Climate Action on Tribal Lands

Community-Driven • Capacity Building • Culturally Aware Risk Management

INTRODUCTION

Due to their status as sovereign nations, tribes have the freedom to implement their own laws and regulations that apply to their reservation lands. This independence will enable tribes to maintain and preserve their cultural and economic resources by enacting policies that are sensitive to their specific concerns. This project worked with the Santa Ynez Band of Chumash Indians (SYBCI) Environmental Office (EO) to assess the Tribe's impacts on, vulnerability to, and mitigation and adaptation strategies in response to climate change.

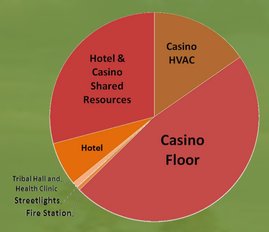
This project aimed to provide a foundation of action that the EO can utilize moving forward. As the project objectives took shape, a natural division became apparent and the project was divided into three sectors:

- Greenhouse Gas Management
- Resilience & Risk Assessment
- Community Outreach & Engagement

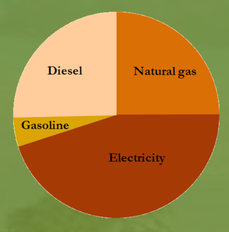
GREENHOUSE GAS MANAGEMENT

Carbon Footprint

A carbon footprint is a valuable tool for measuring and monitoring emissions and was an essential deliverable of this project. The footprint created as part of this project included on-reservation, commercial and government, Scope I and Scope II emissions for 2009. The data that was gathered for the footprint included natural gas, electricity, gasoline and diesel for the casino, hotel, tribal hall, health center, fire station and streetlights. The results of the footprint showed that the reservation produced nearly 8 million kg CO_2e in 2009. The largest contributor to the overall footprint was the casino floor while the largest source of emissions was electricity. Commercial emissions represented a far greater percentage of total emissions than that of the government.



Footprint Breakdown by Sector

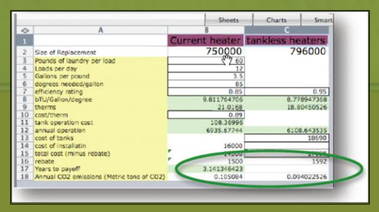


Footprint Breakdown by Source

Policy & Management Recommendations

Federally recognized American Indian tribes are advantageously positioned to address the complex problems of climate change through policy mechanisms, including:

- Adopting a climate change resolution
- Developing a building code that encourages increased energy efficiency standards
- Implementing the ISO 14000 environmental management system for the Tribe's commercial properties
- Joining ICLEI (International Council for Local Environmental Initiatives)-Local Governments for Sustainability to facilitate implementation of mitigation and adaptation efforts



	A	Current heater	tankless heaters
2	Size of Replacement	750000	796000
3	Pounds of laundry per load	7.60	
4	Loads per day	12	
5	Gallons per pound	3.5	
6	degrees needed/gallon	83	
7	efficiency rating	0.85	0.95
8	btU/Gallon/degree	9.81176705	8.779847368
9	therms	21.0168	18.80450526
10	cost/therm	0.09	
11	tank operation cost	108.39999	
12	annual operation	6935.67744	6108.643533
13	cost of tanks		1800
14	cost of installatin	16000	
15	total cost (minus rebate)	15500	16292
16	rebate	1500	1592
17	Years to payoff	3.104384623	
18	Annual CO2 emissions (Metric tons of CO2)	0.109084	0.094022526

A tool for the casino and resort to evaluate the economic impact of tankless water heaters for their laundry operations.

These action items were recommended by the project group for consideration by the Tribe. For the purpose of this project, recommendations were based on simple cost benefit analysis, case studies of other communities and projects, and the opinions of stakeholders.

Group Project Members

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Environ
California Air Resources Board
Chumash Casino & Resort Facilities Staff
Santa Ynez Chumash Environmental Office
Santa Ynez Band of Chumash Indians Elder's Council

RESILIENCE & RISK ASSESSMENT

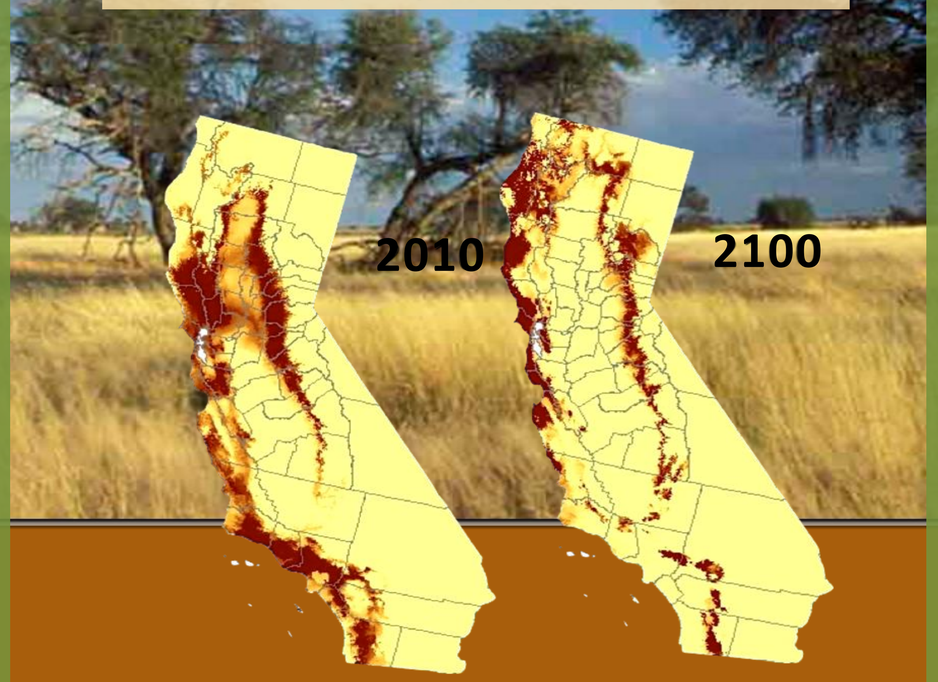
The resilience portion of the project was designed to raise awareness about climate change and potential adverse effects on the Tribe and reservation resources. None of the models, maps or assessments created in this project were meant to be predictive, especially at the local scale. Rather, the purpose of these deliverables was to shed light on the concerns that tribal members may have regarding climate change and its local and cultural impacts.

