearly 60,000 office buildings across the country. In the case of CERC, it may be that there is room to improve energy use.

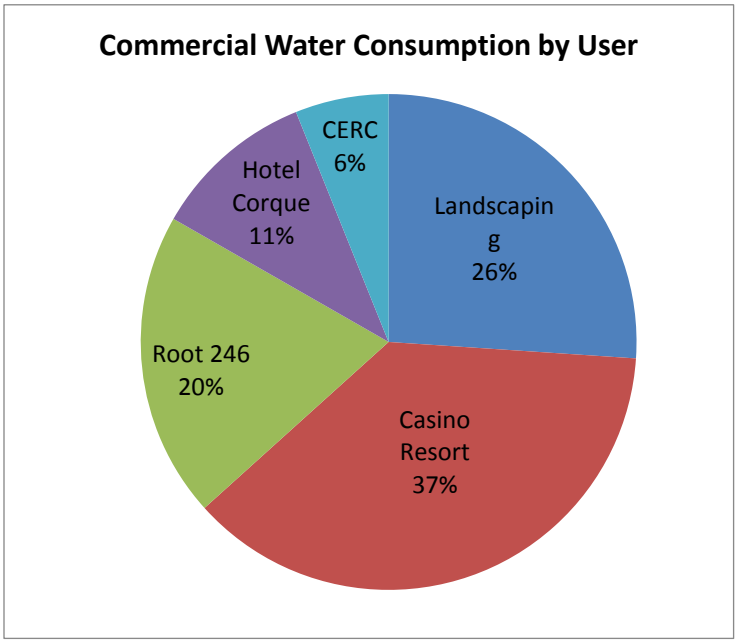
2.3 Baseline Water Use

Although water is not an energy source, water and energy consumption are closely related. Supplying, treating, and disposing of water requires energy and electricity generation typically requires water inputs. While many water conservation measures, such as the average high-efficiency clothes washer, will also reduce energy use, some measures may increase energy use, as with certain irrigation technologies. Because of this relationship, it is important to consider impacts to both water and energy use when choosing efficiency and conservation measures for implementation.

The baseline period over which water consumption was measured is January 2012 to December 2012 inclusive. This period was selected based on the completeness of data for the year 2012.The list of tribal facilities included in the baseline water consumption data is provided in Appendix A. The key findings for administrative and commercial water consumption for included facilities are summarized as:

- Total measured water consumption was 2,287,100 cubic feet at an annual cost of $142,777
- Administrative facilities accounted for 206,600 cubic feet and $12,274 of the total annual cost
- Water consumed by commercial facilities was 2,080,500 cubic feet and $130,504, accounting for 91% of total measured water consumption.

Figure 2.9. Commercial water consumption by facility.



3 Projected Energy Usage & Costs

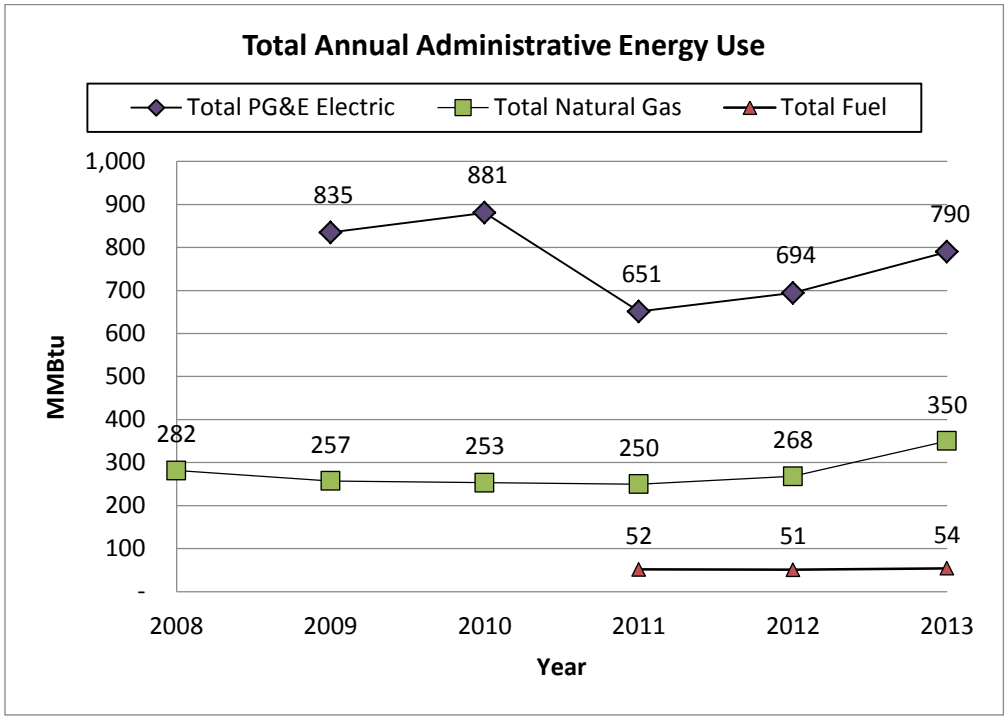
As the reservation expands and invests in new development or projects, energy demand is expected to increase. For example, at the end of 2012 a new Education Center opened and the tribe owns a number of properties, which may be used to expand the tribe's enterprises. However, the ongoing implementation of existing and new energy-saving projects will help offset increasing demand and potentially lead to decreased use of non-renewable energy sources and reduced costs.

3.1 Energy Trends

Administrative

Total annual administrative energy use is broken out by energy type in Figure 3.1 below. Administrative electricity use decreased 16% between 2009 and 2012, but rose 14% between 2012 and 2013. The greatest drop in electricity, 26%, occurred between 2010 and 2011. This decrease in grid electric consumption coincides with the installation of solar paneling in mid-2010. In 2012, the Education Center opened and electricity use at the Health Clinic's satellite office increased significantly, which explains the increase between 2011 and 2012. Natural gas consumption has remained relatively consistent over the last five years. Natural gas use decreased 5% between 2008 and 2012, but rose 31% between 2012 and 2013. Fuel also remained relatively consistent from 2011 to 2013, increasing only 5% over the period.

Figure 3.1. Total Annual Administrative Energy Use

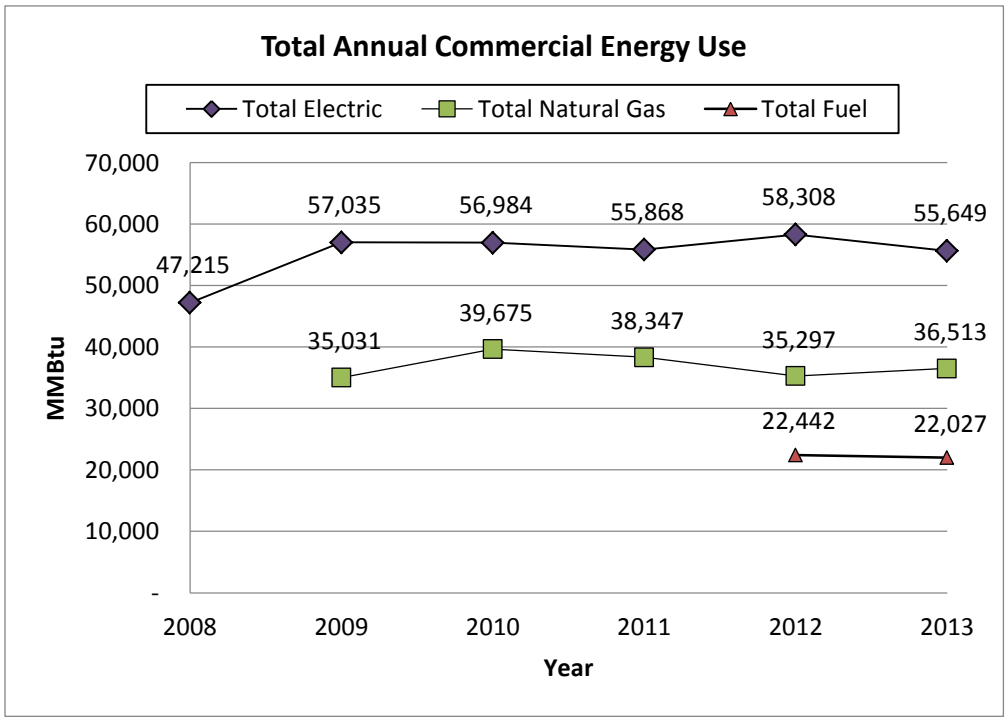


Commercial

Total annual commercial energy use is broken out by energy type in Figure 3.2 below. Commercial electricity use increased 23% between 2008 and 2012, but declined 5% between 2012 and 2013. Natural

gas consumption has remained relatively consistent over the last five years. Natural gas use increased 1% between 2009 and 2012, but rose 3% between 2012 and 2013. Fuel remained relatively consistent from 2012 to 2013, decreasing 2%.