Economic Risk Assessment

The Tribe's energy costs are closely tied to outdoor temperatures. Increasing temperatures due to climate change and rising energy prices could therefore cause expenditures related to heating and cooling of buildings on the reservation to increase dramatically.

Images from left to right: (i) California State Parks: American Indian Cultural & Historical Sites (ii) A scenic river view reflecting much of the value of landscape

Any change in the agricultural scenery of the Santa Ynez Valley could lead to declines in tourism. If the presence of vineyards in the surrounding valley is altered due to climate change, the casino and resort may be affected. To explore this issue the casino should consider conducting a benefits transfer study. A cost benefit analysis that incorporates a travel cost method could also provide valuable insights for how to continue to attract guests from Los Angeles and San Diego. Innovative solutions could also be synergistic with greenhouse gas reduction goals.



Toyon Range across California for 2010 (left) and 2100 (right) with predicted warming temperatures

Cultural Risk Assessment

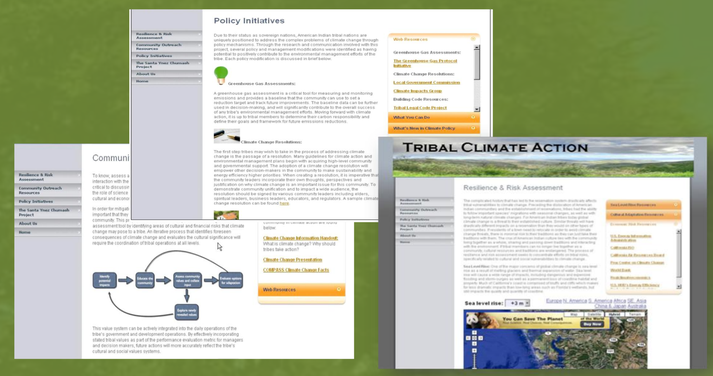
For this project, several modeling processes were used to illustrate the risks of climate change to the SYBCI. Specific culturally-important plants which still exist on the reservation today were chosen to be modeled. These plant species include toyon (*Heteromeles arbutifolia*), coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*) and coffee berry (*Rhamnus californica*). Under these altered conditions some species, such as toyon, no longer have viable habitat within the reservation.

One of the major concerns of global climate change is sea level rise which will have a wide range of impacts including dangerous and expensive flooding and storm-surges as well as a permanent loss of coastline habitat and property. Sea level rise was modeled for this project to see how changes in sea level could affect well-documented and state-managed culturally important sites across California such as Morro Bay and Elfin Forest.

COMMUNITY OUTREACH & ENGAGEMENT

In order for mitigation and adaption efforts to be successful and long lasting, it is important that they incorporate and reflect the values of the SYBCI. To know, assess and incorporate community values requires dialogue and interaction with the community at every level. The members of this project immediately recognized the need for community outreach to facilitate collaboration between the different branches of the tribal government and the community as a whole. Therefore, the group took every opportunity to engage the community in dialogue on climate change.

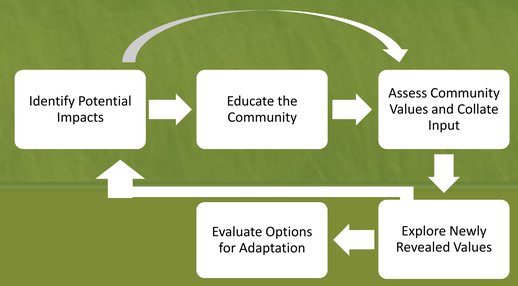
In addition to community outreach, this project recognized the importance of networking in sharing experiences among tribal communities. Several tribes have taken steps toward developing a climate action plan, and the lessons learned in each of these cases can help inform the process by which the SYBCI carries this project forward. There have also been significant partnerships made between universities and tribal communities. These partnerships provide opportunities for capacity building on tribal lands.



TribalClimateAction.org, an interactive website of resources, contacts, and information for tribal climate action.

Website

As a component of this project the group developed a website (www.tribalclimateaction.org) to share resources with Chumash community members, policymakers and other tribes and supporting organizations. This site will serve to consolidate and present the information gathered over the course of this project in a user-friendly manner. In gathering and sharing these tools and resources, it is our aim to provide the necessary information to involve the community in future mitigation and adaptation efforts made by the EO.



An iterative process for incorporating values into decision making

Value Assessment

An iterative process that identifies foreseen consequences of climate change and evaluates the cultural significance will require the coordination of tribal operations at all levels. This project has taken the first steps toward creating a value assessment tool by identifying areas of cultural and financial risks that climate change may pose to the Tribe. This value system can be actively integrated into the daily operations of the Tribe's government and development operations.

MOVING FORWARD

The Santa Ynez Band of Chumash Indians has recognized their contributions and vulnerability to climate change and is taking important actions toward developing a comprehensive strategy for climate change mitigation and adaptation. While efforts on such a small scale will not have a significant impact on the magnitude of climate change, community action can serve as force of positive change. This project has provided tools for the SYBCI to optimize their own operational efforts and to continue a long tradition of stewardship.