Figure 3.2. Total Annual Commercial Energy Use



3.2 Anticipated Growth and Change

A number of potential developments could change the tribe's energy use. In June of 2014, the Interior Board of Indian Appeals (IBIA) ruled in favor of the SYBCI's application to put 6.9 acres just north of the

reservation into federal trust. The tribe is now pursuing its plans to build a new Chumash museum and cultural center there. In April of 2014, the tribe announced plans to expand the Chumash Casino Resort. The expansion project will be completed in May 2016. The nearly 1,400 acre Parker Property east of the Reservation is currently undeveloped open space, but the tribe has filed a fee-to-trust application in hopes that one day it may be used to provide housing, as current Reservation housing is limited. These developments have the potential to increase the energy demands of the tribe.

4 Energy Management Opportunities

The first section below provides a partial list of energy reduction initiatives already underway within the reservation's enterprises. The following three sections outline a range of potential opportunities in the areas of energy conservation and efficiency, clean energy, and energy management, while section 4.5 describes options that are likely to be most compatible with the SYBCI's overall goals, values, and resources. The SYCEO will continue to focus on evaluating and implementing energy options that have been identified as priorities by tribal decision makers including electric vehicle charging stations, home energy efficiency upgrades, and residential solar installations.

4.1 Previous and Ongoing Initiatives

4.1.1 SYCEO energy-related initiatives and accomplishments

The SYCEO manages five programs related to energy management. SYCEO is responsible for the energy initiatives undertaken on the administrative facilities listed in this plan, and also supports residential energy-related projects. The list below is a sample of major energy-related initiatives undertaken by the SYCEO in the past five years. The SYCEO will continue to expand these projects, which form a foundation for future energy reductions and improvements. Appendix B provides further explanations of select initiatives.

Training & Apprenticeships

- Formally trained approximately over 40 community members in various areas of energy efficiency and renewable energy for buildings, including solar installation through the Chumash Community Energy Program (CCEP), which offers local job training, certification, and paid apprenticeships in building performance and solar installation work.

Home and Building Upgrades/Green Building

- Installed a 56kW solar photovoltaic (PV) system on the Tribal Hall and Health Clinic roofs. The system is anticipated to offset 1,597 tons of greenhouse gas emissions (GHGs).
- Completed energy performance assessments of 24 tribal homes, energy upgrades of 6 homes, and installed solar PV on 15 homes through CCEP, which provides discounted energy efficiency retrofits and solar installations for tribal community homeowners.

Energy Planning

- Completed SYCEO Strategic Proposal.
- Initiated development of the SYBCI Strategic Energy Management Plan.
- Hired an Energy Management Intern.
- Obtained Santa Barbara County Green Business Certification for Tribal Hall in 2009 and in the renewal process.

Biofuel Program

- Produce an average of 480 gallons waste vegetable oil (WVO) per month (collect, process, and distribute used cooking oil from 5 Chumash-owned restaurants).
- Converted one Chumash fleet vehicle and facilitated the conversion of 4 additional vehicles to run on SYCEO waste vegetable oil.

Electric Vehicle (EV) Charging Stations

- Installed two electric vehicle charging stations at the tribal hall and Santa Maria employee parking lot.

4.1.2 Chumash Casino Resort sustainability initiatives

The Chumash Casino Resort explores sustainability initiatives independently and pursues opportunities that support the enterprises' goals. The Chumash Casino Resort has worked to maximize efficient energy and water use, reduce waste, and improve the appearance of the grounds through sustainable landscaping and has worked with the SYCEO to implement a biofuel program. The following is a list of measures the Chumash Casino Resort is taking to improve energy efficiency and reduce consumption:

Transportation

- Investigating acquisition of electric & hybrid fleet vehicles
- Installation of 2 electric vehicle charging stations
- Fleet of 15 vehicles including buses, shuttles, and vans for customers and employees; employee Shuttle saving 700,000 car trips annually

Buildings and Operations

- LED lighting throughout casino floor, restaurant, building perimeter, parking garage, landscaping and street lights (1,121 CFL and halogen fixtures replaced)
- CFL lighting installed throughout spa and hotel
- Occupancy sensors for bathrooms, offices, and other lighting
- Installation of Airblade Hand Dryers in restrooms eliminating use of over 18,000 paper towels annually
- Low flow toilets and shower heads
- LED televisions in lobby and casino floor
- Intelli-hood in kitchen controls ventilation fan speed to save energy and conditioned air

- Johnson Controls links all components of HVAC system to optimize energy and operational efficiencies
- Sage Metering System tracks gas usage for hot water
- Use of energy efficient and Energy Star appliances
- Solar thermal used for water heating
- Variable frequency drives (VFDs) improve efficiency of appliances such as chillers, condenser fans, boilers, air ventilation, and pool and hot tub pumps
- HVAC economizers use outside air to cool indoor
- Double walled insulation and reflective rooftop
- WWTP water reclaimed into toilets, irrigation, and chillers
- Heat recycling system captures waste heat from cooking appliances and distributes it for building or domestic water heating
- Collection of used kitchen oil to produce WVO fuel

4.2 Energy Conservation & Efficiency Opportunities

Energy conservation means saving energy by reducing or eliminating a particular use, while energy efficiency means delivering more services for the same energy input or delivering the same level of service using less energy. Below is a list of measures that the SYBCI could take to conserve energy and improve energy efficiency. Major efforts are larger in scale or require longer term planning, while minor efforts can be implemented more quickly or are behavioral changes.

Major efforts:

- Develop operation and maintenance practices that conserve energy and improve efficiency (e.g. putting computers to sleep at night)—Individual behavior changes could be minor, but implementing overall practices should be coordinated long term
- Upgrade existing buildings with efficient appliances (e.g. low flow fixtures, ENERGY STAR appliances), lighting (e.g. LEDs, CFLs), and higher levels of insulation
- Improve automatic heating and cooling systems
- Incorporate green building or LEED construction practices in new construction
- Increase public transportation opportunities
- Increase energy efficiency of and reduce consumption by the Tribe's vehicle fleet

Minor efforts:

- Use energy efficient lamps in street and parking lot lighting and traffic lights
- Install timers or occupancy censors on lighting systems and thermostats to reduce unnecessary use
- Use recycled materials; print double sided
- Conduct building energy audits for commercial buildings that have not yet been assessed

4.3 Renewable Energy Opportunities

Renewable energy, in contrast to non-renewable, fossil fuel energy, is derived from sources that are continually replenished on a human timescale. Such sources include solar, wind, tidal, geothermal, hydroelectricity, biofuels and bio mass energy. Below are potential opportunities for the SYBCI to take advantage of renewable energy.

- Expand use of solar power; increase solar panel coverage on homes and other buildings
- Investigate the feasibility of wind, hydro, biomass, and geothermal energy projects and implement where deemed applicable
- Expand coverage of the biofuel program to address community and fleet needs
- Investigate the use and sale of alternative fuels, including ethanol, biodiesel, electricity, etc. and implement where feasible
- Financial investing in renewable energy
- Use more solar-heated water

4.4 Administrative Energy Management Opportunities

Practicing sustainable energy use requires thoughtful and directed administration of both energy-specific program and routine operations. A few ideas for SYBCI to consider include:

- Improve energy data collection system and initiate regular analysis of energy use to identify systems operating at suboptimal levels, high-energy users, and areas for improvement
- Research and utilize comprehensive data management software to improve ease and efficiency of data storage, analysis, and reporting
- Continue to identify energy management representatives or champions throughout the community; facilitate discussion and collaboration among enterprises
- Increase community awareness of the need for sustainable energy use and provide education on sustainable energy practices
- Sub-meter certain facilities to increase data resolution and improve planning
- Develop maintenance and operations schedules that align with good energy management practices (e.g. running high-energy processes at off-peak hours)
- Encourage energy conservation and efficiency, as well as the use of renewable energy, through tribal policy and building codes (e.g. adopt community-wide sustainability standards)
- Increase employee training programs and opportunities

4.5 Preferred Options

Based on cost, effectiveness, and general feasibility of the above energy measures, the SYCEO has identified certain opportunities as preferred options for their operations, and expanded upon how they will be practiced on the reservation. These are outlined as follows:

1. ***Increase employee training programs and graduate employment opportunities***. A key feature of this initiative is to develop a renewable energy and energy efficiency services business that utilizes CCEP program graduates and serves the SYBCI Community, Santa Barbara County, and other tribes. Other training goals include providing more than 4,000 hours of paid energy

efficiency and renewable energy on-the-job training, as well as certification for 30-60 people. Providing education and training to the SYBCI community members will create advocates for energy efficiency and conservation. Providing energy efficiency and conservation training to SYBCI employees leads to energy savings and reduced costs as employees become aware of their energy use and change their behaviors.

2. ***Upgrade existing buildings***. Under this initiative, SYCEO would continue to conduct energy audits of homes and buildings to identify, and ultimately implement, potential energy-saving upgrades. These might include installing energy efficient appliances and lighting, as well as higher levels of insulation and weatherizing. The SYCEO's goal is to retrofit 25 tribal member homes and 4 commercial buildings with energy efficiency measures. In addition, by continuing to cultivate strong relationships with SYBCI utility providers, the SYCEO will closely track utility rebates for building upgrades. For example, the SYCEO was able to secure rebates that fully funded a lighting upgrade for Root 246 that will save over $18,000 annually. A lighting upgrade for Tribal Hall is currently in the process that could also result in major annual savings.
3. ***Establish policies and procedures for managing, analyzing, and reporting energy data.*** In order to effectively manage energy use across the reservation into the future, SYCEO must be able to easily access and utilize energy data. This will help identify consumption hotspots, opportunities for improvement, and also allow SYBCI to measure and market its energy successes. This energy management plan is a first step towards this goal and SYCEO has drafted a protocol for data management. A possible next step is to research and utilize comprehensive data management software that improves the ease and efficiency of data storage, analysis, and reporting. Data management is crucial to making the most of our investments in energy initiatives, and effective reporting will increase capacity for securing funding and recognition.
4. ***Expand coverage of the biofuel program to address community and fleet needs.*** The Chumash biofuel program currently collects, processes, and distributes about 480 gallons of waste vegetable oil (WVO) per month from 5 Chumash-owned restaurants. Waste vegetable oil is a local, renewable resource to fuel converted vehicles in place of diesel. It is substantially cheaper than diesel and the Chumash Biofuel Program can save participants $1,000s in fuel costs each year. Using waste oil as biofuel also saves on the environmental costs of disposal. Goals under this option include:
    - Regular operation of a Chumash Biofuel Station
    - Assist 1-2 community members with vehicle retrofits to run on WVO
    - Develop workshops to assist community members in purchasing, operating, and maintaining alternative fuel vehicles.
5. ***Install additional EV charging stations.*** The electric car market is growing and installing EV charging stations will allow SYBCI to continue to meet demand.
6. ***Increase solar PV coverage on houses and buildings, and utilize solar thermal.*** Solar photovoltaic (PV) systems convert sunlight into electricity, which makes solar electricity a renewable and much cleaner energy than electricity derived from a fossil fuel burning power plant. Solar thermal power also uses the sun as a clean, renewable energy source by using the

sun's energy to heat water and building spaces. Although there is an initial investment required to install solar energy systems, the reductions in utility bills can quickly pay back the investment. The SYCEO is implementing a "SolaRez" campaign to increase residential solar PV throughout the reservation. Group buying through the campaign will allow people to save an estimated 20% off of the market rate for solar panels and save more through SYCEO funded rebates.

5 Organizational Action & Implementation Plan

5.1 Commitments & Targets

The development of an Energy Strategy Team, composed of representatives from the Reservation's residential population, Facilities Department, Transportation Department, SYCEO, the Business Committee and other enterprises, would facilitate the adoption of cost-effective energy conservation and efficiency measures. The SYECO will continue to analyze preferred options and facilitate their adaptation where feasible, but recommends that an Energy Strategy Team be developed to meet annually and review energy-saving opportunities.

5.2 Action Plan

The SYCEO will release an Annual Tribal Energy Report, including annual energy use, costs, savings, initiatives and opportunities. The report will also cover annual energy savings and equate them to CO_2 equivalent reductions. Moving forward, systems for measuring fuel use in all Administrative Departments will also be developed to better track energy use. The SYCEO will also pursue methods to better account for Residential energy use.

5.3 Schedule

If an Energy Strategy Team is developed, its annual meeting will coincide with the release of the Annual Tribal Energy Report. In addition, this Strategic Energy Management Plan will be renewed at five-year intervals to better inform large-scale and comprehensive energy management.

5.4 Financing

The energy database will be updated and the Annual Tribal Energy Report completed under the SYCEO's operating budget. The SYCEO will continue to work closely with SYBCI's utility providers in order to identify utility rebates that support energy efficiency and conservation goals. The SYCEO will also continue to apply for grants that can support initiatives described in earlier sections.

5.5 Monitoring & Reporting

The tribe's energy management will continue to be monitored quarterly through the SYCEO's Energy Database and will be reported in the Annual Tribal Energy Report.

6 References

Energy Star. (N.A.). Benchmark energy use. Retrieved from http://www.energystar.gov/buildings/about-us/how-can-we-help-you/benchmark-energy-use

Energy Star Portfolio Manager. (2013). U.S. Energy Use Intensity by Property Type. Retrieved from https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf?9e49-7a8d

7 Appendix A: List of Facilities

Facility	Address	Square Footage	Grid Electric	PV Electric	Gas	Water	Fuel
Administrative							
Tribal Hall	100 Via Juana Lane, Santa Ynez, CA 93460	12,042	X	X	X	X	X
Health clinic	90 Via Juana Lane, Santa Ynez, CA 93460	12,243	X	X	X	X	
Education Center	163 Solares Circle, Santa Ynez, CA 93460	5,000	X		X	X	
Street lights	Service	N/A	X				
Satellite clinic location	680 Alamo Pintado Road, Solvang, CA 93463	1306	X				
Fire station	3300 E Highway 246, Santa Ynez CA 93460	480	X			X	
WWTP lift station	159 Kalawa Shaq, Santa Ynez, CA 93460	N/A	X				
Hydrants	90-100 Via Juana Lane, Santa Ynez, CA 93460	N/A				X	
Commercial							
Casino	3400 E Highway 246, Santa Ynez, CA 93460	180,000	X		X	X	X[5]
Casino Hotel	3400 E Highway 246, Santa Ynez, CA 93460	80,000	X		X	X	
CERC	585 McMurrary Road, Buellton, CA, 93427	14,609	X		X	X	
Corque Hotel	400 Alisal Road, Solvang, CA 93463	88,303[6]	X		X	X	
Root 246	420 Alisal Road, Solvang, CA 93463	See above[6]	X		X	X	
Hadsten House	1450 Mission Drive, Solvang, CA, 93463	N/A	X		X	X[7]	

[5] Fuel does not account for all Casino vehicles, but does include main transportation fleet and generator fuel.
[6] Square footage for Corque Hotel includes Root 246 square footage
[7] Data not included in the 2012 baseline

WWTP	3400 E Highway 246, Santa Ynez, CA 93460	4,643.4	X				
Purchasing trailer	25 Santa Cota Street, Santa Ynez, CA 93460	N/A	X				
Traffic controller	Service	N/A	X				
Street lights	Service	N/A	X				
Storage units	85-1/85-3 Los Padres Way, Buellton, CA 93427	N/A	X				
Santa Maria parking lot	1277 Fairway Drive, Santa Maria, CA 93455	N/A	X				
Landscaping	Various	N/A				X	
Unspecified gas account	Unspecified	N/A			X		
Gas Station[7]	3101 Mission Drive, Santa Ynez, CA 93460	2,500					

Appendix B: Descriptions of Select Current SYBCI Energy Projects

Chumash Community Energy Project

The SYCEO secured $500,000 from the EPA's Climate Showcase Communities Program for a Chumash Community Energy Efficiency, Conservation, and Renewable Energy Project. This innovative and comprehensive project will create jobs while reducing GHG emissions, energy consumption, and associated costs throughout the Tribal community. To achieve these benefits the Tribe will develop a job training program that will subsidize building performance assessments, energy efficiency retrofits, and solar installations on residential, commercial, and government buildings. In addition, this project will involve extensive outreach to educate community members about energy efficiency, conservation, and renewable energy opportunities and inform non-community members about the Chumash project and its benefits.

This project will incentivize building performance assessments, energy efficiency retrofits, and rooftop solar installations for tribal homes and commercial/governmental buildings by subsidizing the labor costs of apprentices and trainers performing the work. To date the SYCEO has performed building performance assessments for 18 homes and 6 commercial buildings, energy efficiency retrofits on 6 homes and 2commercial buildings, and solar installations on 15 homes (both on- and off reservation).

Waste Vegetable Oil Program

The Chumash biofuel program currently collects, processes, and distributes about 480 gallons of waste vegetable oil (WVO) per month from 5 Chumash-owned restaurants. Waste vegetable oil is a local, renewable resource to fuel converted vehicles in place of diesel. It is substantially cheaper than diesel (the SYCEO sells WVO for $2.50/gallon) and the Chumash Biofuel Program can save participants $1,000s in fuel costs each year depending on the price of diesel. Using waste oil as biofuel also saves on the environmental costs of disposal.

Solar Installation at Heath Clinic and Tribal Hall

In July 2010 the Tribe installed a 56kW solar photovoltaic (PV) system on the Tribal Hall and Health Clinic roofs with the help of several grants. The system generates 94,000 kWh of electricity annually, offsetting 39% of the two buildings' electricity demands.

Appendix C: Baseline Energy Tables

Table 2. 2012 Total Annual Reservation Energy Use

2012 Total Annual Reservation Energy Use											
	Natural Gas		Electric		Fuel			Total	% of Sector Total		
	Therms	MMBtu	kWh	MMBtu	Gas gal	Diesel gal	MMBtu	**MMBtu**	Gas	Electric	Fuel
Residential	50,917	5,092	766,559	2,616	NA	NA	NA	**7,707**	66%	34%	0%
Commercial	352,973	35,297	17,088,494	58,308	0	161,816	22,442	**116,048**	30%	50%	19%
Administrative	2,680	268	290,945	993	410	0	51	**1,312**	20%	76%	4%
Total	406,570	40,657	18,145,998	61,917	410	161,816	22,493	**125,067**	33%	50%	18%

Table 3. 2012 Total Annual Commercial and Administrative Energy Costs

2012 Total Annual Energy Costs							
	Natural Gas		Electric		Fuel		Total
		% of Total		% of Total		% of Total	
Commercial	$183,355	5%	$3,868,331	95%	$10,983	0%	**$4,062,668**
Administrative	$2,662	6%	$36,460	83%	$4,707	11%	**$43,829**
Total	$186,017	5%	$3,904,791	95%	$15,690	0%	**$4,106,497**

Table 4. Total Commercial 2012 Baseline Energy Usage

Total Commercial 2012 Baseline Energy Usage										
Month	**Electric (PGE)**		**Gas**		**Total Gas & Electric**	**Water**	**Fuel**			**Total Gas, Electric & Fuel**
	kWh	MMBtu	therms	MMBtu	**MMBtu**	cubic feet	Gas gal	Diesel gal	MMBtu	**MMBtu**
January	1,367,103	4,665	43,611	4,361	**9,026**	178,700	-	13,685	1,898	**10,924**
February	1,427,552	4,871	40,788	4,079	**8,950**	153,700	-	10,203	1,415	**10,365**
March	1,321,227	4,508	37,085	3,709	**8,217**	168,700	-	13,764	1,909	**10,126**
April	1,362,690	4,650	31,215	3,122	**7,771**	141,200	-	13,670	1,896	**9,667**
May	1,537,083	5,245	21,195	2,120	**7,364**	175,900	-	13,838	1,919	**9,283**
June	1,380,915	4,712	21,340	2,134	**6,846**	197,800	-	12,933	1,794	**8,639**
July	1,480,134	5,050	21,696	2,170	**7,220**	194,200	-	15,399	2,136	**9,356**
August	1,557,299	5,314	19,461	1,946	**7,260**	226,100	-	15,038	2,086	**9,345**
September	1,494,340	5,099	19,138	1,914	**7,013**	208,400	-	12,801	1,775	**8,788**
October	1,365,862	4,661	21,682	2,168	**6,829**	189,200	-	13,786	1,912	**8,741**
November	1,373,694	4,687	30,785	3,079	**7,766**	128,700	-	13,342	1,850	**9,616**
December	1,420,595	4,847	44,977	4,498	**9,345**	117,900	-	13,357	1,852	**11,197**
2012 Total	**17,088,494**	**58,308**	**352,973**	**35,297**	**93,606**	**2,080,500**	**-**	**161,816**	**22,442**	**116,048**
Average	1,424,041	4,859	29,414	2,941	**7,800**	173,375		13,485	1,870	**9,671**

Table 5.Total Commercial 2012 Baseline Energy Cost

Total Commercial 2012 Baseline Energy Cost					
Month	**Electric (PGE)**	**Gas**	**Fuel**	**Total**	**Water**
January	$ 259,731.32	$23,052.07	$-	**$ 282,783.39**	$ 10,935.24
February	$ 263,064.56	$19,287.27	$-	**$ 282,351.83**	$ 10,202.78
March	$ 250,295.92	$17,422.87	$-	**$ 267,718.79**	$ 10,313.99
April	$ 262,647.16	$14,132.94	$-	**$ 276,780.10**	$ 9,817.63
May	$ 356,176.39	$10,001.30	$-	**$ 366,177.69**	$ 10,988.00
June	$ 364,335.47	$11,517.63	$-	**$ 375,853.10**	$ 11,274.98
July	$ 392,376.65	$12,236.70	$ 6,305.42	**$ 410,918.77**	$ 11,435.63
August	$ 404,882.97	$11,155.20	$ 4,677.36	**$ 420,715.53**	$ 12,512.75
September	$ 392,618.11	$10,456.89	$-	**$ 403,075.00**	$ 11,963.92
October	$ 361,305.18	$11,693.22	$-	**$ 372,998.40**	$ 11,483.73
November	$ 301,801.08	$17,024.76	$-	**$ 318,825.84**	$ 9,598.58
December	$ 259,096.10	$25,373.79	$-	**$ 284,469.89**	$ 9,976.33
2012 Total	**$ 3,868,330.91**	**$183,354.64**	**$ 10,982.78**	**$ 4,062,668.33**	**$ 130,503.56**
Average	$ 322,360.91	$15,279.55	$915.23	**$ 338,555.69**	$ 10,875.30

Table 6. Total Administrative 2012 Baseline Energy Usage

Total Administrative 2012 Baseline Energy Usage: Part 1										
Month	**Electric (PGE)**		**Electric (DECK)**		**Total Electric**		**Solar %**	**Gas**		**Total Gas & Electric**
	kWh	MMBtu	kWh	MMBtu	kWh	MMBtu		therms	MMBtu	**MMBtu**
January	16,901	58	-	-	16,901	58	0%	388	39	**96**
February	17,388	59	-	-	17,388	59	0%	373	37	**97**
March	15,205	52	4,938	17	20,143	69	25%	267	27	**95**
April	13,704	47	9,988	34	23,692	81	42%	162	16	**97**
May	14,359	49	9,814	33	24,173	82	41%	88	9	**91**
June	12,226	42	11,080	38	23,306	80	48%	67	7	**86**
July	15,025	51	10,609	36	25,634	87	41%	59	6	**93**
August	18,355	63	10,932	37	29,287	100	37%	53	5	**105**
September	19,338	66	9,438	32	28,776	98	33%	94	9	**108**
October	19,100	65	8,285	28	27,385	93	30%	86	9	**102**
November	20,455	70	6,439	22	26,894	92	24%	278	28	**120**
December	21,402	73	5,963	20	27,365	93	22%	765	77	**170**
2012 Total	**203,458**	**694**	**87,487**	**299**	**290,945**	**993**	**30%**	**2,680**	**268**	**1,261**
Average	31,301	58	7,291	25	38,592	83	0	223	22	**105**

Total Administrative 2012 Baseline Energy Usage: Part 2				
Month	**Water**	**Fuel**		**Total Gas, Electric & Fuel**
	cubic feet	Gas gal	MMBtu	**MMBtu**
January	9700	20	3	**99**
February	7400	22	3	**99**
March	9600	40	5	**100**
April	6500	27	3	**100**
May	12200	29	4	**95**
June	30200	36	5	**91**
July	19500	36	5	**98**
August	24300	52	6	**112**
September	19100	30	4	**111**
October	23400	53	7	**109**
November	26500	41	5	**125**
December	18200	24	3	**173**
2012 Total	**206600**	**410**	**51**	**1312**
Average	17,217	34	4	**109**

Table 7. Total Administrative 2012 Baseline Energy Cost

Total Administrative 2012 Baseline Energy Cost					
Month	Electric (PGE)	Gas	Fuel	**Total**	Water
January	$2,523.82	$ 367.09	$ 229.50	**$ 3,120.41**	$789.97
February	$2,580.72	$ 334.93	$ 237.46	**$ 3,153.11**	$727.58
March	$2,269.69	$ 244.31	$ 425.14	**$ 2,939.14**	$787.26
April	$2,054.50	$ 155.48	$ 296.57	**$ 2,506.55**	$700.54
May	$2,745.19	$ 98.90	$ 323.79	**$ 3,167.88**	$857.72
June	$2,557.66	$ 87.01	$ 413.53	**$ 3,058.20**	$ 1,407.12
July	$3,150.04	$ 81.33	$ 436.45	**$ 3,667.82**	$ 1,117.15
August	$3,842.50	$75.64	$619.82	**$ 4,537.96**	$ 1,247.23
September	$4,024.81	$ 112.50	$ 347.82	**$ 4,485.13**	$ 1,044.71
October	$3,991.71	$ 104.75	$ 614.33	**$ 4,710.79**	$ 1,163.95
November	$3,564.40	$ 283.06	$ 478.97	**$ 4,326.43**	$ 1,393.49
December	$3,155.08	$ 716.92	$ 283.72	**$ 4,155.72**	$ 1,037.19
2012 Total	**$36,460.12**	**$ 2,661.92**	**$4,707.08**	$ 43,829.12	**$12,273.91**
Average	$5,609.25	$ 221.83	$ 392.26	**$ 3,652.43**	$ 1,022.83